APPENDIX A

NOTICE OF PREPARATION AND SCOPING COMMENTS

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IRVINE UNIFIED SCHOOL DISTRICT
Facilities Planning and Construction Services Department
2015 Roosevelt, Irvine, California 92620 ● 949/936-8730 ● FAX 949/936-5329 ● www.iusd.org

NOTICE OF PREPARATION
OF A DRAFT ENVIRONMENTAL IMPACT REPORT

Lead Agency: Irvine Unified School District (IUSD)

Project Title: Northwood High School Field Lighting Improvement Project

Notice of Preparation Review Period: Wednesday, May 28, 2025 to Thursday, June 26, 2025 (30 days)

Scoping Meeting: Tuesday, June 3, 2025

NOTICE IS HEREBY GIVEN that the Irvine Unified School District (IUSD or District), as Lead Agency under the California Environmental Quality Act (CEQA), will prepare a Draft Environmental Impact Report (Draft EIR) for the Northwood High School Field Lighting Improvement Project pursuant to the California Public Resources Code (PRC), Division 13, Section 21000 et seq. (CEQA Statute) and the California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, Section 15000 et seq. (CEQA Guidelines).

The purpose of the Notice of Preparation is to (1) serve as a public notice of an EIR pursuant to the CEQA Guidelines Section 15082 that a Draft Environmental Impact Report (DEIR) will be prepared; (2) advise and solicit comments and suggestions regarding the scope and content of the DEIR to be prepared; and (3) provide notice of the public scoping meeting. The District, as Lead Agency, respectfully requests that any responsible and trustee agencies responding to this notice respond in a manner consistent with CEQA Guidelines Section 15082(b). Comments and suggestions should, at a minimum, identify the significant environmental issues, reasonable alternatives, and mitigation measures that should be explored in the EIR, in addition to whether the responding agency will be a responsible or trustee agency for the proposed project, and any related issues raised by interested parties.

In compliance with CEQA Guidelines Section 15060(d) and 15082, the District will not be preparing an initial study and will begin work directly on the Draft EIR.

PROJECT LOCATION: The Northwood HS campus is located at 4515 Portola Parkway (Assessor's Parcel Numbers [APNs] 527-151-02 and 527-151-03) in the City of Irvine, California. The Northwood High School Field Lighting Improvement Project would be developed within approximately 4.56 acres of the southern portion of the existing 43-acre high school campus (project site). The campus is bound by Twisted Oak to the north, Yale Avenue to the east, Portola Parkway to the south, and agricultural land to the west. Regional access to the Northwood HS is provided by California State Route 261 (CA-261), approximately 1 mile northwest of the campus (see Figure 1, *Regional Location*).

PROJECT DESCRIPTION: The proposed project would consist of the installation of four new athletic field lights and a Public Address (PA) system (proposed project). The proposed project may also consist of trenching for the installation of an electrical line to provide electricity for the four athletic field lights. Two light poles with athletic field lights would be located on

the northwest border of the track and field and two light poles with athletic field lights would be located on the southeast border of the track and field. Each stadium light pole would be approximately 70 feet in height, include 12 light fixtures, and have a load capacity of 66.64 kilowatts (kW).

The proposed project is anticipated to include the installation of a new permanent PA system, which would consist of four (4) speakers with one (1) speaker attached to each lighting pole. The speakers may be oriented towards the audience in the spectator areas (see Figure 2, *Conceptual Site Plan*).

The expansion of hardscaping would be limited to the installation of the athletic field light poles and installation of the power distribution equipment and lighting control equipment. No existing structures would be demolished and no new buildings would be constructed. No changes to the student capacity or number of staff would occur as a result of the proposed project. The proposed project would disturb approximately 1,500 square feet.

The proposed improvements at Northwood HS may be used for sporting events and practices, other school events, and non-school events. Sporting events and practices are anticipated to consist of tackle football, flag football, girls and boys soccer, girl's and boy's lacrosse, track and field, and band. The track and field may also be used for other school events, such as graduation and non-school events. The proposed event scheduling is contingent upon District operational needs and may be modified at the District's discretion.

POTENTIAL ENVIRONMENTAL EFFECTS: In accordance with Section 15082 of the CEQA Guidelines, the District has prepared this NOP to provide agencies, organizations, and interested parties with information describing the proposed project and its potential environmental effects. Consistent with Appendix G of the CEQA Guidelines, the following environmental topics may be analyzed in an EIR:

- Aesthetics
- Biological Resources
- Geology and Soils
- Hydrology and Water Quality
- Noise
- Recreation
- Utilities and Service Systems
- Agriculture and Forestry Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Land Use and Planning
- Population and Housing
- Transportation
- Wildfire
- Air Quality
- Energy
- Hazards and Hazardous Materials
- Mineral Resources
- Public Services
- Tribal Cultural Resources

The District has determined that the proposed project could potentially affect 10 of the 20 environmental topic areas identified in Appendix G. These 10 topical areas are aesthetics, air quality, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, transportation, tribal cultural resources, and utilities and service systems. These impacts will be analyzed in detail in the EIR. Feasible mitigation measures will be proposed for impacts that are determined to be potentially significant and reasonable alternatives will be considered. The proposed project is expected to have no impact on agricultural and forestry resources, biological resources, greenhouse gas emissions, land use and planning, mineral resources, population and housing, public services, recreation, and wildfire; therefore, the EIR will not present a detailed analysis of the project's impact on this topic.

PUBLIC REVIEW PERIOD: The 30-day public review period for the NOP is from **Wednesday, May 28, 2025** to **Thursday, June 26, 2025**. In accordance with the time limits mandated by State law, if there are any concerns about the scope

and content of the information to be addressed in EIR, please send written comments to the District, at the address below, at the earliest possible date but not later than 5:00 p.m. on **Thursday, June 26, 2025**. This NOP is also available at:

- Irvine Unified School District, Facilities Planning and Construction Services Department (address below)
- Irvine Unified School District website: https://iusd.org/business-services/facilities-planning-construction-services/bidder-information-public-notices

PUBLIC COMMENTS: Please send your comments to:

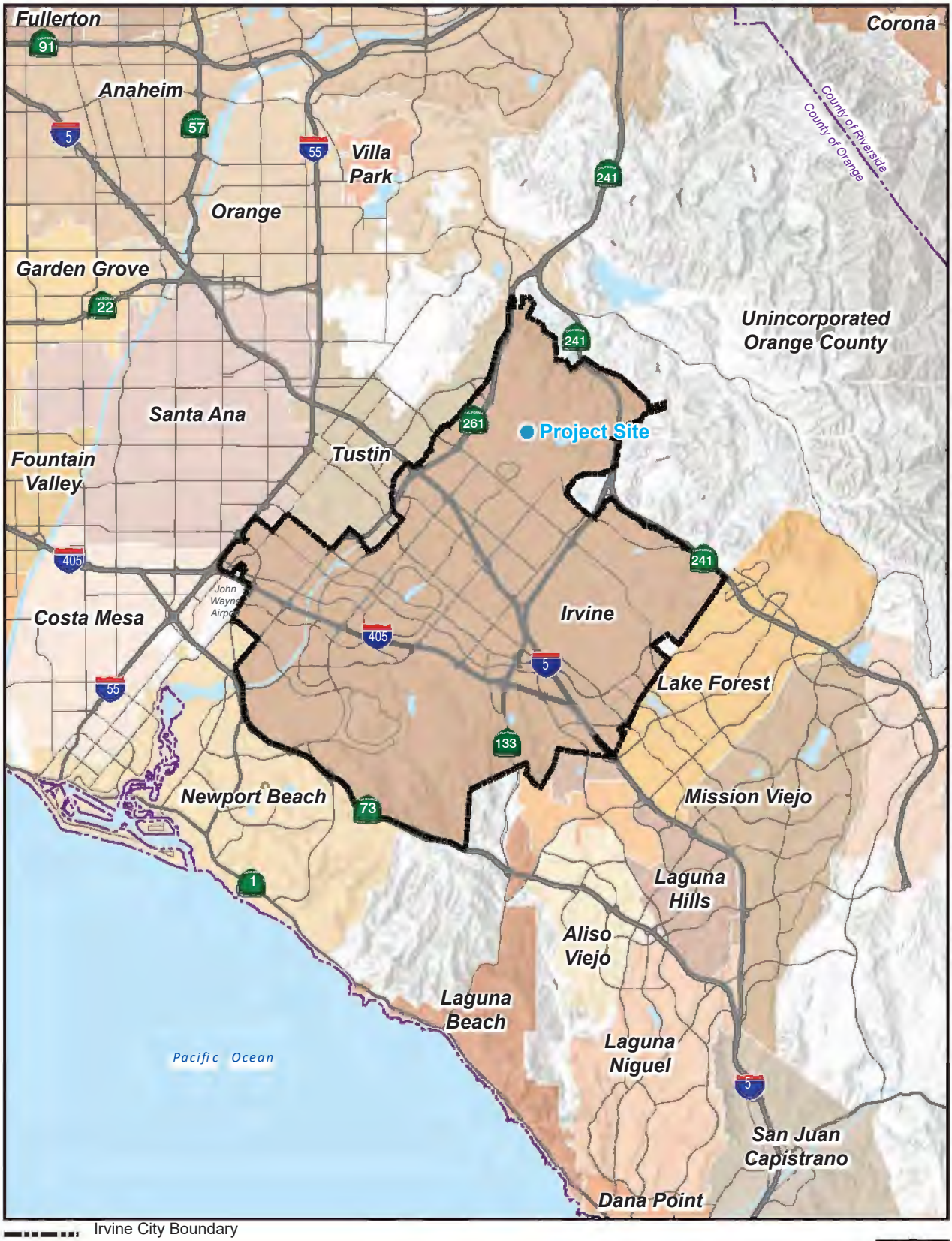
ATTN: Jesse Barron, Coordinator, Facilities Planning
Mailing Address: Irvine Unified School District
Facilities Planning and Construction Services Department
2015 Roosevelt, Irvine, CA 92620

Comments can also be sent via e-mail to jessebarron@iusd.org. Please include **"Northwood High School Field Lighting Improvement Project"** in the subject line. If you require additional information, please contact Jesse Barron at (949) 936-5316.

SCOPING MEETING: The District will hold a scoping meeting at 6:00 p.m., on **Tuesday, June 3, 2025**. The meeting will be held in-person at **4515 Portola Parkway, Irvine CA 92620, in the Northwood High School Theater**.

The purpose of the scoping meeting is to present the proposed project, describe the EIR process, and to receive public comments. The District invites interested parties to participate in the scoping meeting for the proposed project in order to learn more about the project, ask questions, and submit comments.

Figure 1 - Regional Location



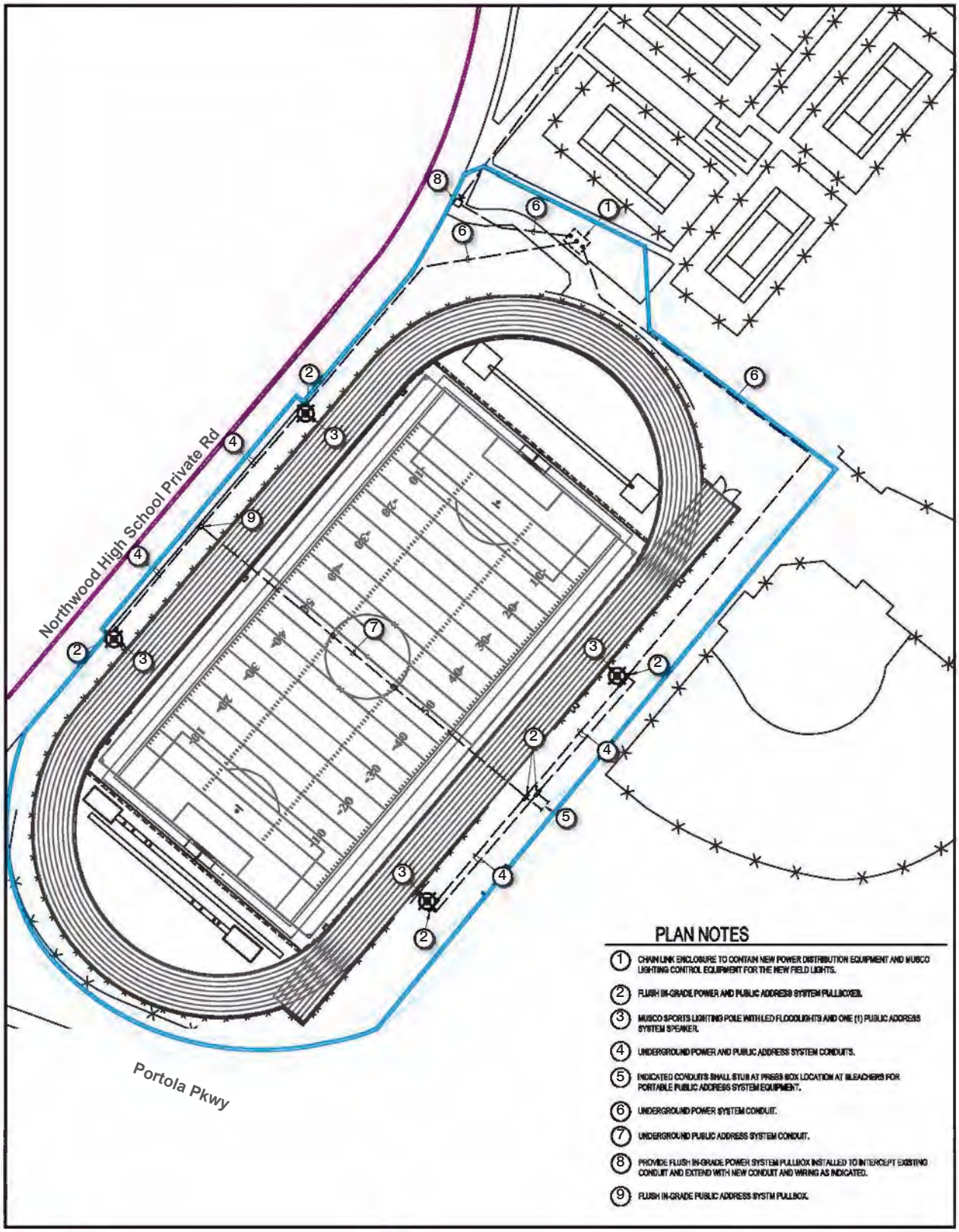
Irvine City Boundary

0 3
Scale (Miles)

Note: Unincorporated county areas are shown in white.
Source: Generated using ArcMap 2025.

PlaceWorks

Figure 2 - Conceptual Site Plan



Source: Ruhnau Clarke Architects 2025.

PlaceWorks

Department of Toxic Substances Control

Yana Garcia
Secretary for
Environmental Protection

Katherine M. Butler, MPH, Director
8800 Cal Center Drive
Sacramento, California 95826-3200
dtsc.ca.gov

Gavin Newsom
Governor

SENT VIA ELECTRONIC MAIL

June 4, 2025

Jesse Barron
Coordinator, Facilities Planning
Irvine Unified School District
2015 Roosevelt
Irvine, CA 92620
jessebarron@iusd.org

RE: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR NORTHWOOD HIGH SCHOOL FIELD LIGHTING IMPROVEMENT PROJECT DATED MAY 30, 2025, STATE CLEARINGHOUSE NUMBER 2025051426

Dear Jesse Barron,

The Department of Toxic Substances Control (DTSC) reviewed the Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for Northwood High School Field Lighting Improvement Project (Project). The proposed Project includes the installation of four new athletic field lights around the existing football field, installation of a new Public Address system, installation of an electrical line to provide electricity for the four athletic field lights. The Project is anticipated to disturb approximately 1,500 square feet and would not require the demolition of any existing structures or propose any new construction on the campus. DTSC recommends and requests consideration of the following comments:

1. If the district plans to use California Department of Education (CDE) State funds for the Project, then the district shall comply with the requirements of Education Code (EDC), §17210, §17213.1, and §17213.2, unless otherwise specifically exempted under section §17268. If the district is not using CDE

State funds for the Project, or is otherwise specifically exempt under section §17268, DTSC recommends the district continue to investigate, clean up the Site under the oversight of Orange County and in concurrence with all applicable DTSC guidance documents, if necessary. For more information on the CDE State funding, please visit the Office of Public-School Construction webpage. A local education agency may also voluntarily request the CDE site/plan approval for locally funded site acquisitions and new construction projects. In these cases, CDE will require DTSC to review and approve prior to its final approval, except when exempt under section 17268.

2. DTSC recommends that all imported soil and fill material should be tested to assess any contaminants of concern meet screening levels as outlined in DTSC's PEA Guidance Manual. Additionally, DTSC advises referencing the DTSC Information Advisory Clean Imported Fill Material Fact Sheet if importing fill is necessary. To minimize the possibility of introducing contaminated soil and fill material there should be documentation of the origins of the soil or fill material and, if applicable, sampling be conducted to ensure that the imported soil and fill material are suitable for the intended land use. The soil sampling should include analysis based on the source of the fill and knowledge of prior land use. Additional information can be found by visiting DTSC's Human and Ecological Risk Office (HERO) webpage.

DTSC appreciates the opportunity to comment on the NOP of a DEIR for Northwood High School Field Lighting Improvement Project. If you would like to proceed with DTSC's school environmental review process, please visit DTSC's Evaluating & Clean-up School 3-Step Process to begin a Phase I Environmental Site Assessment. If you have any questions or would like clarification on DTSC's comments, please respond to this letter or via our CEQA Review email for additional guidance.

Sincerely,

Tamara Purvis
Associate Environmental Planner
HWMP - Permitting Division – CEQA Unit
Department of Toxic Substances Control
Tamara.Purvis@dtsc.ca.gov

cc: (via email)

Governor's Office of Land Use and Climate Innovation
State Clearinghouse
State.Clearinghouse@opr.ca.gov

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NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

June 3, 2025

Kelvin Okino
Irvine Unified School District
2015 Roosevelt
Irvine CA 92620

Re: 2025051426 Northwood High School Field Lighting Improvement Project, Orange County

Dear Mr. Okino:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

a. A brief description of the project.

b. The lead agency contact information.

c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).

d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

a. Alternatives to the project.

b. Recommended mitigation measures.

c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

a. Type of environmental review necessary.

b. Significance of the tribal cultural resources.

c. Significance of the project's impacts on tribal cultural resources.

d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

a. Whether the proposed project has a significant impact on an identified tribal cultural resource.

b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on o tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures ogreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring ond reporting program, if determined to avoid or lessen the impact pursuant to Public Resaurces Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures ot the conclusion of consultotion, or if consultation does not occur, and if substantial evidence demonstrates that a project will couse a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Exomples of Mitigotion Meosures That, If Feasible, Moy Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources ond protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (https://ohp.parks.ca.gov/?page_id=30331) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidonce, preservation in place, or, failing bath, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resaurces) does not preclude their subsurface existence.

   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeolagical resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

   b. Lead agencies should include in their mitigation and monitoring reporting pragram plans provisions for the disposition of recovered cultural items that are nat burial associated in consultatian with culturally affiliated Native Americans.

   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Cade Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@NAHC.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

cc: State Clearinghouse

APPENDIX B

MUSCO LIGHTING PLANS

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Northwood High School
Irvine, CA

Lighting System

Pole/Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
F1-F4	70'	70'	9	TLC-LED-1500	12.69 kW	A
		60'	2	TLC-LED-1500	2.82 kW	B
		16'	2	TLC-BT-575	1.15 kW	A
4			**52**		**66.64 kW**	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Football	55.36 kW	44
B	Egress	11.28 kW	8

Fixture Type Summary

Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	8
TLC-LED-1500	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	44

Single Luminaire Amperage Draw Chart

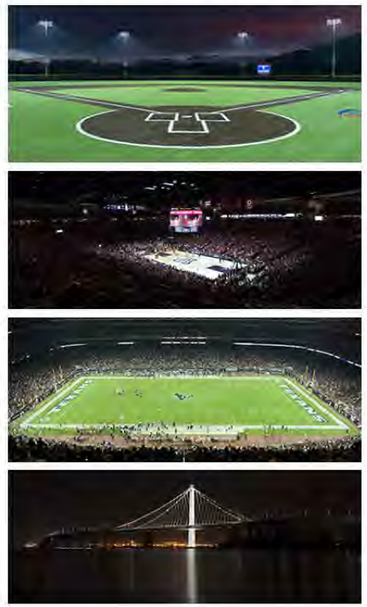
Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
150' Spill	Horizontal Illuminance	0.0141	0.00	0.03	21.583	8.998	A,B	52
150' Spill	Max Candela Metric	2768.5388	508.85	7229.65	14.208	5.441	A,B	52
150' Spill	Max Vertical Illuminance Metric	0.0577	0.01	0.13	13.758	5.955	A,B	52
Blanket Grid	Horizontal	20.61	0	78	23139.35	6145.97	A,B	52
Egress	Horizontal Illuminance	9.23	2	19	11.51	5.56	B	8
Football	Horizontal Illuminance	52.03	45	57	1.26	1.15	A	44
Property +20'	Horizontal Illuminance	0.0652	0.00	0.21	360.760	111.388	B,A	52
Property +20'	Max Candela Metric	8323.3936	225.24	21492.90	95.422	36.953	B,A	52
Property +20'	Max Vertical Illuminance Metric	0.2648	0.00	0.80	268.104	88.288	B,A	52
Soccer	Horizontal Illuminance	52.34	44	58	1.31	1.18	A	44
Track	Horizontal Illuminance	30.55	4	55	14.17	7.88	A	44

From Hometown to Professional



Northwood High School

Irvine, CA

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	70'	-	70'	TLC-LED-1500	9	9	0
				60'	TLC-LED-1500	2	0	2
				15.5'	TLC-BT-575	2	2	0
4	Totals					52	44	8

*Above Grade level relative to the field

Grid Summary

Name	**Football**
Size	360' x 160'
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Guaranteed Average	**50**
Scan Average	52.03
Maximum	57
Minimum	45
Avg/Min	1.15
Guaranteed Max/Min	**2**
Max/Min	1.26
UG (adjacent pts)	1.13
CU	0.48
No. of Points	72
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	**44**
Total Load	55.36 kW

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

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

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

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

SCALE IN FEET 1 : 50

0' 50' 100'

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

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Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	70'	-	70'	TLC-LED-1500	9	9	0
				60'	TLC-LED-1500	2	0	2
				15.5'	TLC-BT-575	2	2	0
4	Totals					52	44	8

*Above Grade level relative to the field

SCALE IN FEET 1 : 50

0' 50' 100'

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

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Grid Summary

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

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average	**30.55**
Maximum	55
Minimum	4
Avg/Min	7.88
Max/Min	**14.17**
UG (adjacent pts)	0.00
CU	0.18
No. of Points	46
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	**44**
Total Load	55.36 kW

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

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

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

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

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Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	70'	-	70'	TLC-LED-1500	9	9	0
				60'	TLC-LED-1500	2	0	2
				15.5'	TLC-BT-575	2	2	0
4	Totals					52	44	8

*Above Grade level relative to the field

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Grid Summary

Name	**Soccer**
Size	330' x 195'
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Guaranteed Average	**50**
Scan Average	52.34
Maximum	58
Minimum	44
Avg/Min	1.18
Guaranteed Max/Min	**2**
Max/Min	1.31
UG (adjacent pts)	1.13
CU	0.56
No. of Points	84
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	**44**
Total Load	55.36 kW

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

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

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

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

SCALE IN FEET 1 : 50

0' 50' 100'

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

Northwood High School

Irvine, CA

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	70'	-	70'	TLC-LED-1500	9	0	9
				60'	TLC-LED-1500	2	2	0
				15.5'	TLC-BT-575	2	0	2
4	Totals					52	8	44

*Above Grade level relative to the field

SCALE IN FEET 1 : 40

0' 40' 80'

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

Grid Summary

Name	**Egress**
Size	460' x 295'
Spacing	10.0' x 10.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average	**9.23**
Maximum	19
Minimum	2
Avg/Min	5.56
Max/Min	**11.51**
UG (adjacent pts)	1.78
CU	0.90
No. of Points	1380
LUMINAIRE INFORMATION	
Applied Circuits	B
No. of Luminaires	**8**
Total Load	11.28 kW

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

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

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

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

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Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	70'	-	70'	TLC-LED-1500	9	9	0
				60'	TLC-LED-1500	2	2	0
				15.5'	TLC-BT-575	2	2	0
4	Totals					52	52	0

*Above Grade level relative to the field

Grid Summary

Name	**Blanket Grid**
Spacing	10.0' x 10.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average	**20.61**
Maximum	78
Minimum	0
Avg/Min	6145.97
Max/Min	**23139.35**
UG (adjacent pts)	4.66
CU	0.94
No. of Points	3850
LUMINAIRE INFORMATION	
Applied Circuits	A,B
No. of Luminaires	**52**
Total Load	66.64 kW

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

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

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

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

SCALE IN FEET 1 : 80

0' 80' 160'

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

Northwood High School

Irvine, CA

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	70'	-	70'	TLC-LED-1500	9	9	0
				60'	TLC-LED-1500	2	2	0
				15.5'	TLC-BT-575	2	2	0
4	Totals					52	52	0

*Above Grade level relative to the field

Grid Summary

Name	**150' Spill**
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average	**0.0141**
Maximum	0.03
Minimum	0.00
CU	0.00
No. of Points	82
LUMINAIRE INFORMATION	
Applied Circuits	A,B
No. of Luminaires	**52**
Total Load	66.64 kW

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

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

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

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

SCALE IN FEET 1 : 80

0' 80' 160'

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

Northwood High School

Irvine, CA

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	70'	-	70'	TLC-LED-1500	9	9	0
				60'	TLC-LED-1500	2	2	0
				15.5'	TLC-BT-575	2	2	0
4	Totals					52	52	0

*Above Grade level relative to the field

Grid Summary

Name	**150' Spill**
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED MAX VERTICAL FOOTCANDLES
	Entire Grid
Scan Average	**0.0577**
Maximum	0.13
Minimum	0.01
CU	0.00
No. of Points	82
LUMINAIRE INFORMATION	
Applied Circuits	A,B
No. of Luminaires	**52**
Total Load	66.64 kW

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

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

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

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

SCALE IN FEET 1 : 80

0' 80' 160'

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

Northwood High School

Irvine, CA

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	70'	-	70'	TLC-LED-1500	9	9	0
				60'	TLC-LED-1500	2	2	0
				15.5'	TLC-BT-575	2	2	0
4	Totals					52	52	0

*Above Grade level relative to the field

Grid Summary

Name	**150' Spill**
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED CANDELA (PER FIXTURE)
	Entire Grid
Scan Average	**2768.5388**
Maximum	7229.65
Minimum	508.85
CU	0.00
No. of Points	82
LUMINAIRE INFORMATION	
Applied Circuits	A,B
No. of Luminaires	**52**
Total Load	66.64 kW

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

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

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

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

SCALE IN FEET 1 : 80

0' 80' 160'

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

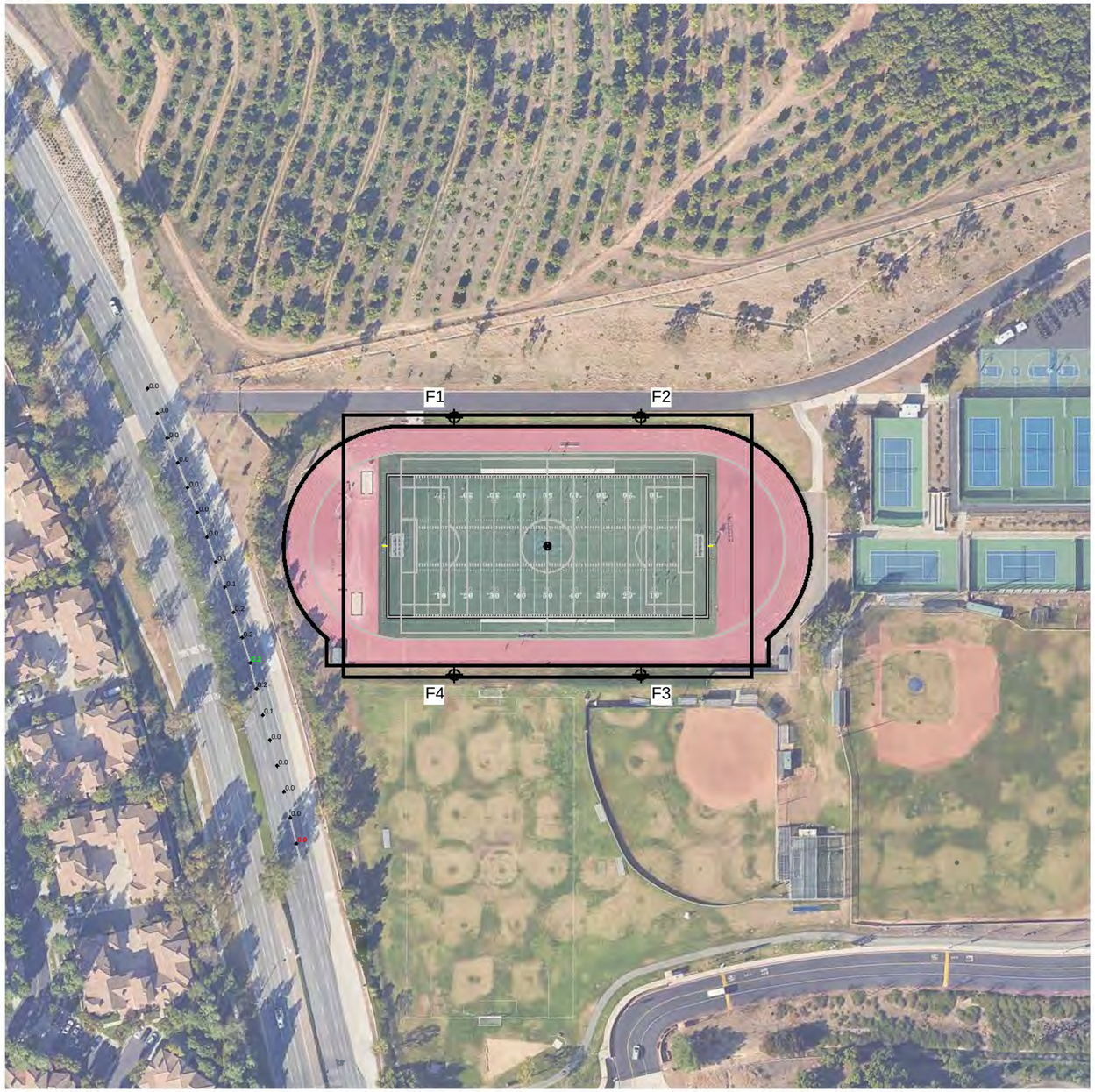
Northwood High School

Irvine, CA

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	70'	-	70'	TLC-LED-1500	9	9	0
				60'	TLC-LED-1500	2	2	0
				15.5'	TLC-BT-575	2	2	0
4	Totals					52	52	0

*Above Grade level relative to the field



Grid Summary

Name	**Property +20'**
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average	**0.0652**
Maximum	0.21
Minimum	0.00
CU	0.00
No. of Points	19
LUMINAIRE INFORMATION	
Applied Circuits	B,A
No. of Luminaires	**52**
Total Load	66.64 kW

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

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

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

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

SCALE IN FEET 1 : 150

0' 150' 300'

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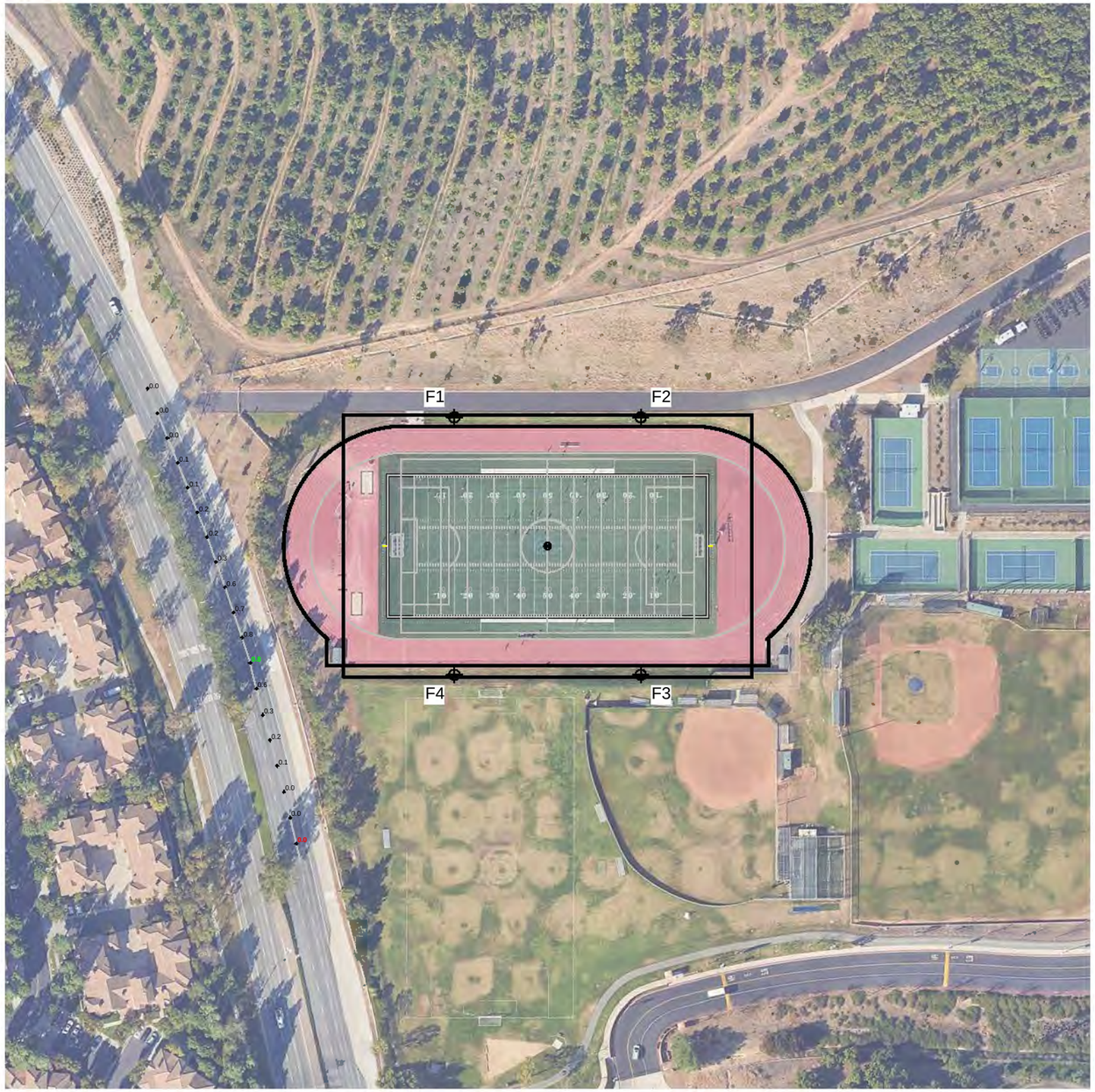
Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	70'	-	70'	TLC-LED-1500	9	9	0
				60'	TLC-LED-1500	2	2	0
				15.5'	TLC-BT-575	2	2	0
4	Totals					52	52	0

*Above Grade level relative to the field



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Irvine, CA

Grid Summary

Name	**Property +20'**
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED MAX VERTICAL FOOTCANDLES
	Entire Grid
Scan Average	**0.2648**
Maximum	0.80
Minimum	0.00
CU	0.00
No. of Points	19
LUMINAIRE INFORMATION	
Applied Circuits	B,A
No. of Luminaires	**52**
Total Load	66.64 kW

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

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

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

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

SCALE IN FEET 1 : 150

0' 150' 300'

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

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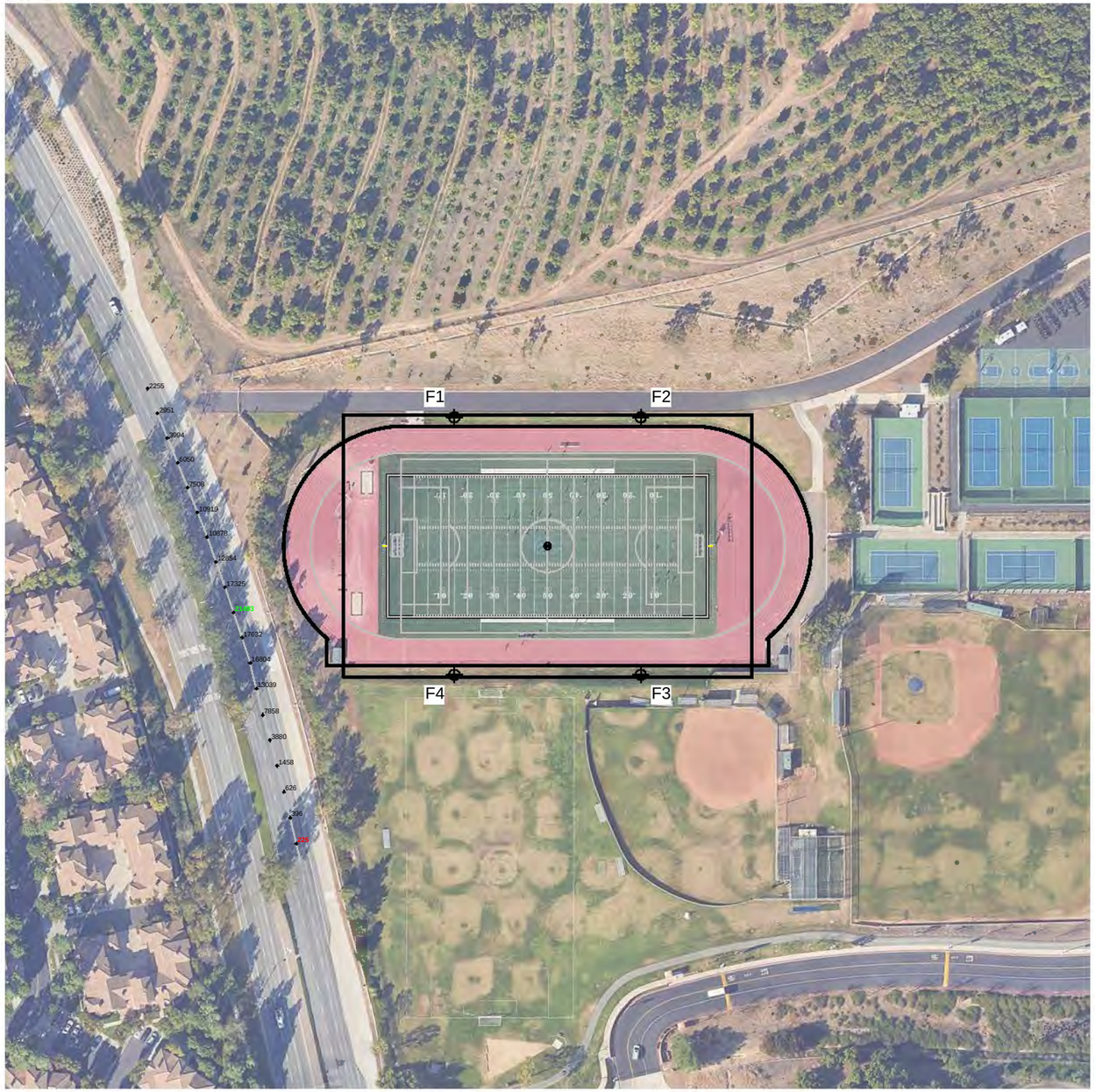
Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	70'	-	70'	TLC-LED-1500	9	9	0
				60'	TLC-LED-1500	2	2	0
				15.5'	TLC-BT-575	2	2	0
4	Totals					52	52	0

*Above Grade level relative to the field



Northwood High School

Irvine, CA

Grid Summary

Name	**Property +20'**
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED CANDELA (PER FIXTURE)
	Entire Grid
Scan Average	**8323.3936**
Maximum	21492.90
Minimum	225.24
CU	0.00
No. of Points	19
LUMINAIRE INFORMATION	
Applied Circuits	B,A
No. of Luminaires	**52**
Total Load	66.64 kW

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

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

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

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

SCALE IN FEET 1 : 150

0' 150' 300'

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

Northwood High School

Irvine, CA

Equipment Layout

INCLUDES:
· Egress
· Football
· Soccer
· Track

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

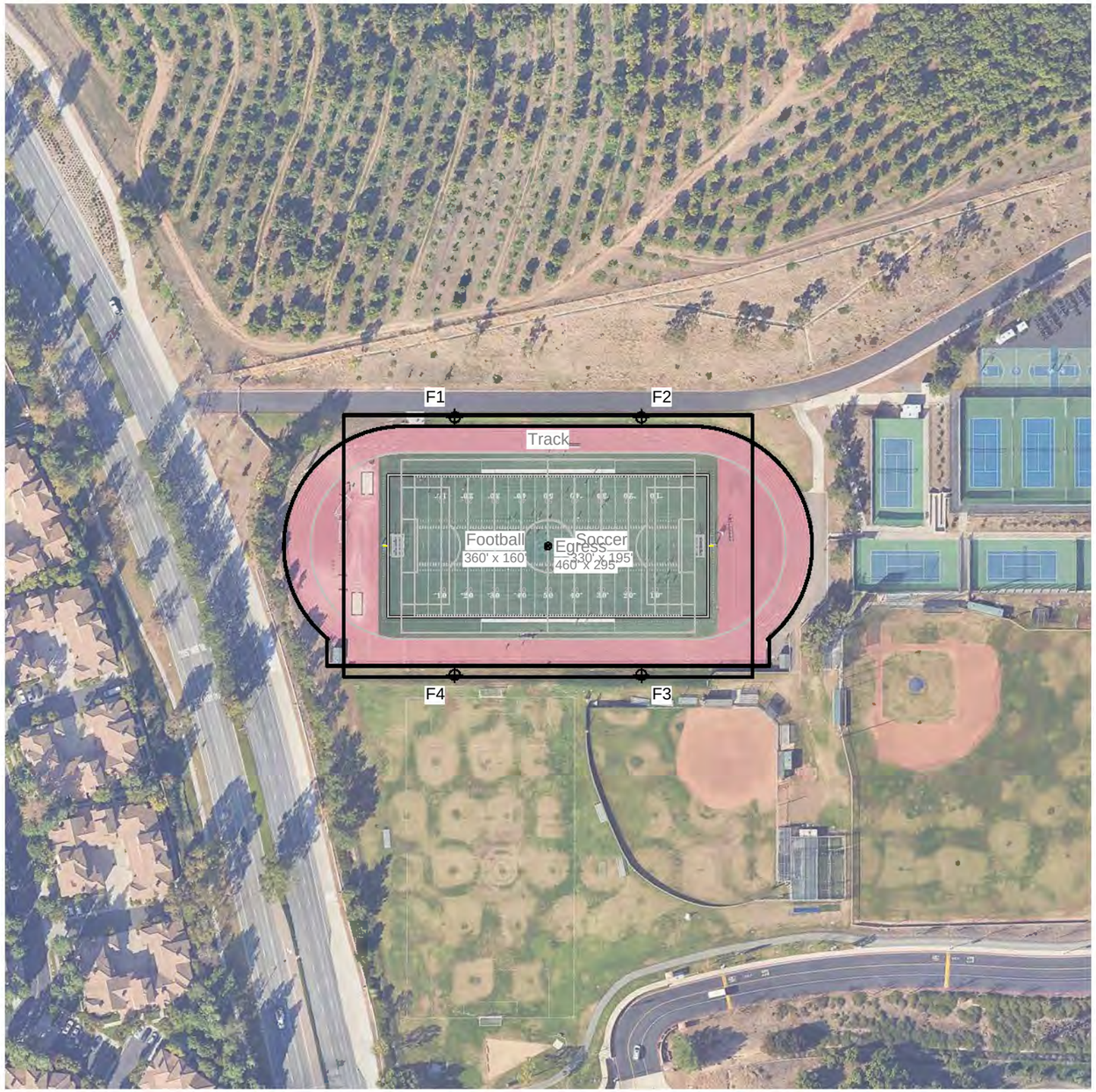
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Equipment List For Areas Shown

		Pole		Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE
4	F1-F4	70'	-	70'	TLC-LED-1500	9
				60'	TLC-LED-1500	2
				15.5'	TLC-BT-575	2
4	Totals					52

Single Luminaire Amperage Draw Chart

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



SCALE IN FEET 1 : 150

0' 150' 300'

ENGINEERED DESIGN By: D.Palmer • File #238922A • 05-Sep-24

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

APPENDIX C

AIR QUALITY AND GREENHOUSE GAS EMISSIONS ANALYSIS

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CalEEMod Inputs

CalEEMod Inputs- Northwood HS Field Lighting Project, Construction

Name:	Northwood HS Field Lighting Project, Construction
Project Number:	ISD-39
Project Location:	4515 Portola Pkwy, Irvine, CA 92620
County:	South Coast
Climate Zone:	8
Land Use Setting:	Urban
Gas Utility Company:	Southern California Gas
Electric Utility Company:	Southern California Edison
Air Basin:	South Coast Air Basin
Air District:	South Coast AQMD
SRA:	19 - Saddleback Valley

Project Site Acreage	43.00
Disturbed Site Acreage	0.03

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet	Landscaped Area
Parking	Other Non-Asphalt Surfaces	1.50	1000 SQFT	0.03	NA	NA
				0.03		

Notes:

[1] Acreage accounts for installation of 4 lighting poles and trenching area.

Soil Haul

Construction Activities	Volume (CY)[1]	Haul Truck Capacity (CY)[2]	Haul Distance (miles)[2]	Total Trip Ends	Duration (days)	Trip Ends per Day
Site Preparation Export	500	16	20	63	1	63

Notes:

[1] Based on District information.

[2] CalEEMod default used.

Construction Mitigation

SCAQMD Rule 403

Water Unpaved Roads	Frequency:	2	per day
	PM10:	55	% Reduction
	PM25:	55	% Reduction
Water Exposed Area	Frequency:	2	per day
	PM10:	61	% Reduction
	PM25:	61	% Reduction
Unpaved Roads	Vehicle Speed:	25	mph

SCAQMD Rule 1186

	Clean Paved Road	9	% PM Reduction

Southern California Edison Carbon Intensity Factors[1]

Forecasted Year	2026	
CO_2:	346.20	pounds per megawatt hour
CH_4:	0.033	pound per megawatt hour
N_2O:	0.004	pound per megawatt hour

Notes:

[1] CalEEMod default values.

Construction Activities and Schedule Assumptions

* based on schedule provided by District

CalEEMod Default Construction Schedule				
Construction Activities	**Phase Type**	**Start Date**	**End Date**	**CalEEMod Duration (Workday)**
Demolition	Demolition	3/20/2026	4/3/2026	11
Site Preparation	Site Preparation	4/4/2026	4/5/2026	1
Grading	Grading	4/6/2026	4/8/2026	3
Building Construction	Building Construction	4/9/2026	8/27/2026	101
Paving	Paving	8/28/2026	9/4/2026	6
Architectural Coating	Architectural Coating	9/5/2026	9/12/2026	5
			Total Days	**176**

Normalization Calculations				
CalEEMod Defaults Construction Duration			**Assumed Construction Duration**	
176	days of construction		3/20/2026	9/22/2026
0.48	years of construction		186	days
5.79	months of construction		6.12	months
		Norm Factor:	1.06	

Construction Schedule (CalEEMod)			
Construction Activities	**Start Date**	**End Date**	**CalEEMod Duration (Workday)**
Site Preparation	3/20/2026	3/21/2026	1
Utility Trenching	3/22/2026	4/25/2026	25
Field Lighting Installation	4/26/2026	9/22/2026	107

CalEEMod Construction Off-Road Equipment Inputs

Source: CalEEMod defualts (except where noted).

Construction Equipment Details						
Provided Equipment	**CalEEMod Equipment**	**# of Equipment**	**hr/day**	**hp**	**load factor***	**total trips per day**
Site Preparation						
NA	Graders	1	8	148	0.41	
NA	Tractors/Loaders/Backhoes	1	8	84	0.37	
Worker Trips						5
Vendor Trips						1
Hauling Trips						63
Water Trucks		Acres Disturbed:	1.00			6
		Onsite Travel (mi/day)	0.83			
Utility Trenching[1]						
NA	Tractors/Loaders/Backhoes	1	8	84	0.37	
NA	Forklifts	1	8	82	0.20	
Worker Trips						5
Vendor Trips						0
Hauling Trips						0
Water Trucks		Acres Disturbed:	0.5			4
		Onsite Travel (mi/day)	0.41			
Field Lighting Installation						
Cranes	Crane	1	4	367	0.29	
Backhoe	Tractors/Loaders/Backhoes	1	8	84	0.37	
Auger	Bore/Drill Rigs	1	6	83	0.5	
Skid Steer	Skid Steer Loaders	1	6	71	0.37	
Worker Trips						5
Vendor Trips						0
Hauling Trips						0
Water Trucks		Acres Disturbed:	0.5			0
		Onsite Travel (mi/day)	0.41			

Notes:

[1] Based on equipment provided from previous field lighting projects.

Water Truck Vendor Trip Calculation

Amount of Water (gal/acre/day)[1]	Water Truck Capacity (gallons)[2]
10,000	4,000

Notes:

[1] Based on data provided in Guidance for Application for Dust Control Permit

Maricopa County Air Quality Department. 2005, June. Guidance for Application of Dust Control Permit. https://www.epa.gov/sites/default/files/2019-04/documents/mr_guidanceforapplicationfordustcontrolpermit.pdf)

[2] Based on standard water truck capacity:
McLellan Industries. 2025, January (access). Water Trucks. https://www.mclellanindustries.com/trucks/water-trucks/

[3]

Assumes that dozers, tractors/loaders/backhoes, and graders can disturb 0.50 acres per day and scrapers can disturb 1 acre per day.

CalEEMod Inputs- Northwood HS Field Lighting Project, Operation

Name:	Northwood Field Lighting Project
Project Number:	ISD-39
Project Location:	4515 Portola Pkwy, Irvine, CA 92620
County:	South Coast
Climate Zone:	8
Land Use Setting:	Urban
Gas Utility Company:	Southern California Edison
Electric Utility Company:	Southern California Gas
Air Basin:	South Coast Air Basin
Air District:	South Coast AQMD
SRA:	19 - Saddleback Valley

Project Site Acreage	43.00
Disturbed Site Acreage	0.03

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet	Landscaped Area
Parking	Other Non-Asphalt Surfaces	1.50	1000 SQFT	0.03	NA	NA
				0.03		

Weekday Net Trips for AQ

Source: Garland & Associates, 2025. Northwood HS Field & Lighting Improvements Project.

Land Use Type	Net Increase - Peak Hour Trips for Highest Attended Event[1,2]	CalEEMod Max Daily Trip Rate
High School	102	**68.00**

Notes

[1] Used increase in average trips (85 additional attendees)

[2] No trips on weekend as the majority of events would occur during weekdays.

Annual Net Trips Calculation for GHG [1]

Event	Maximum Existing Spectators/Event	Maximum Proposed Specators/Event	Net increase in Spectators	Net Increase Events	Vehicle Trips per Attendee: 1.20 Net Increase in number of Trips per Year
Tackle Football					
Freshman Football	200	250	250	0	300
Junior Varsity Football	200	250	250	0	300
Varsity Football	200	250	500	3	3,120
Flag Football					
Junior Varsity Flag Football	130	130	0	0	0
Varsity Flag Football	130	130	0	0	0
Soccer					0
Girls Junior Varsity Soccer	140	175	315	0	378
Girls Varsity Soccer	140	175	350	2	756
Boys Fresh/Soph Soccer	140	160	180	0	216
Boys Junior Varsity Soccer	140	160	180	0	216
Boys Varsity Soccer	140	160	240	0	288
Lacrosse					
Girls Junior Varsity Lacrosse	140	150	50	0	60
Girls Varsity Lacrosse	140	150	90	0	108
Boys Junior Varsity Lacrosse	140	150	30	0	36
Boys Varsity Lacrosse	140	150	80	0	96
Track and Field	400	400	0	1	480
Band	230	230	0	0	0
Other Community Events[2]	0	400	400	15	7,200
TOTAL		3,470		21	**13,554**

	CalEEMod Average Daily Trip Rate
Trip Rate for Annual GHG Emissions (Average Daily):	24.82

Source: Garland & Associates, 2025. Northwood HS Field & Lighting Improvements Project.

Notes

[1] Based on project description and preliminary District information, new events onsite would be track and field and other community events.

[2] Used maximum proposed spectators for track and field as estimate for proposed spectator amount at other community events.

Lighting Electricity (Use)

Type of games and practices	Total kW [1]	Hours of Lighting Use Per Year	KWh (Annual)
Tackle Football			
Freshman Football	66.64	60.00	3,998
Junior Varsity Football	66.64	10.00	666
Varsity Football	66.64	30.00	1,999
Flag Football			
Junior Varsity Flag Football	66.64	61.50	4,098
Varsity Flag Football	66.64	18.00	1,200
Band	66.64	180.00	11,995
Soccer			
Girls Junior Varsity Soccer	66.64	69.00	4,598
Girls Varsity Soccer	66.64	40.00	2,666
Boys Fresh/Soph Soccer	66.64	69.00	4,598
Boys Junior Varsity Soccer	66.64	22.50	1,499
Boys Varsity Soccer	66.64	48.00	3,199
Lacrosse			
Girls Junior Varsity Lacrosse	66.64	13.75	916
Girls Varsity Lacrosse	66.64	36.00	2,399
Boys Junior Varsity Lacrosse	66.64	8.25	550
Boys Varsity Lacrosse	66.64	32.00	2,132
Track and Field	66.64	7.50	500
		Total Annual kWh	**47,015**

Calculation of GHGs from Field Lighting

CO_2 [2]	CH_4 [2]	N_2O [2]	CO_2e	CO_2e
lbs/Mwh	lbs/MWh	lbs/MWh	lbs/MWh	MT/KWh
346.20	0.033	0.004	348.18	0.0002

CO_2e from Lighting (MT/Year) **7.43**

Notes:

[1] Based on Musco Lighting Plan for the proposed lighting as provided by the District.

[2] Based on SCE Carbon Intensity Factors for forecasted year 2026.

Southern California Edison Carbon Intensity Factors [1]

Forecasted Year	2026	
CO_2:	346.20	pounds per megawatt hour
CH_4:	0.033	pound per megawatt hour
N_2O:	0.004	pound per megawatt hour

Notes:

[1] CalEEMod default values.

Games	Number of Games Per Year	Start	End	Lighting in use (hrs)[1]	Practices Per Season[2]		Total Hours of Light Use per Year	Maximum Attendees for Games
Tackle Football								
Freshman Football	5	3:30 PM	6:00 PM	1.50	**35**		60.00	250
Junior Varsity Football	5	3:30 PM	6:30 PM	2.00			10.00	250
Varsity Football	10	6:00 PM	9:00 PM	3.00			30.00	250
Flag Football								
Junior Varsity Flag Football	6	4:30 PM	6:00 PM	1.50	**35**		61.50	130
Varsity Flag Football	12	2:30 PM	6:00 PM	1.50			18.00	130
Band					**30**			
Band	30	4:30 PM	7:30 PM	3.00			180.00	230
Soccer								
Girls Junior Varsity Soccer	9	3:15 PM	5:30 PM	1.00	**60**		69.00	175
Girls Varsity Soccer	10	5:00 PM	9:00 PM	4.00			40.00	175
Boys Fresh/Soph Soccer	9	3:15 PM	5:30 PM	1.00	**60**		69.00	160
Boys Junior Varsity Soccer	9	3:15 PM	7:00 PM	2.50			22.50	160
Boys Varsity Soccer	12	5:00 PM	9:00 PM	4.00			48.00	160
Lacrosse								
Girls Junior Varsity Lacrosse	5	3:30 PM	7:15 PM	2.75	**75**		13.75	150
Girls Varsity Lacrosse	9	5:00 PM	9:00 PM	4.00			36.00	150
Boys Junior Varsity Lacrosse	3	4:45 PM	7:15 PM	2.75	**75**		8.25	150
Boys Varsity Lacrosse	8	5:00 PM	9:00 PM	4.00			32.00	150
Track and Field								
Track and Field	5	3:00 PM	6:00 PM	1.50	**35**		7.50	400
						TOTAL	**706**	

Community Events[2]	Lighting in use (hrs)	Proposed Events per Year	Total Light Use per Year		
Other Community Events	4.5	15	68		
				TOTAL	**773**

Notes:

[1] Assume lighting in use past 4:30pm and all proposed events would occur with use of lights.

[2] Practices for each type of sport estimated based on preliminary District information, proposed games per year based on Project Description Table 2-2.

[3] Assume 15 number of community events and average lighting use of 4:30 pm to 9:00 pm.

Changes to the CalEEMod Defaults - Fleet Mix 2026

Trips #REF!

Default	HHD	LDA	LDT1	LDT2	LHD1	LHD2	MCY	MDV	MH	MHD	OBUS	SBUS	UBUS
FleetMix (Model Default Percentage	1.759970374	50.15186071	4.056407139	20.44174969	2.889458835	0.785400625	2.110531926	15.40546715	0.461773016	1.734530181	0.061879301	0.109493604	0.031474201
FleetMix (Converted)	0.017599704	0.501518607	0.040564071	0.204417497	0.028894588	0.007854006	0.021105319	0.154054672	0.00461773	0.017345302	0.000618793	0.001094936	0.000314742
Trips	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
Percent		77%			8%			15%					
without buses/MH	0.017600	0.501519	0.040564	0.204417	0.028895	0.007854	0.021105	0.154055	0.000000	0.017345	0	0.000000	0
Percent		77%			7%			15%					
Adjusted without buses/MH	0.019231	0.501519	0.040564	0.204417	0.031573	0.008582	0.023062	0.154055	0.000000	0.018953	0.000000	0.000000	0.000000
Percent adjusted		77%			8%			15%					
Assumed Mix		97.0%			1.00%			2.00%					
Adjusted with Assumed Mix Percentage	0.002455	0.632143	0.051129	0.257660	0.004030	0.001095	0.029068	0.020000	0.000000	0.002419	0.000000	0.000000	0.000000
Adjusted CalEEMod Input	**0.245485**	**63.214275**	**5.112928**	**25.765951**	**0.403029**	**0.109550**	**2.906847**	**2.000000**	**0.000000**	**0.241937**	**0.000000**	**0.000000**	**0.000000**
Percent Check:		97%			1%			2%					
Trips	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
		#REF!			*#REF!*			*#REF!*					

Fleet mix for the project is modified to reflect a higher proportion of passenger vehicles that the regional VMT. Assumes a mix of approximately 97% passenger vehicles, 2% medium duty trucks, and 1% heavy duty trucks and buses.

CalEEMod Outputs
Annual GHG Emissions

Northwood HS Field Lighting Project Annual GHG Emissions Custom Report

Table of Contents

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Northwood HS Field Lighting Project Annual GHG Emissions
Construction Start Date	3/20/2026
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	2.20
Location	4515 Portola Pkwy, Irvine, CA 92620, USA
County	Orange
City	Irvine
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5931
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
High School	1.50	1000sqft	0.03	1,500	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.65	0.55	5.47	8.51	0.01	0.19	0.32	0.51	0.18	0.06	0.23	—	1,745	1,745	0.07	0.03	0.78	1,758
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.97	0.52	9.34	8.20	0.04	0.24	1.79	2.03	0.23	0.41	0.63	—	5,463	5,463	0.37	0.72	0.25	5,689
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21	0.17	1.76	2.73	< 0.005	0.06	0.11	0.18	0.06	0.02	0.08	—	569	569	0.02	0.01	0.13	573
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.04	0.03	0.32	0.50	< 0.005	0.01	0.02	0.03	0.01	< 0.005	0.01	—	94.1	94.1	< 0.005	< 0.005	0.02	94.9

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.65	0.55	5.47	8.51	0.01	0.19	0.32	0.51	0.18	0.06	0.23	—	1,745	1,745	0.07	0.03	0.78	1,758

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.97	0.52	9.34	8.20	0.04	0.24	1.79	2.03	0.23	0.41	0.63	—	5,463	5,463	0.37	0.72	0.25	5,689
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.21	0.17	1.76	2.73	< 0.005	0.06	0.11	0.18	0.06	0.02	0.08	—	569	569	0.02	0.01	0.13	573
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.04	0.03	0.32	0.50	< 0.005	0.01	0.02	0.03	0.01	< 0.005	0.01	—	94.1	94.1	< 0.005	< 0.005	0.02	94.9

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.17	0.16	0.08	0.91	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	1.16	215	216	0.12	0.01	0.75	223
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.15	0.14	0.08	0.79	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	1.16	207	208	0.12	0.01	0.03	214
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.16	0.15	0.08	0.86	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	1.16	209	210	0.12	0.01	0.33	216
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	0.03	0.01	0.16	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.19	34.6	34.8	0.02	< 0.005	0.05	35.8

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.12	0.11	0.07	0.84	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	215	215	0.01	0.01	0.74	218
Area	0.04	0.04	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27
Water	—	—	—	—	—	—	—	—	—	—	—	0.11	0.32	0.43	< 0.005	< 0.005	—	0.51
Waste	—	—	—	—	—	—	—	—	—	—	—	1.05	0.00	1.05	0.11	0.00	—	3.68
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	0.17	0.16	0.08	0.91	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	1.16	215	216	0.12	0.01	0.75	223
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.12	0.11	0.08	0.79	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	206	206	0.01	0.01	0.02	209
Area	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—	—	—	—	—	0.11	0.32	0.43	< 0.005	< 0.005	—	0.51
Waste	—	—	—	—	—	—	—	—	—	—	—	1.05	0.00	1.05	0.11	0.00	—	3.68
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	0.15	0.14	0.08	0.79	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	1.16	207	208	0.12	0.01	0.03	214
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.12	0.11	0.08	0.81	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	209	209	0.01	0.01	0.32	212
Area	0.04	0.04	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.18	0.18	< 0.005	< 0.005	—	0.18
Water	—	—	—	—	—	—	—	—	—	—	—	0.11	0.32	0.43	< 0.005	< 0.005	—	0.51
Waste	—	—	—	—	—	—	—	—	—	—	—	1.05	0.00	1.05	0.11	0.00	—	3.68
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	0.16	0.15	0.08	0.86	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	1.16	209	210	0.12	0.01	0.33	216
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.01	0.15	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	34.5	34.5	< 0.005	< 0.005	0.05	35.1
Area	0.01	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03

Water	—	—	—	—	—	—	—	—	—	—	—	0.02	0.05	0.07	< 0.005	< 0.005	—	0.08
Waste	—	—	—	—	—	—	—	—	—	—	—	0.17	0.00	0.17	0.02	0.00	—	0.61
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	0.03	0.03	0.01	0.16	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.19	34.6	34.8	0.02	< 0.005	0.05	35.8

3. Construction Emissions Details

3.1. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	3.74	5.54	0.01	0.19	—	0.19	0.17	—	0.17	—	858	858	0.03	0.01	—	861
Dust From Material Movement	—	—	—	—	—	—	0.22	0.22	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.31	0.31	< 0.005	0.03	0.03	—	4.40	4.40	< 0.005	< 0.005	< 0.005	4.63
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.36

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.39	0.39	< 0.005	< 0.005	—	0.39
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.23	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	62.0	62.0	< 0.005	< 0.005	0.01	62.7
Vendor	0.02	< 0.005	0.23	0.11	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	220	220	0.01	0.03	0.01	229
Hauling	0.42	0.06	5.34	2.30	0.03	0.06	1.14	1.20	0.06	0.32	0.38	—	4,319	4,319	0.33	0.68	0.23	4,531
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.63
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.8	11.8	< 0.005	< 0.005	0.01	12.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.10	0.10	< 0.005	< 0.005	< 0.005	0.10
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.96	1.96	< 0.005	< 0.005	< 0.005	2.06

3.3. Field Lighting Installation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.51	5.30	7.91	0.01	0.19	—	0.19	0.18	—	0.18	—	1,486	1,486	0.06	0.01	—	1,491
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	2.97	2.97	< 0.005	< 0.005	< 0.005	3.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.55	2.32	< 0.005	0.06	—	0.06	0.05	—	0.05	—	436	436	0.02	< 0.005	—	437
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	0.87	0.87	< 0.005	< 0.005	< 0.005	0.92
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.28	0.42	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.1	72.1	< 0.005	< 0.005	—	72.4
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.15

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.53	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	130	130	< 0.005	< 0.005	0.45	132
Vendor	0.01	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.32	131
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	36.8	36.8	< 0.005	< 0.005	0.06	37.3
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.8	36.8	< 0.005	0.01	0.04	38.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.10	6.10	< 0.005	< 0.005	0.01	6.18
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.09	6.09	< 0.005	< 0.005	0.01	6.36
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Utility Trenching (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.71	2.94	< 0.005	0.07	—	0.07	0.06	—	0.06	—	443	443	0.02	< 0.005	—	444

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	2.97	2.97	< 0.005	< 0.005	< 0.005	3.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.71	2.94	< 0.005	0.07	—	0.07	0.06	—	0.06	—	443	443	0.02	< 0.005	—	444
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	2.99	2.99	< 0.005	< 0.005	< 0.005	3.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.12	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	30.3	30.3	< 0.005	< 0.005	—	30.4
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.20	0.20	< 0.005	< 0.005	< 0.005	0.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.02	5.02	< 0.005	< 0.005	—	5.04
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	65.1	65.1	< 0.005	< 0.005	0.23	66.1
Vendor	0.01	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.32	131
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.02	0.02	0.23	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	62.0	62.0	< 0.005	< 0.005	0.01	62.7
Vendor	0.01	< 0.005	0.13	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	126	126	0.01	0.02	0.01	131
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.30	4.30	< 0.005	< 0.005	0.01	4.36
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.59	8.59	< 0.005	< 0.005	0.01	8.98
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.71	0.71	< 0.005	< 0.005	< 0.005	0.72
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.42	1.42	< 0.005	< 0.005	< 0.005	1.49
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.12	0.11	0.07	0.84	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	215	215	0.01	0.01	0.74	218
Total	0.12	0.11	0.07	0.84	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	215	215	0.01	0.01	0.74	218
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

High School	0.12	0.11	0.08	0.79	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	206	206	0.01	0.01	0.02	209
Total	0.12	0.11	0.08	0.79	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	206	206	0.01	0.01	0.02	209
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.02	0.02	0.01	0.15	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	34.5	34.5	< 0.005	< 0.005	0.05	35.1
Total	0.02	0.02	0.01	0.15	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	34.5	34.5	< 0.005	< 0.005	0.05	35.1

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27
Total	0.04	0.04	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Products	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Total	0.01	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.11	0.32	0.43	< 0.005	< 0.005	—	0.51

Total	—	—	—	—	—	—	—	—	—	—	—	0.11	0.32	0.43	< 0.005	< 0.005	—	0.51
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.11	0.32	0.43	< 0.005	< 0.005	—	0.51
Total	—	—	—	—	—	—	—	—	—	—	—	0.11	0.32	0.43	< 0.005	< 0.005	—	0.51
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.02	0.05	0.07	< 0.005	< 0.005	—	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	0.02	0.05	0.07	< 0.005	< 0.005	—	0.08

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.05	0.00	1.05	0.11	0.00	—	3.68
Total	—	—	—	—	—	—	—	—	—	—	—	1.05	0.00	1.05	0.11	0.00	—	3.68
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.05	0.00	1.05	0.11	0.00	—	3.68
Total	—	—	—	—	—	—	—	—	—	—	—	1.05	0.00	1.05	0.11	0.00	—	3.68
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.17	0.00	0.17	0.02	0.00	—	0.61

Total	—	—	—	—	—	—	—	—	—	—	—	0.17	0.00	0.17	0.02	0.00	—	0.61

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	3/20/2026	3/21/2026	5.00	1.00	—
Field Lighting Installation	Building Construction	4/26/2026	9/22/2026	5.00	107	—
Utility Trenching	Trenching	3/22/2026	4/25/2026	5.00	25.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

Field Lighting Installation	Tractors/Loaders/Back	Diesel	Average	1.00	8.00	84.0	0.37
Field Lighting Installation	Bore/Drill Rigs	Diesel	Average	1.00	6.00	83.0	0.50
Field Lighting Installation	Skid Steer Loaders	Diesel	Average	1.00	6.00	71.0	0.37
Field Lighting Installation	Cranes	Diesel	Average	1.00	4.00	367	0.29
Field Lighting Installation	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Utility Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Utility Trenching	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	7.00	10.2	HHDT,MHDT
Site Preparation	Hauling	63.0	20.0	HHDT
Site Preparation	Onsite truck	1.00	0.83	HHDT
Utility Trenching	—	—	—	—
Utility Trenching	Worker	5.00	18.5	LDA,LDT1,LDT2
Utility Trenching	Vendor	4.00	10.2	HHDT,MHDT
Utility Trenching	Hauling	0.00	20.0	HHDT
Utility Trenching	Onsite truck	1.00	0.41	HHDT
Field Lighting Installation	—	—	—	—
Field Lighting Installation	Worker	10.0	18.5	LDA,LDT1,LDT2

Field Lighting Installation	Vendor	4.00	10.2	HHDT,MHDT
Field Lighting Installation	Hauling	0.00	20.0	HHDT
Field Lighting Installation	Onsite truck	1.00	0.41	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00	500	0.50	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
High School	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
High School	37.2	37.2	37.2	13,589	280	280	280	102,239

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	0.00

5.10.3. Landscape Equipment

Season	Unit	Value

Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	49,807	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	1.95	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00

High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Based on PD, see assumptions file.

Construction: Off-Road Equipment	Utility trenching phase based on equipment provided from previous field lighting project. District provided field lighting installation equipment.
Construction: Trips and VMT	See assumptions file for calculated onsite truck trip length and included water truck trips as vendor trips.
Operations: Vehicle Data	Weekday trip rate adjusted to account for the net increase in trips for the most attended event under the proposed project.
Operations: Architectural Coatings	The proposed project does not include any land uses that rquire coating, therefore parking land use coating is zero-ed out.
Operations: Water and Waste Water	Assume 100 percent aerobic wastewater treatment
Construction: Dust From Material Movement	Added site preparation soil export
Operations: Energy Use	Electricity emissions calculated separately

CalEEMod Outputs
Maximum Daily AQ Emissions

Northwood HS Field Lighting Project Maximum Daily AQ Emissions

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Northwood HS Field Lighting Project
Construction Start Date	3/20/2026
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	2.20
Location	4515 Portola Pkwy, Irvine, CA 92620, USA
County	Orange
City	Irvine
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5931
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	1.50	1000sqft	0.03	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.53	0.44	4.46	6.96	0.01	0.15	0.32	0.46	0.13	0.06	0.19	—	1,516	1,516	0.06	0.03	0.78	1,528
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.97	0.52	9.34	8.20	0.04	0.24	1.79	2.03	0.23	0.41	0.63	—	5,463	5,463	0.37	0.72	0.25	5,689
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.17	0.14	1.46	2.27	< 0.005	0.05	0.11	0.16	0.04	0.02	0.06	—	501	501	0.02	0.01	0.13	506
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	0.03	0.27	0.41	< 0.005	0.01	0.02	0.03	0.01	< 0.005	0.01	—	83.0	83.0	< 0.005	< 0.005	0.02	83.8

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.53	0.44	4.46	6.96	0.01	0.15	0.32	0.46	0.13	0.06	0.19	—	1,516	1,516	0.06	0.03	0.78	1,528

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.97	0.52	9.34	8.20	0.04	0.24	1.79	2.03	0.23	0.41	0.63	—	5,463	5,463	0.37	0.72	0.25	5,689
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.17	0.14	1.46	2.27	< 0.005	0.05	0.11	0.16	0.04	0.02	0.06	—	501	501	0.02	0.01	0.13	506
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.03	0.03	0.27	0.41	< 0.005	0.01	0.02	0.03	0.01	< 0.005	0.01	—	83.0	83.0	< 0.005	< 0.005	0.02	83.8

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.33	0.31	0.20	2.31	0.01	< 0.005	0.54	0.55	< 0.005	0.14	0.14	0.00	588	588	0.03	0.02	2.03	598
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.33	0.31	0.22	2.18	0.01	< 0.005	0.54	0.55	< 0.005	0.14	0.14	0.00	565	565	0.03	0.02	0.05	574
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.24	0.22	0.16	1.59	< 0.005	< 0.005	0.39	0.39	< 0.005	0.10	0.10	0.00	408	408	0.02	0.02	0.63	415
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.04	0.04	0.03	0.29	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	0.00	67.6	67.6	< 0.005	< 0.005	0.10	68.6

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.33	0.31	0.20	2.31	0.01	< 0.005	0.54	0.55	< 0.005	0.14	0.14	—	588	588	0.03	0.02	2.03	598
Area	< 0.005	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.33	0.31	0.20	2.31	0.01	< 0.005	0.54	0.55	< 0.005	0.14	0.14	0.00	588	588	0.03	0.02	2.03	598
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.33	0.31	0.22	2.18	0.01	< 0.005	0.54	0.55	< 0.005	0.14	0.14	—	565	565	0.03	0.02	0.05	574
Area	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.33	0.31	0.22	2.18	0.01	< 0.005	0.54	0.55	< 0.005	0.14	0.14	0.00	565	565	0.03	0.02	0.05	574
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.24	0.22	0.16	1.59	< 0.005	< 0.005	0.39	0.39	< 0.005	0.10	0.10	—	408	408	0.02	0.02	0.63	415
Area	< 0.005	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.24	0.22	0.16	1.59	< 0.005	< 0.005	0.39	0.39	< 0.005	0.10	0.10	0.00	408	408	0.02	0.02	0.63	415
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.04	0.04	0.03	0.29	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	67.6	67.6	< 0.005	< 0.005	0.10	68.6
Area	< 0.005	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.04	0.04	0.03	0.29	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	0.00	67.6	67.6	< 0.005	< 0.005	0.10	68.6

3. Construction Emissions Details

3.1. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	3.74	5.54	0.01	0.19	—	0.19	0.17	—	0.17	—	858	858	0.03	0.01	—	861
Dust From Material Movement	—	—	—	—	—	—	0.22	0.22	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.31	0.31	< 0.005	0.03	0.03	—	4.40	4.40	< 0.005	< 0.005	< 0.005	4.63
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.36

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.39	0.39	< 0.005	< 0.005	—	0.39
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.23	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	62.0	62.0	< 0.005	< 0.005	0.01	62.7
Vendor	0.02	< 0.005	0.23	0.11	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	220	220	0.01	0.03	0.01	229
Hauling	0.42	0.06	5.34	2.30	0.03	0.06	1.14	1.20	0.06	0.32	0.38	—	4,319	4,319	0.33	0.68	0.23	4,531
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.63
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.8	11.8	< 0.005	< 0.005	0.01	12.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.10	0.10	< 0.005	< 0.005	< 0.005	0.10
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.96	1.96	< 0.005	< 0.005	< 0.005	2.06

3.3. Field Lighting Installation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48	0.40	4.28	6.36	0.01	0.15	—	0.15	0.13	—	0.13	—	1,257	1,257	0.05	0.01	—	1,262
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	2.97	2.97	< 0.005	< 0.005	< 0.005	3.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.26	1.86	< 0.005	0.04	—	0.04	0.04	—	0.04	—	369	369	0.01	< 0.005	—	370
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	0.87	0.87	< 0.005	< 0.005	< 0.005	0.92
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.23	0.34	< 0.005	0.01	—	0.01	0.01	—	0.01	—	61.0	61.0	< 0.005	< 0.005	—	61.2
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.15

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.53	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	130	130	< 0.005	< 0.005	0.45	132
Vendor	0.01	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.32	131
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	36.8	36.8	< 0.005	< 0.005	0.06	37.3
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.8	36.8	< 0.005	0.01	0.04	38.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.10	6.10	< 0.005	< 0.005	0.01	6.18
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.09	6.09	< 0.005	< 0.005	0.01	6.36
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Utility Trenching (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.71	2.94	< 0.005	0.07	—	0.07	0.06	—	0.06	—	443	443	0.02	< 0.005	—	444

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	2.97	2.97	< 0.005	< 0.005	< 0.005	3.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.71	2.94	< 0.005	0.07	—	0.07	0.06	—	0.06	—	443	443	0.02	< 0.005	—	444
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	2.99	2.99	< 0.005	< 0.005	< 0.005	3.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.12	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	30.3	30.3	< 0.005	< 0.005	—	30.4
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.20	0.20	< 0.005	< 0.005	< 0.005	0.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.02	5.02	< 0.005	< 0.005	—	5.04
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	65.1	65.1	< 0.005	< 0.005	0.23	66.1
Vendor	0.01	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.32	131
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.02	0.02	0.23	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	62.0	62.0	< 0.005	< 0.005	0.01	62.7
Vendor	0.01	< 0.005	0.13	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	126	126	0.01	0.02	0.01	131
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.30	4.30	< 0.005	< 0.005	0.01	4.36
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.59	8.59	< 0.005	< 0.005	0.01	8.98
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.71	0.71	< 0.005	< 0.005	< 0.005	0.72
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.42	1.42	< 0.005	< 0.005	< 0.005	1.49
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.33	0.31	0.20	2.31	0.01	< 0.005	0.54	0.55	< 0.005	0.14	0.14	—	588	588	0.03	0.02	2.03	598
Total	0.33	0.31	0.20	2.31	0.01	< 0.005	0.54	0.55	< 0.005	0.14	0.14	—	588	588	0.03	0.02	2.03	598
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	0.33	0.31	0.22	2.18	0.01	< 0.005	0.54	0.55	< 0.005	0.14	0.14	—	565	565	0.03	0.02	0.05	574
Total	0.33	0.31	0.22	2.18	0.01	< 0.005	0.54	0.55	< 0.005	0.14	0.14	—	565	565	0.03	0.02	0.05	574
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.04	0.04	0.03	0.29	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	67.6	67.6	< 0.005	< 0.005	0.10	68.6
Total	0.04	0.04	0.03	0.29	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	67.6	67.6	< 0.005	< 0.005	0.10	68.6

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	3/20/2026	3/21/2026	5.00	1.00	—
Field Lighting Installation	Building Construction	4/26/2026	9/22/2026	5.00	107	—
Utility Trenching	Trenching	3/22/2026	4/25/2026	5.00	25.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Field Lighting Installation	Cranes	Diesel	Average	1.00	4.00	367	0.29
Field Lighting Installation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Field Lighting Installation	Bore/Drill Rigs	Diesel	Average	1.00	6.00	83.0	0.50
Field Lighting Installation	Skid Steer Loaders	Diesel	Average	1.00	6.00	71.0	0.37
Utility Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Utility Trenching	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	18.5	LDA,LDT1,LDT2

Site Preparation	Vendor	7.00	10.2	HHDT,MHDT
Site Preparation	Hauling	63.0	20.0	HHDT
Site Preparation	Onsite truck	1.00	0.83	HHDT
Utility Trenching	—	—	—	—
Utility Trenching	Worker	5.00	18.5	LDA,LDT1,LDT2
Utility Trenching	Vendor	4.00	10.2	HHDT,MHDT
Utility Trenching	Hauling	0.00	20.0	HHDT
Utility Trenching	Onsite truck	1.00	0.41	HHDT
Field Lighting Installation	—	—	—	—
Field Lighting Installation	Worker	10.0	18.5	LDA,LDT1,LDT2
Field Lighting Installation	Vendor	4.00	10.2	HHDT,MHDT
Field Lighting Installation	Hauling	0.00	20.0	HHDT
Field Lighting Installation	Onsite truck	1.00	0.41	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00	500	0.50	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	0.03	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Non-Asphalt Surfaces	102	0.00	0.00	26,593	767	0.00	0.00	200,075

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	0.00

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	0.00	346	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Based on PD, see assumptions file.
Construction: Off-Road Equipment	Utility trenching phase based on equipment provided from previous field lighting project. District provided field lighting installation equipment.
Construction: Trips and VMT	See assumptions file for calculated onsite truck trip length and included water truck trips as vendor trips.
Operations: Vehicle Data	Weekday trip rate adjusted to account for the net increase in trips for the most attended event under the proposed project.
Operations: Architectural Coatings	The proposed project does not include any land uses that rquire coating, therefore parking land use coating is zero-ed out.
Operations: Water and Waste Water	Assume 100 percent aerobic wastewater treatment

Emissions Calculations

Regional Construction Emissions Worksheet:

3.1. Site Preparation (2026) - Unmitigated

	ROG	NOx	CO	SO_2	PM10 Total	PM2.5Total
Onsite	**Winter**					
Off-Road Equipment	0.44	3.74	5.54	0.01	0.19	0.17
Dust from Material Movement	0.00	0.00	0.00	0.00	0.22	0.02
Onsite truck	< 0.005	0.02	0.01	< 0.005	0.31	0.03
Total	**0.44**	**3.76**	**5.55**	**0.01**	**0.72**	**0.22**
Offsite						
Worker	0.02	0.02	0.23	0.00	0.07	0.02
Vendor	< 0.005	0.23	0.11	< 0.005	0.06	0.02
Hauling	0.06	5.34	2.30	0.03	1.20	0.38
Total	**0.08**	**5.59**	**2.64**	**0.03**	**1.33**	**0.42**
TOTAL	***0.52***	***9.35***	***8.19***	***0.04***	***2.05***	***0.64***

3.3. Field Lighting Installation (2026) - Unmitigated

	ROG	NOx	CO	SO_2	PM10 Total	PM2.5Total
Onsite	**Summer**					
Off-Road Equipment	0.40	4.28	6.36	0.01	0.15	0.13
Onsite truck	< 0.005	0.01	0.01	< 0.005	0.15	0.02
Total	**0.40**	**4.29**	**6.37**	**0.01**	**0.30**	**0.15**
Offsite						
Worker	0.03	0.03	0.53	0.00	0.13	0.03
Vendor	< 0.005	0.13	0.06	< 0.005	0.04	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.03**	**0.16**	**0.59**	**0.00**	**0.17**	**0.04**
TOTAL	***0.43***	***4.45***	***6.96***	***0.01***	***0.47***	***0.19***

3.5. Utility Trenching (2026) - Unmitigated

	ROG	NOx	CO	SO_2	PM10 Total	PM2.5Total
Onsite	**Summer**					
Off-Road Equipment	0.17	1.71	2.94	< 0.005	0.07	0.06
Onsite truck	< 0.005	0.01	0.01	< 0.005	0.15	0.02
Total	**0.17**	**1.72**	**2.95**	**0.00**	**0.22**	**0.08**
Offsite						
Worker	0.02	0.02	0.26	0.00	0.07	0.02
Vendor	< 0.005	0.13	0.06	< 0.005	0.04	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.02**	**0.15**	**0.32**	**0.00**	**0.11**	**0.03**
TOTAL	***0.19***	***1.87***	***3.27***	***0.00***	***0.33***	***0.11***

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Site Preparation	***1***	***9***	***8***	***0***	***2***	***1***
Field Lighting Installation	***0***	***4***	***7***	***0***	***0***	***0***
Utility Trenching	***0***	***2***	***3***	***0***	***0***	***0***
MAX DAILY	**1**	**9**	**8**	**0**	**2**	**1**
Regional Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

Construction LST Worksheet:

3.1. Site Preparation (2026) - Unmitigated

	NOx	CO	PM10 Total	PM2.5Total
Onsite				
Off-Road Equipment	3.74	5.54	0.19	0.17
Dust from Material Movement	0.00	0.00	0.22	0.02
Onsite truck	0.02	0.01	0.31	0.03
Total	**3.76**	**5.55**	**0.72**	**0.22**

3.3. Field Lighting Installation (2026) - Unmitigated

	NOx	CO	PM10 Total	PM2.5Total
Onsite				
Off-Road Equipment	4.28	6.36	0.15	0.13
Onsite truck	0.01	0.01	0.15	0.02
Total	**4.29**	**6.37**	**0.30**	**0.15**

3.5. Utility Trenching (2026) - Unmitigated

	NOx	CO	PM10 Total	PM2.5Total
Onsite				
Off-Road Equipment	1.71	2.94	0.07	0.06
Onsite truck	0.01	0.01	0.15	0.02
Total	**1.72**	**2.95**	**0.22**	**0.08**

	NOx	**CO**	**PM10 Total**	**PM2.5 Total**
Site Preparation	***4***	***6***	***0.72***	***0.22***
≤ 1.00 Acre LST	***91***	***696***	***4.00***	***3.00***
Exceeds LST?	***no***	***no***	***no***	***no***
Field Lighting Installation	***4***	***6***	***0.30***	***0.15***
≤ 1.00 Acre LST	***91***	***696***	***4.00***	***3.00***
Exceeds LST?	***no***	***no***	***no***	***no***
Utility Trenching	***2***	***3***	***0.22***	***0.08***
≤ 1.00 Acre LST	***91***	***696***	***4.00***	***3.00***
Exceeds LST?	***no***	***no***	***no***	***no***

Regional Operation Emissions Worksheet

[1] CalEEMod, Version 2022.1.

Proposed Project

Summer

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Mobile	0.45	0.30	3.40	0.01	0.80	0.21
Area	< 0.005	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.45**	**0.30**	**3.40**	**0.01**	**0.80**	**0.21**

Winter

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Mobile	0.45	0.33	3.20	0.01	0.80	0.21
Area	< 0.005	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.45**	**0.33**	**3.20**	**0.01**	**0.80**	**0.21**

Max Daily

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Mobile	0.45	0.33	3.40	0.01	0.80	0.21
Area	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.45**	**0.33**	**3.40**	**0.01**	**0.80**	**0.21**
Regional Thresholds (lb/day)	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

GHG Emissions Inventory

Proposed Project Buildout

Construction[1]

	$MTCO_2e$
2026	84
Total Construction	**84**
30-Year Amortization[2]	**3**

[1] CalEEMod, Version 2022.1.

[2] Total construction emissions are amortized over 30 years per SCAQMD methodology; SCAQMD. 2009, November 19. Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group Meeting 14. http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-14/ghg-meeting-14-main-presentation.pdf?sfvrsn=2.

Operation[1]

	$MTCO_2e$/Year[2]	
	Operations	**%**
Mobile	35	76%
Area	0	0%
Energy	0	0%
Water	1	1%
Solid Waste	0	0%
School Field Lightings[3]	7	16%
30-Year Construction Amortization	3	6%
	46	100%

South Coast AQMD Bright-Line Screening Threshold	**3,000**
Exceed Threshold?	**No**

[1] CalEEMod, Version 2022.1.

[2] MTCO2e=metric tons of carbon dioxide equivalent.

[3] Includes GHG calculations from proposed field lighting.

APPENDIX D

GEOTECHNICAL REPORT

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SOUTHWEST
Inspection & Testing, Inc.
Continuous Inspection & Materials Testing
441 Commercial Way, La Habra, CA 90631-6168
(562) 941-2990 • (714) 526-8441
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GEOTECHNICAL INVESTIGATION REPORT
NEW LIGHT POLES AT THE FOOTBALL FIELD
NORTHWOOD HIGH SCHOOL
4515 PORTOLA PARKWAY, IRVINE, CA 92620

Prepared for:

IRVINE UNIFIED SCHOOL DISTRICT

2015 Roosevelt
Irvine, CA 92620

Southwest #250189

September 24, 2025

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September 24, 2025
Southwest #250189

Jessica Mears
Construction Services Coordinator
Irvine Unified School District
2015 Roosevelt
Irvine, CA 92620

Subject: **Geotechnical Investigation Report**
New Light Poles at the Football Field
Northwood High School
4515 Portola Parkway, Irvine, CA 92620

Dear Ms. Mears:

Pursuant to proposal, dated April 4, 2025, which was authorized by Irvine Unified School District, Southwest Inspection & Testing, Inc. (Southwest) has prepared this geotechnical investigation report for four (4) new light poles at the football field and associates site work within the southwestern portion of the Northwood High School campus, located at 4515 Portola Parkway in the City of Irvine, California. Purposes of this report were to investigate the subsurface geologic profiles at the project site; and to provide geotechnical design parameters and grading recommendations for design, construction of new light pole foundations, site work.

The subject high school campus is located within the Orchard Hills area, in the northeastern portion of the City of Irvine, California. The campus is bound by Portola Parkway along the south side, avocado groves on the east and west sides, and residential tract of single-family homes on the north, northeast sides. Developments along the south side of Portola Parkway, across the school campus, are primarily residential. Topography within the perimeters of the campus is gently upsloping from the southwest to the northeast direction.

The project area for light poles in the football field is located near the southwestern corner of the campus, next to Portola Parkway. Football field is bordered along the west side by an entry driveway to the campus (from Portola Parkway), and along the east side a baseball field. Layout of the football field and the campus is presented in Figure 1, *Project Area within the School*

Campus.

Based on the review of the construction documents and the specifications of the light poles, prepared by Ruhnau Clarke Architects and Muscoe Sports Lighting (see References), we understand that four (4) new light poles, each 70 feet tall above the ground, will be installed along the perimeter of the existing football and track field. These poles will be founded on deep pier footings. Site work associated with installation of the poles will include chain link fence and gates, equipment pads (e.g., transformer, circuit breaker, lighting control cabinet, etc.), and flatwork (e.g., walkway, patio, etc.). Locations of the proposed light poles along the football field perimeter are shown in Figure 2, *Site Plan and Exploration Map*.

Subsurface soils across the project area for light poles, as encountered within exploratory bore holes, comprise of fill soils to depths varying from 3 to 5 feet, which are followed by native alluvial soils down to the explored depth of 45 feet. The subject school campus including the project area of the football field is underlain by Holocene to late Pleistocene age young alluvial deposits that area derived from Santa Ana Mountains in form of alluvial fan deposits (Qyf) by Serrano Creek, Borrego Canyon Wash, Round Canyon Wash and Bee Canyon Wash.

Fill soils are sandy clay with fine sand. Few to some gravels (3/4" to 2.5") are encountered in the fill soils at bore hole locations B-2 and B-3. Underneath the fill soils, native soils down to the explored depths are primarily clayey soils, sandy clay to clayey sand with fine sand grains, except for a layer of silty fine sand, which was encountered at depths from about 20 to 25 feet at bore hole location B-4. Fine contents (silt, clay) of the soils within depths 5 to 45 feet vary from 38.9 to 72.8 percent. Subsurface geologic profiles within the project area are found to be fairly consistent

During our field exploration, groundwater was not encountered within the maximum explored depth of 45 feet. Historic shallow groundwater level at this school campus is deeper than 40 feet as documented in the state's seismic hazard zones report for the Tustin quadrangle (CGS, 1998). Due to depth, groundwater is not considered as a constraint for design and construction of light pole foundations for this project.

Based on our geotechnical investigation findings, it is our opinion that the project site is suitable for installation of deep pier footings for the proposed new light poles and associated site work that will require excavation, grading within shallow depths. Recommendations for grading at shallow depths, drilling for pier footings; geotechnical design parameters for the light pole pier foundations, site work; and construction considerations for this project are outlined in this report.

Subsurface soils will provide adequate bearing, lateral resistance, friction, and support for the

proposed light pole foundations and associated site work provided that the structural design and construction of this project are carried out in compliance with the recommendations in this report. There are no geotechnical, geological constraints at the subject site that would adversely impact design and construction of this project.

We appreciate this opportunity of service. If there are any questions regarding this report, please contact our office.

Respectfully submitted,
SOUTHWEST INSPECTION & TESTING, INC.

Zafar Ahmed, PE, GE
Geotechnical Engineer

Esteban Granados
Project Engineer

Distribution: Addressee (via e-mail: jessicamears@iusd.org)

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Appendices

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1.0 INTRODUCTION

1.1 Purpose and Scope

This report presents the findings, conclusions and recommendations from our geotechnical investigation for four (4) new light poles at the football field and associates site work within the southwestern portion of the Northwood High School campus, located at 4515 Portola Parkway in the City of Irvine, California. California. Purposes of this report were to investigate the subsurface geologic profiles at the project site; and to provide geotechnical design parameters and grading recommendations for design, construction of new light pole foundations, site work. In preparation of this report, we conducted the following scope of work:

- Review of published reports and maps pertinent to seismic hazards, local and regional geology for areas surrounding the site.
- Perform a site reconnaissance to locate, mark out the exploratory boring locations; and scan the locations with a GPR (Ground Penetrating Radar) equipment.
- Conduct subsurface exploration consisting of four (4) exploratory bore holes, depths varying from 25 to 45 feet, one at each of the four (4) target locations of the proposed new light poles. Drilling of these holes was done utilizing a limited access truck mounted CME 75 drilling rig and hollow stem augers. During field exploration, subsurface geologic profiles were logged and representative soil samples (bulk, ring, and SPT) were collected from different depths.
- Conduct necessary laboratory tests of selected samples in order to characterize the subsurface soils and to obtain geotechnical design parameters.
- Conduct geotechnical evaluations and engineering analyses from the collected data and the laboratory test results. Recommendations for site grading; geotechnical design parameters for pier footings for the light poles, site work; and construction guidelines for the proposed developments are evaluated from the findings and engineering analyses.
- Preparation of this report summarizing our findings, conclusions, and recommendations.

1.2 Site and Project Descriptions

The subject high school campus is located within the Orchard Hills area, in the northeastern portion of the City of Irvine, California. The campus is bound by Portola Parkway along the south side, avocado groves on the east and west sides, and residential tract of single-family homes on the north, northeast sides. Developments along the south side of Portola Parkway, across the school campus, are primarily residential. Topography within the perimeters of the campus is gently upsloping from the southwest to the northeast direction.

The project area for light poles in the football field is located near the southwestern corner of the campus, next to Portola Parkway. Football field is bordered along the west side by an entry driveway to the campus (from Portola Parkway), and along the east side a baseball field. Layout of the football field and the campus is presented in Figure 1, *Project Area within the School Campus*.

Based on the review of the construction documents and the specifications of the light poles, prepared by Ruhnau Clarke Architects and Muscoe Sports Lighting (see References), we understand that four (4) new light poles, each 70 feet tall above the ground, will be installed along the perimeter of the existing football and track field. These poles will be founded on deep pier footings. Site work associated with installation of the poles will include chain link fence and gates, equipment pads (e.g., transformer, circuit breaker, lighting control cabinet, etc.), and flatwork (e.g., walkway, patio, etc.). Locations of the proposed light poles along the football field perimeter are shown in Figure 2, *Site Plan and Exploration Map*.

1.3 Field Exploration

Prior to the field exploration, a site reconnaissance was performed by a staff from our office in order to assess accessibility of the drilling rig to the site, mark out the exploratory drilling locations, and scan the locations for buried utilities utilizing a GPR (Ground Penetrating Radar) equipment. This site visit was accompanied by the personnel from the District.

On May 12, 2025, we conducted field exploration at the target locations for new light poles along the perimeter of the football field utilizing a limited access truck-mounted CME 75 drilling rig, which was equipped with an automatic trip hammer and 7-inch

diameter (outside) hollow-stem augers. Four (4) 8-inch diameter (outside) exploratory bore holes, B-1 to B-4, depths varying from 25 to 45 feet, one at each of the four (4) target locations for the light poles along the perimeter of the football field. Exploration locations are shown on Figure 2, *Site Plan and Exploration Map*. Drilling rig and crews were provided by One Way Drilling, Inc., whom we retained for this geotechnical investigation.

During drilling for the exploratory bore holes, bulk bag, SPT (Standard Penetration Test) and ring samples were taken at selected depth intervals. Bulk bag samples were taken from the soil cuttings at shallow depths (upper 5 feet) that came out to surface as well as were stuck to the auger stems. Ring samples were obtained utilizing a modified California drive sampler, in accordance with ASTM Test Method D3550. This sampler had 2½ inches I.D. (inside diameter) and 3 inches O.D. (outside diameter). It contained 12 rings - each ring 2½ inches in outside diameter, 1 inch in height. Standard Penetration Tests (SPT) were performed using a 24-inch long, 1⅜-inch I.D., and 2-inch O.D. split spoon sampler in accordance with ASTM Test Method D1586. Both the ring and SPT samplers were driven 18 inches at selected depth intervals with an automatic trip hammer weighing 140 pounds and dropping 30 inches The number of blow counts to achieve the last 12 inches of penetration at each sampling depth are recorded in the "Blows/Foot" column in the field exploration logs (see Appendix A).

Logging and sampling of the above bore holes were conducted by technical staff from our firm. Each of the collected soil samples was inspected and described in general conformance with the Standard Practice for Visual-Manual Procedures as defined in the ASTM Standard D2488. Soil descriptions were entered on the field exploration logs (Appendix A). After logging and sampling, drilled holes at were backfilled with excavated soils spoils. Surface of the drilled hole B-4 was patched with rapid set concrete, dyed black at top. Collected soil samples were properly sealed and transported to the laboratory for further evaluations and geotechnical tests.

1.4 Laboratory Tests

In order to evaluate suitability of the subsurface soils and to obtain necessary geotechnical parameters for design, construction of the proposed light poles and site work, we conducted the following laboratory tests on selected soil samples (bulk, ring) at different depths:

- Field moisture content and dry density (ASTM D2216 and ASTM D7263);

- Percent finer than No. 200 Sieve (ASTM D1140);
- Expansion Index (ASTM D4829);
- Maximum dry density and optimum moisture (ASTM D1557);
- Direct Shear (ASTM D3080); and
- Sulfate and chloride contents (California Test Methods 417 and 422).

Brief descriptions of the laboratory test procedures and test results are presented in Appendix B of this report.

2.0 GEOLOGIC AND GEOTECHNICAL FINDINGS

2.1 Regional and Local Geology

The project site is situated within the coastal part of Peninsular Ranges geomorphic province of California. The Peninsular Ranges province extends 900 miles southward from the Los Angeles basin to the tip of Baja California and is characterized by elongated, northwest-trending, mountain ridges separated by straight-sided, sediment-floored valleys. However, the most dominant structural features of the province are the northwest-trending fault zones, most of which either die out, merge with, or are terminated by the steep reverse faults at the southern margin of the Transverse Ranges province. These fault zones separate large elongated blocks, each standing at different structural elevations.

Locally, the subject property is located in the Tustin Plain geologic region which is part of the Los Angeles Basin Subdivision of the Transverse Ranges Geomorphic Province. The area lies at the southeast edge of the Los Angeles Basin, between the Santa Ana Mountains to the northeast and the San Joaquin Hills to the southwest. The subject school campus including the project area of the football field is underlain by Holocene to late Pleistocene age young alluvial deposits that area derived from Santa Ana Mountains in form of alluvial fan deposits (Qyf) by Serrano Creek, Borrego Canyon Wash, Round Canyon Wash and Bee Canyon Wash.

2.2 Subsurface Geologic Profile

Subsurface soils across the project area for light poles, as encountered within exploratory bore holes, comprise of fill soils to depths varying from 3 to 5 feet, which are followed by native alluvial soils down to the explored depth of 45 feet.

Fill soils are brown to reddish brown color sandy clay with fine sand. Few to some gravels (3/4" to 2.5") are encountered in the fill soils at bore hole locations B-2 and B-3. Underneath the fill soils, native soils down to the explored depths are primarily clayey soils, sandy clay to clayey sand with fine sand grains, except for a layer of sandy soils - yellowish brown color silty fine sand - which was encountered at depths from about 20 to 25 feet at bore hole location B-4. Clayey soils are found in varying colors - reddish to yellowish brown, gray to dark gray, and whitish gray. Fine contents (silt, clay) of the soils within depths 5 to 45 feet vary from 38.9 to 72.8 percent.

Subsurface geologic profiles within the project area are found to be fairly consistent. Descriptions of subsurface soils are presented in the field exploration logs (Appendix A). Important geotechnical characteristics of the subsurface soils that are relevant for the proposed developments are discussed briefly in the following subsections.

2.2.1 Field Moisture and Density

Upper fill soils are found to be moist, medium dense to dense. Native soils within the explored depth up to 45 feet found to be moist, medium dense, stiff to very stiff clayey soils. Field densities and moistures of the subsurface soils within upper 10 feet vary from 108.3 to 127.4 pcf; corresponding field moistures vary from 9.5 to 18.6 percent. When compared to the maximum densities of the representative bulk soil samples at shallow depths (see Appendix B), fill soils within upper 5 feet contain relative compactions varying from 84.2 to 99.5 percent.

2.2.2 Expansion Potential

Subsurface soils within depths 15 to 20 feet below grade are clayey soils – sandy clay to clayey sand with high clay contents. Laboratory Expansion Index test (ASTM D4829) results of a representative bulk soil samples from shallow depths (upper 5 feet) indicate low expansion potential with tested Expansion Index value of 32.

2.2.3 Shear Strength Parameters

Shear strength properties of the subsurface soils are evaluated from laboratory direct shear tests on selected ring samples taken from depths within upper 10 feet. Laboratory test results of the shear strength parameters (cohesion 670 to 850 psf; friction angle 25° to 26°) are found to be within the range of values for the sandy clay with fine sand in a stiff sate that are tested. Conservative values of the above shear parameters are considered for evaluations of lateral earth pressures, foundation design parameters - bearing, passive resistance, friction coefficient, skin friction along pier foundation surface - as documented in this report.

2.2.4 Excavatability

Based on our investigation findings, subsurface soils within the recommended depths of excavation during grading for the modular classroom building are

expected to be readily excavatable by conventional earthmoving and trenching equipment that are in good working order.

Subsurface soils within explored depth up to 45 feet below grade are found to be medium dense to dense stiff to very stiff. Small diameter (8-inch) hollow stem augers with a truck mounted CME-75 drilling rig, which were used during field exploration, could drill through soils up to 45 feet without any problem. Drilling for deep pier footings for the new light poles with large diameter, sold stem augers is not likely to encounter difficulty if appropriate drilling equipment is used.

2.2.5 Corrosion Potentials

In general, soil environments that are detrimental to concrete have high concentrations of soluble sulfates and chlorides. Section 1904A of the 2022 CBC refers to the ACI 318 code for durability requirements of concrete. Section 19.3.2 of ACI 318-19 provides guidelines for the concrete mix designs for various exposure levels from soluble sulfate and chloride ions. There are specific requirements on the mix design when the soluble sulfate content of the soil exceeds 0.1 percent by weight or 1,000 parts per million (ppm). As a general practice (e.g., Caltrans guidelines), a threshold limit of chloride ions in the soil environment that may be considered as an external source of chloride to buried concrete is 500 ppm.

One (1) representative bulk sample of subsurface soils at shallow depths (within upper 5 feet) was tested for sulfate and chloride contents. The test results are summarized in Table 1 below and also, presented in Appendix B. These results indicate that the subsurface soils have low soluble sulfate and chloride contents (Exposure Classes S0 and C1 per Section 19.3.1 of ACI 318-19). These soils are not considered corrosive to buried concrete, which will be in direct contact with soils (e.g., foundations).

Table 1 – Sulfate, Chloride Contents of Onsite Soils

Sample Location	Soil Descriptions	Sulfate (% by wt.)	Chloride (ppm)
B-4 @ 0 – 5 ft.	Sandy Clay w/ fine sand	0.043	110

2.3 Groundwater

Groundwater was not encountered within the maximum explored depth of 45 feet during this investigation. Historic shallow groundwater level within the subject school campus is deeper than 40 feet as documented in the state's seismic hazard zones report for the Tustin quadrangle (CGS, 1998). Due to depth, groundwater is not considered as a constraint for design and construction of light pole foundations for this project.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 General

Based on our geotechnical investigation findings, it is our opinion that the project site is suitable for the installation of deep pier footings for the proposed new light poles, and associated site work that will require excavation, grading within shallow depths. Presented hereafter are our recommendations for site grading, drilling; geotechnical design parameters for the deep pier foundations, site work; and construction considerations for this project.

3.2 Earthwork

Earthwork for this project will consist of site clearing, drilling for pier footings for light poles, and shallow excavation/grading for site work. Recommendations for site earthwork are provided in the following paragraphs.

3.2.1 Site Preparation

Prior to the grading, the site shall be cleared of grass, topsoils, vegetations, debris, and any remnants of previous construction that interfere with the proposed construction. Demolished debris shall be hauled off the site. Any existing utility lines shall be either removed/rerouted or protected in place if they interfere with the proposed construction. The cavities resulting from removal of utility lines and any buried obstructions shall be properly backfilled and compacted as recommended in Section 3.2.3 of this report.

3.2.2 Excavation

Light Pole Footings – No overexcavation is needed beyond the design embedment depths for pier footings. Bottoms of the pier footing excavations shall be cleaned out of any loose materials, sloughs generated from drilling so that pier tip can be on competent native soils.

Short Post/Pier Footings - For short post/pier footings for chain link fence, gates, no overexcavation is needed beyond the design depths for post/pier footings. Bottoms of the excavations shall be cleaned out of any loose materials, sloughs generated from drilling.

Equipment Pads - For equipment pads (e.g., e.g., transformer, circuit breaker, lighting control cabinet, etc.), excavation shall extend minimum 12 inches below the final soil grade underneath the pads. whichever is deeper. Lateral limits of excavations shall extend minimum 18 inches beyond the outer edges of these pads, wherever not constrained by any existing flatwork.

Flatwork - For flatwork (e.g., walkway, patio, etc.), excavation shall extend minimum 12 inches below the existing grade or minimum 12 inches below the final soil grade (underneath base layer), whichever is deeper. Lateral limits of excavations shall extend minimum 18 inches beyond the outer edges of these improvements, wherever not constrained by any existing flatwork.

After shallow excavations for site work, equipment pads as recommended above, if localized pockets of loose, organic, yielding (pumping) or otherwise unsuitable soils are exposed, recommendations for remedial grading will be provided by the project Geotechnical Engineer depending on the exposed site conditions.

3.2.3 Fill Placement and Compaction

After excavations for site work as described above and prior to placement of fill soils, soils at the excavation bottoms shall be scarified, moisture-conditioned (adding water as needed) to minimum 2 percent above the optimum moisture, and recompacted in place to minimum 90 percent (ASTM D1557).

Fill soils up to the final soil grade shall be placed in thin lifts - loose lift thickness not exceeding 8 inches - moisture conditioned (adding water as needed) to minimum 2 percent above the optimum moisture and compacted to minimum 90 percent (ASTM D1557).

Base materials underneath the site work and wherever else used shall be placed at minimum 95 percent compaction (ASTM D1557) with placement moisture within 2 percent of the optimum moisture.

During grading, field density tests shall be taken for the graded fill soils, base materials at the following schedule:

- Minimum one (1) field test for each 500 square feet area for each one (1) foot lift of fill and at the final soil subgrade/base surface.

- Minimum one (1) field test for each 100 linear feet of trench backfill for each one (1) foot lift of fill and at the final grade.

Field density tests may be taken by utilizing a Nuclear Gauge (ASTM D6938) or a combination of both Nuclear Gauge and Sand Cone (ASTM D1556) methods.

3.2.4 Trench Backfill

Utility trenches shall be backfilled with compacted fill in accordance with Section 306-12 of the *Standard Specifications for Public Works Construction* (Greenbook), 2021 Edition. Utility trenches can be backfilled with the excavated onsite soils or import soils that meet the fill soils criteria as outlined Section 3.2.5. Prior to backfilling the trenches, pipes shall be bedded in and covered with import granular materials that has a minimum Sand Equivalent (SE) value of 40 (ASTM D2419). Bedding sands shall be placed by mechanical compaction; jetting shall not be allowed. Soil backfill over the pipe bedding zone shall be placed in thin lifts, moisture conditioned (adding water as needed) to minimum 2 percent above the optimum moisture, and mechanically compacted to minimum 90 percent (ASTM D1557).

Wherever mechanical compaction as recommended above is not practical due to narrow trenches (width 10 inches or less), alternative backfill method such as placement of pea gravel (size up to 1/2") or sand-cement slurry (minimum 2 sacks of cement for 1 cubic yard mix) may be considered for backfill of utility trenches.

3.2.5 Fill Materials

Excavated onsite soils that are free of organics, debris and oversize particles (larger than 3 inches in the maximum dimension) are suitable for reuse as fill. Import soils, if used, shall be free of organics, debris and oversize particles (larger than 3 inches in the maximum dimension). Additionally, import soils shall not have any corrosion impacts to buried concrete; and shall be non-expansive (Expansion Index less than 20 per ASTM D4829).

Base materials underneath exterior flatwork areas and wherever else use as fill materials may consist of crushed aggregate base or crushed miscellaneous base in conformance with Section 200-2.2 or 200-2.4, respectively, of the *Standard Specifications for Public Works Construction* (Greenbook), 2021 Edition.

Prior to any import, geotechnical consultant shall review the submittals of the import materials and conduct necessary tests in order to confirm the quality of the materials.

3.2.6 Temporary Excavation

Temporary excavations during grading, away from the influence zone of any existing footings (1:1 projection downward and outward from the footing bottoms), may be constructed according to the slope ratios presented in Table 2 below.

Table 2 – Slope Ratio for Temporary Excavation

Maximum Depth of Cut (feet)	Maximum Slope Ratio* (horizontal:vertical)
0 - 5	Vertical
5 - 10	1:1

*Slope ratio assumed to be uniform from top to toe of slope.

Excavated soil spoils, any construction debris, and construction materials shall not be stockpiled and any heavy construction equipment shall not be placed within a distance H from the top of unsupported excavation/trench edge, where H is the depth of the excavation/trench. Height of stockpiles of construction materials, debris shall not exceed 6 feet.

During grading, all applicable requirements in Article 6, Section 1541.1 of the State of California Construction Safety Order (CAL/OSHA, 2021 Edition) shall be met for protection of the construction workers working inside the excavations.

3.3 Seismic Design Parameters

Based on our findings from the field exploration, subsurface geologic profiles across the project area for the new light poles at the football field may be characterized within the category of Site Class D ("Stiff Soil") according to Chapter 20 of ASCE/SEI 7-16 as referred in Section 1613A.2.2 of the 2022 CBC. Based on the nature of occupancy and usage, proposed new classroom building falls into Risk Category II (per Table 1604A.5 of

the 2022 CBC). Seismic design parameters for the above soil profile, Risk Category, and the site location (Latitude: 33.73094°N; Longitude: 117.75274°W at the center of the football field) are determined from the general ground motion analysis in accordance with Section 1613A.2 of the 2022 CBC and Section 11.4.8 of the ASCE 7-16, which are derived from risk-targeted Maximum Considered Earthquake (MCE_R) based spectral response analysis. Pursuant to Supplement 3 of the ASCE 7-16, which is adopted in the CBC 2022, a site-specific ground motion hazard analysis is not required where the value of the parameter SM_1, determined by Eq. (11.4-2) of the ASCE 7-16, is increased by 50% for all applications of SM_1 and the resulting value of the parameter SD_1 determined by Eq. (11.4-4) of the ASCE 7-16 are used for all applications of SD_1. Seismic design parameters are presented in Table 3 below. Proposed light pole foundations and any associated structural improvements for this project shall be designed for the seismic parameters in Table 3.

Table 3 – Seismic Design Parameters

Categorization/Coefficient	Design Value
Site Class	D
Mapped MCE Spectral Acceleration for Short (0.2 Second) Period, S_S	1.312g
Mapped MCE Spectral Acceleration for a 1-Second Period, S_1	0.467g
Short Period (0.2 Second) Site Coefficient, F_a	1.00
Long Period (1 Second) Site Coefficient, F_v	1.83
Adjusted Spectral Response Acceleration at 0.2-Second Period, S_{MS}	1.312g
Adjusted Spectral Response Acceleration at 1-Second Period, S_{M1}	1.284g
Design (5% damped) Spectral Response Acceleration for Short (0.2 Second) Period, S_{DS}	0.875g
Design (5% damped) Spectral Response Acceleration for a 1-Second Period, S_{D1}	0.856g
Seismic Design Category	D

3.4 Pier Foundation – Light Poles

Proposed tall light poles around the perimeter of the football field, each pole about 70 feet above ground, shall be supported on CIDH (Cast-in-drilled-hole) pier footings. Construction guidelines and specifications for drilling the pier holes and placement of concrete, rebars are presented in Appendix C. Geotechnical design parameters for pier foundations are described in the following subsections.

Footing Dimension, Embedment - Pier footings shall have minimum diameter 30 inches and be embedded minimum 20 feet below the ground surface.

Axial Capacity - Axial capacity of pier foundations shall be derived either from skin friction along the pier surface or end bearing at the pier tip, not a combination of both. Allowable downward skin friction along the drilled pier surface may be considered 25H psf up to a maximum value of 500 psf, where H is the pier embedment below the grade beam. upper fill soils. In case of uplift, 16H psf up to a maximum value of 350 psf may be considered as allowable frictional resistance along the pier surface.

Allowable end bearing for pier footings with minimum 20 feet embedment below grade beam may be considered 4,000 psf, which may be increased by 250 psf for each additional foot of embedment, up to a maximum bearing value of 5,000 psf. One-third increase for end bearing is allowed for short-term loads (e.g., seismic, wind loads).

Lateral Capacity - Lateral loads will be resisted by soil's passive resistance and friction between the pier tip and the supporting subgrade. Frictional resistance coefficient of 0.35 may be used at the pier tip. Subgrade soil's passive resistance may be considered 400 psf per foot of pier embedment up to a maximum value of 3,000 psf. Upper 12 inches of the embedment below the top of the ground surface shall be ignored in calculations for passive resistance unless the final grade at the ground is paved with flatwork. The above friction coefficient and passive resistance values have already been reduced by a factor of safety of 1.5. One-third increase of soil's passive resistance is allowed for short-term loads (seismic, wind).

3.5 Lateral Earth Pressures

Any above-grade retaining wall for this project shall be designed for the lateral earth pressures presented in Table 4 below. These pressure values are expressed as equivalent fluid unit weight (in pcf). Backfill for the retaining walls may consist of onsite or import

low expansive soils (Expansion Index less than 50 per ASTM D4829). Backside of the retaining walls (within retained height) shall be waterproofed and appropriate drainage (such as weep holes or French drain) shall be installed behind the walls so that any hydrostatic pressure cannot develop.

Lateral pressure values (active and at-rest) in Table 4 do not contain any factor of safety. Structural design needs to take into consideration applicable Factors of Safety and/or load factors for these lateral pressures. The passive resistance values in Table 4 are allowable values, already reduced by a Factor of Safety 1.5.

Table 4 – Lateral Earth Pressures

Loading Condition	Equivalent Fluid Unit Weight for Level Backfill (psf/ft)
Active	40
At-Rest	60
Passive	200

If a wall can yield enough to mobilize full shear strength of backfill soils, then it can be designed for "active" pressure. If a wall is not allowed to yield under the applied load, the shear strength of the soil cannot be mobilized and the earth pressure will be higher. Such a wall shall be designed for "at rest" condition.

In addition to the above lateral pressures from retained earth, lateral pressures from other surcharge loads such as loads from any adjacent structures shall be added, if those fall within a 1:1 upward and outward projection from the bottom edges of the of retaining wall foundations (in the retained side).

3.6 Concrete Properties

Laboratory test results indicate that the soluble sulfate and chloride contents of subsurface soils at shallow depth (upper 5 feet) are low (Exposure Classes S0 and C1 per Section 19.3.1 of ACI 318-19). These soils are not considered corrosive to buried concrete, which will be in direct contact with soil (e.g., foundations, equipment pads). As a result, there is no restriction on the type of cement and minimum concrete strength from the durability standpoint. Type II/V cement (ASTM C150) is recommended for the concrete mix. Minimum 28-day compressive strength (ASTM C39) of structural concrete for pier

footings, equipment pads shall be 3,000 psi. Water-soluble chloride ion content in the concrete (per ASTM C1218) shall not exceed 0.3 percent of the cement content (by weight).

3.7 Surface Drainage

In order to prevent ponding and intrusion of surface runoff into foundation subgrade soils, positive drainage shall be provided around the pier footings for the light poles. For area drains collecting surface run-off within a flat area, finish grades surrounding the drains shall maintain the following minimum gradient - 2 percent for dirt, landscaped surfaces and 1 percent for paved surfaces (e.g., concrete, paver blocks).

3.8 Observation, Tests during Grading

During excavation and grading for this project, geotechnical observations and field compaction tests shall be performed at the following stages:

- Continuous observation during drilling for deep piers for the light poles;
- After removal of the onsite soils down to the recommended excavation depths for site work;
- During grading for soil subgrade and compaction of base layer for the site work, equipment pads;
- During backfill for utility trenches; and
- Whenever any unusual or unexpected geotechnical conditions are encountered.

3.9 Limitations

This report is not authorized for use by, and is not to be relied upon by any party except, Irvine Unified School District; their design professionals for this project; and their successors and assignees as the owner of this property. Use of or reliance on this report by any other party is at that party's risk. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify Southwest Inspection & Testing, Inc. from and against any liability which may arise as a result of such use or reliance.

Geotechnical investigation and relevant engineering evaluations for this project were performed in substantial conformance with the prevailing Building Code (2022 CBC) and general practices of geotechnical engineering in southern California at the time of this report. No other warranty is expressed or implied.

4.0 REFERENCES

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Figure 1 – Project Area within the School Campus
Light Poles at Football Field
Northwood High School
4515 Portola Pkwy, Irvine, CA 92620

Southwest
#250189

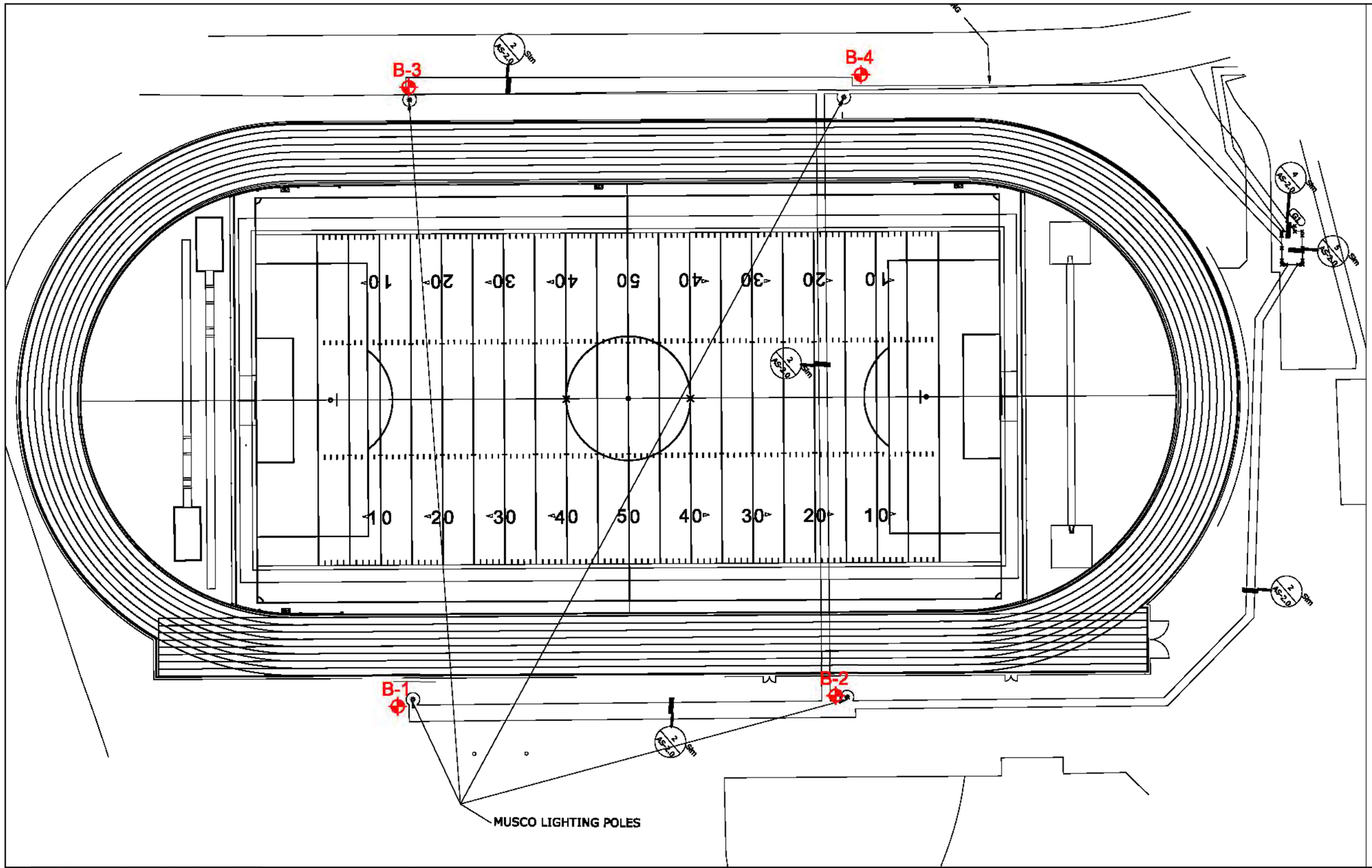

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Figure 2 - Site Plan and Exploration Map

Light Poles at Football Field at Northwood High School
4515 Portola Pkwy, Irvine, CA 92620

Southwest # 250189

APPENDIX A

Field Exploration Logs

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DRILLING DATE: 5/12/2025 DRILLING METHOD: CME 75 Drilling Rig on a Limited Access Truck

LOGGED BY: TS ELEVATION: ~91 ft LOCATION: See Fig. 2, Site Plan & Exploration Map

LIGHT POLES AT FOOTBALL FIELD - NORTHWOOD HS
4515 PORTOLA PKWY, IRVINE, CA 92620

BORE HOLE NO. **B-1**

DEPTH (FEET)	SAMPLE NUMBER	BLOWS/FOOT	RING SAMPLE	SPT SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SOIL DESCRIPTIONS	SOIL TESTS
2	R-1 B-1	41	☒		☒	9.5	127.4	**Fill (Af):** 0 - 3': Surface covered w/ grass, topsoils ~4". Reddish brown sandy Clay (CL) w/ fine sand, moist.	Proctor Density
5	R-2	20	☒		☒	13.7	107.8	**Alluvium (Qyf):** 3' - 10': Reddish brown Sandy Clay (CL) w/ fine sand, moist.	Direct Shear
10	R-3	28	☒			16.5	110.0	@ 10': Yellowish brown clayey fine Sand (SC), mottled w/ gray sandy clay layers, moist.	
15	S-1	17		☒				@ 15': Dark gray sandy Clay (CL) w/ reddish brown clay lumps, moist.	
20	S-2	9		☒				@ 20': Reddish brown sandy Clay (CL), mottled w/ yellowish brown sandy soil layers, moisT.	
25	S-3	12		☒				25' - 40': Reddish brown sandy Clay to clayey Sand (CL/SC) w/ fine sand, moist.	
30	S-4	18		☒					
35	S-5	24		☒				- 49.0% fines at 35 ft.	Percent Fines

SOUTHWEST #250189 **LOG OF BORE HOLE B-1**

SOUTHWEST
Inspection & Testing, Inc.

DRILLING DATE: 5/12/2025 DRILLING METHOD: CME 75 Drilling Rig on a Limited Access Truck

LOGGED BY: TS ELEVATION: ~91 ft LOCATION: See Fig. 2, Site Plan & Exploration Map

LIGHT POLES AT FOOTBALL FIELD - NORTHWOOD HS
4515 PORTOLA PKWY, IRVINE, CA 92620

BORE HOLE NO. **B-1**

DEPTH (FEET)	SAMPLE NUMBER	BLOWS/FOOT	RING SAMPLE	SPT SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SOIL DESCRIPTIONS	SOIL TESTS
40	S-6	18		X				40' - 45': Reddish brown clayey Sand to sandy Clay (SC/CL) w/ fine sand, few gravel (up to 3/4"), moist.	Percent Fines
45	S-7	26		X				- 38.9% fines at 45 ft.	

- Depth of drilling 45 ft below the existing grade.
- Groundwater, bedrock were not encountered.
- After logging & sampling, drilled hole was backfilled w/ excavated soil spoils on 5/12/25.

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DRILLING DATE: 5/12/2025 DRILLING METHOD: CME 75 Drilling Rig on a Limited Access Truck

LOGGED BY: TS ELEVATION: ~93 ft LOCATION: See Fig. 2, Site Plan & Exploration Map

LIGHT POLES AT FOOTBALL FIELD - NORTHWOOD HS
4515 PORTOLA PKWY, IRVINE, CA 92620

BORE HOLE NO. **B-2**

DEPTH (FEET)	SAMPLE NUMBER	BLOWS/FOOT	RING SAMPLE	SPT SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SOIL DESCRIPTIONS	SOIL TESTS
2	R-1 B-1	19	⊘		X	13.6	122.5	**Fill (Af):** 0 - 3': Surface covered w/ grass, topsoils ~4". Brown sandy Clay (CL) w/ fine sand, few gravels (up to 3/4") moist.	Expansion Index
5	R-2	32	⊘		X	16.1	112.3	**Alluvium (Qyf):** 3' - 10': Dark brown clayey fine Sand (SC), moist, 40.2% fines at 5 ft.	Percent Fines
10	R-3	19	⊘			16.8	110.9	@ 10': Dark gray sandy Clay (CL), moist, 72.8% fines.	Percent Fines Direct Shear
15	S-1	17		⊠				15' - 25': Reddish brown sandy Clay w/ fine sand (CL), moist.	
20	S-2	10		⊠				- 54.9% fines at 20 ft.	Percent Fines
25	S-3	11		⊠					

- Depth of drilling 25 ft below the existing grade.
- Groundwater, bedrock were not encountered.
- After logging & sampling, drilled hole was backfilled w/ excavated soil spoils on 5/12/25.

SOUTHWEST
Inspection & Testing, Inc.

DRILLING DATE: 5/12/2025 DRILLING METHOD: CME 75 Drilling Rig on a Limited Access Truck

LOGGED BY: TS ELEVATION: ~86 ft LOCATION: See Fig. 2, Site Plan & Exploration Map

LIGHT POLES AT FOOTBALL FIELD - NORTHWOOD HS
4515 PORTOLA PKWY, IRVINE, CA 92620

BORE HOLE NO. **B-3**

DEPTH (FEET)	SAMPLE NUMBER	BLOWS/FOOT	RING SAMPLE	SPT SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SOIL DESCRIPTIONS	SOIL TESTS
2	R-1 B-1	33	▨		▨	13.2	116.5	**Fill (Af):** 0 - 5': Surface covered w/ grass, topsoils ~4". Reddish brown sandy Clay (CL), few to some gravel (up to 2.5"), moist.	Proctor Density
5	R-2	59	▨		▨	18.9	111.3	**Alluvium (Qyf):** @ 5': Reddish brown sandy Clay (CL), mottled w/ gray clay lumps, moist.	
10	R-3	25/ (50/4")	▨			18.6	108.6	@ 10': Gray sandy Clay (CL) w/ fine sand, moist.	
15	S-1	31		▨				@ 15': Gray clayey fine Sand (SC) w/ interlayers of reddish brown sandy clay, moist.	
20	S-2	47		▨				@ 20': Dark gray sandy Clay (CL) w/ fine sand, moist.	
25	S-3	30		▨				@ 25': Lt. to whitish gray sandy Clay (CL) w/ fine sand, moist.	

- Depth of drilling 25 ft below the existing grade.
- Groundwater, bedrock were not encountered.
- After logging & sampling, drilled hole was backfilled w/ excavated soil spoils on 5/12/25.

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DRILLING DATE: 5/12/2025 DRILLING METHOD: CME 75 Drilling Rig on a Limited Access Truck

LOGGED BY: TS ELEVATION: ~89 ft LOCATION: See Fig. 2, Site Plan & Exploration Map

LIGHT POLES AT FOOTBALL FIELD - NORTHWOOD HS
4515 PORTOLA PKWY, IRVINE, CA 92620

BORE HOLE NO. **B-4**

DEPTH (FEET)	SAMPLE NUMBER	BLOWS/FOOT	RING SAMPLE	SPT SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SOIL DESCRIPTIONS	SOIL TESTS
2	R-1 B-1	16	X		X	15.5	108.3	**Fill (Af):** 0 - 5': Surface paved w/ 4" asphalt over 11" base. Reddish brown sandy Clay (CL) w/ fine sand, moist.	Sulfate, Chloride
5	R-2	27	X		X	17.1	108.5	**Alluvium (Qyf):** @ 5': Reddish brown sandy Clay (CL), mottled w/ gray clay layers, moist.	
10	R-3	50/4"	X			12.7	125.8	@ 10': Gray clayey fine Sand (SC), moist.	
15	S-1	50/6"		X				@ 15': Yellowish brown clayey fineSand (SC) w/ interlayer of / gray clayey soils, moist.	
20	S-2	41 50/4"		X				20' - 25': Yellowish brown silty fine sand (SM), mottled w/ gray layers of clayey soils, moist.	
25	S-3	50/4"		X					

- Depth of drilling 25 ft below the existing grade.
- Groundwater, bedrock were not encountered.
- After logging & sampling, drilled hole was backfilled w/ excavated soil spoils and surface was patched w/ rapid set concrete on 5/12/25.

APPENDIX B

Laboratory Test Procedures and Test Results

Laboratory Test Procedures and Test Results

Cal Land Engineering's laboratory was retained to perform direct shear and corrosion potential evaluation tests (sulfate and chloride contents). All the remaining tests were performed in our laboratory. Brief descriptions of the laboratory test procedures and test results are presented hereafter.

Field Moisture and Density: Field moisture contents and dry densities of subsurface soils within upper 10 feet were determined from the ring samples in accordance with ASTM Test Methods D2216 and D7263, respectively. These test results are presented in this appendix and also, in the field exploration logs (Appendix A).

Percent Fines (< No. 200): Selected soil samples were wash sieved through a No. 200 U.S. Standard sieve, in accordance with ASTM Test Method D1140, in order to determine the percent fines (silts and clays). These data were used to define the classification for tested samples as well as to aid in engineering analysis. Test results are presented in this appendix and also, summarized in the following table:

Sample Location	Soil Descriptions	Percent Finer than No. 200 Sieve
B-2 @ 5 ft.	Clayey fine Sand (SC)	40.2
B-2 @ 10 ft.	Sandy Clay w/ fine sand (CL)	72.8
B-2 @ 20 ft.	Sandy Clay w/ fine sand (CL)	54.9
B-1 @ 35 ft.	Sandy Clay w/ fine sand (CL)	49.0
B-1 @ 45 ft.	Clayey fine Sand (SC)	38.9

Expansion Index: Expansion Index (EI) tests was performed for a representative bulk soil sample of the onsite soils at shallow depth (upper 5 feet) across the project area, in accordance with the ASTM Test Method D4829. Test results are summarized in the following table and also, presented in this appendix:

Sample Location	Soil Descriptions	Expansion Index	Expansion Potential
B-2 @ 0 – 5 ft.	Sandy Clay w/ fine sand	32	Low

Maximum Density and Optimum Moisture: Maximum dry densities and optimum moisture contents of two (2) representative bulk soil samples, taken from shallow depths (upper 5 feet) across the project area, were determined in accordance with ASTM Test Method D1557. Test results are summarized in the following table and graphical plots of *Water Content* vs. *Dry Density* are attached in this appendix.

Sample Location	Soil Descriptions	Maximum Dry Density (pcf)	Optimum Moisture (%)
B-1 @ 0 – 5 ft.	Sandy Clay w/ fine sand	128.1	9.1
B-3 @ 0 – 5 ft.	Sandy Clay w/ fine sand	127.9	9.8

Direct Shear: Direct shear tests under consolidated drained condition were performed on selected ring samples of the subsurface soils, taken from depths within upper 10 feet across the project area, in accordance with the ASTM Standard D3080. The samples were soaked for a minimum of 24 hours under a surcharge equal to the applied normal force during testing. Samples and specimens were then transferred to the shear box, reloaded, and pore pressures set up in the sample (due to transfer) were allowed to dissipate for a period of approximately one-hour. Following pore pressure dissipation, samples were subjected to shearing forces. The samples were tested under various normal loads by a motor-driven, strain-controlled, direct-shear testing apparatus at a strain rate of 0.005 inch per minute. Shear deformation was recorded until about 0.3 inches of shear displacement was achieved. Ultimate strength was selected from the shear-stress deformation data and plotted to determine the shear strength parameters. Test results are summarized and presented graphically on the *Normal Pressure vs. Shear Stress* plots in this appendix.

Sulfate and Chloride Contents: Tests for soluble sulfate and chloride contents were conducted for a representative bulk sample of the onsite soils at shallow depths (upper 5 feet). These tests were done in accordance with California Test Methods 417 and 422. Test results are summarized in the following table and also, presented in this appendix.

Sample Location	Soil Descriptions	Sulfate (% by wt.)	Chloride (ppm)
B-4 @ 0 – 5 ft.	Sandy Clay w/ fine sand	0.043	110

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Continuous Inspection & Materials Testing
441 Commercial Way, La Habra, CA 90631-6168
(562) 941-2990 • (714) 526-8441
FAX (562) 946-0026

Project Name : Home Addition - 2220 E. Ward Terrace, Anaheim, CA

Project Name: Light Poles at Football Field - Northwood High School **Project Address:** 4515 Portola Pkwy, Irvine, CA

Date Sampled: 05.12.25 **Date Tested: 05.13.25** **Sampled By: TS & MA** **Lab Technician: CM**

Field Moisture & Density (ASTM D2216 & D7263)

Bore Hole No.	Sample Depth (ft)	Wet Weight Sample + Ring (gm)	Ring Weight (gm)	Sample weight (gm)	Wet Density (pcf)	Wet wt. Sample + Cup (gm)	Cup Weight (gm)	Wet Weight Sample (gm)	Dry Weight Sample + Cup (gm)	Dry Sample Weight (gm)	Moisture Content (gm)	Moisture Content (%)	Dry Density (pcf)
B-1	**2**	205.6	43.4	162.2	139.5	245.2	83.1	162.1	231.1	148.0	14.1	**9.5**	**127.4**
	5	181.5	38.9	142.6	122.6	221.0	78.5	142.5	203.8	125.3	17.2	**13.7**	**107.8**
	10	187.3	38.3	149.0	128.2	225.9	77.0	148.9	204.8	127.8	21.1	**16.5**	**110.0**
B-2	**2**	199.6	37.8	161.8	139.2	241.6	80.0	161.6	222.2	142.2	19.4	**13.6**	**122.5**
	5	193.7	42.2	151.5	130.3	236.7	85.7	151.0	215.8	130.1	20.9	**16.1**	**112.3**
	10	192.7	42.2	150.5	129.4	236.2	85.8	150.4	214.6	128.8	21.6	**16.8**	**110.9**
B-3	**2**	195.7	42.3	153.4	131.9	240.2	87.1	153.1	222.3	135.2	17.9	**13.2**	**116.5**
	5	198.4	44.5	153.9	132.4	231.5	78.0	153.5	207.1	129.1	24.4	**18.9**	**111.3**
	10	195.3	45.6	149.7	128.8	226.2	76.8	149.4	202.8	126.0	23.4	**18.6**	**108.6**
B-4	**2**	190.5	45.1	145.4	125.1	223.5	78.2	145.3	204.0	125.8	19.5	**15.5**	**108.3**
	5	186.1	38.3	147.8	127.1	223.2	75.5	147.7	201.6	126.1	21.6	**17.1**	**108.5**
	10	206.5	41.6	164.9	141.8	268.2	104.0	164.2	249.7	145.7	18.5	**12.7**	**125.8**

Submitted By:

Esteban Granados

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Continuous Inspection & Materials Testing
441 Commercial Way, La Habra, CA 90631-6168
(562) 941-2990 • (714) 526-8441
FAX (562) 946-0026

Project Name: **Light Poles at Football Field - Northwood High School**
SITI Job No. : **250189**
Date Sampled: **05.12.25**
Date Tested: **05.20.25**
Sampled By: **TS**
Tested By: **GA**

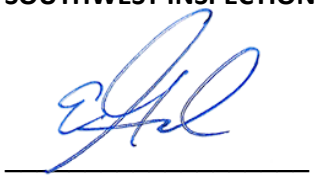
Percent Passing #200 Wash Sieve (ASTM D1140)

Boring No.	Depth (ft)	Soil Descriptions	Weight Before Wash Sieve (g)	Weight After Wash sieve (g)	% Passing No. 200 Sieve	Remarks
B-2	5	Clayey Sand (SC)	320.2	191.42	40.2	Ring
B-2	10	Sandy Clay (CL)	369.0	100.33	72.8	Ring
B-2	20	Sandy Clay (CL)	347.8	156.95	54.9	SPT
B-1	35	Clayey Sand (SC)	335.3	171.1	49.0	SPT
B-1	45	Clayey Sand (SC)	300.5	183.65	38.9	SPT

If there are any questions regarding this report, please contact our laboratory.

Sincerely,

SOUTHWEST INSPECTION AND TESTING, INC.



Esteban Granados
Project Engineer

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(562) 941-2990 • (714) 526-8441
FAX (562) 946-0026

May 28, 2025

Job Name: Light Poles at Football Field - Northwood High School

SWIT Project No.: 250189

Job Address: 4515 Portola Pkwy, Irvine, CA

Sample Location: B-2 @ 0 - 5'

Sampled Date: 05/16/2025

Sampled By: TS

Tested By: CM

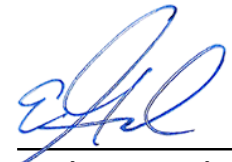
Expansion Index Test (ASTM D4829)

Expansion Index test for the above bulk sample was conducted in accordance with the ASTM Test Standard D4829. These test results are summarized in the table below.

Soil Type	Moisture (%)	Dry Density (pcf)	Degree of Saturation (%)	Initial Reading (mm)	Final Reading (mm)	Expansion Index	Expansion Potential
Sandy Clay w/ fine sand	8.4	116.1	50.3	0.003	0.826	32	Low

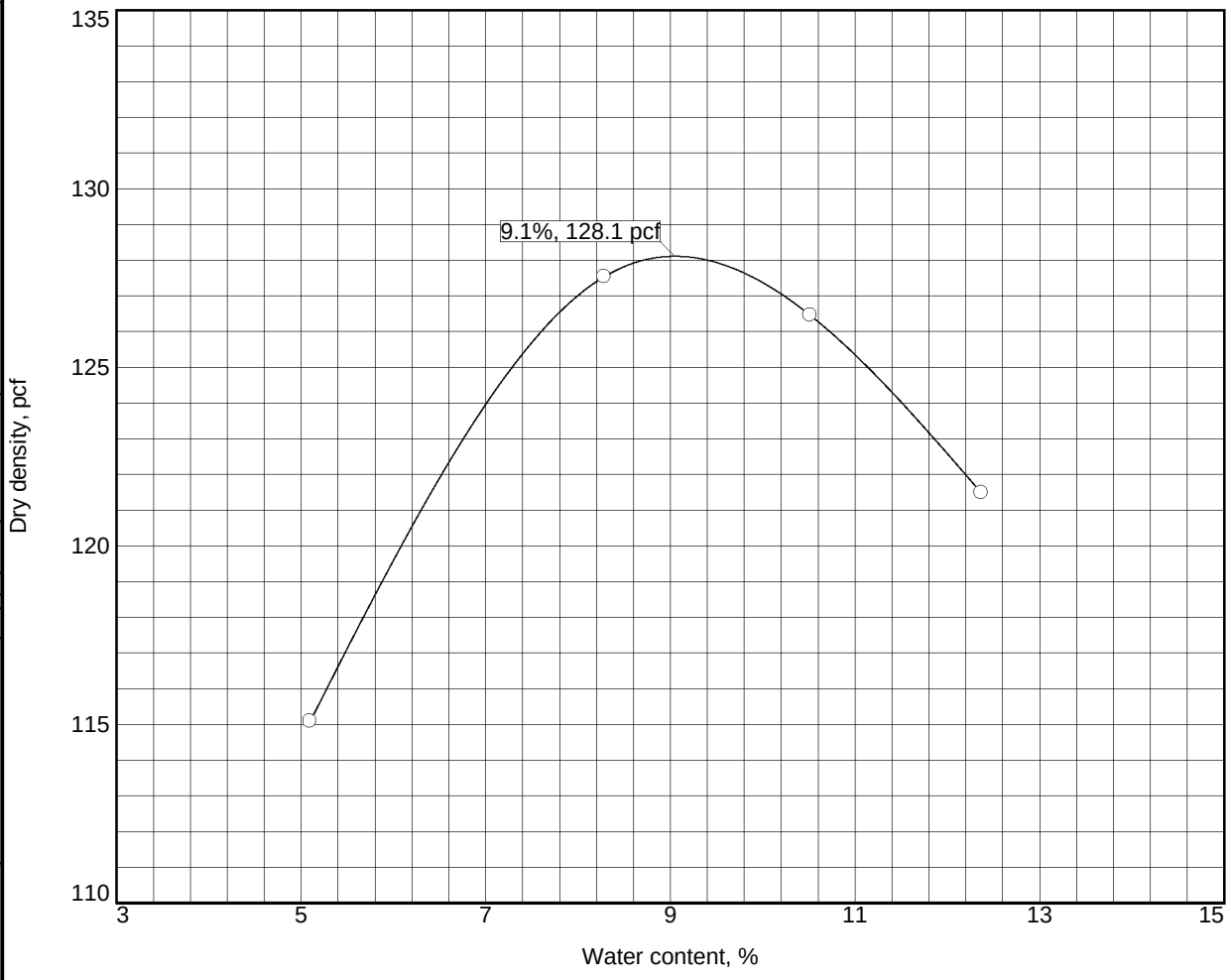
If there are any questions about this report, please contact our office.

Sincerely,



Esteban Granados
Project Engineer

COMPACTION TEST REPORT



Test specification: ASTM D 1557-91 Procedure B Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 128.1 pcf Optimum moisture = 9.1 %	Brown sandy clay

Project No. 250189 **Client:** Northwood High School

Project: Light Poles at Football Field - Northwood High School

Remarks:

SR250085
Sample Date: 05-12-2025
Sample Location: B-1 (0' - 5')
Sampled By: TS

Southwest Inspection and Testing, Inc.

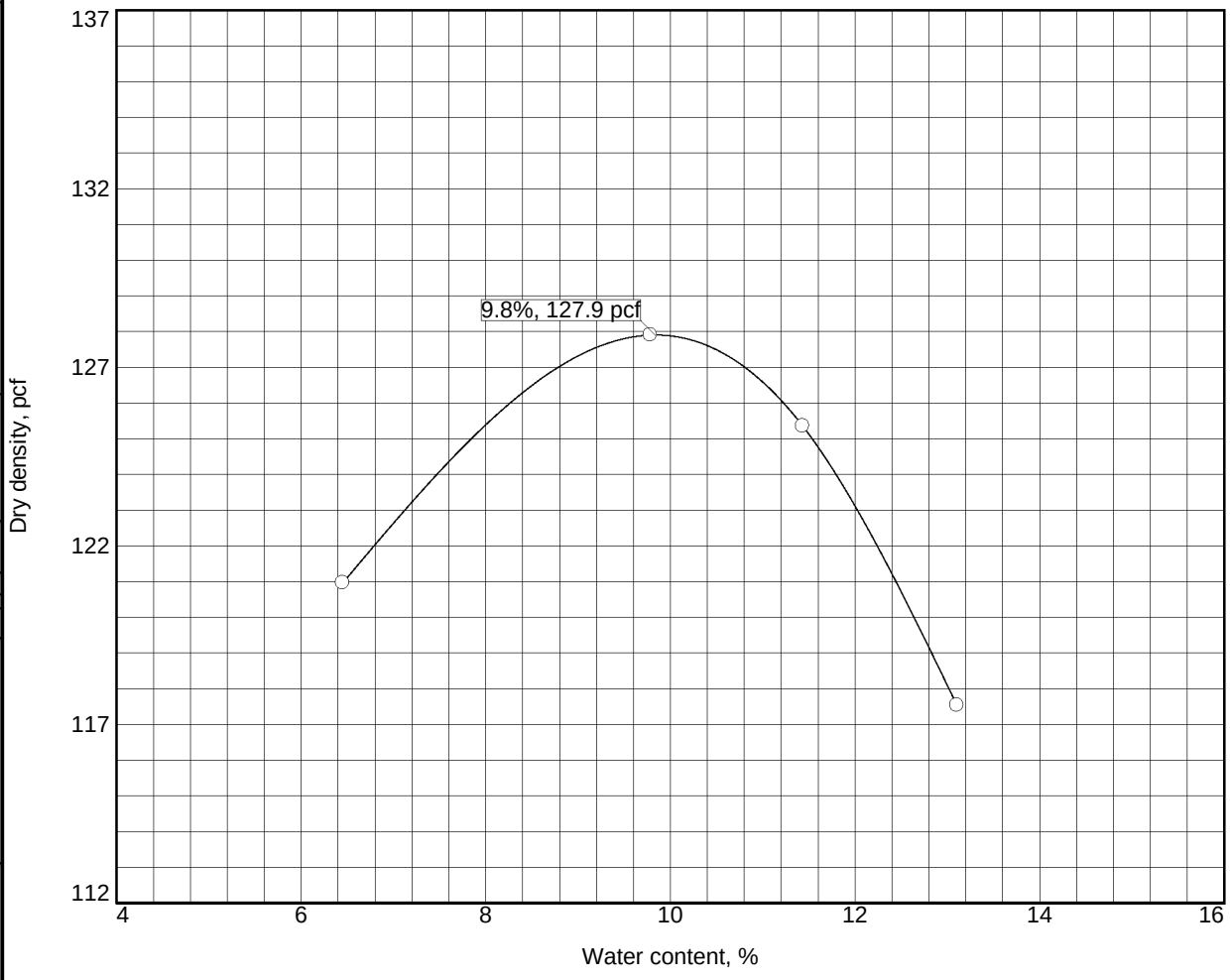
LaHabra, CA

Figure

Tested By: Chris M

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical samples

COMPACTION TEST REPORT



Test specification: ASTM D 1557-91 Procedure B Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 127.9 pcf Optimum moisture = 9.8 %	Brown sandy Clay w/ fine sand

Project No. 250189 **Client:** Northwood High School

Project: 4515 Portola Pkwy. Irvine, CA

Remarks:
SR250160
Sample Location: B-3 @ 0-5'

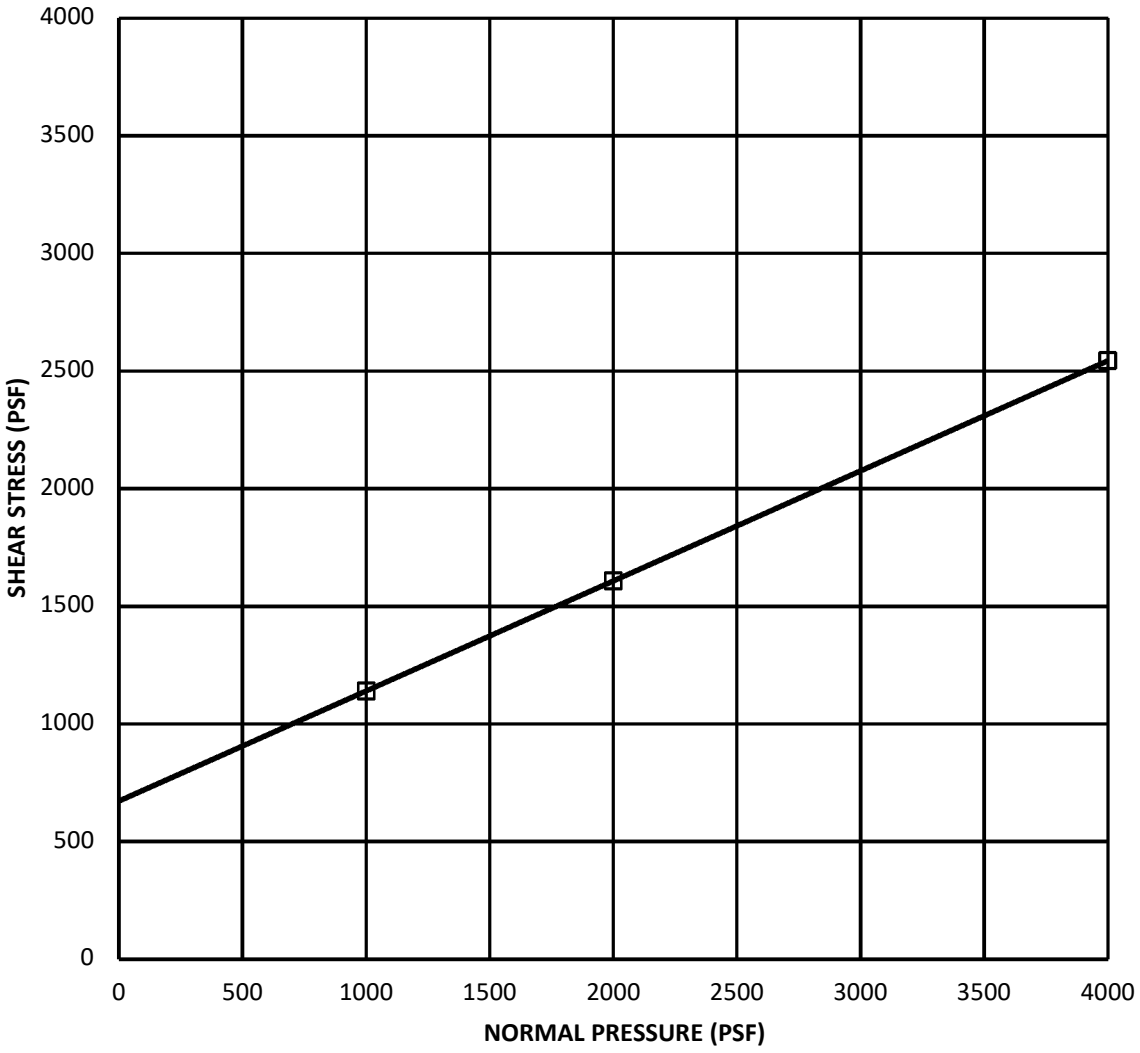
Southwest Inspection and Testing, Inc.

LaHabra, CA

Figure

Tested By: Chris M

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical samples



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
□	B-1	N/A	5.0	RING	CL	670	25

The soil sample's dry density (ASTM D2937) is 114.0 pounds per cubic foot (pcf.)

CLE Project No.: 25-005-005a

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
1,000	8.7	17.5
2,000	8.7	17.1
4,000	8.7	16.8

CalLand Engineering and Associates, Inc.
Land Surveying, Geotechnical, Environmental & Civil Engineering

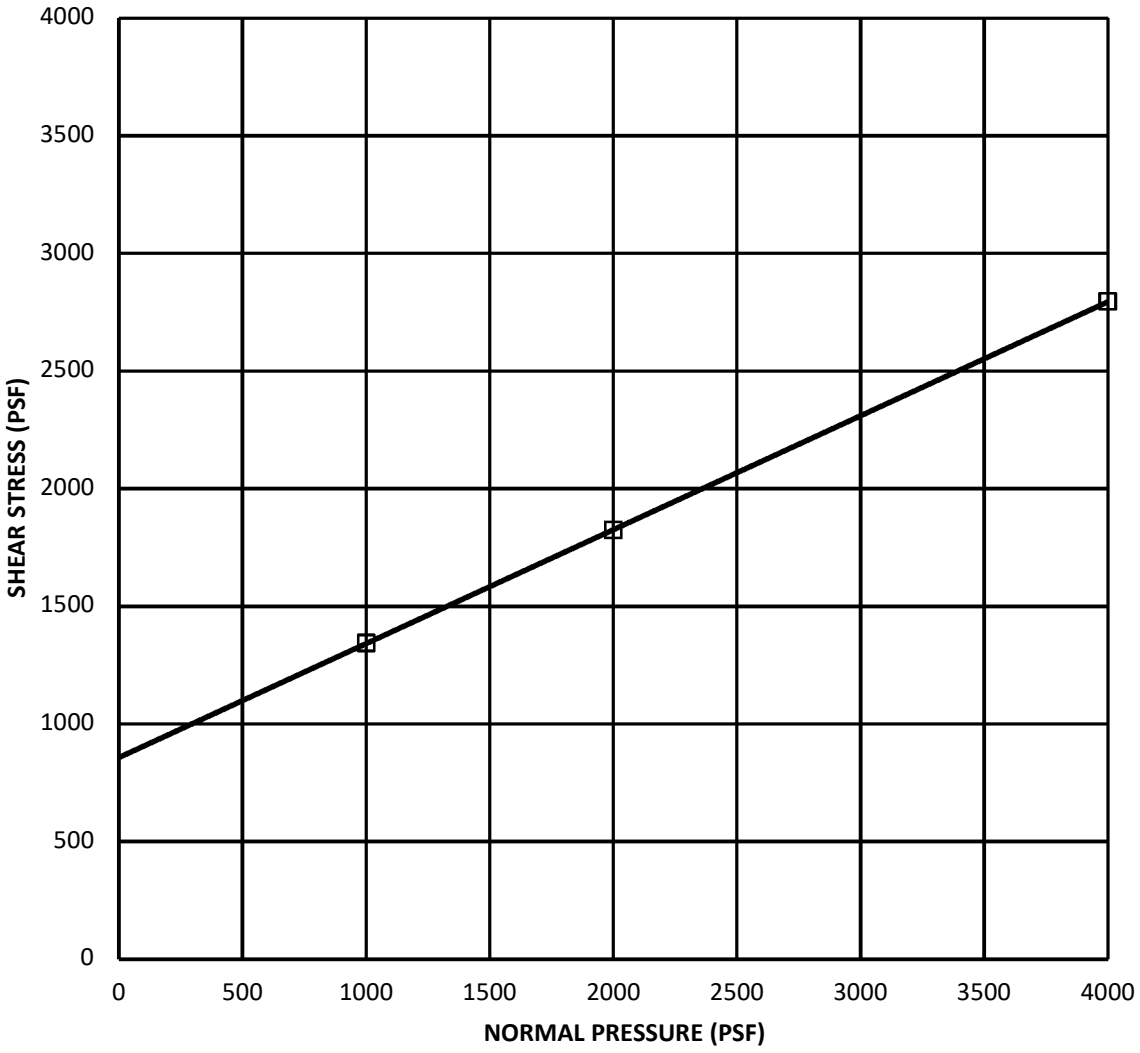
Project Name:
Northwood High School

DIRECT SHEAR

(ASTM D3080)

06/25

FIGURE 1



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
□	B-2	N/A	10.0	RING	CL	850	26

The soil sample's dry density (ASTM D2937) is 106.3 pounds per cubic foot (pcf.)

CLE Project No.: 25-005-005a

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
1,000	16.3	21.4
2,000	16.3	21.0
4,000	16.3	20.5

CalLand Engineering and Associates, Inc.
Land Surveying, Geotechnical, Environmental & Civil Engineering

Project Name:
Northwood High School

DIRECT SHEAR

(ASTM D3080)

06/25

FIGURE 2

Cal Land Engineering & Associates, Inc.
Land Surveying, Geotechnical, Environmental & Civil Engineering

June 4, 2025

Southwest Inspection and Testing, Inc.
441 Commercial Way
La Habra, CA 90631

RE: LABORATORY TEST RESULTS/REPORT

Project Name: Northwood High School
Project Address: N/A
CLE Job No.: 25-005-005b

Ladies and Gentlemen,

We have completed the testing program conducted on sample for above project. The tests were performed in accordance with testing procedures as follows:

TEST	METHOD
Direct Shear	ASTM D3080
Sulfate Content	CT-417
Chloride Content	CT-422

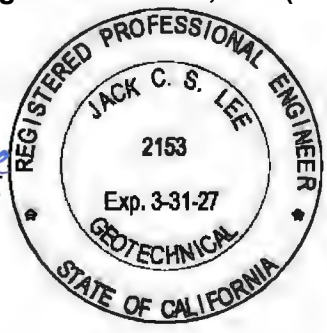
Please see a summary below and the attached figures for the laboratory test results.

Corrosion Potential

Boring No.	Depth [ft.]	Sample Type	Chloride (ppm)	Sulfate (% By Weight)
B-4	0-5	BULK	110	0.0430

We appreciate the opportunity to provide testing services to Southwest Inspection and Testing, Inc. Should you have any questions, please call the undersigned.

Sincerely yours,
Cal Land Engineering & Associates, Inc. (CLE)



Jack C. Lee, GE 2153
Principle Engineer

José María Fuentes
Project Engineer

ATTACHMENTS
Figure 1 – Direct Shear Test Results
Figure 2 – Direct Shear Test Results

Dist: (1) Addressee

APPENDIX C

Specifications Guidelines for Drilled Pier Installation

Specifications Guidelines for Drilled Pier Installation

1. Pursuant to Section 1705A.8 of the 2022 CBC, continuous observation by a representative of the Geotechnical Consultant shall be performed during drilling holes for the CIDH (Cast-In-Drilled-Hole) piers in order to confirm that the dimensions, embedments of the installed piers are compliant with the approved foundation plans, and that pier installation has been performed as specified. The contractor shall provide access and necessary facilities, including droplights, at contractor's expense, to accommodate observations inside the drilled hole.

2. Pier installation shall be performed such that compliance with all safety rules and requirements is achieved. Drilling equipment, casing, reinforcement, and other items required for installation shall be kept a safe distance from all overhead lines.

3. Piers shall be located as indicated on the drawings. Any pier installed, having a center more than three inches off plan centerlines will require structural analysis. The cost of such analysis and any work or materials resulting from correcting an error in location of piers shall be borne by the contractor.

4. Pier shafts shall be plumb to a tolerance of not more than 1 inch in 6 feet.

5. Bottoms of the pier footing excavations shall need to be cleaned out of any loose materials, sloughs generated from drilling so that pier tip can be on competent native soils.

6. At the completion of drilling, secure covers shall be placed over pier excavations. Concrete placement shall begin within 72 hours after completion of drilling. If concrete placement is scheduled later than 72 hours after drilling, contractor is advised to place metal casings inside the drilled holes in order to prevent any potential for caving.

7. Concrete shall not be allowed to fall freely more than 4 feet. Concrete pumps, tremies or other such devices that are used for concrete pour shall comply with this requirement. Concrete placement shall continue until concrete extends to the top of the pier shaft. The tremie or concrete pump pipe may be raised slowly as the pier shaft is filled with concrete, provided that the bottom of the pipe is never more than 4 feet above the level of the concrete.

8. If caving is encountered during drilling, metal casings shall be placed in the drilled hole for support against caving. In case of casing, concrete placement and casing pull out shall be done simultaneously with the bottom of the casing not being pulled above the top of concrete at any time during the entire process.

9. Reinforcement (rebar cage, steel H-beam) shall be rigidly installed and secured to prevent movement or dislodgement during concrete placement.

10. In the event that pier installation procedures specified above are not adhered to, the contractor may be required to core the concrete pier to confirm that a continuous concrete pier has been installed. The cost of such coring shall be borne by the contractor.

11. Any piers deemed defective shall be replaced with substitute piers as directed by the Structural Engineer. The cost of installation of such substitute piers shall be borne by the contractor. Costs associated with analysis and design of substitute piers shall also be borne by the contractor.

APPENDIX E

NOISE AND VIBRATION ANALYSIS

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NOISE MONITORING DATA

Measurement Report

Report Summary

Meter's File Name	LxT_Data.053.s	Computer's File Name	LxT_0005424-20250220 162604-LxT_Data.053.ldbin
Meter	LxT1 0005424	Firmware	2.404
User	AC	Location	ST-1
Job Description	ISD-39		
Note			

Start Time	2025-02-20 16:26:04	Duration	0:15:00.0		
End Time	2025-02-20 16:41:04	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2025-02-20 16:24:33	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	48.4 dB		
LAE	77.9 dB	SEA	--- dB
EA	6.9 µPa²h		
EA8	221.4 µPa²h		
EA40	1.1 mPa²h		
LAS_{peak}	93.1 dB	2025-02-20 16:27:28	
LAS_{max}	64.1 dB	2025-02-20 16:27:28	
LAS_{min}	41.7 dB	2025-02-20 16:35:00	
LA_{eq}	48.4 dB		
LC_{eq}	58.0 dB	$LC_{eq} - LA_{eq}$	9.6 dB
LAI_{eq}	54.1 dB	$LAI_{eq} - LA_{eq}$	5.7 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise

L_{DN}	L_{Day}	L_{Night}
--- dB	--- dB	0.0 dB

L_{DEN}	L_{Day}	L_{Eve}	L_{Night}
--- dB	--- dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	48.4 dB		--- dB		--- dB	
$Ls_{(max)}$	64.1 dB	2025-02-20 16:27:28	--- dB	None	--- dB	None
$LS_{(min)}$	41.7 dB	2025-02-20 16:35:00	--- dB	None	--- dB	None
$L_{Peak(max)}$	93.1 dB	2025-02-20 16:27:28	--- dB	None	--- dB	None

Overloads

Count	Duration
0	0:00:00.0

Statistics

LAS 2.0	54.8 dB
LAS 8.0	52.0 dB
LAS 25.0	48.5 dB
LAS 50.0	46.5 dB
LAS 90.0	43.9 dB
LAS 99.0	42.5 dB

Time History

Project Name: Northwood HS Field lighting Improvements Project Date: 2/20/25

Project Number: ISD-39 Monitoring Personnel: AC

Monitoring Site #: ST-1 Time Start: 4:28 End: 4:43

Site Location/Address: Grass area at the end of the "Stallion Street" Cul-de-Sac 29 m from eastern Residential; 34 m from Northern Residential; 253 m from Swimming pool Building & 344 m from Baseball field; aprox 384 from gray building near soft & Baseball field

Primary Noise Source: Distant Softball game & Batting practice (Baseball); Birds; Residents walking by & talking

Measurement Results	
Percentiles	dBA
Leq	48.4
Lmax	64.1
Lmin	41.7
L2	54.8
L8	52.0
L25	48.5
L50	46.5
Other	
SEL/CNEL	

Observed Noise Sources/Events		
Time	Noise Source Event	dBA
4:29	Car passing by "Wolftrail" street	57
4:34	Residential people talking	

Data File: 53 ☒ Photos: yes

Comments (sound walls, height, etc..) No Sound walls

Max Wind Velocity (knots/hr)	Average Wind Velocity (knots/hr)	Temperature (F)	Relative Humidity (%)
	7 mph	73	30

Traffic counts in both directions:

Roadway	# Lanes	Posted Speed	Autos	MD	HD

Measurement Report

Report Summary

Meter's File Name	LxT_Data.054.s	Computer's File Name	LxT_0005424-20250220 165153-LxT_Data.054.ldbin
Meter	LxT1 0005424	Firmware	2.404
User	AC	Location	ST-2
Job Description	ISD-39		
Note			

Start Time	2025-02-20 16:51:53	Duration	0:15:00.0		
End Time	2025-02-20 17:06:53	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2025-02-20 16:24:33	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	47.8 dB		
LAE	77.3 dB	SEA	--- dB
EA	6.0 µPa²h		
EA8	192.8 µPa²h		
EA40	964.1 µPa²h		
LAS_{peak}	89.5 dB	2025-02-20 16:56:16	
LAS_{max}	56.6 dB	2025-02-20 17:03:34	
LAS_{min}	36.5 dB	2025-02-20 17:00:15	
LA_{eq}	47.8 dB		
LC_{eq}	58.7 dB	LC_{eq} - LA_{eq}	10.9 dB
LAI_{eq}	51.3 dB	LAI_{eq} - LA_{eq}	3.5 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise

L_{DN}	L_{Day}	L_{Night}
--- dB	--- dB	0.0 dB

L_{DEN}	L_{Day}	L_{Eve}	L_{Night}
--- dB	--- dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	47.8 dB		--- dB		--- dB	
$L_{S(max)}$	56.6 dB	2025-02-20 17:03:34	--- dB	None	--- dB	None
$L_{S(min)}$	36.5 dB	2025-02-20 17:00:15	--- dB	None	--- dB	None
$L_{Peak(max)}$	89.5 dB	2025-02-20 16:56:16	--- dB	None	--- dB	None

Overloads

Count	Duration
0	0:00:00.0

Statistics

LAS 2.0	53.2 dB
LAS 8.0	51.9 dB
LAS 25.0	49.2 dB
LAS 50.0	46.5 dB
LAS 90.0	39.5 dB
LAS 99.0	37.0 dB

Project Name: Northwood HS Field Lighting Improvements Project Date: 2/20/25

Project Number: ISD - 39 Monitoring Personnel: JC

Monitoring Site #: ST-2 Time Start: 4:52 End: 5:06

Site Location/Address: At the front of 78 Winslow Avenue; at corner of Winslow Avenue & Turnbury Lane

Primary Noise Source: Roadway / Traffic noise from Portola Parkway; Residential people talking / 58.3 m from Sound wall; 4m from 78 Winslow Ave; 16m from chimney of 71 Turnbury Lane

Measurement Results	
Percentiles	dBA
Leq	47.8
Lmax	56.6
Lmin	36.5
L2	53.2
L8	51.9
L25	49.2
L50	46.5
Other	
SEL/CNEL	

Observed Noise Sources/Events		
Time	Noise Source Event	dBA
4:54	Residential people talking / walking by	58
5:06	Car passing by	56

Data File: 54 ☒ Photos: yes

Comments (sound walls, height, etc..) aprox 18ft cmu wall on residential side (aprox 12ft on Portola parkway).

Max Wind Velocity (knots/hr)	Average Wind Velocity (knots/hr)	Temperature (F)	Relative Humidity (%)
	6 mph	71	34

Traffic counts in both directions:

Roadway	# Lanes	Posted Speed	Autos	MD	HD

Long-Term 24 Hour Continuous Noise Monitoring
Calculation Input Sheet

Project: **ISD-39.0**

Date: **February 20-21, 2025**

Site: **LT-1**

Hour	Leq	Lmax	L50	L90
16:00	64.5	78.0	61.9	47.8
17:00	65.4	76.2	62.8	46.3
18:00	65.2	77.6	62.6	48.5
19:00	64.7	86.0	60.0	47.8
20:00	62.6	76.4	57.6	46.4
21:00	61.2	74.7	53.9	42.0
22:00	59.5	74.1	48.9	39.6
23:00	56.6	75.3	42.1	38.3
0:00	55.0	73.3	39.3	37.6
1:00	50.9	72.7	37.8	37.0
2:00	48.0	73.0	36.8	36.5
3:00	52.2	75.6	36.8	36.4
4:00	55.3	75.6	37.0	36.5
5:00	61.2	75.6	47.8	38.1
6:00	65.9	80.5	59.2	43.4
7:00	65.9	77.8	61.9	47.6
8:00	65.6	87.6	61.9	49.5
9:00	63.9	77.0	58.9	45.4
10:00	63.3	76.5	58.1	46.3
11:00	65.3	89.1	61.4	48.9
12:00	63.6	80.9	59.4	46.1
13:00	63.4	81.1	59.0	44.1
14:00	64.3	81.5	61.0	46.6
15:00	64.6	79.4	62.2	46.0

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 7 p.m.)	64.7	80.2	60.9	46.9
Evening (7 p.m. - 9 p.m.)	63.1	79.0	57.2	45.4
Nighttime (9 p.m. - 7 a.m.)	59.2	75.1	42.9	38.2

Percentage of Energy

Daytime	72%
Evening	12%
Nighttime	15%

Calculated CNEL, dBA

67.3

Project: ISD-39
User: AC
Location: LT-1

No.	Start Date	Start Time	End Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_2	L_5	L_8	L_{10}	L_{25}	L_{50}	L_{90}	L_{95}	L_{99}
1	2/20/2025	4:00 PM	5:00 PM	1:00	64.5	78.0	41.6	71.9	71.1	69.7	69.0	68.6	66.3	61.9	47.8	45.7	43.6
2	2/20/2025	5:00 PM	6:00 PM	1:00	65.4	76.2	40.8	73.1	72.4	71.0	70.1	69.6	66.9	62.8	46.3	43.9	41.8
3	2/20/2025	6:00 PM	7:00 PM	1:00	65.2	77.6	41.9	73.0	71.9	70.7	69.7	69.2	66.7	62.6	48.5	46.0	43.4
4	2/20/2025	7:00 PM	8:00 PM	1:00	64.7	86.0	42.5	72.9	71.7	70.3	69.3	68.7	65.1	60.0	47.8	46.4	44.7
5	2/20/2025	8:00 PM	9:00 PM	1:00	62.6	76.4	42.2	71.6	70.6	68.9	67.8	67.1	63.2	57.6	46.4	45.3	43.7
6	2/20/2025	9:00 PM	10:00 PM	1:00	61.2	74.7	38.3	71.0	70.1	68.0	66.7	66.0	61.1	53.9	42.0	40.5	39.4
7	2/20/2025	10:00 PM	11:00 PM	1:00	59.5	74.1	37.9	70.4	68.9	66.6	64.9	63.9	58.3	48.9	39.6	38.9	38.2
8	2/20/2025	11:00 PM	12:00 AM	1:00	56.6	75.3	37.1	69.2	67.4	63.7	61.3	59.8	50.4	42.1	38.3	37.9	37.5
9	2/21/2025	12:00 AM	1:00 AM	1:00	55.0	73.3	37.0	68.9	66.4	61.5	57.5	55.1	43.8	39.3	37.6	37.4	37.2
10	2/21/2025	1:00 AM	2:00 AM	1:00	50.9	72.7	36.7	65.7	61.7	53.6	47.6	44.4	38.8	37.8	37.0	36.9	36.8
11	2/21/2025	2:00 AM	3:00 AM	1:00	48.0	73.0	36.4	60.6	55.6	44.0	39.8	38.8	37.3	36.8	36.5	36.4	36.3
12	2/21/2025	3:00 AM	4:00 AM	1:00	52.2	75.6	36.3	65.2	62.4	54.6	47.7	44.2	37.3	36.8	36.4	36.4	36.3
13	2/21/2025	4:00 AM	5:00 AM	1:00	55.3	75.6	36.3	68.9	67.1	62.0	57.8	55.0	41.8	37.0	36.5	36.4	36.3
14	2/21/2025	5:00 AM	6:00 AM	1:00	61.2	75.6	36.7	71.9	70.8	68.6	67.4	66.6	59.3	47.8	38.1	37.4	36.9
15	2/21/2025	6:00 AM	7:00 AM	1:00	65.9	80.5	38.8	74.9	74.0	72.5	71.4	70.9	66.9	59.2	43.4	41.7	39.7
16	2/21/2025	7:00 AM	8:00 AM	1:00	65.9	77.8	40.3	74.5	73.5	71.8	70.9	70.3	66.9	61.9	47.6	46.0	43.2
17	2/21/2025	8:00 AM	9:00 AM	1:00	65.6	87.6	44.0	74.3	72.8	70.8	69.5	69.0	66.0	61.9	49.5	47.2	45.3
18	2/21/2025	9:00 AM	10:00 AM	1:00	63.9	77.0	41.6	72.7	71.9	70.3	69.1	68.4	64.9	58.9	45.4	44.4	42.8
19	2/21/2025	10:00 AM	11:00 AM	1:00	63.3	76.5	42.6	72.6	71.6	69.6	68.4	67.7	64.0	58.1	46.3	44.7	43.3
20	2/21/2025	11:00 AM	12:00 PM	1:00	65.3	89.1	40.2	73.4	72.1	70.2	68.9	68.4	65.4	61.4	48.9	45.9	42.4
21	2/21/2025	12:00 PM	1:00 PM	1:00	63.6	80.9	39.0	72.0	71.2	69.5	68.3	67.7	64.5	59.4	46.1	43.3	39.8
22	2/21/2025	1:00 PM	2:00 PM	1:00	63.4	81.1	39.0	72.3	70.6	68.9	67.9	67.3	64.3	59.0	44.1	42.3	39.8
23	2/21/2025	2:00 PM	3:00 PM	1:00	64.3	81.5	38.8	72.6	71.2	69.5	68.6	68.2	65.7	61.0	46.6	44.3	40.7
24	2/21/2025	3:00 PM	4:00 PM	1:00	64.6	79.4	39.1	72.0	71.2	69.8	68.9	68.5	66.2	62.2	46.0	43.6	40.8

LONG-TERM MEASURMENT DATA SHEET

Date: Drop off 2/20 **Pick up** 2/21

Project Number/Name: ISD-39

Monitoring Personnel: TC

Meter Settings:

☐ Larson Davis Lxt ☐ Larson Davis 820 Meter Kit #: #1

☑ A-Weighted ☒ Slow ☐ Fast ☒ Windscreen

Calibration

LD CAL 200 ☐ SN-14280 ☒ SN-14279 1 kHz Tone Reference Level: ☒ 94 dB ☐ 114 dB

Calibration Offset Prior: 93.5 Offset After: 93.9

Time of meter mounted: 3:57 ☒ Photos: yes

Site Location/Address: Directly South of campus Track & Field, North of 1020 Timberwood

Primary Noise Source: Roadway Noise, Birds, Students on e-bikes & walking by, Students on track & field, & practice @ track & field

Traffic counts in both directions (15 minute)

Roadway	# Lanes	Posted Speed	Autos	MD	HD

Additional Notes:

50m from campus retaining wall
75.4 m from gray shed on Track & Field
133.9 from campus corner on Yale & Portola Parkway

ISD-39.0 - Construction Noise Modeling Attenuation Calculations

		Levels in dBA Leq		
Phase	**RCNM Reference Noise Level**	**Residential Northeast**	**Residential Southwest**	**Residential South**
Distance in feet	*50*	*800*	*520*	*350*
Site Prep	84	60	64	67
Utility Trenching	84	60	64	67
Distance in feet	*50*	*1420*	*520*	*360*
Field Lighting	80	51	60	63

Attenuation calculated through Inverse Square Law: Lp(R2) = Lp(R1) - 20Log(R2/R1)

ISD-39.0- Vibration Damage Attenuation Calculations

		Levels, PPV (in/sec)		
	Vibration Reference	**Residential Northeast**	**Residential Southwest**	**Residntial South**
Distance in feet	**Level at *25 feet***	*800*	*520*	*350*
Hoe Ram	0.089	0.000	0.001	0.002
Large Bulldozer	0.089	0.000	0.001	0.002
Caisson Drilling	0.089	0.000	0.001	0.002
Loaded Trucks	0.076	0.000	0.001	0.001
Jackhammer	0.035	0.000	0.000	0.001
Small Bulldozer	0.003	0.000	0.000	0.000

ISD-39.0 - Vibration Annoyance Attenuation Calculations

Equipment *Distance in feet*	Vibration @ 25 ft	Residential Northeast *800*	Residential Southwest *520*	Residential South *350*
Hoe Ram	87.0	41.8	47.5	52.6
Large Bulldozer	87.0	41.8	47.5	52.6
Caisson Drilling	87.0	41.8	47.5	52.6
Loaded Trucks	86.0	40.8	46.5	51.6
Jackhammer	79.0	33.8	39.5	44.6
Small Bulldozer	58.0	12.8	18.5	23.6

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/04/2025
Case Description: ISD-39.0 Site Preparation

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor @ 50 ft	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		50.0	0.0
Tractor	No	40	84.0		50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	83.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/04/2025
Case Description: ISD-39.0 Utility Trenching

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor @ 50 ft	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		50.0	0.0
All Other Equipment > 5 HP	No	50	85.0		50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	85.0	82.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	84.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/04/2025
Case Description: ISD-39.0 Field Lighting

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor @ 50 ft	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Auger Drill Rig	No	20		84.4	50.0	0.0
Crane	No	16		80.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Auger Drill Rig	84.4	77.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	84.4	79.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Traffic Noise Calculator: FHWA 77-108 — **Northwood HS (ISD-39.0) Existing 2025 Traffic Noise Traffic Conditions**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour			Segment															
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	From - To		ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	56.8	59.5	60.2	11	24	52	Yale Avenue	the North	Portola Parkway	5,000	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
2	56.8	59.5	60.2	11	24	52	Yale Avenue	Portola Parkway	the South	5,000	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
3	57.9	60.7	61.4	13	29	62	Wolf Trail	Yale Avenue	Orchard Hills Drive	2,500	40	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
4	69.8	72.6	73.3	83	178	384	Portola Parkway	the West	Culver Drive	21,000	50	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	6	Soft	50	0.5	68
5	69.7	72.4	73.1	81	174	375	Portola Parkway	Culver Drive	Yale Avenue	17,000	55	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
6	69.7	72.4	73.1	81	174	375	Portola Parkway	Yale Avenue	Orchard Hills Drive	17,000	55	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
7	69.7	72.4	73.1	81	174	375	Portola Parkway	Orchard Hills Drive	the East	17,000	55	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
8	62.3	65.0	65.7	26	56	120	Orchard Hills Drive	the North	Wolf Trail	5,000	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
9	62.2	65.0	65.7	26	56	120	Orchard Hills Drive	Wolf Trail	Portola Parkway	6,500	40	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
10	65.3	68.1	68.7	41	89	191	Culver Drive	the North	Portola Parkway	10,000	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
11	70.2	73.0	73.7	88	189	408	Culver Drive	Portola Parkway	the South	23,000	50	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	6	Soft	50	0.5	68

Traffic Noise Calculator: FHWA 77-108 — **Northwood HS (ISD-39.0) Existing 2025 Plus Project Traffic Noise Traffic Conditions**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																		
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment From	Segment To	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	56.8	59.6	60.3	11	24	52	Yale Avenue	the North	Portola Parkway	5,082	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
2	56.8	59.6	60.2	11	24	52	Yale Avenue	Portola Parkway	the South	5,020	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
3	58.0	60.8	61.5	13	29	62	Wolf Trail	Yale Avenue	Orchard Hills Drive	2,520	40	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
4	69.8	72.6	73.3	83	178	384	Portola Parkway	the West	Culver Drive	21,001	50	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	6	Soft	50	0.5	68
5	69.7	72.4	73.1	81	174	375	Portola Parkway	Culver Drive	Yale Avenue	17,031	55	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
6	69.7	72.4	73.1	81	174	375	Portola Parkway	Yale Avenue	Orchard Hills Drive	17,031	55	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
7	69.7	72.5	73.1	81	174	376	Portola Parkway	Orchard Hills Drive	the East	17,041	55	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
8	62.3	65.0	65.7	26	56	121	Orchard Hills Drive	the North	Wolf Trail	5,009	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
9	62.2	65.0	65.7	26	56	120	Orchard Hills Drive	Wolf Trail	Portola Parkway	6,510	40	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
	65.3	68.1	68.7	41	89	191	Culver Drive	the North	Portola Parkway	10,009	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
	70.2	73.0	73.7	88	189	408	Culver Drive	Portola Parkway	the South	23,021	50	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	6	Soft	50	0.5	68

Traffic Noise Calculator: FHWA 77-108 **Northwood HS (ISD-39.0) Future 2027 Traffic Noise Traffic Conditions**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour			Segment															
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	From - To		ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	56.9	59.7	60.4	11	25	53	Yale Avenue	the North	Portola Parkway	5,200	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
2	56.9	59.7	60.4	11	25	53	Yale Avenue	Portola Parkway	the South	5,200	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
3	58.1	60.9	61.6	14	30	64	Wolf Trail	Yale Avenue	Orchard Hills Drive	2,600	40	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
4	70.0	72.8	73.4	85	183	394	Portola Parkway	the West	Culver Drive	21,840	50	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	6	Soft	50	0.5	68
5	69.8	72.6	73.3	83	179	385	Portola Parkway	Culver Drive	Yale Avenue	17,680	55	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
6	69.8	72.6	73.3	83	179	385	Portola Parkway	Yale Avenue	Orchard Hills Drive	17,680	55	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
7	69.8	72.6	73.3	83	179	385	Portola Parkway	Orchard Hills Drive	the East	17,680	55	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
8	62.4	65.2	65.9	27	57	124	Orchard Hills Drive	the North	Wolf Trail	5,200	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
9	62.4	65.2	65.9	27	57	123	Orchard Hills Drive	Wolf Trail	Portola Parkway	6,760	40	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
	65.4	68.2	68.9	42	91	196	Culver Drive	the North	Portola Parkway	10,400	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
	70.4	73.2	73.8	90	194	419	Culver Drive	Portola Parkway	the South	23,920	50	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	6	Soft	50	0.5	68

Traffic Noise Calculator: FHWA 77-108 — **Northwood HS (ISD-39.0) Future 2027 Plus Project Traffic Noise Traffic Conditions**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																		
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment From	Segment To	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	57.0	59.8	60.5	12	25	54	Yale Avenue	the North	Portola Parkway	5,282	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
2	56.9	59.7	60.4	11	25	53	Yale Avenue	Portola Parkway	the South	5,220	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
3	58.1	60.9	61.6	14	30	64	Wolf Trail	Yale Avenue	Orchard Hills Drive	2,620	40	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
4	70.0	72.8	73.4	85	183	394	Portola Parkway	the West	Culver Drive	21,841	50	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	6	Soft	50	0.5	68
5	69.8	72.6	73.3	83	179	385	Portola Parkway	Culver Drive	Yale Avenue	17,711	55	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
6	69.8	72.6	73.3	83	179	385	Portola Parkway	Yale Avenue	Orchard Hills Drive	17,711	55	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
7	69.8	72.6	73.3	83	179	386	Portola Parkway	Orchard Hills Drive	the East	17,721	55	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
8	62.4	65.2	65.9	27	57	124	Orchard Hills Drive	the North	Wolf Trail	5,209	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
9	62.4	65.2	65.9	27	57	123	Orchard Hills Drive	Wolf Trail	Portola Parkway	6,770	40	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
	65.4	68.2	68.9	42	91	196	Culver Drive	the North	Portola Parkway	10,409	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
	70.4	73.2	73.8	90	194	419	Culver Drive	Portola Parkway	the South	23,941	50	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	6	Soft	50	0.5	68

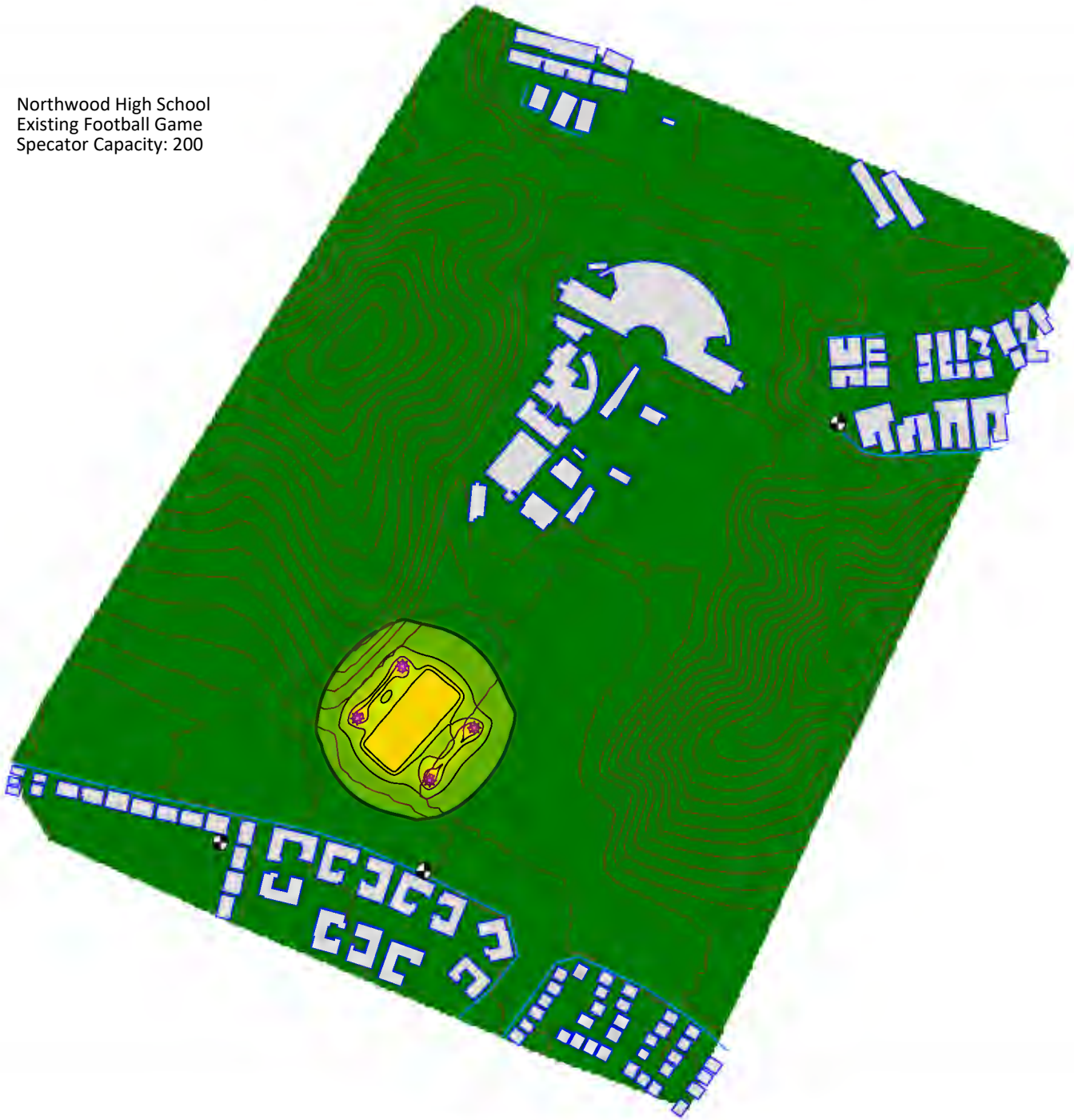
Noise level
Leq,d
in dB(A)

	<= 45
45 <	<= 50
50 <	<= 55
55 <	<= 60
60 <	<= 65
65 <	<= 70
70 <	<= 75
75 <	<= 80
80 <	<= 85
85 <	

Signs and symbols

- Point source
- Building
- Wall
- Elevation line
- Receiver

Northwood High School
Existing Football Game
Specator Capacity: 200



Northwood HS Field and Lighting Improvements
Assessed receiver levels
Existing Football 200

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Receiver	Usage	Fl	Leq,d dB(A)	Leq,n dB(A)	
LT-1 64.7 dBA Leq	SCR	G	40.5	40.5	
ST-1 48.4 dBA Leq	SCR	G	35.0	35.0	
ST-2 47.8 dBA Leq	SCR	G	26.7	26.7	

Northwood HS Field and Lighting Improvements
Contribution level - Existing Football 200

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Source	Source group	Source ty	Ldn dB(A)	Leq,d dB(A)	Leq,n dB(A)	
Receiver LT-1 64.7 dBA Leq Fl G	dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 46.9 dB(A)	Leq,d 40.5 dB(A)	Leq,n 40.5
Players	Players	Area	29.7	23.3	23.3	
Refs Whistle	Refs Whistle	Area	43.7	37.3	37.3	
Speaker - 1	Speakers	Point	33.2	26.8	26.8	
Speaker - 2	Speakers	Point	37.9	31.5	31.5	
Speaker - 3	Speakers	Point	37.9	31.5	31.5	
Speaker - 4	Speakers	Point	39.5	33.1	33.1	
Home Side	Crowd Noise	Area	25.5	19.1	19.1	
Away Side	Crowd Noise	Area	27.4	21.0	21.0	
Receiver ST-1 48.4 dBA Leq Fl G	dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 41.4 dB(A)	Leq,d 35.0 dB(A)	Leq,n 35.0
Players	Players	Area	25.7	19.3	19.3	
Refs Whistle	Refs Whistle	Area	39.6	33.2	33.2	
Speaker - 1	Speakers	Point	30.1	23.7	23.7	
Speaker - 2	Speakers	Point	30.2	23.8	23.8	
Speaker - 3	Speakers	Point	31.4	25.0	25.0	
Speaker - 4	Speakers	Point	27.5	21.1	21.1	
Home Side	Crowd Noise	Area	21.0	14.6	14.6	
Away Side	Crowd Noise	Area	16.8	10.4	10.4	
Receiver ST-2 47.8 dBA Leq Fl G	dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 33.1 dB(A)	Leq,d 26.7 dB(A)	Leq,n 26.7
Players	Players	Area	16.6	10.2	10.2	
Refs Whistle	Refs Whistle	Area	30.6	24.2	24.2	
Speaker - 1	Speakers	Point	25.2	18.8	18.8	
Speaker - 2	Speakers	Point	20.1	13.7	13.7	
Speaker - 3	Speakers	Point	21.2	14.8	14.8	
Speaker - 4	Speakers	Point	24.0	17.5	17.5	
Home Side	Crowd Noise	Area	11.5	5.1	5.1	
Away Side	Crowd Noise	Area	9.6	3.2	3.2	

Northwood HS Field and Lighting Improvements
Octave spectra of the sources in dB(A) - Existing Football 200

Name	Source type	L'w dB(A)	Lw dB(A)	KI dB	KT dB	Day histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)	
Away Side	Area	65.6	98.7	0.0	0.0	Crowd during Game 10 min 60*10 sec	American Football, Spectators`s area		72.7	87.8	95.6	91.6	91.3	84.9	75.8		
Home Side	Area	68.6	101.7	0.0	0.0	Crowd during Game 10 min 60*10 sec	American Football, Spectators`s area		75.7	90.8	98.6	94.6	94.3	87.9	78.8		
Players	Area	46.2	94.0	0.0	0.0	Sporting Event	American Football, Players				94.0						
Refs Whistle	Area	61.6	108.0	0.0	0.0	Sporting Event	American Football, Referee`s whistle				108.0						
Speaker - 1	Point	110.0	110.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3	
Speaker - 2	Point	110.0	110.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3	
Speaker - 3	Point	110.0	110.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3	
Speaker - 4	Point	110.0	110.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3	

Noise level
Leq,d
in dB(A)

	<= 45
45 <	<= 50
50 <	<= 55
55 <	<= 60
60 <	<= 65
65 <	<= 70
70 <	<= 75
75 <	<= 80
80 <	<= 85
85 <	

Signs and symbols

- Point source
- Building
- Wall
- Elevation line
- Receiver

Northwood High School
Project Football Game
Spectator Capacity: 250

Northwood HS Field and Lighting Improvements
Assessed receiver levels
Project Football 250

2

Receiver	Usage	Fl	Leq,d dB(A)	Leq,n dB(A)	
LT-1 64.7 dBA Leq	SCR	G	40.5	40.5	
ST-1 48.4 dBA Leq	SCR	G	35.0	35.0	
ST-2 47.8 dBA Leq	SCR	G	26.7	26.7	

Northwood HS Field and Lighting Improvements
Contribution level - Project Football 250

9

Source	Source group	Source ty	Ldn dB(A)	Leq,d dB(A)	Leq,n dB(A)	
Receiver LT-1 64.7 dBA Leq Fl G		dB(A) Lr,lim	dB(A)	Lr,lim dB(A)		Ldn 46.9 dB(A) Leq,d 40.5 dB(A) Leq,n 40.5
Players	Players	Area	29.7	23.3	23.3	
Home Side	Crowd Noise	Area	25.5	19.1	19.1	
Away Side	Crowd Noise	Area	29.7	23.3	23.3	
Refs Whistle	Refs Whistle	Area	43.7	37.3	37.3	
Speaker - 1	Speakers	Point	33.2	26.8	26.8	
Speaker - 2	Speakers	Point	37.9	31.5	31.5	
Speaker - 3	Speakers	Point	37.9	31.5	31.5	
Speaker - 4	Speakers	Point	39.5	33.1	33.1	
Receiver ST-1 48.4 dBA Leq	Fl G	dB(A) Lr,lim	dB(A)	Lr,lim dB(A)		Ldn 41.4 dB(A) Leq,d 35.0 dB(A) Leq,n 35.0
Players	Players	Area	25.7	19.3	19.3	
Home Side	Crowd Noise	Area	21.0	14.6	14.6	
Away Side	Crowd Noise	Area	19.1	12.7	12.7	
Refs Whistle	Refs Whistle	Area	39.6	33.2	33.2	
Speaker - 1	Speakers	Point	30.1	23.7	23.7	
Speaker - 2	Speakers	Point	30.2	23.8	23.8	
Speaker - 3	Speakers	Point	31.4	25.0	25.0	
Speaker - 4	Speakers	Point	27.5	21.1	21.1	
Receiver ST-2 47.8 dBA Leq	Fl G	dB(A) Lr,lim	dB(A)	Lr,lim dB(A)		Ldn 33.1 dB(A) Leq,d 26.7 dB(A) Leq,n 26.7
Players	Players	Area	16.6	10.2	10.2	
Home Side	Crowd Noise	Area	11.5	5.1	5.1	
Away Side	Crowd Noise	Area	11.9	5.5	5.5	
Refs Whistle	Refs Whistle	Area	30.6	24.2	24.2	
Speaker - 1	Speakers	Point	25.2	18.8	18.8	
Speaker - 2	Speakers	Point	20.1	13.7	13.7	
Speaker - 3	Speakers	Point	21.2	14.8	14.8	
Speaker - 4	Speakers	Point	24.0	17.5	17.5	

Northwood HS Field and Lighting Improvements
Octave spectra of the sources in dB(A) - Project Football 250

Name	Source type	l or A	L'w	Lw	KI	KT	Day histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz	
		m,m²	dB(A)	dB(A)	dB	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
Away Side	Area	2023.72	67.9	101.0	0.0	0.0	Crowd during Game 10 min 60*10 sec	American Football, Spectators`s area		75.0	90.1	97.9	93.9	93.6	87.2	78.1		
Home Side	Area	2023.68	68.6	101.7	0.0	0.0	Crowd during Game 10 min 60*10 sec	American Football, Spectators`s area		75.7	90.8	98.6	94.6	94.3	87.9	78.8		
Players	Area	60580.19	46.2	94.0	0.0	0.0	Sporting Event	American Football, Players				94.0						
Refs Whistle	Area	43699.04	61.6	108.0	0.0	0.0	Sporting Event	American Football, Referee`s whistle				108.0						
Speaker - 1	Point		110.0	110.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3	
Speaker - 2	Point		110.0	110.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3	
Speaker - 3	Point		110.0	110.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3	
Speaker - 4	Point		110.0	110.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3	


Noise level
Leq,d
in dB(A)
<= 45
45 < <= 50
50 < <= 55
55 < <= 60
60 < <= 65
65 < <= 70
70 < <= 75
75 < <= 80
80 < <= 85
85 <
Signs and symbols
Point source
Building
Wall
Elevation line
Receiver
Northwood High School
Track and Field
Spectator Capacity: 400

Northwood HS Field and Lighting Improvements
Assessed receiver levels
Track N Field 400

2

Receiver	Usage	Fl	Leq,d dB(A)	Leq,n dB(A)	
LT-1 64.7 dBA Leq	SCR	G	37.8	37.8	
ST-1 48.4 dBA Leq	SCR	G	30.4	30.4	
ST-2 47.8 dBA Leq	SCR	G	23.2	23.2	

Northwood HS Field and Lighting Improvements
Contribution level - Track N Field 400

Source	Source group	Source ty	Ldn dB(A)	Leq,d dB(A)	Leq,n dB(A)	
Receiver LT-1 64.7 dBA Leq Fl G	dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 44.3 dB(A)	Leq,d 37.8 dB(A)	Leq,n 37.8
Speaker - 1	Speakers	Point	33.2	26.8	26.8	
Speaker - 2	Speakers	Point	37.9	31.5	31.5	
Speaker - 3	Speakers	Point	37.9	31.5	31.5	
Speaker - 4	Speakers	Point	39.5	33.1	33.1	
Away Side	Crowd Noise	Area	31.7	25.3	25.3	
Home Side	Crowd Noise	Area	27.8	21.4	21.4	
Track N Field	Track N Field	Area	30.4	24.0	24.0	
Receiver ST-1 48.4 dBA Leq Fl G	dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 36.8 dB(A)	Leq,d 30.4 dB(A)	Leq,n 30.4
Speaker - 1	Speakers	Point	30.1	23.7	23.7	
Speaker - 2	Speakers	Point	30.2	23.8	23.8	
Speaker - 3	Speakers	Point	31.4	25.0	25.0	
Speaker - 4	Speakers	Point	27.5	21.1	21.1	
Away Side	Crowd Noise	Area	21.1	14.7	14.7	
Home Side	Crowd Noise	Area	23.4	17.0	17.0	
Track N Field	Track N Field	Area	26.1	19.7	19.7	
Receiver ST-2 47.8 dBA Leq Fl G	dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 29.6 dB(A)	Leq,d 23.2 dB(A)	Leq,n 23.2
Speaker - 1	Speakers	Point	25.2	18.8	18.8	
Speaker - 2	Speakers	Point	20.1	13.7	13.7	
Speaker - 3	Speakers	Point	21.2	14.8	14.8	
Speaker - 4	Speakers	Point	24.0	17.5	17.5	
Away Side	Crowd Noise	Area	13.9	7.5	7.5	
Home Side	Crowd Noise	Area	13.7	7.3	7.3	
Track N Field	Track N Field	Area	16.8	10.4	10.4	

Northwood HS Field and Lighting Improvements
Octave spectra of the sources in dB(A) - Track N Field 400

Name	Source type	l or A	L'w	Lw	KI	KT	Day histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz	
		m,m²	dB(A)	dB(A)	dB	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
Away Side	Area	2023.72	69.9	103.0	0.0	0.0	Crowd during Game 10 min 60*10 sec	American Football, Spectators`s area		77.0	92.1	99.9	95.9	95.6	89.2	80.1		
Home Side	Area	2023.68	70.9	104.0	0.0	0.0	Crowd during Game 10 min 60*10 sec	American Football, Spectators`s area		78.0	93.1	100.9	96.9	96.6	90.2	81.1		
Speaker - 1	Point		110.0	110.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3	
Speaker - 2	Point		110.0	110.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3	
Speaker - 3	Point		110.0	110.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3	
Speaker - 4	Point		110.0	110.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3	
Track N Field	Area	158112.34	42.0	94.0	0.0	0.0	Sporting Event	American Football, Players				94.0						

APPENDIX F

TRANSPORTATION IMPACT ASSESSMENT

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TRAFFIC/TRANSPORTATION IMPACT ANALYSIS

FOR THE PROPOSED

NORTHWOOD HIGH SCHOOL FIELD IMPROVEMENTS PROJECT

Prepared for

IRVINE UNIFIED SCHOOL DISTRICT
&
PLACEWORKS

Prepared by

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714-330-8984

JUNE 2025

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I.
INTRODUCTION AND STUDY METHODOLOGY

This report summarizes the results of a traffic/transportation impact analysis that was conducted for a field and lighting improvements project that is proposed at Northwood High School by Irvine Unified School District. The high school is located at 4515 Portola Parkway in the City of Irvine and the campus is bounded by Portola Parkway on the south, Yale Avenue on the east, Twisted Oak on the north, and agricultural land on the west. The improvements would be implemented at the existing athletics field, which is located at the southwest corner of the school campus next to Portola Parkway.

The proposed project includes the installation of new field lights at the existing football field and a new public address (PA) system. These improvements would allow for events that currently occur off-campus to be held at the Northwood High School campus. It would also provide the opportunity to have nighttime events/activities at the field. The capacity of the existing bleachers would not be increased. A map showing the location of the school is provided on Figure 1 and the site plan for the proposed project is shown on Figure 2. The proposed project would not result in a change in the number of students attending the high school.

An analysis has been prepared to evaluate the traffic impacts of the proposed project. The methodology for the traffic study, in general, was to 1) establish the existing baseline traffic conditions on the streets that provide access to the school site, 2) project the future baseline traffic conditions for the first full year of operation for the proposed project (year 2027), 3) estimate the levels of traffic that would be generated by the athletic field on an average day and a peak day of activity, and 4) conduct a comparative analysis of traffic conditions with and without the project.

In addition to the traffic impact analysis, the study also addressed the transportation issue areas of the CEQA environmental checklist, which includes an evaluation of the project's impacts on 1) a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, 2) vehicle miles traveled (VMT), 3) increased hazards or incompatible uses, and 4) emergency access.

The traffic impact analysis addresses the impacts at three intersections in the vicinity of the school site. The study area intersections and the type of traffic control at each intersection are listed below in Table 1. All of the intersections are in the jurisdiction of the City of Irvine.

TABLE 1
STUDY AREA INTERSECTIONS

Intersection	Traffic Control
Portola Parkway/Yale Avenue	Traffic Signal
Portola Parkway/Orchard Hills Drive	Traffic Signal
Orchard Hills Drive/Wolf Trail	Traffic Signal

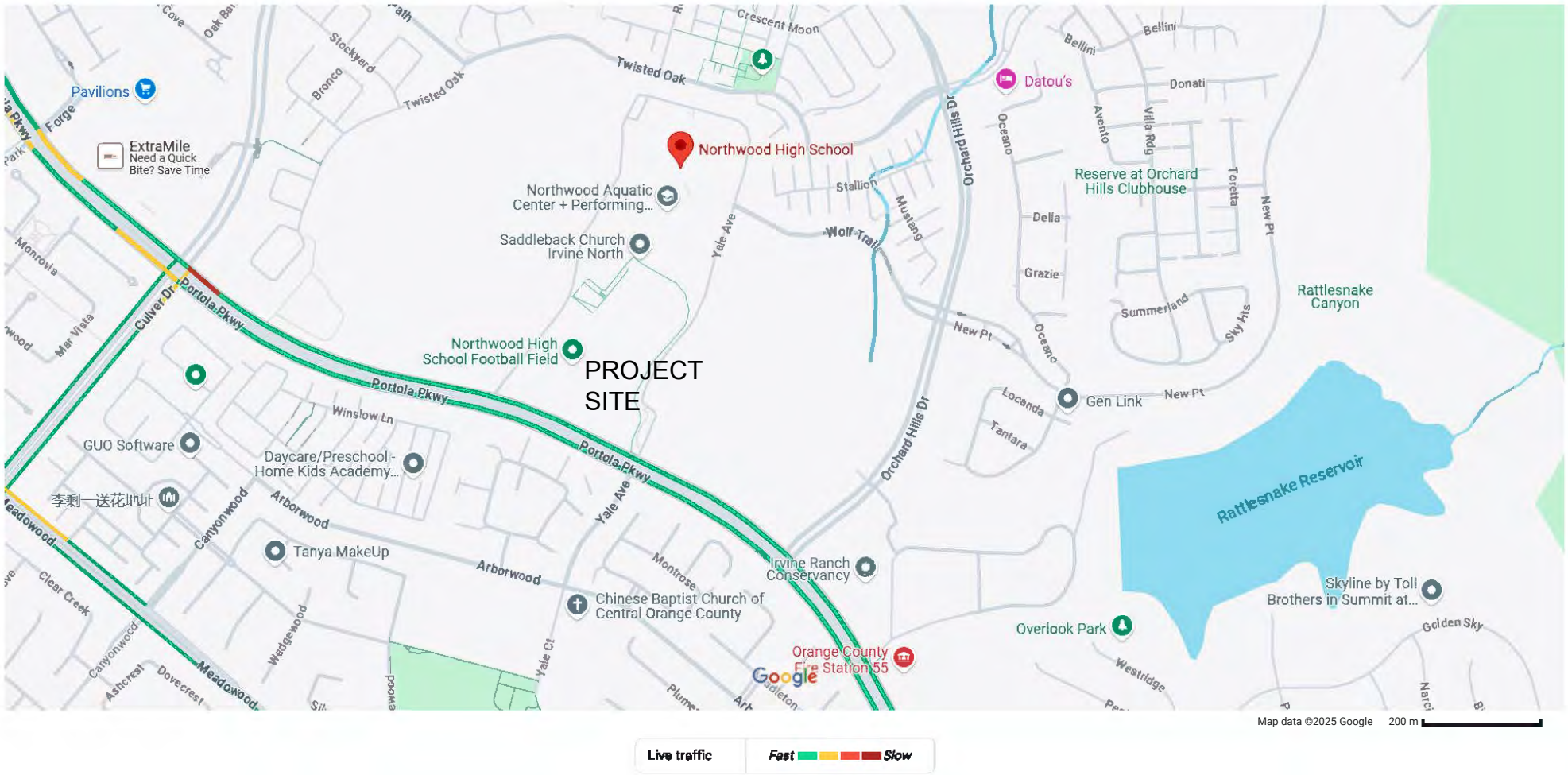

FIGURE 1
LOCATION MAP
NORTHWOOD HIGH SCHOOL FIELD IMPROVEMENTS PROJECT
IRVINE UNIFIED SCHOOL DISTRICT

Conceptual Site Plan

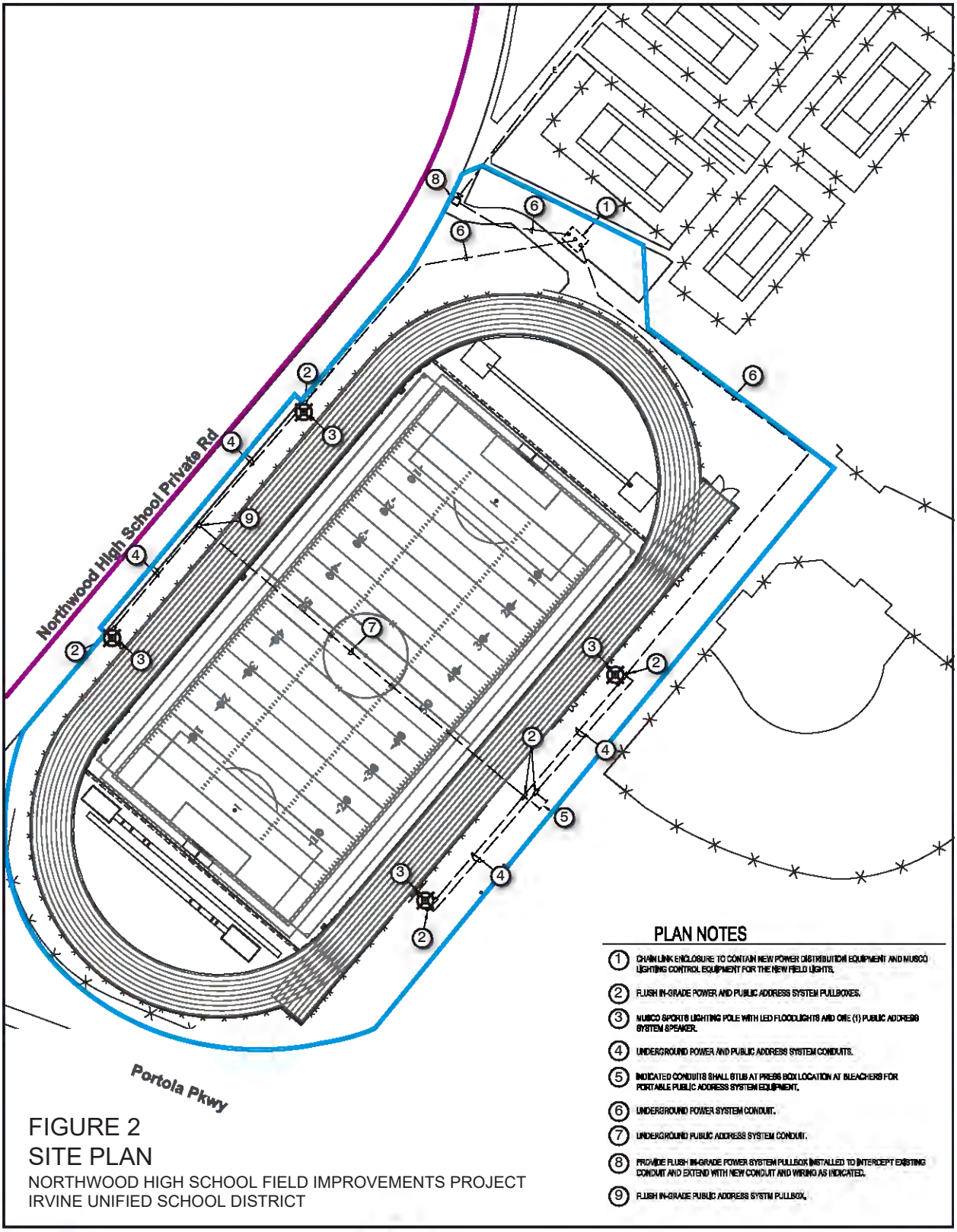

FIGURE 2
SITE PLAN
NORTHWOOD HIGH SCHOOL FIELD IMPROVEMENTS PROJECT
IRVINE UNIFIED SCHOOL DISTRICT

Northwood High School Campus
Project Site
Light Pole Locations (4)

0 100
Scale (Feet)

Source: Ruhnau Clarke Architects 2025.

The traffic impact analysis is based on an evaluation of the levels of service at the affected study area intersections. Level of service (LOS) is an industry standard by which the operating conditions of a roadway segment or an intersection are measured. LOS is defined on a scale of A through F with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS A is characterized as having free flowing traffic conditions with no restrictions on maneuvering or operation speeds, where traffic volumes are low and travel speeds are high. LOS F is characterized as having forced flow with many stoppages and low operating speeds. According to the City of Irvine "Traffic Study Guidelines" (March 21, 2023), LOS A through D represent acceptable conditions while LOS E and F represent congested, over-capacity conditions. The levels of service at the study area intersections were determined by using the Intersection Capacity Utilization (ICU) methodology, which is consistent with the City of Irvine guidelines.

The levels of service for the intersections in the vicinity of the proposed project were analyzed for the following scenarios: existing conditions (2025), existing conditions plus the proposed project, future baseline conditions without the proposed project for the target year of 2027, and future conditions with the proposed project. The year 2027 was used for the future target year as that is anticipated to be the first full year of operation for the proposed project.

II.
EXISTING AND FUTURE BASELINE TRAFFIC CONDITIONS

The street network in the vicinity of the school, the existing traffic volumes, and the levels of service at the affected study area intersections are described below.

Street Network

The streets that provide access to the proposed project area include Portola Parkway, Yale Avenue, Orchard Hills Drive, and Wolf Trail. The following paragraphs provide a brief description of the characteristics of these streets.

Portola Parkway

Portola Parkway is a six lane east-west street that abuts the south side of the school campus. Bike lanes and sidewalks are provided on both sides of Portola Parkway and parking is prohibited on both sides of the street. The speed limit on Portola Parkway is 55 miles per hour (mph), but with a reduced school speed limit of 25 mph when children are present.

Yale Avenue

Yale Avenue north of Portola Parkway is a three lane street (two northbound lanes and one southbound lane) that abuts the east side of the school campus. It has a bike lane along the first 230 feet north of Portola Parkway and no bike lanes along the remainder of the street adjacent to the school. It has a sidewalk on the west side of the street along the school frontage and no sidewalk on the east side of the street. Parking is prohibited on Yale Avenue north of Portola Parkway and the speed limit is 15 mph.

Yale Avenue south of Portola Parkway is a two lane street with bike lanes and sidewalks on both sides of the street. Parking is prohibited and the speed limit is 25 mph.

Orchard Hills Drive

Orchard Hills Drive is a two to four lane north-south street located approximately one-quarter mile east side of the school campus. It has four lanes south of Wolf Trail and two lanes north of Wolf Trail. There are sidewalks and bike lanes on both sides of the street and parking is prohibited. The speed limit on Orchard Hills Drive is 45 mph.

Wolf Trail

Wolf Trail is a two lane street that extends from Yale Avenue adjacent to the school site to Orchard Hills Drive. It has bike lanes on both sides of the street and a sidewalk on the north side of the street. Parking is prohibited on both sides of the street and the speed limit is 25 mph. The continuation of Wolf Trail east of Orchard Hills Drive is called New Point.

Existing Traffic Volumes

Manual traffic counts were taken at the three study area intersections during the Friday evening peak period on April 18, 2025. The peak hour for this analysis (6:00 to 7:00 p.m.) refers to the one-hour time period prior to the beginning of a varsity football game at the field, which would typically occur from 7:00 to 9:00 on a Friday and would generate the highest number of attendees as compared to all other activities at the facility. The existing peak hour traffic volumes and turning movements are shown in the Appendix.

Existing Intersection Levels of Service

To quantify the existing baseline traffic conditions, the three study area intersections were analyzed to determine their operating conditions during the Friday evening peak hour. Based on the hourly traffic volumes, the turning movement counts, and the existing number of lanes at each intersection, the ICU values and corresponding levels of service have been determined for each intersection, as summarized in Table 2.

TABLE 2
EXISTING AND FUTURE INTERSECTION LEVELS OF SERVICE

	ICU Value & Level of Service Friday Evening Peak Hour	
Intersection	***Existing Conditions***	***2027 Without Project***
Portola Parkway/Yale Avenue	0.393 – A	0.407 – A
Portola Parkway/Orchard Hills Drive	0.408 – A	0.424 - A
Orchard Hills Drive/Wolf Trail	0.316 – A	0.326 – A

The levels of service shown in Table 2 are based on the ICU values that were calculated for each intersection based on the existing and projected traffic counts. The relationship between the ICU values and levels of service is shown in Table 3.

TABLE 3
RELATIONSHIP BETWEEN ICU VALUES & LEVELS OF SERVICE

Level of Service	***ICU Value***
A	0.0 to 0.60
B	> 0.60 to 0.70
C	> 0.70 to 0.80
D	> 0.80 to 0.90
E	> 0.90 to 1.00
F	> 1.00

As shown in Table 2, all three of the study area intersections currently operate at acceptable levels of service (LOS A through D) during the afternoon peak hour as all three of the intersections operate at LOS A.

Future Baseline Traffic Conditions

As the proposed project is expected to be fully completed in the fall of 2026, the first full year of operation for the facility would be the year 2027. The existing (2025) traffic volumes were expanded by a growth factor of 4.04 percent to account for general regional growth and the cumulative impacts of traffic associated with other development projects in the area. This growth factor represents a two percent annual growth rate for two years, compounded annually. The projected traffic volumes for the year 2027 without the proposed project are shown in the Appendix.

Based on the projected peak hour traffic volumes, the turning movement counts, and the existing lane configuration, the future baseline levels of service were calculated for each study area intersection, as summarized in Table 2.

For the target year of 2027, all three of the study area intersections are projected to operate at acceptable levels of service (LOS A through D) as all of the intersections would operate at LOS A during the Friday evening peak hour.

III.
TRAFFIC IMPACT ANALYSIS

This section summarizes the analysis of the proposed project's impacts on study area traffic/transportation conditions. First is a discussion of the significance standards followed by a discussion of project generated traffic and the impacts of the proposed project on traffic volumes and intersection levels of service. This is followed by an analysis of the impacts associated with non-motorized transportation (pedestrians and bicycles) and the findings relative to the CEQA transportation issues.

Standards of Significance

According to the City of Irvine standards, an intersection would be significantly impacted if a project would result in a change in the level of service from an acceptable LOS A, B, C, or D, to an unacceptable LOS E or F. If a signalized intersection is operating at LOS E or F without project traffic, the intersection would be significantly impacted if the project would increase the ICU value by 0.02 or more.

With regard to the CEQA thresholds of significance, Appendix G of the CEQA Guidelines state that a project would normally have a significant effect on the environment if the project could:

T-1 Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities,

T-2 Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT),

T-3 Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), or

T-4 Result in inadequate emergency access.

Project Generated Traffic

The volumes of traffic that would be generated by the proposed project were determined in order to estimate the impacts of the project on the study area streets and intersections. The trip generation rates and the anticipated volumes of traffic that would be generated by the athletics field on an average day and a peak day of activity are shown in Table 4.

The trip generation rates shown in Tables 4 reflect the assumption that the activities at the field would generate a demand of one vehicle for every two attendees (for vehicles that remain parked at the site) and that an additional ten percent of the vehicles arriving at the facility would drop passengers off then leave. The City of Irvine Zoning Ordinance, Division 4 – Parking, indicates that the parking requirement for places of assembly is one space per three seats. A rate of one vehicle per two attendees was used for the analysis to ensure that the generated traffic volumes were conservatively high.

TABLE 4
PROJECT GENERATED TRAFFIC

Facility	***Pre-Event Peak Hour***			***Daily Traffic***
	Inbound	***Outbound***	***Total***	
TRIP GENERATION RATES				
Athletic Field (vehicle trips per attendee)	0.55	0.05	0.60	1.20
GENERATED TRAFFIC VOLUMES				
Average Day (85 additional attendees)	47	4	51	102
Football Game (250 attendees, 50 additional daily attendees)	138	12	150	60

NOTE: The varsity football games currently take place at the field, but during the daylight hours. The peak hour traffic volumes represent the shift to the evening starting times. The daily traffic volume represents an increase of 50 additional attendees per day.

Table 4 indicates that the facility would generate an estimated 51 vehicle trips during the peak hour (47 inbound and 4 outbound) and 102 daily trips on an average day with 85 additional attendees. The peak hour for this analysis represents the one-hour time period at the beginning of an event when patrons are traveling to the athletics field. Approximately the same level of traffic would be generated at the end of an event when patrons are exiting (with the inbound and outbound traffic volumes reversed).

Table 4 indicates that a football game at the facility would generate an estimated 150 vehicle trips during the peak hour (138 inbound and 12 outbound) prior to the start of a game. This traffic would typically be generated between 6:00 and 7:00 p.m. on a Friday after the lights are installed at the field. The increase in daily trips for a football game would be 60 trips because the existing facility has an estimated 200 attendees for a daytime game while the proposed facility would have an estimated 250 attendees. The primary traffic impact would be that the peak pre-game traffic would shift to the evening.

The numbers of additional attendees assumed for the athletics field activities are based on information provided by staff at Irvine Unified School District regarding the existing and anticipated number of attendees. The data indicates that tackle football would have an increase of 50 attendees with no increase for flag football, no increase for band, 35 for soccer, 10 for lacrosse, and no increase for track and field. The use of 85 additional attendees shown in Table 4 for an average day is based on the assumption that a tackle football game and a soccer game could occur on the same day because of the extended hours of use at the field.

The traffic impact analysis for the intersections is based on the traffic that would be generated by a varsity football game with 250 attendees. To quantify the increase in traffic at each intersection during a pre-game peak hour, the project generated traffic shown in Table 4 was geographically distributed onto the street network using the following directional percentages. This distribution assumption is based on the layout of the existing street network and the school attendance boundaries. The volumes of site generated traffic that would be added to each study area intersection on a peak day at the facility are shown in the Appendix.

Portola Parkway west of Yale Avenue – 30%
Portola Parkway east of Orchard Hills Drive – 40%
Yale Avenue south of Portola Parkway – 20%
Orchard Hills Drive north of Wolf Trail – 9%
New Point west of Orchard Hills Drive – 1%

The volumes of traffic for the existing conditions scenario plus the project generated traffic and the total volumes of traffic projected for the year 2027 scenario with the proposed project are shown in the Appendix. These projected traffic volumes are for the Friday evening pre-event peak hour.

Intersection Impact Analysis

The impact analysis for the three study area intersections was conducted by comparing the ICU values and levels of service (LOS) for the "without project" and "with project" scenarios. For the existing conditions scenario, the analysis compares the existing conditions to the conditions with the proposed project.

For the year 2027 scenario, the analysis compares the year 2027 baseline conditions without the proposed project to the year 2027 scenario with the proposed project. The year 2027 was used as the target year for future conditions as that is anticipated to be the first full year that the proposed project would be operational. The peak hour for the analysis represents the time period prior to the start of a varsity football game at the facility, which would typically be between 6:00 and 7:00 p.m. on a Thursday or Friday. This does not coincide with the peak period for the ambient traffic volumes, which generally occurs between 4:00 and 6:00 p.m.

The comparative levels of service at the study area intersections for the existing conditions scenario are summarized in Table 5 for the Friday evening peak hour. The table shows the before and after ICU values and the levels of service that would occur at each study area intersection. Also shown are the increases in the ICU values that would occur as a result of the proposed project. The last column in Table 5 indicates if the intersections would be significantly impacted by the project generated traffic.

TABLE 5
PROJECT IMPACT ON INTERSECTION LEVELS OF SERVICE
EXISTING CONDITIONS AS BASELINE

Intersection	*ICU Value & Level of Service*		*Increase In ICU Value*	*Significant Impact*
	Existing Conditions	*Existing plus Project*		
Portola Parkway/Yale Avenue	0.393 – A	0.429 – A	0.036	No
Portola Parkway/Orchard Hills Drive	0.408 – A	0.420 – A	0.012	No
Orchard Hills Drive/Wolf Trail	0.316 – A	0.316– A	0.000	No

The intersection of Portola Parkway and Yale Avenue, for example, operates with an ICU value of 0.393 and LOS A for existing conditions and would operate with an ICU value of 0.429 and

LOS A for the existing plus project scenario, which represents an increase in the ICU value of 0.036. This impact would be less than significant according to the criteria outlined above because the intersection would continue to operate at an acceptable LOS A. Table 5 indicates that none of the study area intersections would be significantly impacted by the traffic that would be generated by the proposed project for a peak day event (varsity football game) for the existing conditions baseline scenario.

The comparative levels of service for the year 2027 analysis scenario are shown in Table 6. Table 6 indicates that none of the study area intersections would be significantly impacted by the traffic that would be generated by the proposed project for a peak day event (varsity football game) for the year 2027 baseline scenario.

TABLE 6
PROJECT IMPACT ON INTERSECTION LEVELS OF SERVICE
YEAR 2027 AS BASELINE

	ICU Value & Level of Service			
Intersection	***2027 Without Project***	***2027 With Project***	***Increase In ICU Value***	***Significant Impact***
Portola Parkway/Yale Avenue	0.407 – A	0.443 – A	0.036	No
Portola Parkway/Orchard Hills Drive	0.424 - A	0.435 – A	0.011	No
Orchard Hills Drive/Wolf Trail	0.326 – A	0.327– A	0.001	No

Tables 5 and 6 indicate that the proposed project would not have a significant impact at any of the study area intersections during the Friday evening peak hour based on the significance criteria presented previously because the intersections would continue to operate at LOS A during a peak day event. As there would be no significant impacts, no capacity-related mitigation measures would be required. As the analysis indicates that a peak day event with 250 attendees would not result in a significant traffic impact, it is concluded that an average day event with 85 additional attendees would likewise not result in a significant traffic impact.

Non-Motorized Transportation and Transit

The proposed project would generate a demand for non-motorized travel as some event attendees would travel to and from the school as pedestrians or on bicycles. The study area streets have sidewalks on one or both sides of the street and the three signalized intersections in the study area are equipped with painted crosswalks and pedestrian crossing signals. Painted crosswalks are also located at the intersection of Yale Avenue and Wolf Trail adjacent to the school campus. All of the study area streets have bike lanes on both sides of the street except for Yale Avenue north of Portola Parkway and bike racks are provided at the school.

With regard to public transit, the nearest bus route operated by Orange County Transportation Authority (OCTA) is Route 167, which runs along Irvine Boulevard approximately one mile south of the school campus. In addition, Irvine Connect operates a bus route that runs along Yale Avenue and Irvine Boulevard with a bus stop at the intersection of these two streets. As these bus routes are a mile away from the school campus, they would get little or no use by patrons of the athletics

field. The proposed project would not adversely affect the performance of these transit or non-motorized transportation facilities.

The proposed project would be consistent with policies supporting alternative transportation because sidewalks, crosswalks, bike lanes, and bike racks would be available for use by attendees. Also, busing would typically be provided from the opposing schools during athletics events.

Findings Relative to CEQA Transportation Issues

The proposed project involves the installation of new field lights and a new public address (PA) system at the existing football field at Northwood High School. For the transportation analysis, Appendix G of the CEQA Guidelines states that a proposed project could have a significant effect on the environment if the project would:

a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities,

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT),

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), or

d) Result in inadequate emergency access.

The findings regarding each of these issues are presented in the following sections.

Issue: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

CEQA Finding: No Impact

The Circulation Element of the City of Irvine General Plan includes specific goals, objectives, and policies that serve as a comprehensive framework for managing transportation infrastructure and promoting efficient mobility within the City of Irvine. The document addresses various aspects of circulation, including roadways, public transit, active transportation modes, and land use planning, with the overarching aim of enhancing accessibility, safety, and sustainability for residents, businesses, and visitors.

The goals in the Circulation Element that are relevant to the proposed project at the high school are as follows. Goal 1: To facilitate the planning, provision, and maintenance of a well-integrated roadway network that effectively meets the anticipated demands of both local communities and the broader regional transportation system. Goal 2: To design a circulation system that adheres to the highest standards of transportation engineering safety while considering the surrounding land uses and their sensitivities. Goal 3: To establish a pedestrian circulation system that supports and promotes walking as a viable mode of transportation within the community. Goal 4: To develop and maintain a comprehensive bicycle network that encourages increased bicycle usage for both

commuting and recreational purposes. Goal 5: Foster a culture of active transportation by prioritizing walking, cycling, and other non-motorized modes of travel to improve public health, reduce greenhouse gas emissions, and enhance the quality of life for residents and visitors in Irvine.

The proposed improvements at the high school's athletics field are consistent with the goals, objectives, and policies presented in the Circulation Element and the project would not adversely affect the performance of any roadway, transit, or non-motorized (pedestrian and bicycle) transportation facilities. Based on the traffic analysis, the discussion of non-motorized transportation and transit, and a review of the Circulation Element of the City of Irvine General Plan, the proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Issue: Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT).

CEQA Finding: Less Than Significant Impact

Vehicle delays and levels of service (LOS) have historically been used as the basis for determining the significance of traffic impacts as standard practice in California Environmental Quality Act (CEQA) documents. On September 27, 2013, SB 743 was signed into law, starting a process that fundamentally changed transportation impact analyses as part of CEQA compliance. SB 743 eliminated auto delay, LOS, and other similar measures of vehicular capacity or traffic congestion as the sole basis for determining significant impacts under CEQA. As part of the current CEQA Guidelines, the criteria "shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" (Public Resources Code Section 21099(b)(1)). Pursuant to SB 743, the California Natural Resources Agency adopted revisions to the CEQA Guidelines on December 28, 2018, to implement SB 743. CEQA Guidelines Section 15064.3 describes how transportation impacts are to be analyzed after SB 743. Under the Guidelines, metrics related to "vehicle miles traveled" (VMT) were required beginning July 1, 2020, to evaluate the significance of transportation impacts under CEQA for development projects, land use plans, and transportation infrastructure projects. State courts ruled that under the Public Resources Code Section 21099, subdivision (b)(2), "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment" under CEQA, except for roadway capacity projects.

The City of Irvine's "Traffic Study Guidelines" include screening criteria that can be used to identify when a proposed project is anticipated to result in a less than significant VMT impact. The document states that a locally serving public school (kindergarten through 12th grade) can be screened from requiring a VMT impact analysis and that no further VMT analysis is required.

In addition, since the project will provide the opportunity for additional athletics events to be held at the Northwood High School campus instead of facilities at other schools in the District, it would result in a reduction in vehicle miles traveled because the facility would be closer to most of the homes in the attendance area as compared to the schools where the activities currently take place. Based on these guidelines, this athletics facility project would not conflict or be inconsistent with

CEQA Guidelines Section 15064.3, subdivision (b), and would have a less than significant VMT impact.

Issue: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

CEQA Finding: Less Than Significant Impact

The proposed project would not include any on- or off-site access or circulation features that would create or increase any design hazards or incompatible uses. Access to the school site would continue to be provided by four existing driveways on Yale Avenue and one existing driveway on Portola Parkway adjacent to the athletics field. There would be no modifications to these driveways or to the study area street network and all improvements within the school site would be consistent with the criteria of the California Division of the State Architect.

The increased levels of traffic, the increased number of pedestrians, and the increased number of vehicular turning movements that would occur at the driveways and at the nearby intersections would result in an increased number of traffic conflicts and a corresponding increase in the probability of an accident occurring. These impacts would not be significant, however, because the streets, intersections, and driveways are designed to accommodate the anticipated levels of vehicular and pedestrian activity. These streets and intersections have historically been accommodating school-related traffic on a daily basis for the existing school. The proposed project's athletics field improvements would be compatible with the design and operation of a high school, and the proposed project would not result in any modifications to the existing access or circulation features at the school.

As the existing street network could readily accommodate the anticipated increase in vehicular, pedestrian, and bicycle activity, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses.

Issue: Result in inadequate emergency access.

CEQA Finding: No Impact

Emergency access to the school site is provided by four existing driveways on the west side of Yale Avenue that provide access to the school's parking lots plus an additional driveway on the north side of Portola Parkway. This driveway provides access to an on-site circulation road that runs along the west and north sides of the school campus and connects to Yale Avenue on the east side of the campus. The existing access and circulation features at the school, including the driveways, parking lots, on-site roadways, and fire lanes, would accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. The proposed project would be designed to accommodate emergency access to the athletics complex. The existing access/circulation features at the school were subject to the District's design requirements and were approved by the Fire Department and the California Division of the State Architect. Emergency vehicles could continue to readily access the athletics field and all other areas of the

school via on-site travel corridors. The proposed project would not, therefore, result in inadequate emergency access.

IV.
SUMMARY OF IMPACTS AND CONCLUSIONS

The key findings of the traffic impact analysis are presented below.

- The proposed improvements at the school's athletics field would generate an estimated 51 vehicle trips during the peak hour on an average day (47 inbound and 4 outbound) and 102 trips per day. On a peak day of activity, which would be a varsity football game, the facility would generate an estimated 150 vehicle trips during the peak hour (138 inbound and 12 outbound). The peak hour for a football game represents the one-hour time period prior to the beginning of a game when attendees are traveling to the field, which would typically occur on a Friday evening between 6:00 and 7:00 p.m. Approximately the same level of traffic would be generated at the end of an event when attendees are exiting (with the inbound and outbound traffic volumes reversed).

- An analysis of three intersections in the vicinity of the school indicates that the traffic generated by the facility during a peak day event would not result in a significant impact at any of the intersections according to the City of Irvine's significance criteria. Similarly, an average day of activity at the facility would not result in a significant traffic impact.

- CEQA threshold of significance T-1 asks if the proposed project would conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. The analysis indicates that there would be **no impact** because:

  - The proposed project would not adversely affect the performance or safety of any transit or non-motorized transportation facilities (pedestrians and bicycles) and would not conflict with any adopted plans, policies, or programs relative to these alternative transportation modes,

  - The level of service thresholds would not be exceeded by traffic generated by events at the facility, and

  - The Circulation Element of the City of Irvine General Plan includes specific goals, objectives, and policies that serve as a comprehensive framework for managing transportation infrastructure and promoting efficient mobility within the City of Irvine. The document addresses various aspects of circulation, including roadways, public transit, active transportation modes, and land use planning, with the overarching aim of enhancing accessibility, safety, and sustainability for residents, businesses, and visitors. The proposed project is consistent with the goals, objectives, and policies presented in the Circulation Element and would not conflict with a program, plan, ordinance, or policy of the General Plan, including transit, roadway, bicycle, and pedestrian facilities.

- CEQA threshold of significance T-2 asks if the proposed project would conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT). The City of Irvine "Traffic Study Guidelines" includes screening criteria that can be used to identify when a proposed project is anticipated to result in a less than significant VMT impact. The document states that a locally serving public school

(kindergarten through 12th grade) can be screened from requiring a VMT impact analysis and that no further VMT analysis is required. The proposed project would, therefore, have a **less than significant impact** relative to VMT. Furthermore, the proposed project would result in a reduction in total vehicle miles traveled because the proposed facility would be closer to most of the homes in the attendance area as compared to the schools where some of the activities currently take place.

- CEQA threshold of significance T-3 asks if the proposed project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). The analysis indicates that the existing streets, intersections, and driveways are designed to accommodate the anticipated levels of vehicular and pedestrian activity and have historically been accommodating school-related traffic. The proposed project would be compatible with the design and operation of a high school and the proposed project would not result in any modifications to the existing access or circulation features at the school. The proposed project would not, therefore, substantially increase hazards due to a geometric design feature or incompatible uses and would have a **less than significant impact**.
- CEQA threshold of significance T-4 asks if the proposed project would result in inadequate emergency access. The existing access and circulation features at the school, including the driveways, on-site roadways, parking lots, and fire lanes, would accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles, and the proposed athletics complex would be designed to accommodate emergency access to the field. The proposed project would not result in inadequate emergency access and there would be **no impact**.

APPENDIX

INTERSECTION TURNING MOVEMENT COUNTS

Intersection: Portola Parkway/Yale Avenue
Jurisdiction: City of Irvine
Day/Date: Friday , April 18, 2025

Scenario	Northbound			Southbound			Eastbound			Westbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Existing	50	120	120	80	80	90	80	700	70	100	740	110	2340
2027 No Project	52	125	125	83	83	94	83	728	73	104	770	114	2434
Project Traffic	0	28	0	4	2	4	41	0	0	0	0	41	120
Existing + Project	50	148	120	84	82	94	121	700	70	100	740	151	2460
2017 with Project	52	153	125	87	85	98	124	728	73	104	770	155	2554

INTERSECTION TURNING MOVEMENT COUNTS

Intersection: Portola Parkway/Orchard Hills Drive
Jurisdiction: City of Irvine
Day/Date: Friday , April 18, 2025

Scenario	Northbound			Southbound			Eastbound			Westbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Existing	0	0	0	120	0	60	140	750	0	0	900	330	2300
2027 No Project	0	0	0	125	0	62	146	780	0	0	936	343	2392
Project Traffic	0	0	0	1	0	0	0	4	0	0	41	14	60
Existing + Project	0	0	0	121	0	60	140	754	0	0	941	344	2360
2017 with Project	0	0	0	126	0	62	146	784	0	0	977	357	2452

INTERSECTION TURNING MOVEMENT COUNTS

Intersection: Orchard Hills Drive/Wolf Trail
Jurisdiction: City of Irvine
Day/Date: Friday , April 18, 2025

Scenario	Northbound			Southbound			Eastbound			Westbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Existing	70	290	100	10	40	60	80	10	30	120	10	10	830
2027 No Project	73	302	104	11	42	62	83	11	31	125	11	11	866
Project Traffic	14	0	0	0	0	13	1	0	1	0	1	0	30
Existing + Project	84	290	100	10	40	73	81	10	31	120	11	10	860
2017 with Project	87	302	104	11	42	75	84	11	32	125	12	11	896

APPENDIX G

TRIBAL CONSULTATION LETTERS

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GABRIELEÑO BAND OF MISSION INDIANS - KIZH NATION
Historically known as The San Gabriel Band of Mission Indians recognized by the State of California as the aboriginal tribe of the Los Angeles basin

Monday, June 2, 2025

Kelvin Okino
Executive Director, Facilities and Construction
Irvine Unified School District
2015 Roosevelt, Irvine, California 92620

Subject: Formal Request for Government-to-Government Consultation - Northwood High School Field Lighting Improvement Project

Dear Kelvin Okino,

On behalf of the Gabrieleno Band of Mission Indians Kizh Nation, I am formally requesting government-to-government consultation with the Irvine Unified School District pursuant to Assembly Bill 52 (AB 52) and the California Environmental Quality Act (CEQA) regarding the proposed Northwood High School Field Lighting Improvement Project. Our tribe has ancestral and cultural ties to this area, and we are concerned that the project may impact Tribal Cultural Resources (TCRs) within our traditional territory.

Under AB 52, lead agencies are required to engage in meaningful government-to-government consultation with our tribe who is ancestrally traditionally and culturally affiliated with the project area when the project undergoes CEQA review, in accordance with the law.

We request that formal consultation be initiated within the required timeframe, and we are prepared to meet at your earliest convenience. Please confirm receipt of this request and provide available dates for an initial consultation meeting.

For scheduling or further discussion, please contact me at gabrielenoindians@gmail.com or (844) 390 - 0787. We appreciate your commitment to ensuring compliance with AB 52 and protecting the cultural heritage of our tribal community.

Best regards,

Hereditary Chief Andrew Salas
Gabrieleño Band of Mission Indians–Kizh Nation

PO Box 393 Covina, CA 91723 www.gabrielenoindians.org
admin@gabrielenoindians.org

GABRIELEÑO BAND OF MISSION INDIANS - KIZH NATION
Historically known as The San Gabriel Band of Mission Indians recognized by the State of California as the aboriginal tribe of the Los Angeles basin

Monday, August 18, 2025

Kathleen Gil
Facilities Planner
Irvine Unified School District
City of Irvine
kathleengil@iusd.org

Dear Kathleen Gil,

Please find below the substantial evidence submitted by the Gabrieleño Band of Mission Indians – Kizh Nation in relation to your project. This documentation fulfills the legal requirement under the California Environmental Quality Act (CEQA) and Assembly Bill 52 (AB 52) to establish our Tribe's cultural and ancestral affiliation to the project area.

The project site lies within the ancestral homelands of the Gabrieleño Band of Mission Indians – Kizh Nation (Quiichi), the original stewards of the Los Angeles Basin and much of present-day Orange County. Long before European invasion, the Kizh Nation maintained a sophisticated network of permanent villages, seasonal camps, ceremonial sites, and trade routes that extended across rivers, wetlands, and coastal plains. These lands were not vacant nor shared, but carefully managed by the Kizh people through traditional ecological knowledge, ensuring sustainable use of food, water, and natural resources for thousands of years.

Indigenous Background of the Project Area

The Irvine region was historically a vital area for the Kizh Nation, with a landscape characterized by fertile plains, oak groves, and waterways that provided abundant resources. The nearby San Diego Creek watershed and seasonal wetlands were central to village life, offering fish, fresh water, and plant materials. Surrounding oak woodlands supplied acorns, a staple of the Kizh diet, while grasslands supported deer, rabbits, and other game. Coastal access routes connected inland villages with salt, fish, and shellfish gathered from the Pacific Ocean.

Village Sites and Cultural Landscape

Within present-day Irvine and its surrounding areas, the ancestral village of Pasbengna is recorded. This village was situated near vital water sources and resource-rich landscapes, allowing the Kizh people to sustain permanent and seasonal lifeways. The surrounding wetlands and streams provided fish, fresh water, and plant materials, while oak groves and grasslands supported hunting and acorn gathering. The Kizh utilized native plants such as tule reeds for housing and basketry, sage and willow for medicine, and yucca for cordage. Trade routes from Pasbengna connected inland communities to coastal villages and ceremonial centers, reinforcing the region's role as a significant hub within the larger Kizh Nation cultural landscape.

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Spanish Colonial History – Mission and Rancho Periods

With the arrival of the Spanish in the late 1700s, this region fell under the control of the Mission San Juan Capistrano (founded 1776). The forced relocation, baptism, and enslavement of Kizh people marked the beginning of profound cultural disruption. Native villages in the Irvine area were dismantled, and their people were taken to Mission San Juan Capistrano, where they were renamed, stripped of identity, and compelled into labor.
By the 1800s, Spanish and Mexican land grants overtook Kizh territory. The Irvine area was encompassed within the Rancho San Joaquin and Rancho Santiago de Santa Ana land grants, which consolidated large tracts of former Kizh lands into ranching estates, further erasing Indigenous land stewardship and severing ties to ancestral village sites.

Archaeological Sensitivity and Findings

The City of Irvine and surrounding Orange County have documented numerous archaeological discoveries, including village sites, lithic scatters, shell middens, and burial grounds directly tied to the Kizh Nation. Notably, excavations in nearby areas have revealed milling stones, projectile points, and habitation features dating back thousands of years. Burials and ceremonial features have also been recorded, underscoring the high sensitivity of this region for ancestral remains and cultural materials.
Significance and Need for Protection

Given the dense cultural history of the Irvine region and the presence of both recorded and unrecorded sites, there exists a strong likelihood of encountering tribal cultural resources, human burials, and associated artifacts during ground disturbance. These lands are of immeasurable cultural and spiritual importance to the Kizh Nation, as they represent the continuum of our ancestors' lives, histories, and traditions.
Accordingly, the Gabrieleño Band of Mission Indians – Kizh Nation asserts the need for Tribal Monitors to be present during all phases of ground disturbance to ensure the protection of tribal cultural resources, sacred sites, and potential ancestral burials.

AB52 Consultation and Mitigation Measures – City of Irvine

Given the substantial evidence provided and the high sensitivity of these areas, Chairman Salas formally requests that the City of Irvine implement our Tribe's specific mitigation measures to ensure the protection and preservation of any cultural resources that may be discovered during ground disturbances. These measures have been carefully developed to uphold the integrity of our sacred sites and to ensure compliance with AB52 consultation requirements.

They are specific to our Tribe, reflecting our unique historical, cultural, and ancestral ties to these lands.
We respectfully request confirmation of receipt of this letter and a timely response outlining the implementation of our proposed mitigation measures. We look forward to collaborating with the City of Irvine to ensure the responsible stewardship of these culturally significant areas.

Respectfully,

Hereditary Chief Andrew Salas
Gabrieleño Band of Mission Indians–Kizh Nation

GABRIELEÑO BAND OF MISSION INDIANS - KIZH NATION
Historically known as The San Gabriel Band of Mission Indians recognized by the State of California
as the aboriginal tribe of the Los Angeles basin

Legal Thresholds for "Substantial Evidence" in Tribal Consultation

RE: CEQA and AB 52 Tribal Consultation

Attn: Lead Agency Representative

This letter is submitted by the Gabrieleño Band of Mission Indians – Kizh Nation to clarify the legal definition and threshold of "substantial evidence" as required under the California Environmental Quality Act (CEQA) and Assembly Bill 52 (AB 52). These statutes govern how Tribes are determined to be eligible for consultation and involvement in cultural resource protection.

I. Legal Definition of "Substantial Evidence"

Pursuant to CEQA Guidelines § 15384(a):

> *"Enough relevant information and reasonable inferences from that information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached."*

In practical terms, "substantial evidence" is fact-based, documented proof, and not merely opinion or unverified narrative. Lead agencies are required to rely on this standard when determining which tribes have legal standing in consultation, mitigation, monitoring, and repatriation processes under CEQA and AB 52.

Valid examples of substantial evidence include:

- Archaeological records
- Historical documentation
- Spanish/Mexican land grant records and mission-era maps
- Genealogical data showing ancestral ties to the area
- Oral histories (when supported by documentation)
- Expert reports or peer-reviewed scholarly assessments

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II. What Does Not Qualify as Substantial Evidence?

The intent of CEQA and AB 52 is not to create symbolic inclusivity, but to ensure that only those tribes with documented, lineal, cultural, or ancestral affiliation to a project area are consulted. The law is clear: participation must be based on fact-based documentation, not preference, emotion, or assumption.

According to **CEQA Guidelines § 15384**:

> *"Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts."*

Conversely, **§ 15384(b) states**:

> *"Argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly inaccurate or erroneous, or evidence that is not credible shall not constitute substantial evidence."*

Invalid examples include:

1. Unsubstantiated Opinions – Generalized claims such as "we feel connected to this area" without accompanying documentation.
2. Speculative Assertions – Guesswork or assumptions without factual or historical support.
3. Form Letters or Equity-Based Requests – Requests made "in the spirit of respect" or for equitable inclusion with no specific tie to the site.
4. NAHC List Status Alone – Being listed on the NAHC Consultation Contact List does not establish cultural affiliation or descent. The NAHC has clarified this list is strictly for contact purposes.
5. Unverified or Fabricated Sources – Misrepresented or plagiarized documents, or third-party claims made without evidence.

Allowing participation based on such unsupported assertions undermines the legal foundation of CEQA, violates the rights of lineal descendant tribes, and puts the lead agency at legal risk.

III. Legal Precedent: *Koi Nation v. City of Clearlake* (2020)

This pivotal court case illustrates the legal requirement to honor substantial evidence. The Koi Nation provided maps, Tribal records, and historical evidence of its ancestral ties to a project site in Clearlake. The City dismissed the evidence and issued a Mitigated Negative Declaration (MND) instead of conducting full consultation.

The California Court of Appeal ruled in favor of the Koi Nation, concluding that:

- The Tribe met the substantial evidence standard, triggering the requirement for full CEQA review;
- The city violated CEQA by dismissing the evidence and failing to conduct proper consultation;

- The presence of substantial evidence that cultural resources may be affected required the preparation of an EIR.

Lead agencies are legally obligated to consult and coordinate with tribes that present documented, fact-based evidence of cultural affiliation to a project area. This case confirms that agencies may not substitute convenience, preference, or assumptions in place of the legal requirement to engage Tribes who provide substantial evidence of *ancestral* connection.

IV. Why This Matters

Pursuant to AB 52 and CEQA, consultation must be based on "substantial evidence" demonstrating a tribe's cultural or ancestral affiliation to the specific project area. Failure to apply the substantial evidence standard results in:

- Invalidation of tribal consultation efforts
- Potential CEQA litigation and project delays
- Legal and ethical harm to culturally affiliated tribes
- Risk of project rejection or reversal

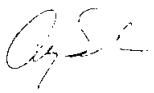
V. The Position of the Kizh Nation

The Gabrieleño Band of Mission Indians – Kizh Nation maintains and submits substantial archaeological, historical, genealogical, and cultural evidence of our ancestral presence in the Greater Los Angeles Basin and associated project areas. This documented affiliation compels our inclusion in all stages of consultation, monitoring, and cultural resource treatment.

We respectfully urge your agency to uphold CEQA and AB 52's legal standards and to reject unsupported claims that seek involvement based on speculative or generalized assertions. Inclusion in tribal consultation is a legal matter—not a discretionary one.

Should your agency require further documentation, expert testimony, or legal case references to support this position, we are available to provide additional materials upon request.

Respectfully,



Hereditary Chief Andrew Salas
Gabrieleño Band of Mission Indians–Kizh Nation

GABRIELENO BAND OF MISSION INDIANS – KIZH NATION - PROPOSED TCR MITIGATION MEASURES

Subject : Northwood and Woodbridge High School Project

TCR-1: Retain a Native American Monitor Prior to Commencement of Ground-Disturbing Activities

A. The project applicant/lead agency shall retain a Native American Monitor from or approved by the Gabrieleño Band of Mission Indians – Kizh Nation. The monitor shall be retained prior to the commencement of any "ground-disturbing activity" for the subject project at all project locations (i.e., both on-site and any off-site locations that are included in the project description/definition and/or required in connection with the project, such as public improvement work). "Ground-disturbing activity" shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching.
B. A copy of the executed monitoring agreement shall be submitted to the lead agency prior to the earlier of the commencement of any ground-disturbing activity, or the issuance of any permit necessary to commence a ground-disturbing activity.
C. The monitor will complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources, or "TCR"), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the project applicant/lead agency upon written request to the Tribe.
D. On-site tribal monitoring shall conclude upon the latter of the following (1) written confirmation to the Kizh from a designated point of contact for the project applicant/lead agency that all ground-disturbing activities and phases that may involve ground-disturbing activities on the project site or in connection with the project are complete; or (2) a determination and written notification by the Kizh to the project applicant/lead agency that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact Kizh TCRs.

TCR-2: Unanticipated Discovery of Tribal Cultural Resource Objects (Non-Funerary/Non-Ceremonial)

A. Upon discovery of any TCRs, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered

TCR has been fully assessed by the Kizh monitor and/or Kizh archaeologist. The Kizh will recover and retain all discovered TCRs in the form and/or manner the Tribe deems appropriate, in the Tribe's sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural and/or historic purposes.

TCR-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects

A. Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in Public Resources Code Section 5097.98, are also to be treated according to this statute.
B. If Native American human remains and/or grave goods are discovered or recognized on the project site, then Public Resource Code 5097.9 as well as Health and Safety Code Section 7050.5 shall be followed.
C. Human remains and grave/burial goods shall be treated alike per California Public Resources Code section 5097.98(d)(1) and (2).
D. Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or burial goods.
E. Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance.

PLEASE NOTE THE FOLLOWING:

Any/all revisions to the Kizh's proposed TCR mitigations set forth above must be requested in writing, and not more than ten (30) calendar days from the date that we consulted on the subject Project so that we can conclude consultation. Requested revisions shall be delivered to the Kizh via email at admin@gabrielenoindians.org, and in a Word document, redline format. Please include as the email subject: "REQUEST FOR MITIGATION REVISIONS," and identify the project name and location/address. If revisions are not requested within 10 calendar days of consultation, the Kizh's proposed mitigations are presumed accepted as proposed (i.e., as set forth above). The laws preserving the confidentiality of Native

The laws preserving the confidentiality of Native American documents and records prohibits the inclusion of any information about the location of Native American artifacts, sites, sacred lands, or any other information that is exempt from public disclosure pursuant to the Public Records Act. (Cal. Code Regs. § 15120(d) Rocklin (2011) 197 Cal.App.4th 200, at p. 220. Please be advised that these protective mitigation measures are property of the KIZH Nation Tribal

government and no other entity or Tribal government nor should they be utilized for any other Tribal government or entity and are protected under the AB52 confidentiality act

Thank you for your anticipated cooperation.