Seismic Report (Probable Maximum Loss)

West Industrial Avenue and Schnoor Avenue

West Industrial Avenue and Schnoor Avenue
Madera, California

EBI Project No. 1121006564

September 21, 2021

Prepared for:

Knighthead Funding, LLC
777 West Putnam Avenue, 3rd Floor, Suite B-2
Greenwich, Connecticut

Prepared by:

EBI Consulting
environmental | engineering | due diligence

EBI Consulting
environmental | engineering | due diligence

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09/21/2021

Mr. Henry Boeckman
Knighthead Funding, LLC
777 West Putnam Avenue, 3rd Floor, Suite B-2
Greenwich, Connecticut 06830

Subject: Seismic Report (Probable Maximum Loss)
West Industrial Avenue and Schnoor Avenue
West Industrial Avenue and Schnoor Avenue, Madera California
EBI Project No. 1121006564

Dear Mr. Henry Boeckman:

Attached please find our *Seismic (Probable Maximum Loss) Report* (the report) for the above-mentioned asset (the Subject Property). During the Subject Property survey and research, our surveyor spoke with agents representing the Subject Property, or agents of the owner, and reviewed the Subject Property and its history. The report was completed according to the terms and conditions authorized by you, the Client. This report has been completed in conformance with the ASTM Standards E2026-16a and E2557-16a, Knighthead Funding, LLC Scope of Work and the agreement dated 08/30/2021 between Knighthead Funding, LLC and EnviroBusiness, Inc.

The purpose of this Seismic Report (the *Report*) is to assist Knighthead Funding, LLC, in its underwriting of a proposed mortgage loan on the Subject Property described herein.

This Report is addressed to Knighthead Funding, LLC and their respective successors and assigns. Reliance on the Report and the information contained herein shall mean (i) the Report may be relied upon by Knighthead Funding, LLC, in determining whether to make a loan evidenced by a note secured by the Property ("the Mortgage Loan"); (ii) the Report may be relied upon by any loan purchaser in determining whether to purchase the Mortgage Loan from Knighthead Funding, LLC, or an interest in the Mortgage Loan or securities backed or secured by the Mortgage Loan, and any rating agency rating securities representing an interest in the Mortgage Loan or backed or secured by the Mortgage Loan; (iii) the Report may be referred to in and included, in whole or in part, with materials offering for sale the Mortgage Loan or an interest in the Mortgage Loan or securities backed or secured by the Mortgage Loan; (iv) the Report speaks only as of its date in the absence of a specific written update of the Report signed and delivered by EBI Consulting.

This Report has no other purpose except as set forth herein and should not be relied upon by any other person or entity.

EBI is an independent contractor, not an employee of either the issuer or the borrower, and its compensation was not based on the findings or recommendations made in the report or on the closing of any business transaction.

Thank you for the opportunity to be of service. Should you have questions or require additional information, please contact the undersigned.

Respectfully submitted,

EBI Consulting
environmental | engineering | due diligence

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EBI CONSULTING

Cory Youngdale
Report Author
Senior Seismic Engineer

Jonathan P. Williams, PE, AIA
Senior Reviewer
Senior Seismic Engineer

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EXECUTIVE SUMMARY

Ron Russell of EBI surveyed the property on September 10, 2021, and was unaccompanied. The visual survey was of selected areas of the site and did not include destructive testing. Visual observation of building structures was not possible due to the proposed nature of the Subject Property improvements.

The Subject Property, known as West Industrial Avenue and Schnoor Avenue, is located in Madera, California at West Industrial Avenue and Schnoor Avenue. The proposed Subject Property improvements will consist of four, single-story warehouses. Upon completion these improvement will total 144,300 net rentable square feet to be located on a 16.57-acre lot. Based upon the limited information provided, the proposed structures will consist of rigid steel frames with flexible metal diaphragms. Based on the acquired information, the buildings are to be designed in accordance with the 2019 California Building Code (CBC) with local amendments. Per ASCE 41-13 the building classifications are S3. The proposed buildings are expected be classified as "Benchmark Buildings" as defined by ASCE 41-13.

No structural drawings or site-specific geotechnical information were available for our review.

The purpose of our review and *Report* is to assess the Probable Maximum Loss (PML) defined as a Scenario Expected Loss (SEL) for the property based on a seismic event with a return period consistent with current building code requirements. This report has been done in accordance with ASTM E2026-16a requirements for a Level 0 evaluation.

Based upon our survey and utilizing the ST-RISK statistical software program, the modified PML for the Subject Property is estimated for an earthquake with a 475-year return period (10% chance of exceedance in a 50-year exposure period) as follows:

Probable Maximum Loss Estimates	
Building	**Damage Ratio (PML)**
Buildings A, B, C, D	2%

The Subject Property is not in an area subject to the Alquist-Priolo Earthquake Zoning Act and is not in a seismic hazard zone as depicted on maps published by the California Geological Survey (CGS).

The proposed Subject Property improvements appear to have been provided with the basic elements of a lateral force resisting system to resist earthquakes.

The proposed Subject Property improvements are expected to meet the Building Stability requirements, and the Subject Property meets the Site Stability requirements as defined by ASTM Guides E2026-16a and E2557-16a. See Sections 3.2 for an explanation of our Building Stability concerns. See Sections 4.2 for for an explanation of our Site Stability concerns.

1.0 INTRODUCTION AND LIMITATIONS

The exclusive purpose of this Seismic Report (Probable Maximum Loss) (the *Report*) is to assist Knighthead Funding, LLC in its underwriting of a proposed mortgage loan on the Subject Property described in this *Report*. The *Report* has no other purpose. This Report can be relied upon by only the parties stated in the transmittal letter at the front of this Report (collectively, "Reliance Parties"). In the absence of a separate written reliance letter issued by EBI (which separate written reliance letter shall control), reliance on this Report shall be subject to the same terms and conditions under which this Report was originally prepared. By accepting a draft and/or final copies of this Report, Reliance Parties agree to the foregoing terms and conditions. Amendments to EBI's limitations as stated herein that may occur after issuance of the *Report* are considered to be included in this *Report*. Payment for the *Report* is made by Knighthead Funding, LLC.

This *Report* has been completed in general conformance with ASTM Guide E2026-16a Standard Guide for Seismic Risk Assessments of Buildings and ASTM Guide E2557-16a Standard Practice for Probable Maximum Loss (PML) Evaluations for Earthquake Due-Diligence Assessments. This Report is generally consistent with the definition of a "Level 0 investigation" as defined in ASTM Guide E2026.

The information reported was obtained through sources deemed reliable, a visual site survey of areas readily observable, easily accessible or made accessible by the property contact and interviews with owners, agents, occupants, or other appropriate persons involved with the Subject Property. Municipal information was obtained through file reviews of reasonably ascertainable standard government record sources, and interviews with the authorities having jurisdiction over the property. Findings, conclusions and recommendations included in the *Report* are based on our visual observations in the field, the municipal information reasonably obtained, information provided by the Client, and/or a review of readily available and supplied drawings and documents. No disassembly of systems or building components or physical or invasive testing was performed. EBI renders no opinion as to the property condition at un-surveyed and/or inaccessible portions of the Subject Property. EBI relies completely on the information, whether written, graphic or verbal, provided by the property contact, owner or agent, or municipal source, or as shown on any documents reviewed or received from the property contact, owner or agent, or municipal source, and assumes that information to be true and correct. The observations in this *Report* are valid on the date of the survey.

The survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession, and in accordance with generally accepted practices of other consultants currently practicing in the same locality under similar conditions. No other representation, expressed or implied, and no warranty or guarantee is included or intended. The *Report* speaks only as of its date, in the absence of a specific written update of the *Report*, signed and delivered by EBI.

The contents of the *Report* are not intended to represent an in-depth analysis of the Subject Property. The extent of the physical survey for the production of this *Report* has been limited, by contract and agreed upon Scope of Work, to a brief "walk through" of the property. Assumptions regarding the overall condition of the property have been developed based upon a survey of "representative" areas of the building. As such, no representation of *all* aspects of *all* areas or components is made.

Any additional information that becomes available after our survey and draft submission concerning the Subject Property should be provided to EBI so that our conclusions may be revised and modified if necessary, at additional cost. This *Report* has been prepared in accordance with our Standard Conditions for Engagement, which is an integral part of this *Report.*

In accordance with ASTM Guides E2026 and E2557, the following limitations or exceptions to the Guides are identified below:

- The report certification is provided by supplying the professional license number and professional's signature. The seal has not been provided in this electronic copy.

- The Guide states that the User should arrange for or provide the Provider with timely access to all reports, plans, drawings, and specifications for the building(s), both for the original building and for any modifications, alterations or additions.

The following documents were provided or sourced for our review:

Document Type	Prepared By	Date
Partial Architectural Drawings (Pages: A1.0, A2.0, A2.1, A5.0A, A5.1)	DBKO Design + Build	April 27, 2021
Partial Civil Drawings (Pages: C-1)	DBKO Design + Build	April 16, 2021

2.0 EVALUATION PROCEDURES

2.1 PML PROCESS

The Probable Maximum Loss (PML) has been estimated utilizing the ST-RISK statistical software program based on "FEMA 310: Handbook for the Seismic Evaluation of Buildings", an industry accepted process for estimating building damage based on statistical models of building types. The building types are defined by "ASCE 41-13: Seismic Evaluation and Retrofit of Existing Buildings". This is a statistical review that is intended to suggest how the building type may be affected by the maximum considered seismic event, not a guarantee of how the property will perform in a seismic event. The PML value is based on the building location, construction type, date of construction, building configuration, and user defined return period. There is limited sensitivity for site-specific details such as construction quality, structural alterations, mixed structural systems, or site use to alter the statistical profile.

The PML values are provided as a mean recurrence interval or a probability of exceedance. The mean recurrence interval is the average period of time, in years, between the occurrence of earthquakes that produce effects of the same, or greater, severity. The probability of exceedance (e.g., 10% in 50 years) is a statistical representation of the chance that earthquake effects exceeding a given severity will be experienced at the site within a specified number of years.

The PML does not take into account the value of equipment, inventory or monetary loss from business interruption. EBI represents that the estimate of seismic performance for these buildings is based on a limited review of the property condition, and on a large measure of engineering judgment that is incorporated into the ST-RISK program. Engineering judgment is a necessary component of this review since analytical methods do not exist that will encompass all parameters required to determine an exact cost of any damage caused by the scenario earthquake.

This report represents our professional experience and judgment, and a good faith effort to obtain all available information. Documents and information provided by the client, designated representatives of the client or other interested parties, and consulted in the preparation of this report, have been used herein, with the understanding that EBI assumes no responsibility or liability for their accuracy or for the withholding by any of the involved parties of any reports or other information that could affect the transaction.

2.2 SITE EVALUATION

This report is based upon a site observation made on 09/10/2021, and generally conforms to ASTM E2026-16a requirements for a Level 0 evaluation.

Levels of Investigation	
Seismic Ground Motion (G)	1
Building Stability (BS)	0
Site Stability (SS)	1
Building Damageability (BD)	0

The following parameters have been used to evaluate the Subject Property:

Return Period	475 Years (10% in 50 Years)

Address/Building ID	ASCE 41-13 Building Type
Building A, B, C, D	S3 - Metal Building Frames with steel diaphragms

3.0 PROPERTY DESCRIPTION

3.1 BUILDING PROFILE

For purposes of this analysis, buildings can be grouped into various classes. Buildings within the same class can be expected to perform similarly at different levels of earthquake shaking. To account for the differences between buildings within the same class, additional information is utilized. This includes building irregularities, load path discontinuities, deteriorated materials, observable damage, and known weaknesses associated with design and construction methodologies of certain eras.

Based on the information provided by the client the Subject Property has been defined as:

Building Name or Address	Year Built (Building Code)	Building Footprint Shape	No. of Floors	Approx. Dimensions	Gross Area (SF)
Buildings A, B, C, D	Not Yet Built (2019 CBC)	Rectangular	1	570ft x 65ft	37,050 (148,200 Total)

The proposed superstructures consists of pre-engineered metal buildings with rigid steel frames and steel columns supporting the roofs. The rigid moment-resisting frames are located in the transverse direction of the building at a regular spacing. In the longitudinal direction, there are diagonal tension-tie rods or wall panel shear elements. The roof framing typically consists of wide flange steel beams and girders supporting a steel deck. The ground floor is a slab on grade. The foundations are expected to consist of reinforced spread footings at isolated columns and reinforced grade beams at the moment frames.

The lateral load resisting system consists of the corrugated metal deck roof acting as horizontal deep beams, also referred to as diaphragms, transmitting the wind and earthquake loads to the steel moment resisting frames, diagonal tension rods, and shear panels that transfer loads to the foundation.

Based on the construction materials and the design to current building code requirements, the proposed buildings are expected to meet the requirements for "Benchmark Buildings" in accordance with ASCE 41-13 guidelines.

Secondary Structural Characteristics	
Setbacks	None noted in the proposed drawings
Overhangs	Minor framing overhangs of canopies
Redundancy	Appears adequate
Torsion	Minor
Structural Irregularities	None noted in the proposed drawings
Building Exterior	Metal siding
Ornamentation	Minor
Wall-Roof Connection	Details not provided in the proposed drawings, but expected to comply with the current code of record
Structural Upgrade/Retrofit	Not Applicable

Engineered Foundation	Details not provided in the proposed drawings, but expected to consist of concrete spread footings and grade beams
Mechanical/Electrical Equipment	Details not were provided in the proposed drawings, but expected to comply with current building code requirements for anchorage.
Construction Quality	Not Applicable - improvements not yet constructed
Hazardous Exposure	None

3.2 BUILDING STABILITY

Based on the above, the proposed framing system does not appear to have a significant localized collapse potential. The proposed Subject Property improvements are expected to maintain their vertical load-bearing capacity in whole and in part during considered earthquake ground motions.

The proposed Subject Property improvements are expected to meet the Building Stability requirements.

4.0 SITE DESCRIPTION

4.1 SITE HAZARD PROFILE

The soil conditions at a site can influence the damageability of a structure in two general ways:

- Soft soils tend to amplify ground motion.
- Collateral hazards such as soil liquefaction, sliding or rupturing can potentially result in considerable damage to a structure.

A review of the soil characteristics and seismic risks for the Subject Property was conducted using publicly available information from the United States Geological Survey (USGS) and the California Geological Survey (CGS).

No site-specific geotechnical information was provided for the Subject Property.

The following site characteristics were determined used in estimating the PML:

Site Slope	Relatively flat.
Site Class	D
Peak Ground Acceleration (PGA)	0.2044g
UBC Seismic Zone	3

Earthquakes are commonly quantified using the Moment Magnitude Scale, which gives an indication of the absolute energy released in an earthquake. However, generally speaking, the further a building is from the epicenter, the less shaking it will experience. As such, just considering the magnitude of an earthquake does not give an adequate picture of the building's risk, since the distances from potential earthquake sources to the subject site must also be considered.

The Modified Mercalli Intensity Scale is a proxy for Peak Ground Acceleration and considers the reduction, or attenuation, of ground motion as the distance between source and site increase; the scale is calibrated from I to X. For example, in a large earthquake, a site close to the epicenter may experience intensity IX shaking, while a site many miles away may experience only intensity VI shaking.

ST-RISK estimates the building damage ratio by calculating the local ground motion according to the MMI Scale. The table below describes the effect of the MMI Scale intensity levels as defined by the USGS:

Scale	Potential Damage
V-	Felt by most. Pictures swing and some objects on shelves may topple. Limited reports of broken windows and cracked plaster and drywall. Structural damage not anticipated.
VI-	Felt by all. Objects fall from shelves. Broken windows, cracked plaster and drywall, some damaged chimneys.
VII-	Frightens most. Heavy furniture overturns. Damage negligible in buildings of good design and construction, but considerable in some poorly built or badly designed structures. Unbraced parapets may collapse and weak chimneys break at roof line.
VIII-	People find it difficult to stand. Heavy furniture moves conspicuously. Damage slight in building designed to be earthquake resistant, but severe in some poorly built or older structures designed to archaic building standards. Chimneys and monument collapse.

Scale	Potential Damage
IX-	People may be forcibly thrown to the ground. Damage considerable in some buildings designed to be earthquake resistant. Buildings without positive anchorage can slip off foundations.
X-	Most ordinary masonry structures collapse. Damage moderate to severe in many buildings designed to be earthquake resistant.

The estimated maximum MMI for this site is VII for an event with a 475-year return period.

The ST-RISK output in Appendix B has a list of the nearest faults, their estimated maximum Moment Magnitude, distance from site, the associated MMI damage potential, and the relative contribution of that fault to the aggregate risk at the site.

4.2 SITE STABILITY

Site Stability can be affected by several geological failures associated with earthquake shaking. In accordance with ASTM E2026 — 16a, the following hazards have been qualified:

Fault Rupture:

Fault Rupture is the surface expression of an earthquake. It is the visible displacement across the two sides of a fault trace. If the Fault Rupture occurs under or adjacent to a structure it can cause significant stability issues including collapse.

Per USGS, state agencies, and ST-RISK (as noted in Appendix B), the nearest earthquake fault zone is 3.1 miles away. The risk of Fault Rupture is low.

Liquefaction:

Liquefaction occurs when saturated soils are strongly vibrated and lose cohesion. This results in a sudden loss of bearing strength. During a strong earthquake, a foundation on liquefiable soils may sink, crack, or suffer a shear failure causing the building to tilt, crack, or buckle. Additionally, it may render utilities inoperable due to change in elevation, fracture, or lateral displacement.

Per state agencies, the Subject Property has not been identified in a mapped Liquefaction Zone. The risk of Liquefaction is low.

Landslide:

Landslides are the downhill movement of large quantities of soil. Within the scope of this Report, it is being defined as earthquake-induced landslides. Susceptibility to landslides correlates strongly to steep slopes (greater than 15 degrees) and areas with saturated soils, whether due to water runoff or subsurface sources. Landslides can push a building with forces several orders of magnitude greater than the weight of the building, or undermine the existing foundation, depending on where the Subject Property is in relation to the unstable slope.

Per state agencies, the Subject Property has not been identified in a mapped landslide zone. The risk of Landslide is low.

Tsunami:

Tsunamis are ocean waves generated by vertical displacement of water. Displacement can occur due to vertical faulting or landslide. Not all earthquake faults can generate tsunamis. Local topography, ocean bathymetry, and elevation strongly influence the susceptibility of inundation.

Per state agencies, the Subject Property has not been identified in a mapped Tsunami Inundation zone. The risk of Tsunami Inundation is low.

Seiche:

Seiches are like Tsunamis but are waves generated by vertical displacements of water in lakes or partially closed bodies of water. Not all earthquakes can generate seiches. Local topography and elevation strongly influence the susceptibility of inundation.

There are no adjacent bodies of water sufficiently large to generate a seiche. The risk of Seiche Inundation is Low.

Dam or Dike Failure:

Properties located downstream from dams or dikes may be at risk of flash flood in the event of dam or dike failure. Judgement of the suitability or resiliency of these structures is beyond the scope of this evaluation, however, if located downstream from such a water retaining structure, this constitutes a risk.

The Subject Property is not downstream from a dam or dike.

Based on the Site Stability risk factors above, the Subject Property meets Site Stability Requirements.

5.0 CONCLUSIONS

5.1 FINDINGS

Our seismic evaluation of the Subject Property is based on the procedures and documentation outlined in Section 2.0.

Based upon our survey and utilizing the ST-RISK statistical software program, the modified PML for the Subject Property is estimated for an earthquake with a 475-year return period (10% chance of exceedance in a 50-year exposure period) as follows:

Probable Maximum Loss Estimates	
Building	**Damage Ratio (PML)**
Buildings A, B, C, D	2%

The Subject Property is not in an area subject to the Alquist-Priolo Earthquake Zoning Act and is not in a seismic hazard zone as depicted on maps published by the California Geological Survey (CGS).

The proposed Subject Property improvements appear to have been provided with the basic elements of a lateral force resisting system to resist earthquakes.

We have performed a probable maximum loss (PML) evaluation for earthquake due diligence assessment in conformance with the scope and limitations of Guide E2026 and Practice E2557 for a Level 0 assessment of West Industrial Avenue and Schnoor Avenue , Madera , California , the property. Any exceptions to, or deletions from, this practice are described in the ASTM Summary Findings Form. This probable maximum loss (PML) evaluation for earthquake due diligence assessment has determined the PML to be as stated above. The PML is defined as Scenario Expected Loss (SEL). The proposed Subject Property improvements are expected to meet the Building Stability requirements for the reasons discussed in Section 3.1 and the Subject Property meets the Site Stability requirements due to the site hazards identified in Section 4.2.

5.2 RECOMMENDATIONS

Based on this evaluation and our professional engineering experience, EBI has the following recommendations:

- The SEL value determined to be below the 20% threshold. Our evaluation was based on the limited information provided regarding the proposed Subject Property improvements, and the assumption that the final design will be in full compliance with current building code requirements. It is recommended that licensed design professionals be engaged for the preparation of the final design and the required construction documents to ensure code compliance.

6.0 ASTM SUMMARY FINDINGS FORM

Property Name: *1121006564 West Industrial Avenue and Schnoor Avenue California*

Property Address: *West Industrial Avenue and Schnoor Avenue*

Report Title and Date: Seismic Report dated 09/21/2021

Site Visit Performed By / Date: Ron Russel , EnviroTech Solutions / 09/10/2021

Evaluation Performed By: Cory Youngdale, EBI Consulting, License #C86530 (CA)

Specific Design Documents Reviewed: Partial Architectural and Civil Drawings

Methods to Determine Site Ground Motions and Site Stability: ST-RISK

PML Defined As: Scenario Expected Loss (SEL);

Analysis Methods/Procedures Used to Determine PML: ST-RISK

Analysis Methods/Procedures Used to Determine Building Stability: ST-RISK

ASTM E2026 and E2557 Level of Review: with scope as defined by G[1], BS[0], SS[0], BD[0]

The Report Includes the Following Exceptions to ASTM Requirements: EBI has provided license numbers for the individuals involved in the report preparation in lieu of providing a seal. The number of hours expended on the evaluation is not provided on the basis of confidentiality. The PML does not take into account the value of equipment, inventory or monetary loss from business interruption. EBI represents that the estimate of seismic performance for these buildings is based on a limited review of the property condition, and on a large measure of engineering judgment that is incorporated into the ST-RISK program. Engineering judgment is a necessary component of this review since analytical methods do not exist that will encompass all parameters required to determine an exact cost of any damage caused by the scenario earthquake. Additionally, please refer to section 1.0.

EBI Consulting has performed a probable maximum loss (PML) evaluation for earthquake due diligence assessment in conformance with the scope and limitations of ASTM Guide E2026 and Practice E2557 for a Level 0 assessment of West Industrial Avenue and Schnoor Avenue, Madera , California . Any exceptions to, or deletions from, ASTM requirements are listed above. This PML evaluation for earthquake due diligence assessment has determined the PML to be 2%, where PML is defined as Scenario Expected Loss (SEL). The proposed Subject Property improvements are expected to meet the building stability requirements; and the Subject Property meets the site stability requirements.

The undersigned hereby acknowledges that the above referenced report is considered an engineering work product, and as such, confirms that he/she is qualified by licensing and experience to conduct such review. Furthermore, the report was prepared by or under the direct supervision of the undersigned as specified by state laws or codes including, but not limited to, the site visit, determination of building stability, and estimation of probable maximum loss. The information and opinions in the report are subject to the limitations and qualifications contained therein.

Name: Jonathan P. Williams, PE, AIA
Company: EBI Consulting
License No. 24GE05285200 State: NJ
Registration Title: Professional Engineer

Appendix A:

Photographs

1 : Proposed Warehouse Rendering

2 : Proposed Warehouse Rendering

3 : Proposed Warehouse Rendering

4 : Project Overview of the Proposed Warehouses

Appendix B:

Relevant Documents

EBI Consulting
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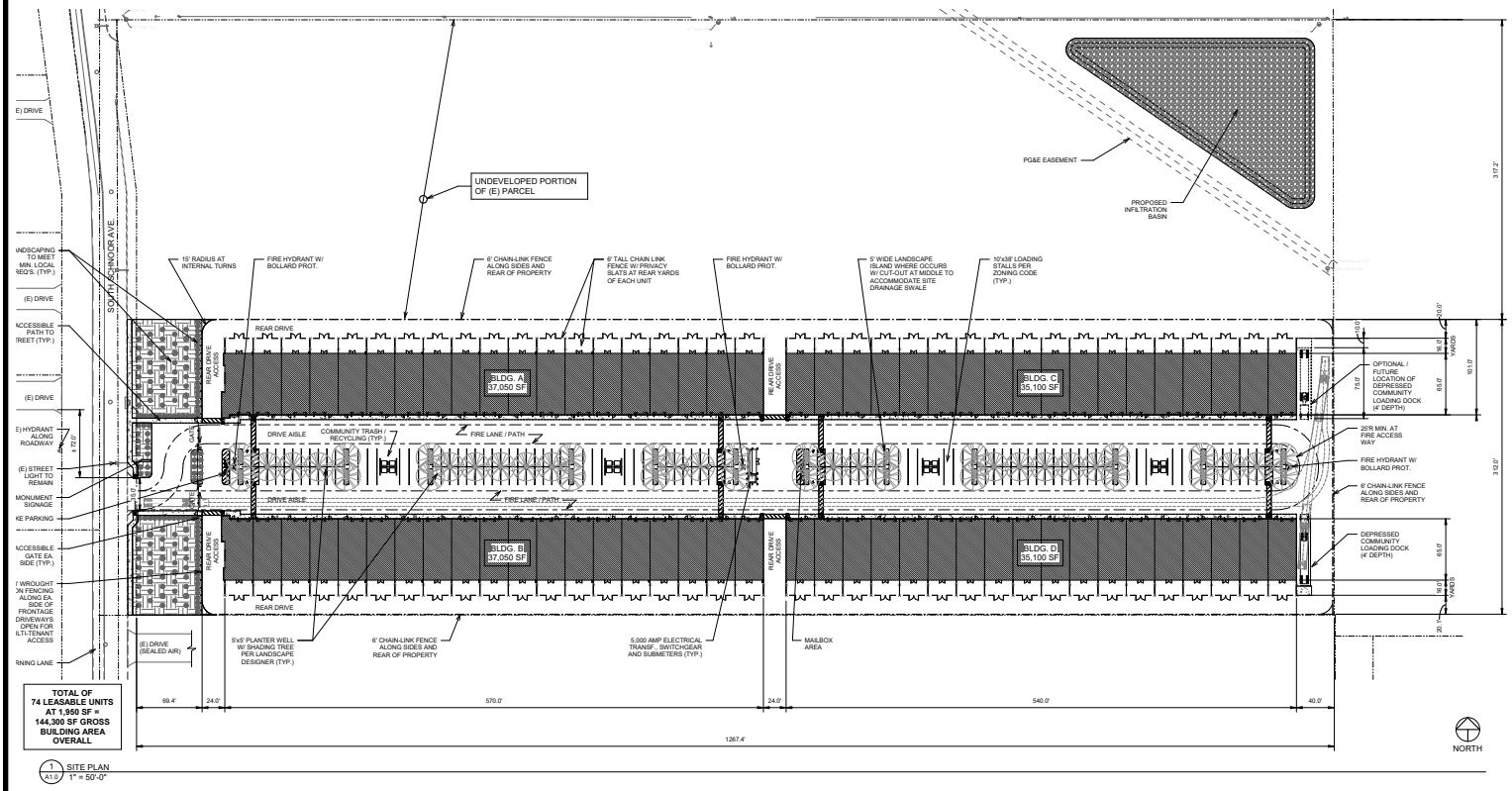

Site Plan

Appendix

Project Name: West Industrial Ave and Schnoor Ave

Project Number: 1121006564

Project Address: West Industrial Ave and Schnoor Ave, Madera, CA 93637

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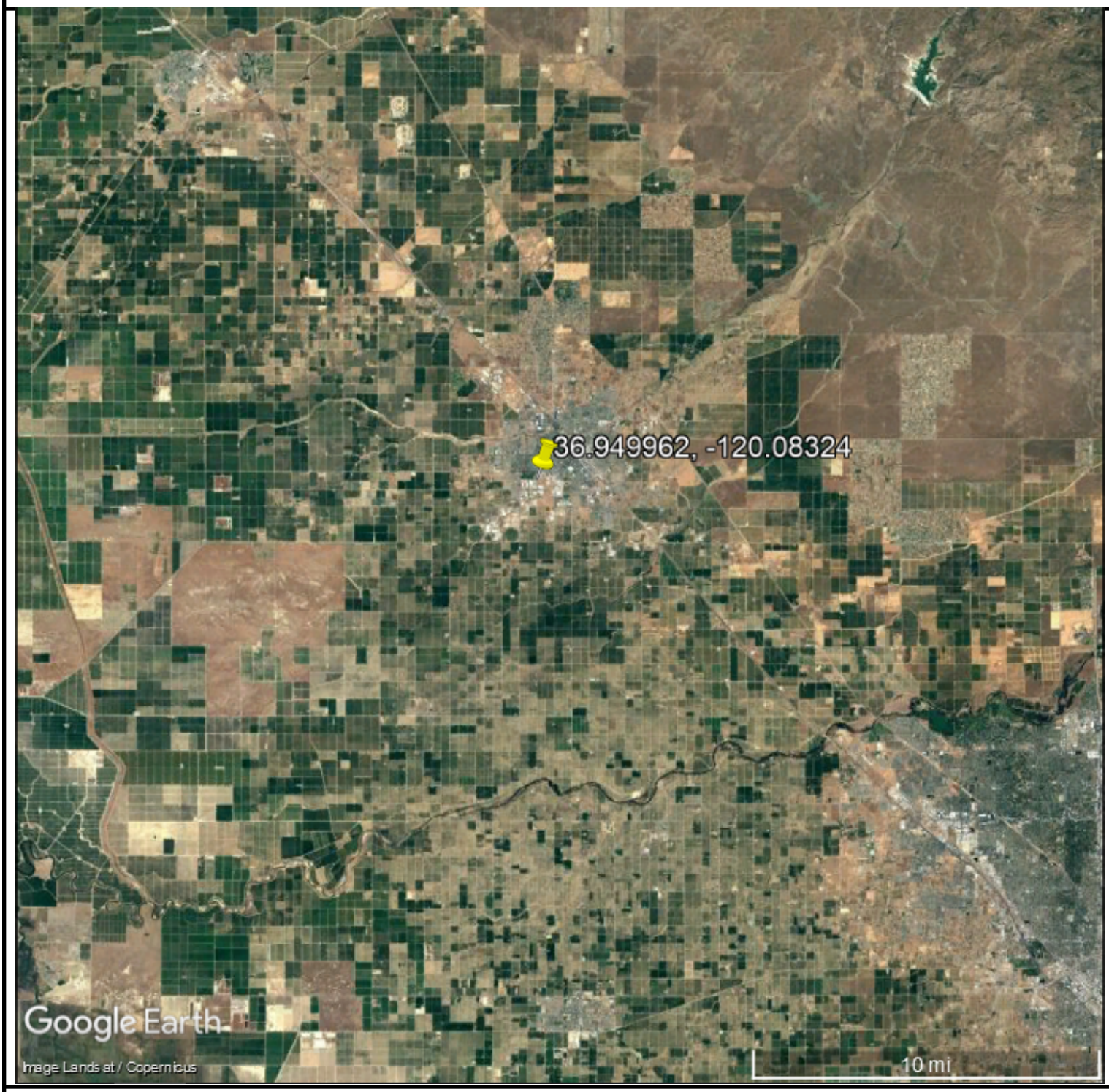

Fault Map **Appendix**

Project Name:	**West Industrial Ave and Schnoor Ave**
Project Number:	**1121006564**
Project Address:	**West Industrial Ave and Schnoor Ave, Madera, CA 93637**

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U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Input

Edition

Dynamic: Conterminous U.S. 2014 …

Spectral Period

Peak Ground Acceleration

Latitude

Decimal degrees

36.949962

Time Horizon

Return period in years

475

Longitude

Decimal degrees, negative values for western longitudes

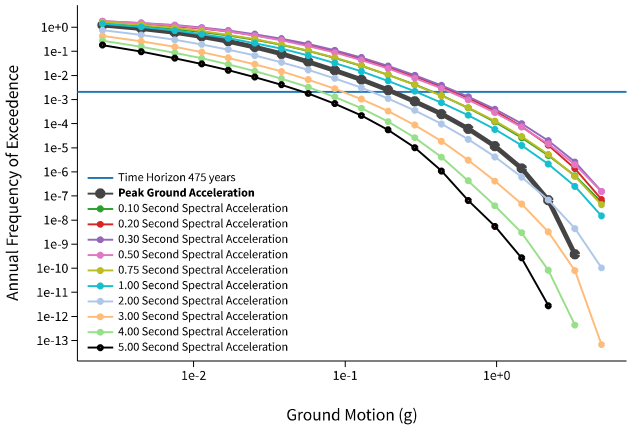
-120.08324

Site Class

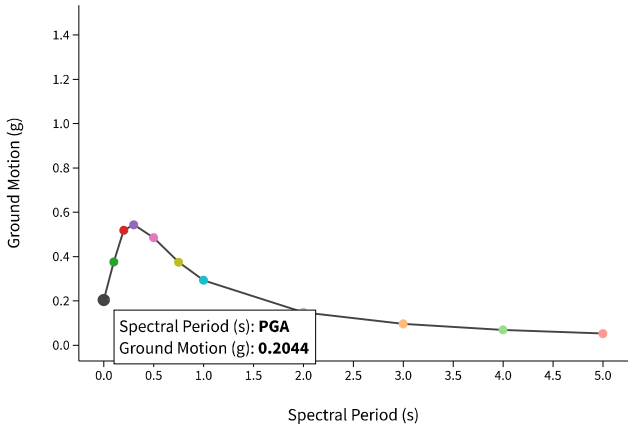
259 m/s (Site class D)

Hazard Curve

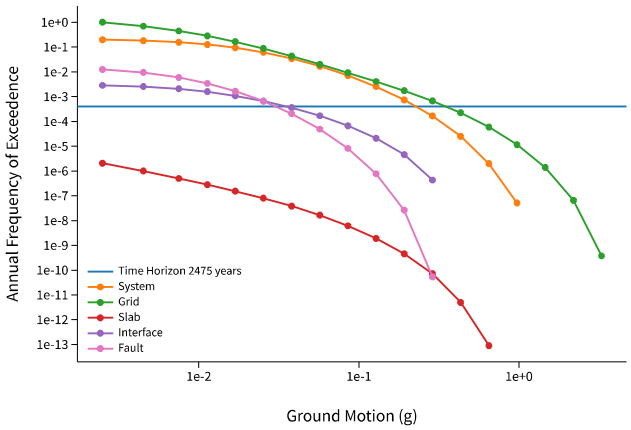
Hazard Curves



Uniform Hazard Response Spectrum



Component Curves for Peak Ground Acceleration



View Raw Data

WEST INDUSTRIAL AVE AND SCHNOOR AVE - Seismic Risk Analysis

Company Name:	EBI Consulting	**Date:**	9/17/2021
Building Name:	Builiding A, B, C, D	**Job Number:**	1121006564
Street Address:	West Industrial Ave and Schnoor Ave Modera, CA, USA 93637	**Engineer:**	Cory Youngdale
		PE Number/State:	C86530 (CA)

INFORMATION SOURCES

SiteVisit: Ron Russel **Date:** 9/10/2021
Interviewed: N/A **Docs Reviewed:** N/A

BUILDING DESCRIPTION

Building Classification: S3(2B) - Steel Light Frame
Occupancy: Warehousing
Latitude/Longitude: 36.9500 -120.0832
Region: USA: California
Region Version: 3.20
Evaluation Lifetime (yrs): 50
Uniform Building Code Design Edition: 1997
Year Constructed: 2021
Year Retrofitted:
Building Height (stories): 1
Fundamental Period (s):
Area (sf): 37,050
Replacement Cost ($):
Plan Dimensions: 570ft x 65ft
Exterior North-South Walls: Metal Siding
Exterior East-West Walls: Metal Siding
Roof Deck/Framing: Steel Framed with Metal Deck
Intermediate Floors/Framing: N/A
Ground Floors: Slab on Grade
Columns: Steel
Foundation: Assumed concrete spread footings and grade beams
Basement Levels: N/A
Parking Structure: N/A

LATERAL FORCE RESISTING SYSTEM

Floors/Roof: Steel Framed with Metal Deck
Walls/Braces: Moment Frames and Tension Tie Rods

BUSINESS INTERRUPTION

Max. Loss With No BI:
Min. Loss At Abandonment:
BI Months At Abandonment:
BI Revenue Loss Rate($/Month):

Company Name:	EBI Consulting	**Date:**	9/17/2021
Building Name:	Builiding A, B, C, D	**Job Number:**	1121006564
Street Address:	West Industrial Ave and Schnoor Ave Modera, CA, USA 93637	**Engineer:**	Cory Youngdale
		PE Number/State:	C86530 (CA)

GEOTECHNICAL DESCRIPTION

Provider:
Date:
UBC Soil Class: D
Liquefaction Resilience: Low
Liquefaction Susceptibility: Very Low
Depth to Water Table (ft): Unknown [Assuming - 50]
Landslide Susceptibility: Very Low

Topography:
Soil Conditions:

COMMENTS

Comments:

Company Name:	EBI Consulting	**Date:**	9/17/2021
Building Name:	Builiding A, B, C, D	**Job Number:**	1121006564
Street Address:	West Industrial Ave and Schnoor Ave Modera, CA, USA 93637	**Engineer:** **PE Number/State:**	Cory Youngdale C86530 (CA)

MODIFIED FEMA-310 WORKSHEET

S3(2B)Steel Light Frame

Category	Range	Typical	Modifier
GENERAL BUILDING FEATURES			
Complete load path	T, F	T	T
Interior mezzanines adequately braced	N/A, T, F	T	T
No vertical discontinuities	T, F	T	T
Only minor torsion	T, F	T	T
One story	T, F	T	T
LATERAL FORCE RESISTING SYSTEM			
Diagonals pass axial stress check	T, F, 0-20	5	5
No pre-Northridge moment connections	N/A, T, F, 0-20	5	5
Beam penetrations properly sized and located	N/A, T, F, 0-5	2	2
Compact members	T, F, 0-15	4	4
Out-of-plane bracing present	T, F, 0-5	0	0
Bottom beam flange bracing	T, F, 0-10	5	5
CONNECTIONS			
Adequate column anchorage	T, F, 0-10	0	0
Wall panels to foundation connection	T, F, 0-10	0	0
Roof panels adequately attached	T, F, 0-10	0	0
Wall panel attachments adequate for seismic forces	T, F, 0-10	0	0
Lateral load path at pile caps	N/A, T, F, 0-10	0	N/A
FLOOR DIAPHRAGMS			
Adequate diaphragm transfer to steel frame	T, F, 0-10	5	0
Reinforcing at re-entrant corner	N/A, T, F, 0-10	0	N/A
Adequate reinforcing at openings	N/A, T, F, 0-5	0	N/A
Other diaphragms meet requirements	N/A, T, F, 0-5	2	N/A
Collectors	T, F, 0-5	2	0
ROOF DIAPHRAGM (ONLY IF 5 STORIES OR LESS)			
Adequate diaphragm transfer to steel frame	T, F, 0-10	5	5
Reinforcing at re-entrant corner	N/A, T, F, 0-10	0	0
Adequate reinforcing at openings	N/A, T, F, 0-5	0	0
Other diaphragms meet requirements	N/A, T, F, 0-5	2	2
Collectors	T, F, 0-5	2	2

Company Name:	EBI Consulting	**Date:**	9/17/2021
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		PE Number/State:	C86530 (CA)

MODIFIED FEMA-310 WORKSHEET

Category	Range	Typical	Modifier
UNUSUAL CONDITIONS			
Little deterioration of steel	T, F, 0-5	2	2
Little foundation damage	T, F, 0-5	2	2
Little foundation deterioration	T, F, 0-5	2	2
Adequate overturning resistance	T, F, 0-5	2	2
Ties between foundation elements	N/A, T, F, 0-5	2	2
Lateral force on deep foundations	N/A, T, F, 0-5	2	2
Pole buildings	N/A, T, F, 0-5	0	0
Insignificant sloping at site	N/A, T, F, 0-5	0	0
SITE DEPENDENT HAZARDS - ACTIVE FAULTS			
Surface fault rupture	N/A, 0-50	0	0
NONSTRUCTURAL EXTERIOR 'WALLS'			
Cladding, glazing, veneer	N/A, T, F, 0-10	5	3
Chimneys	N/A, T, F, 0-5	5	N/A
NONSTRUCTURAL INTERIOR 'WALLS'			
Partitions (HC tile)	N/A, T, F, 0-10	0	N/A
Partitions (pre-cast panels..)	N/A, T, F, 0-10	5	N/A
EXTERIOR ORNAMENTATION			
Parapets, cornices, and appendages	N/A, T, F, 0-10	0	0
INTERIOR ORNAMENTATION			
Building contents and furnishings	T, F, 0-10	5	3
Ceiling systems	T, F, 0-5	5	2
Light fixtures	T, F, 0-5	5	2
MECHANICAL AND ELECTRICAL SYSTEMS			
Mechanical and electrical equipment	T, F, 0-10	5	3
Piping and sprinklers	T, F, 0-5	2	2
Ducts	T, F, 0-5	2	2
Elevators	N/A, T, F, 0-5	2	N/A
HAZARDOUS EXPOSURES - POUNDING			
No adjacent buildings	N/A, T, F, 0-5	0	0

Company Name:	EBI Consulting	**Date:**	9/17/2021
Building Name:	Builiding A, B, C, D	**Job Number:**	1121006564
Street Address:	West Industrial Ave and Schnoor Ave Modera, CA, USA 93637	**Engineer:**	Cory Youngdale
		PE Number/State:	C86530 (CA)

MODIFIED FEMA-310 WORKSHEET

Category	Range	Typical	Modifier
HAZARDOUS EXPOSURES - MATERIALS			
No hazardous materials	N/A, T, F, 0-10	0	0
OCCUPANCY (TYPE: WAREHOUSING)			
Interior Construction	-15-0	0	-10
SITE DEPENDENT CHARACTERISTICS			
UBC Soil Class	A - E	D	D
Liquefaction Resilience	Low - High	Low	Low
Liquefaction Susceptibility	V. Low-V. High	Very Low	Very Low
Depth to Water Table (ft)	0-1000+	50	Unknown
Landslide Susceptibility	V. Low-V. High	Very Low	Very Low

Company Name:	EBI Consulting	**Date:**	9/17/2021
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Street Address:	West Industrial Ave and Schnoor Ave Modera, CA, USA 93637	**Engineer:**	Cory Youngdale
		PE Number/State:	C86530 (CA)

VULNERABILITY SUMMARY

Component Modifier Summary

Base Class 90% Fractile Loss at MMI=IX (% of Value): 14

Modifiers to Base Class Loss

Item	Group Modifier (% of Loss)	Sigma (% of Loss)
1. Occupancy type:	-10	2.0
2. Connections:	0	0.7
3. Walls:		
A. Exterior	-1	1.8
B. Interior	0	0.0
4. Diaphragms:		
A. Floor(s)	-4	1.1
B. Roof	0	2.5
5. Ornamentation:		
A. Exterior	0	1.7
B. Interior	-3	1.7
6. Mechanical/electrical systems:	-2	2.8
7. Unusual conditions:	0	1.9
8. Hazardous exposures:		
A. Tank and overhanging walls	0	1.7
B. Pounding and adjacent buildings	0	0.4
9. Site dependent hazards:		
A. Proximity of active fault	0	12.8
Total	-20	14.1

Modified Base Class 90% Fractile Loss at MMI=IX (% of Value): 11

Loss vs MMI

MMI	Loss to Facilities (% of Value)	
	90% Frac. Loss	Mean
V	0	0
VI	1	0
VII	4	2
VIII	8	4
IX	11	6
X	13	7
XI	14	8
XII	16	9

WEST INDUSTRIAL AVE AND SCHNOOR AVE

Company Name: EBI Consulting
Building Name: Builiding A, B, C, D
Street Address: West Industrial Ave and Schnoor Ave
Modera, CA, USA 93637

Date: 9/17/2021
Job Number: 1121006564
Engineer: Cory Youngdale
PE Number/State: C86530 (CA)

RISK SUMMARY

Expected Loss Table

Probability of Exceedance	MMI	Loss to Facilities (% of Value)			BI (months)
		PL	SUL	SEL	
50.0% in 30 years 43 year return period	VI	0	1	0	N/A
10.0% in 30 years 285 year return period	VI-VII	1	3	2	N/A
2.0% in 30 years 1485 year return period	VII	3	5	3	N/A
10.0% in 50 years 475 year return period	VII	2	3	2	N/A
2.0% in 50 years 2475 year return period	VII-VIII	3	5	3	N/A

Event and Fault Table

Close and Significant Seismic Sources	Maximum Magnitude	Closest Distance (km)	Max. MMI	Max. SUL *	Max. SEL *	Maximum Business Interuption (months)	Percent Contribution **
Extensional Gridded	7.0	5.0	VIII-IX	9	5	N/A	3
California Gridded***	7.0	5.0	VIII-IX	9	5	N/A	31
Shear 1 Gridded	7.6	28.0	VII-VIII	5	3	N/A	<1
San Andreas Creeping Section Gridded	6.0	57.5	V	0	0	N/A	<1
Great Valley 11	6.6	59.8	V-VI	1	0	N/A	2
Great Valley 10	6.5	61.3	V-VI	0	0	N/A	1
Great Valley 12	6.4	61.5	V-VI	0	0	N/A	<1
Great Valley 9	6.8	61.7	VI	1	0	N/A	2
Great Valley 13 (Coalinga)	7.1	71.2	VI	1	1	N/A	3
Ortigalita	7.1	75.0	VI	1	0	N/A	<1
Great Valley 8	6.8	82.3	V-VI	0	0	N/A	<1
Great Valley 14 (Kettleman Hills)	7.2	91.5	VI	1	0	N/A	2
S. San Andreas	8.2	113.5	VI-VII	3	1	N/A	2
S. San Andreas;PK+CH+CC+BB+NM+SM	7.9	113.7	VI	2	1	N/A	7
S. San Andreas;PK+CH+CC+BB+NM	7.7	113.7	VI	1	0	N/A	4
S. San Andreas;PK+CH+CC+BB+NM+SM+	8.0	113.7	VI-VII	2	1	N/A	3

* Losses to individual events are from shaking only.
** Percent contributions are for the probabilistic 475 year return period risk.
*** Event causing highest loss (from shaking only)

Average Annual Loss (% of Repl. Cost): 0.022636
Business Interruption Average Annual Loss ($): 0
Return Period of Major Liquefaction/Landslide: N/A

Company Name:	EBI Consulting	**Date:**	9/17/2021
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Street Address:	West Industrial Ave and Schnoor Ave Modera, CA, USA 93637	**Engineer:**	Cory Youngdale
		PE Number/State:	C86530 (CA)

DISCLAIMERS and OTHER INFORMATION

RESULTS DISCLAIMER

This report, and the analyses, estimates and conclusions are based on scientific data, mathematical and empirical models, and experience of engineers, geologist and geotechnical specialist, using the input specified by the software licensee. Actual losses experienced during any earthquake may differ substantially from these estimates. Neither Fugro Consultants, Inc., Degenkolb Engineers, nor any third party supplier of information to this software can be held liable for any inaccuracies in the results obtained by ST-RISK.

SPRINKLER DAMAGE

Substantial building facilities loss has occurred in recent large earthquakes due to fire sprinkler damage. The figures presented herein may not adequately account for these potential losses. If the modifier for sprinklers in the Mechanical and Electrical Systems section of the Modified FEMA-310 Worksheet was 3 or higher, or '?', a more detailed evaluation of potential sprinkler damage should be made and additional loss anticipated.

THIRD PARTY DATA

Much of the data in this report is derived from data provided by the California Geological Survey (CGS), the US Geological Survey (USGS), the Geological Survey of Canada (GSC), as well as other parties. Most of the original data received was modified to make compatible with ST-RISK. None of these parties can be held liable for any inaccuracies inherent in the data or inherent in the modifications.

Company Name:	EBI Consulting	**Date:**	9/17/2021
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GLOSSARY

MMI	Modified Mercalli Intensity - A measure of ground motion intensity based on human perception of motion and observed structural damage.
PML	Probable Maximum Loss - A measure of seismic risk expressed as a percentage of replacement loss. Due to inconsistencies between the definition PML in recent standards and previous widespread practice, ST-RISK no longer identifies a particular results as being the PML. Instead, decision makers should identify the result that corresponds to the specific definition of PML that they are using.
PL	Probable Loss - For a given time interval, or return period, this is the amount of loss that a property is expected to meet or exceed on an average basis. This combines the probability distribution of hazard with the full damage distribution, representing the best overall assessment of risk.
SUL	Scenario Upper Loss - The percentage monetary loss (damage/replacement cost x 100) that has a 10 percent chance of being exceeded given any defined ground shaking intensity.
SEL	Scenario Expected Loss - The expected, or mean, percentage monetary loss (damage/replacement cost x 100) that is predicted given any defined ground shaking intensity.
Mean Loss	The expected, or average, percentage monetary loss (damage/replacement cost x 100) that is predicted for a given ground shaking level.
BI	Business Interruption / Loss-of-Use - The number of months that the facility is out of operation.
Base Class Loss	The percentage monetary loss for 90% fractile (damage/replacement cost x 100) assigned to a building class that accounts for type of construction and important construction deficiencies.
Modified Base Class Loss	The percentage monetary loss for 90% fractile assigned to a building class that accounts for the Base Class Loss and location and minor construction deficiencies.
Probability of Exceedance	The probability that the ground shaking level or damage level will be exceeded.
Event Causing Highest Loss	The highest level of intensity due only to shaking that is experienced when considering all earthquakes given a median predicted shaking level.
Maximum Considered Earthquake (MCE)	Loss associated with a 2% in 50 year probability of exceedence.
Uniform Building Code (UBC)	Loss associated with a 10% in 50 year probability of exceedence as defined by new building design provisions found in the Uniform Building Code.
% Contribribution	Percent contribution of fault or fault segment to the 475-year return period risk.

Appendix C:

Professional Qualifications

EBI Consulting
environmental | engineering | design

Cory Youngdale
Senior Seismic Engineer
530 Technology Dr Suite 100
Irvine, CA 92056
Mobile:760-994-6832

Summary of Experience

Mr. Youngdale, Senior Seismic Engineer at EBI, is a licensed civil engineer with 8 years of the experience designing concrete, wood, steel, and masonry structures in the southern California area. Projects have included a mix of new construction, tenant improvements, and seismic rehabilitations. He has analyzed and designed buildings, and their design lateral force resisting systems, for both static and dynamic earthquake loads using finite element analysis models. He has also preformed time history analyzes on post tensioned concrete slab to study the effects of creep and cracking on the long-term deflections of slabs.

At EBI, Mr. Youngdale, is responsible for the preparation of Seismic Risk Evaluations, Probable Maximum Loss assessments, and Structural Evaluations.

Relevant Project Experience

Franklin Elementary School Renovation - Lead engineer for the seismic rehabilitation of 3 existing classroom buildings in San Diego, CA which were approved through the division of state architects. ASCE 41 tier 2 and tier 3 evaluations and designs were used for each building. The project included data collection through existing plans, site visits, and testing of existing materials.

CSUSM Extended Learning - Lead engineer for the design and construction management of a 7-story concrete building in San Marcos, CA. The analysis included finite element models for both the lateral and gravity systems and a capacity-based design of the concrete shear walls per ACI 318-11.

Pechanga Resort Expansion - Lead engineer for the design of a 160' x 300' ballroom in Temecula, CA. The project included the design of 12ft deep WF steel trusses spaced at 15ft oc spanning 160ft across the ballroom. A dynamic analysis was preformed to design the bucking restrained braced frames.

Columbia Street Apartments - Lead engineer for the design and construction management of a 6-story apartment building in San Diego, CA. The building consisted of 5 stories of wood apartments over a 1 story concrete podium with a below grade car elevator for parking.

Education

B.S., Structural Engineering – University of California, San Diego – 2012
M.S., Structural Engineering – University of California, San Diego – 2013

Professional Affiliations

Member, Structural Engineering Association of San Diego (SEAOSD)

Professional Registrations

Professional Engineer – Civil Engineer, State of California, C86530

EBI Consulting
environmental | engineering | due diligence

Jonathan P. Williams, P.E., A.I.A.
Senior Seismic Engineer
21 B Street
Burlington, MA 01803

SUMMARY OF EXPERIENCE

Mr. Williams, Senior Seismic Engineer at EBI, is assigned to the Real Estate Group. Mr. Williams is a registered professional engineer and a registered architect with:

- Thirteen years of general structural analysis and design of buildings,
- Ten years of seismic analysis and design of buildings,
- Six years of experience conducting seismic risk assessments

At EBI, Mr. Williams is responsible for the preparation of Seismic Risk Evaluations, Probable Maximum Loss assessments, and Structural Evaluations.

RELEVANT PROJECT EXPERIENCE

Various architecture, engineering, and consulting firms nationwide. Responsibilities included seismic assessments, structural analysis and design using spreadsheets, 2-D modeling software, 3-D modeling software; design of strengthening schemes; field observations; failure investigations; pile inspections; report writing; and drafting. Structural design and detailing in a variety of materials including: steel, masonry, wood, light gage steel framing, and concrete. Failure investigations included recommendation reports, as well as design and construction documents for repairs. Feasibility studies for change in use applications, and/or new loading conditions.

Mr. Williams has completed and reviewed more than 100 seismic assessments and Probable Maximum Loss Reports for real estate due diligence studies in California, Nevada, North Carolina, Oregon, Tennessee, Utah, Washington, and the US Virgin Islands.

He has completed onsite property assessments, structural inspections, and construction field observations in 9 states and the US Virgin Islands.

EDUCATION

BAE – The Pennsylvania State University, 2008 – Architectural Engineering, Structural Option
MS – Lehigh University, 2017 – Structural Engineering
Research Area: Advanced Earthquake Engineering of Self-Centering Structural Systems
Investigation into non-linear dynamic behavior of self-centering structural systems, associated response spectra, ground motion selection & scaling procedures, and performance criteria.

PROFESSIONAL AFFILIATIONS

Member, American Society of Civil Engineers (ASCE)
Member, Architectural Engineering Institute (AEI)
Member, Structural Engineering Institute (SEI)
Member, American Institute of Architects (AIA)

PROFESSIONAL REGISTRATIONS

Professional Engineer – State of New Jersey – 24 GE 05285200
Registered Architect – State of New Jersey – 21 AI 02149900

OTHER CERTIFICATIONS

CAL-OES – State of California Safety Assessment Program Certified (ID #87836)

Appendix D:

Important Information About Your Seismic Risk Assessment Report

Seismic Reports are Performed for Specific Purposes, Clients, and Projects

Seismic risk assessment reports are intended to meet the specific needs of their clients. A seismic report prepared for a particular client may not fulfill the needs of a different client such as a lender, an insurance company, or the owner. Because each seismic report is unique, no one should rely on your seismic report without first conferring with the engineer who prepared it. No one, not even the intended client, should apply the report for any purpose or project except the one for which it was originally prepared.

ASTM Standards

Seismic risk assessment reports should be based on the following ASTM Standards:
- ASTM E2026 Standard Guide for Seismic Risk Assessments of Buildings
- ASTM E2557 Standard Practice for Probable Maximum Loss (PML) Evaluations for Earthquake Due-Diligence Assessments

Reference of the standards in a report does not constitute an adequate report. The report should follow the scope and requirements for qualifications of the preparer.

Basic Report Requirements

As a minimum, each report should contain the following:
- Property information and description of buildings,
- Review of seismic hazards at the site,
- A list of documents reviewed, such as design drawings,
- Level of Review provided by the report,
- Estimation of building loss, the definition of the loss, and the analysis and methods used to determine loss,
- Determination of building stability (collapse potential) and methods used to reach opinion, and
- Qualifications of the reviewer and those conducting the site visit (if different).

Know the Level of Investigation

The ASTM Standards provide for four levels of investigation, each with decreasing uncertainty:
- Level 0 is often referred to as a screening level or desktop review and is based on general information about the building type, characteristics and site information. It is considered to have a high uncertainty level. It is generally provided by in-house PCA or Environmental firms, insurance brokers, or through data entry in seismic risk programs.
- Level 1 is generally considered an engineering cursory review, including a review of construction documents and site visit by a practicing structural engineer. It is considered to have a moderate uncertainty level.
- Level 2 is considered a detailed evaluation with a moderately low uncertainty level. It is generally conducted by a practicing professional engineer with specific knowledge of the particular building systems.
- Level 3 is considered an exhaustive engineering review with minimum uncertainty. It is performed by engineering firms with demonstrated, substantial understanding and experience in the specific technical issues for the specific type of structure.

Qualifications of the Reviewer Can Vary

Each Level of ASTM review allows for different qualifications of the reviewer and those conducting site visits. Simply having professional license does not qualify an individual, as those individuals may be experienced or licensed in an unrelated field such as mechanical, electrical or environmental engineering. For Levels 1 and higher, both the person preparing the report (Senior Assessor) AND the person performing the site visit (Field Assessor) should be a registered Professional Engineer (PE) with primary experience in the design and analysis of building structural systems, and preferably a registered Structural Engineer (SE) in a State with that designation.

Read the Entire Report

Serious problems have occurred because those relying on a seismic report did not read the entire report. Do not rely on an executive summary. Do not read selected elements only. In many cases, clients look for an acceptable "PML" value without reading the definition of the loss, or understanding that there may be building or site stability issues which may result in high risk to life-safety.

Conditions Can Change

A seismic report is based on the conditions of the property and knowledge of seismic hazards at the time the report was prepared. Do not rely on a seismic report whose adequacy may have been affected by: the passage of time wherein damage such as settlement or the deterioration of the structural systems may have occurred; natural disasters such as earthquakes, wind or floods; or man-made changes such as the modification to the building or lateral force resisting systems. Always contact the engineer before relying on the report.

Most Findings are Professional Opinions

Professional Engineers review drawings, conduct site observations, perform analyses of buildings, then apply their professional judgment to render an opinion regarding the potential seismic loss and building stability. Hiring a qualified professional with a complete scope of services will result in seismic risk assessment reports that are comprehensive, reliable, and have lower uncertainty.