

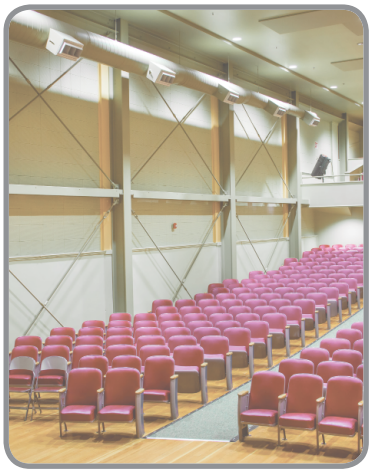

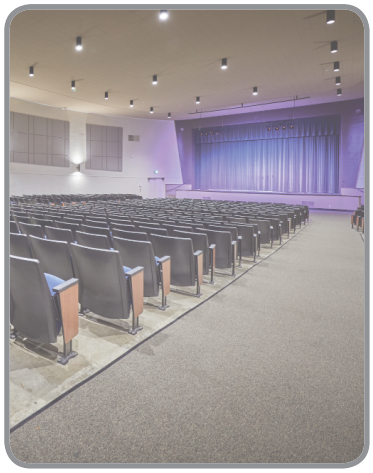


LANE ESD




STRUCTURAL SEISMIC EVALUATION REPORT FOR:

WESTMORELAND ELEMENTARY SCHOOL PHASE 1

1717 City View St. Eugene, OR 97402
Lane Education Service District

PREPARED BY ZCS ENGINEERING & ARCHITECTURE

Matthew R. Smith, PE, SE | Principal In Charge
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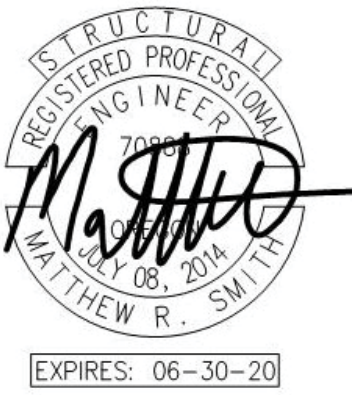

Project Summary Information						
Building Part	Building Part Name	Included in Retrofit	Year Built	Building Type***	Nonstructural Retrofits Included in Scope Y/N***	Previous Seismic Retrofit Y/N*** (Year if Yes)
A	Classrooms	No	1950			
B	Gymnasium	No	1950			
C	Classrooms	Yes	1950	W2	Y	N
D	Classrooms	Yes	1950	W2	Y	N
E	Cafeteria	Yes	1950			
F	Classrooms	Yes	1950			
G	Boiler Room	Yes	1950			
*** Entries required **ONLY** for building parts included in proposed seismic retrofit						
Nonstructural deficiencies posing life safety risk **MUST** be included in the scope of work and budget.						
Seismic fragility inputs for existing buildings with **previous seismic retrofits MUST** be adjusted to reflect previous seismic retrofit measures completed for a building part.						
Total Retrofit Cost		$2,378,365				
Retrofit Square Feet		17,550				
Retrofit Cost per Square Foot		$135.52				
Is the campus within a tsunami, FEMA flood zone, landslide/slope instability, liquefaction potential or other high hazard area? **If so, provide documentation.**						Yes, see Appendix B

Engineering Report Checklist		
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1.0 Executive Summary

The Lane Education Service District is located in Eugene, Oregon in Lane County. The District operates 1 school located within the community including the property of interest, Westmoreland Elementary School located in the city of Eugene, Oregon. The District has retained ZCS Engineering and Architecture (ZCS) to perform a seismic evaluation of Westmoreland Elementary School that provides the District with an objective, comprehensive analysis of the condition of the building's seismic resisting systems. The purpose of the evaluation is to determine the seismic lateral resisting system deficiencies when compared to buildings designed using modern building codes. This evaluation was performed in accordance with the American Society of Civil Engineers "Seismic Rehabilitation of Existing Buildings ASCE/SEI 41-17".

Westmoreland Elementary School is located at 1717 City View Street in Eugene, Oregon (See Sheet G0.0 – Vicinity Map). ZCS was tasked with evaluating the lateral force resisting systems of the structures located on the site. The structures evaluated as part of this report include several classroom buildings. All the structures included in the scope of this seismic evaluation report are constructed of straight sheathed shear walls supporting straight sheathed diaphragms. Additionally, the buildings included in the scope of this evaluation have masonry veneers around the exterior walls. The total building area included in this evaluation is approximately 18,250 square feet.

The evaluation of the facility indicates, rehabilitation of existing lateral system components is necessary to meet the following requirements as outlined in ASCE 41-17:

- School buildings, other than areas which may be used as emergency shelters, shall be categorized as Risk Category III and evaluated to meet the Limited Safety structural performance and Hazards Reduced nonstructural performance level for BSE-2E loading.

- School areas that may be used as emergency shelters shall be categorized as Risk Category IV and evaluated to meet:

    - The Life Safety structural performance and Hazards Reduced nonstructural performance level for BSE-2E level, AND

    - The Immediate Occupancy structural performance and Position Retention nonstructural performance level for BSE-1E level.

See section 3.2 for performance level definitions.

The following is a brief list of structural deficiencies encountered:

- No continuous load path exists between roof diaphragm and foundation elements
- Straight sheathed shear walls are not adequate to resist in-plane forces
- Sill plates are not adequately anchored to foundation elements
- Straight sheathed diaphragms exceed maximum allowable spans
- Shear walls do not meet the required aspect ratios

Recommendations mitigating the known deficiencies determined by our analysis are outlined in section 4.0 of this report. In addition to the rehabilitation recommendations, we prepared schematic seismic retrofit drawings to convey the intent of the rehabilitation effort. These drawings are included in Appendix E.

To help the District understand the magnitude of the rehabilitation effort and secure funding sources for the seismic system rehabilitation of the building, a preliminary construction cost estimate was developed. With the assistance of a seismic retrofit contractor a total construction cost of **$2,378,365** including all soft costs associated with architecture/engineering, permitting, and District Project Management was developed. Refer to section 5.0 of the report body.

In addition to the construction cost estimation efforts we performed a “Benefit Cost Analysis” using the tool provided by the State of Oregon Infrastructure Finance Authority. The building has a benefit cost score of **0.301**. Refer to Appendix D for BCA worksheets.

The cafeteria and school buildings are of significant importance to the community, as well as neighboring communities in Lane County. During a seismic event, the cafeteria is large enough to serve as an emergency shelter for both the school and the surrounding neighborhood. The current lateral force resisting system does not meet the current prescribed seismic requirements and may not be suitable for use as a shelter after a seismic event. In addition to the emergency shelter, Lane School educates disadvantaged students from around Lane County that are require additional social, emotional, and/or behavioral support. Because of the wide area of service, many different communities in Lane County will benefit from seismic upgrades to this site. The structural and nonstructural deficiencies present in the buildings would likely be the cause of significant damage to the structure but would be rectified with the assistance of this grant, allowing the buildings to perform well in a seismic event.

It is our final recommendation that given the BCA score and the general condition of the seismic resisting systems, this building is an excellent candidate to be rehabilitated to meet the currently prescribed seismic demands for Limited Safety (BSE-2E), Damage Control (BSE-1E), Life Safety (BSE-2E), and Immediate Occupancy (BSE-1E) per ASCE 41-17, as applicable. Once rehabilitated, this building will meet the needs of the District and community for future generations.

2.0 Project Introduction

Lane Education Service District is centrally located in Eugene, Oregon in Lane County. Westmoreland Elementary School is located at 1717 City View Street in Eugene, Oregon (See Sheet G0.0 – Vicinity Map).

The District has retained ZCS Engineering and Architecture (ZCS) to perform a seismic evaluation of Westmoreland Elementary School. The purpose of the evaluation is to provide the District with an objective, comprehensive analysis of the condition of the existing seismic force resisting systems of the facility when compared to a building constructed using modern building codes. In addition to evaluating the building's seismic performance, schematic seismic retrofit plans have been developed. The rehabilitation plans have been developed using our extensive knowledge of seismic rehabilitation and are intended to meet the objectives and the level of performance of Limited Safety (BSE-2E), Damage Control (BSE-1E), Life Safety (BSE-2E), and Immediate Occupancy (BSE-1E) based on the ASCE 41-17 requirements, as applicable. Based on the seismic evaluation and schematic rehabilitation design drawings, a preliminary construction cost estimate was developed. Based on the preliminary construction cost estimate, a benefit cost analysis was prepared to help the District determine whether or not the rehabilitation efforts outlined in this report are financially responsible.

This work was conducted at the request of Brad Johnston, Facilities Manager, under an engineering services contract between the District and ZCS.

2.1 Scope of Work

The following scope of work was developed to meet the objectives outlined above.

Seismic Evaluation & Preliminary Rehabilitation Services:

- Review original building construction drawings to determine existing structural systems and areas of concern.
- Perform site visits of the structure to observe structural systems and visually review structural condition and deficiencies.
- Observe lateral system (seismic) components and load path.
- Observe gravity system components and load path.
- Observe for damage and failing elements.
- Develop schematic level as-builts based on site measurements.
- Evaluate existing construction based on visual observations and available as-constructed documentation against ASCE 41-17 Tier 1 requirements.
- Collate findings and perform preliminary calculations to assist in the determination of each building's seismic deficiencies.

- Prepare an evaluation report for the facility identifying the structural integrity and seismic deficiencies stamped by a registered Structural Engineer licensed in the State of Oregon.

Preliminary Construction Cost Consulting Services:

- Develop project base sheets based on the District provided original drawings and ZCS developed as-builts.
- Prepare conceptual rehabilitation drawings based on ASCE 41 guidelines to convey the intent of rehabilitation recommendations.
- Prepare a project cost estimate based on historic projects of similar scope and magnitude.
- Review constructability and cost estimate with a licensed contractor.
- Revise plans based on contractor input as required to optimize the efficiency of the rehabilitation plan and develop final construction cost recommendations.
- Prepare cost benefit analysis based on SRGP methodologies
  *Financial and enrollment information has been provided by the District
- Summarize findings in final report package stamped by a registered Structural Engineer licensed in the State of Oregon.

3.0 Structural Evaluation

3.1 Introduction

ZCS was tasked with evaluating the lateral force resisting systems of the structures located on the site. The structures evaluated as part of this report include several classroom buildings. All the structures included in the scope of this seismic evaluation report are constructed of straight sheathed shear walls supporting straight sheathed diaphragms. Additionally, the buildings included in the scope of this evaluation have masonry veneers around the exterior walls. The total building area included in this evaluation is approximately 18,250 square feet.

3.2 Structural Evaluation

The following outlines the evaluation of the existing structural components of the building. The evaluation includes site observations of the existing structural elements and follows the guidelines outlined in the American Society of Civil Engineer's "Seismic Evaluation of Existing Buildings – ASCE 41-17". This manual is the required evaluation tool per the Seismic Rehabilitation Grant Program through Business Oregon Infrastructure Finance Authority. Per ASCE 41-17 a Tier 1 evaluation has been performed. The purpose of a Tier 1 evaluation is to provide "Quick Checks" to properly evaluate a building and determine deficiencies related to the lateral resisting elements.

It is the intent of the District, as part of this study, to determine the structural deficiencies of the building as compared to current prescribed loading and detailing requirements for lateral (wind/seismic) loading to a performance level of "Limited Safety (BSE-2E)" per ASCE 41-17. The level of performance is defined per ASCE 41-17 as:

"The Limited Safety Structural Performance Level is set forth as a midway point between Life Safety and Collapse Prevention. It is intended to provide a structure with a greater reliability of resisting collapse than a structure that only meets the Collapse Prevention Performance Level, but not to the full level of safety that the Life Safety Performance Level would imply."

"Structural Performance Level S-3, Life Safety, means the post-earthquake damage state in which significant damage to the structure has occurred but some margin against either partial or total structural collapse remains. Some structural elements and components are severely damaged, but this damage has not resulted in large falling debris hazards, either inside or outside the building. Injuries might occur during the earthquake; however, the overall risk of life-threatening injury as a result of structural damage is expected to be low. It should be possible to repair the structure; however, for economic reasons, this repair might not be

practical. Although the damaged structure is not an imminent collapse risk, it would be prudent to implement structural repairs or install temporary bracing before reoccupancy."

"Structural Performance Level, Collapse Prevention, means the post-earthquake damage state in which the building is on the verge of partial or total collapse. Substantial damage to the structure has occurred, potentially including significant degradation in the stiffness and strength of the lateral-force-resisting system, large permanent lateral deformation of the structure, and - to a more limited extent - degradation in vertical-load-carrying capacity. However, all significant components of the gravity-load-resisting system must continue to carry their gravity loads. Significant risk of injury caused by falling hazards from structural debris might exist. The structure might not be technically practical to repair and is not safe for reoccupancy because after shock activity could induce collapse."

Per ASCE 41-17 a seismic hazard level is required. In order to obtain a performance level of "Limited Safety" the seismic hazard shall be BSE-2E as defined in section 2.4.1.3 and C2.4.1.3. The BSE-2E hazard level earthquake has a probability of occurring once in every 975 years, or 5% chance in 50 years. This design level earthquake represents ground motions approximately 75% as large as those prescribed for new buildings. We feel this provides an appropriate level of performance for this facility.

Lateral resisting systems work in conjunction with gravity framing systems. As such, the existing gravity framing system was also reviewed for structural deficiencies during our site observations. Section 3.2.3 outlines the existing gravity system and its structural deficiencies found during the evaluation.

Geologic hazards were assessed as part of our engineering evaluation. The main hazards evaluated in our analysis included liquefaction, slope failure, and surface fault rupture potential. These potential hazards were evaluated using ASCE 41-17 guidelines, as well as information provided by the online Oregon HazVu: Statewide Geohazards Viewer, maintained by DOGAMI. Results from the HazVu analysis are included in Appendix B.

3.2.1 Lateral Resisting Systems

After reviewing the facility and the existing drawings we have determined the lateral system is defined as a commercial/industrial wood framed construction for the classroom buildings and as unreinforced masonry for the boiler room. Per ASCE 41, commercial/industrial wood framed and unreinforced masonry bearing wall lateral systems are defined as:

Wood Frames, Commercial and Industrial W2 – These buildings are commercial or industrial buildings with a floor area of 5,000 ft^2 or more. There are few, if any, interior walls. The floor and roof framing consist of wood or steel trusses, glulam or steel beams, and wood posts or steel columns. The foundation system may consist of a variety of elements. Seismic forces are resisted by wood diaphragms and exterior stud walls sheathed with plywood, oriented strand board, stucco, plaster, or straight or diagonal wood sheathing, or they may be braced with rod bracing. Wall openings for storefronts and garages, where present, are framed by a post-and-beam framing.

3.2.2 Lateral Resisting System Deficiencies

The following lateral resisting element deficiencies are based on visual observations of the existing structural elements and the structural analysis performed during the Tier 1 “Quick Checks” of the ASCE 41-17. The Tier 1 checklists are attached in Appendix B. The following outlines the deficiencies for each portion of the facility.

S1. Roof diaphragm is not properly attached to foundation elements to transfer out-of-plane loads.
S2. Adjacent buildings are not restrained to limit pounding effects.
S3. Seismic force resisting elements are not continuous to foundation at window openings.
S4. Plan irregularities create torsional effects under seismic loading.
S5. DOGMAI HazVu maps indicate the potential of liquefaction hazards.
S6. Straight sheathed shear walls are not adequate to resist in-plane forces.
S7. Straight sheathed shear walls do not meet required aspect ratios.
S8. No wood structural panel shear walls or alternative construction to transfer forces across openings.
S9. No positive connections provided at posts to foundation elements.
S10. Sill plates are not adequately anchored to foundation elements.
S11. No positive connections provided at girder to columns.
S12. Straight sheathed diaphragms exceed maximum allowable span limits.
S13. Diaphragms exceed maximum allowable spans.

3.2.3 Gravity Resisting Systems and General Observations

The following gravity resisting deficiencies are based on visual observations of the existing structural elements. No formal structural analysis was performed during this evaluation of the gravity resisting elements.

- No known gravity deficiencies were observed.
- The gravity resisting system was found to be in good general condition based on the visual observations performed.

3.2.4 Evaluation of Incidental Items

Incidental, non-structural, items can play a major role in the overall expense of rehabilitating an existing building. These costs can be significant and can be very difficult to estimate prior to construction. The following is a list of the specific deficiencies noted during an on-site visit.

N1. Pipes conveying natural gas are not adequately restrained.
N2. Verification is needed to determine if shutoff valves are present.
N3. Flexible couplings are not provided on natural gas piping.
N4. Tops of interior partition walls are not adequately attached to the diaphragms.
N5. Supports for large piping are not restrained to prevent failure.
N6. Masonry veneer adjacent to egress paths is not adequately tied to structure.
N7. Masonry veneer is not anchored to the backup adjacent to weakened planes.
N8. Weep holes are not present in some of the masonry veneer.
N9. Covered walkway canopies are not adequately braced to structure.
N10. Shelving units are not restrained to resist overturning forces.
N11. Items and mechanical units more than 4ft above floor level are not adequately restrained.
N12. Large equipment is not anchored to structure to prevent overturning.

Based upon ZCS's previous experience the buildings contain some form of hazardous material. These materials will need to be dealt with on a case-by-case basis as they are encountered during the project.

4.0 Seismic Rehabilitation Recommendations

The following structural improvements are required to resolve the lateral force resisting system deficiencies noted in section 3.2.2. These improvements are detailed below and in the attached schematic seismic rehabilitation drawings found in Appendix E. The attached drawings were prepared to assist in defining the rehabilitation scope of work.

4.0.1 Rehabilitation Recommendations for Lateral Resisting Elements (See Section 3.2.2)

S1. Provide new blocking, clipping, and nailing to establish adequate connection of the roof diaphragm to foundation elements.
S2. Restrain adjacent buildings using blocking and strapping, as required, to prevent pounding.
S3. Ensure seismic force resisting elements provide a positive connection between roof diaphragm and foundation levels.
S4. Provide blocking and strapping at reentrant corners of diaphragm to strengthen framing around torsional irregularities.
S5. Underpin existing foundation elements with micropile where liquefaction hazards exist.
S6. Provide new plywood sheathing over existing straight sheathed walls to increase in-plane shear capacity.
S7. Infill existing wall penetrations to bring shear wall aspect ratios to within the allowable limits.
S8. Provide new plywood sheathing or alternative construction methods to infill existing windows and allow for the transfer of shear forces across window openings.
S9. Provide new hardware to positively attach wood posts to foundation elements and allow for the transfer of shear forces.
S10. Provide new sill plate anchor bolts to positively attach structure to foundation elements and allow for transfer of shear forces.
S11. Provide new connection hardware at girder to column connections that are adequate for transfer of shear forces.
S12. Provide new plywood sheathing over existing straight sheathed diaphragms to increase maximum allowable spans.
S13. Provide additional diaphragm attachments and/or block panel edges to reduce span lengths to allowable limits.

4.0.2 Rehabilitation Recommendations for Gravity Resisting Systems and General Observations (See Section 3.2.3)

- Rehabilitation of the gravity resisting system is not required at this time.

4.0.3 Rehabilitation Recommendations for Incidental Items (See Section 3.2.4)

N1. Properly brace all existing fluid piping, ducting, and any gas piping as required.
N2. Verify installation of emergency shut off valves for gas utilities.
N3. Provide flexible couplings on natural gas and fluid piping to allow for deflection in seismic events.
N4. Provide proper attachment and bracing for all non-structural walls and partitions.
N5. Properly brace all existing fluid piping, ducting, and any gas supports as required.
N6. The brick veneer over the exit doors and egress paths will be anchored to the wood walls to minimize the falling hazard.
N7. Anchor masonry veneer to backup adjacent to weakened planes.
N8. Ensure weep holes in masonry veneer are present and clean of debris.
N9. Properly attach covered walkway canopies to adjacent structures and the specified minimum spacing and provide new cantilever columns for in-plane forces
N10. Properly brace tall-narrow shelving units and equipment to resist overturning forces
N11. Any items (including mechanical units) weighing over 20 lbs. and above 4', and all equipment over 100 lbs. shall be attached and properly braced.
N12. All equipment over 400 lbs. shall be anchored to structure.

5.0 Preliminary Construction Cost Estimate

The attached engineer's opinion of probable cost has been developed by ZCS for Westmoreland Elementary School. ZCS has a successful record of completing seismic rehabilitation projects within the State of Oregon. The prices provided in the attached cost estimate have been developed using the extensive list of past projects as a baseline for this project. These prices are based on Oregon BOLI wage rates. The cost estimate is broken down into multiple line items associated with each major task (general conditions, foundation, structural steel, MEP, etc) associated with the rehabilitation. Additional line items are included for design associated permit costs, and owner construction management.

The generation of the preliminary construction cost estimate line item costs were reviewed with a local construction company representative who has participated in similar construction projects. This representative is a highly qualified commercial contractor that has worked on multiple essential facilities and performed seismic retrofits to existing structures. They reviewed the values presented in the construction cost estimate and provided insight into current construction costs from a contractor's perspective. After final review the preliminary opinion of probable cost is **$2,378,365**.

The engineer responsible for the evaluation of the building and design of the retrofit scheme has reviewed the cost estimate and deemed it to be valid and accurate. The cost estimate includes mitigation of all the seismic deficiencies in the retrofit scope of work through inclusion of scope of work elements identified in the report and plans. To the best of our knowledge, based on known and readily identifiable existing conditions, the cost estimate is all inclusive of items required to perform the retrofit and will result in a project that can be constructed within the proposed budget.

6.0 Benefit Cost Analysis

The provided benefit-cost analysis (BCA) included in Appendix D, has been prepared by ZCS using the BCA tool as provided by the State of Oregon Infrastructure Finance Authority. The costs associated with the building replacement value, contents replacement value, and occupancy values have been developed by District staff using recent data.

The Westmoreland Elementary School was surveyed during the statewide assessment of emergency buildings performed by Department of Geology, Mineral and Industries' (DOGAMI) Rapid Visual Screening (RVS) process in 2005 as part of senate bill 2. The occupancy and budget data provided by the District is for the entire school campus.

The BCA for this project is **0.301**. Given the BCA score of **0.301** is less than 1.0, we still recommend the proposed seismic retrofit and feel this building is a great candidate for the grant given its importance to the community it serves.

7.0 Conclusion and Recommendations

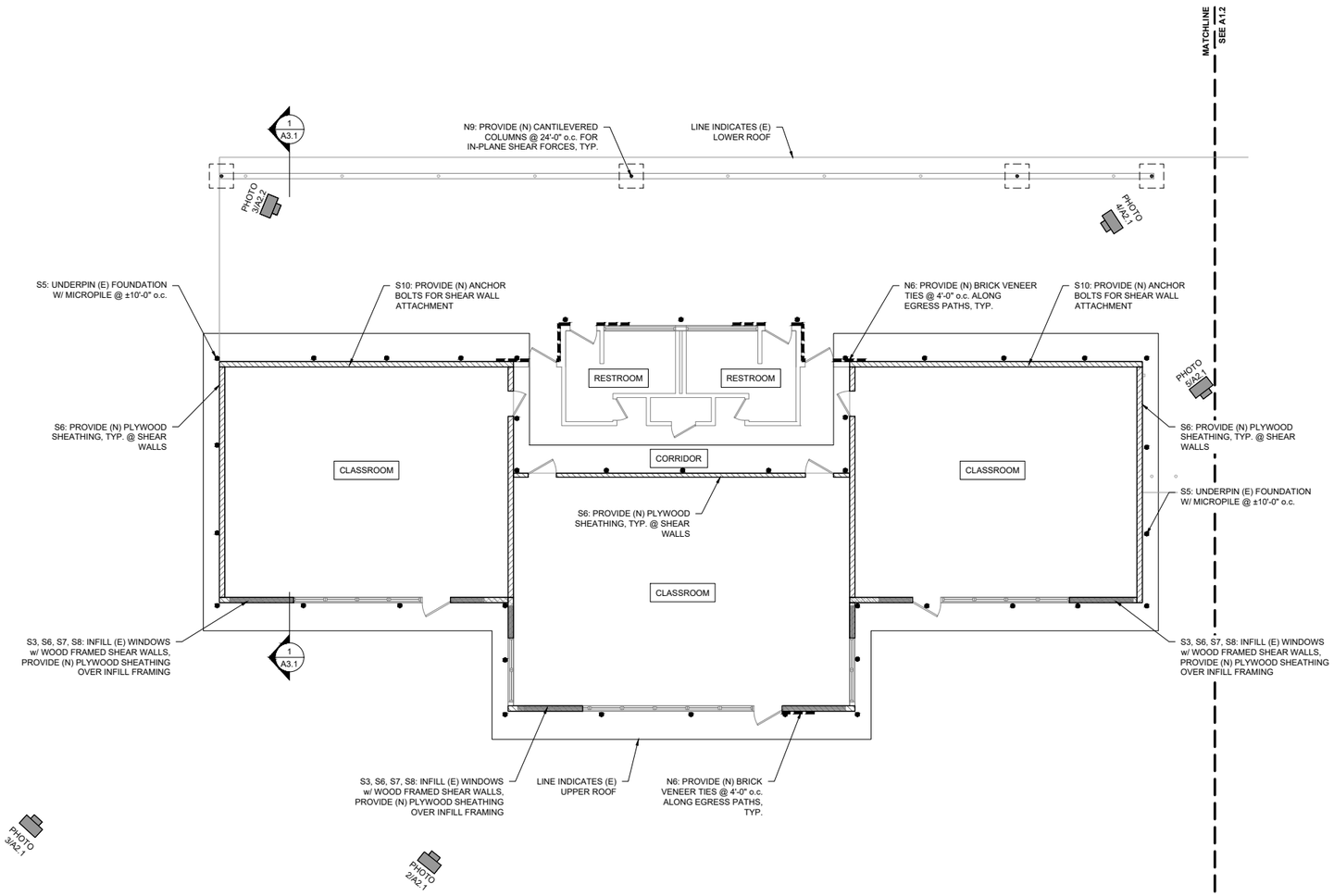
The findings described in this report have been limited to the lateral force-resisting structural system and general assessment of the gravity force-resisting elements. Based on our visual observations, we find the structure to be in good condition and generally safe for occupancy. No significant damage to the existing structural system was discovered.

Given the current condition of the structure, the current code section on existing buildings does not mandate that upgrades are required unless the building is scheduled for repairs, alterations, additions, or change in occupancy. However, it is our understanding the goal of the District is to continue utilizing the existing buildings as classrooms and cafeteria, and the District wants the seismic structural system to be compliant with the current code. To clarify, upgrades outlined in this report are strictly at the discretion of the District.

We have attempted to identify all areas requiring upgrades to achieve a scope of work for current code compliance, associated estimated costs and project schedule.

Please contact our office if you would like to discuss our findings. Please review the attached schematic drawings that can be used to refine a scope and budget.

Appendix A: Figures



ONE INCH EQUALS FULL SCALE

1
A1.1

BUILDING 'C' FLOOR PLAN

1/8" = 1'-0"

ZCS
ENGINEERING
ARCHITECTURE

127 NW D Street, Grants Pass,
Oregon 97526 | 541-479-3865

LANE ESD
1200 HIGHWAY 99 NORTH
EUGENE, OREGON 97402

WESTMORELAND CAMPUS SEISMIC RETROFIT GRANT APPLICATION PHASE I

LANE ESD

STRUCTURAL
REGISTERED PROFESSIONAL ENGINEER
OREGON
08, 2014
MATTHEW R. SMITH
EXPIRES: 06-30-20

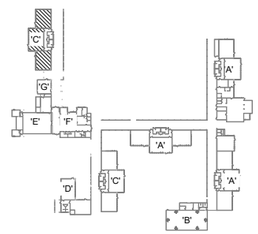
-PRELIMINARY-
NOT FOR CONSTRUCTION

REVISION ID:	DATE:

PROJECT NO:	G-1294-19
DRAWN:	CJD
CHECKED:	BMT, SLC
DATE:	01-17-20

BUILDING 'C'
FLOOR PLAN

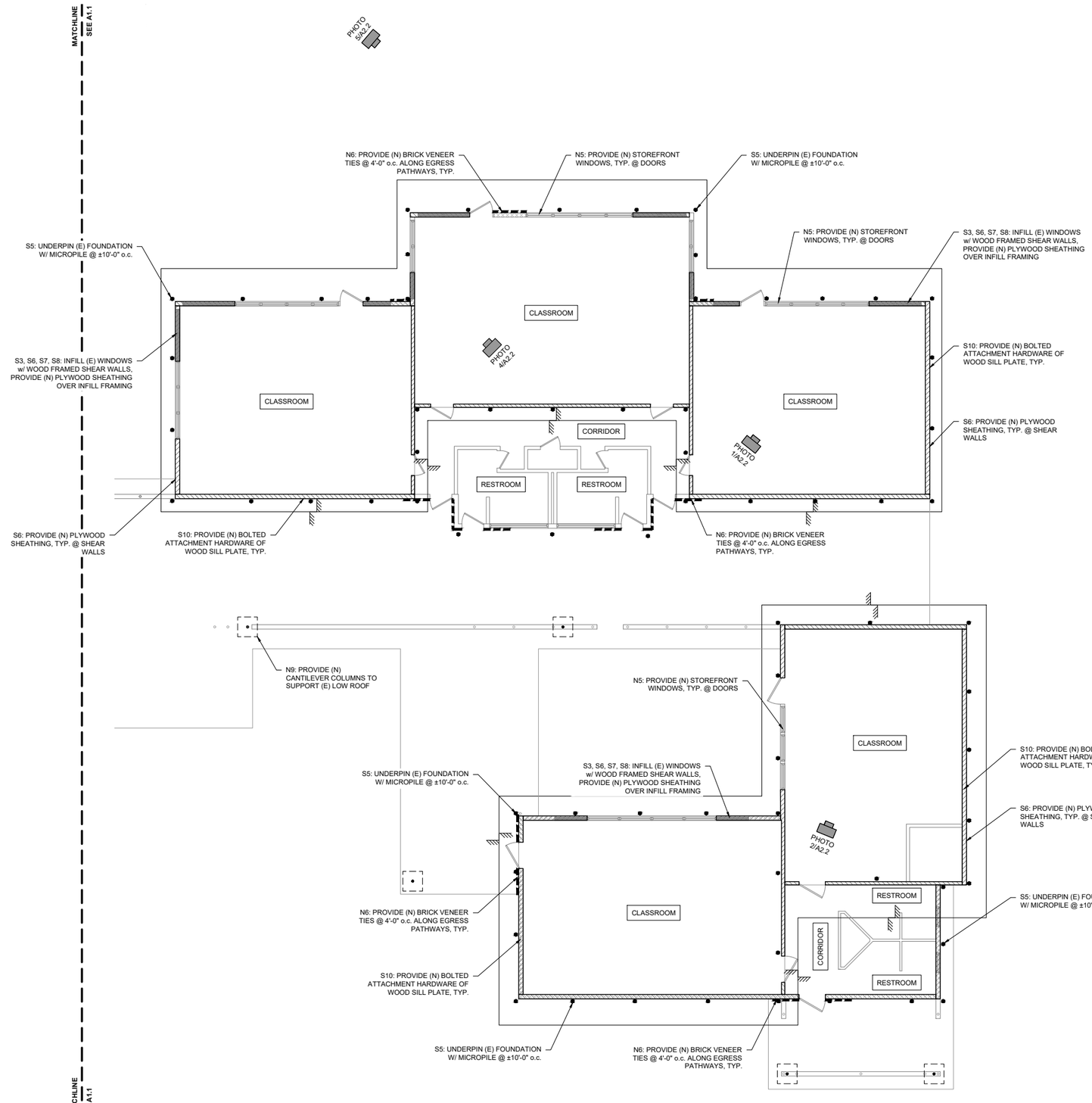
A1.1



KEYPLAN

N.T.S.

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION



ONE INCH EQUALS FULL SCALE

1 / A1.2 **BUILDING 'C' & 'D' FLOOR PLAN**

1/8" = 1'-0"

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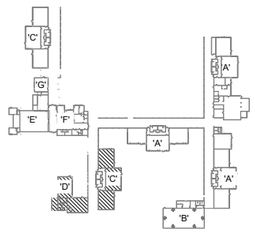
BUILDING 'C' & 'D' FLOOR PLAN

A1.2

KEYPLAN

N.T.S.



FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

1 A2.1 **PHOTO**

N.T.S.

3 A2.1 **PHOTO**

N.T.S.

2 A2.1 **PHOTO**

N.T.S.

4 A2.1 **PHOTO**

N.T.S.

5 A2.1 **PHOTO**

N.T.S.

ONE INCH EQUALS FULL SCALE

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PHOTOS

A2.1

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

1 A2.2 **PHOTO**

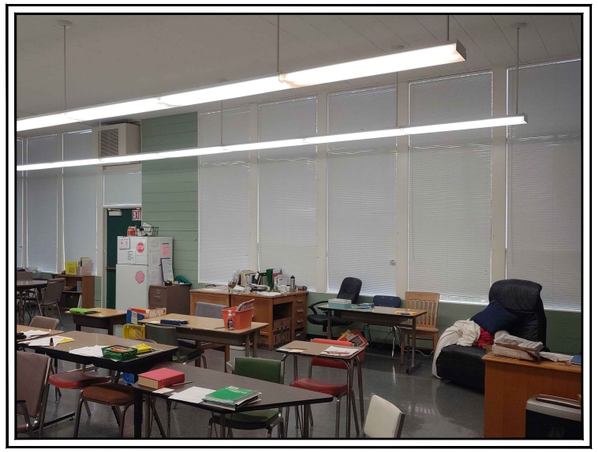
N.T.S.

3 A2.2 **PHOTO**

N.T.S.

2 A2.2 **PHOTO**

N.T.S.



4 A2.2 **PHOTO**

N.T.S.

5 A2.2 **PHOTO**

N.T.S.

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REVISION ID:	DATE:

PROJECT NO:	G-1294-19
DRAWN:	CJD
CHECKED:	BMT, SLC
DATE:	01-17-20

PHOTOS

A2.2

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

Appendix B: Structural Tier 1 Check Sheets

Tier 1 Deficiency Summary		
Noncompliant Item in Tier 1	Deficiency Number(s) Per Sections 3.2.2 - 3.2.4 & Retrofit Drawings	Comments
Buildings C and D		
Table 17-1. Very Low Seismicity Checklist		
Structural Components		
LOAD PATH	S1	No continuous load path between roof diaphragm and foundation elements

Table 17-2. Collapse Prevention Basic Configuration Checklist		
Low Seismicity		
Building System—General		
LOAD PATH	S1	No continuous load path between roof diaphragm and foundation elements
ADJACENT BUILDINGS	S2	Adjacent buildings are not restrained to limit pounding effects
Building System—Building Configuration		
VERTICAL IRREGULARITIES	S3	Seismic force resisting elements are not continuous to foundation
Moderate Seismicity		
Geologic Site Hazards		
LIQUEFACTION	S5	DOGAMI HazVu maps indicate potential liquefaction hazards

Table 17-6. Collapse Prevention Structural Checklist for Building Type W2		
Low and Moderate Seismicity		
Seismic-Force-Resisting System		
SHEAR STRESS CHECK	S6	Straight sheathed shear walls are not adequate to resist in-plane forces
NARROW WOOD SHEAR WALLS	S7	Straight sheathed shear walls do not meet required aspect ratios
OPENINGS	S8	No wood structural panel shear walls or alternative construction to transfer forces across window openings
Connections		
WOOD POSTS	S9	No positive connections provided at columns to foundation elements
WOOD SILLS	S10	Sill plates are not adequately anchored to foundation elements
GIRDER–COLUMN CONNECTION	S11	No positive connections provided at girder to column connection
High Seismicity		
Connections		
WOOD SILL BOLTS	S10	Sill plates are not adequately anchored to foundation elements
Diaphragms		
STRAIGHT SHEATHING	S12	Straight sheathed diaphragms exceed maximum allowable span limits
SPANS	S13	Diaphragms exceed maximum allowable spans limits

Table 17-38. Nonstructural Checklist		
Hazardous Materials		
HAZARDOUS MATERIAL DISTRIBUTION	N1	Pipes conveying natural gas are not adequately restrained
SHUTOFF VALVES	N2	Verification is needed to determine if shutoff valves are present
FLEXIBLE COUPLINGS	N3	Flexible couplings are not provided on natural gas piping
Partitions		
TOPS	N4	Tops of interior partition walls are not adequately attached to the diaphragms
Masonry Veneer		
TIES	N6	Masonry veneer adjacent to egress paths is not adequately tied to structure
WEAKENED PLANES	N7	Masonry veneer is not anchored to the backup adjacent to weakened planes
WEEP HOLES	N8	Weep holes are not present in some of the masonry veneer
Parapets, Cornices, Ornamentation, and Appendages		
CANOPIES	N9	Covered walkway canopies are not adequately restrained
Contents and Furnishings		
TALL NARROW CONTENTS	N10	Shelving units are not restrained to resist overturning forces
FALL-PRONE CONTENTS	N11	Items more than 4ft above floor level are not adequately restrained
Mechanical and Electrical Equipment		
FALL-PRONE EQUIPMENT	N11	Mechanical units are not adequately braced to structure
TALL NARROW EQUIPMENT	N10	Equipment is not braced to resist overturning forces
HEAVY EQUIPMENT	N12	Large equipment is not anchored to structure
Piping		
FLEXIBLE COUPLINGS	N3	Flexible couplings are not provided on natural gas or fluid piping
FLUID AND GAS PIPING	N1	Pipes conveying fluids and natural gas are not adequately restrained
C-CLAMPS	N13	Supports for large piping are not restrained

Appendix C: Summary Data Sheet

BUILDING DATA

Building Name: WESTMORELAND CAMPUS BUILDING PART C & D Date: 11/7/2019

Building Address: 1717 CITY VIEW STREET, EUGENE, OR 97402

Latitude: 44.041151 Longitude: -123.126688 By: BMT

Year Built: 1950s (EST.) Year(s) Remodeled: Original Design Code:

Area (sf): ± 8,330 (4,165 EACH) Length (ft): ± 120 Width (ft): ± 38

No. of Stories: 1 Story Height: Total Height: ± 10 FT

USE ☐ Industrial ☐ Office ☐ Warehouse ☐ Hospital ☐ Residential ☑ Educational ☐ Other:

CONSTRUCTION DATA

Gravity Load Structural System: WOOD FRAMED BEARING WALLS W/ FLEXIBLE ROOF DIAPHRAGM ON TIMBER TRUSS SYSTEM

Exterior Transverse Walls: WOOD FRAMED BEARING WALLS Openings? YES

Exterior Longitudinal Walls: WOOD FRAMED BEARING WALLS Openings? YES

Roof Materials/Framing: BUILT-UP (B) OR TPO OVERLAY (E) ABOVE 2x TRUSS FRAMING W/ STRAIGHT SHEATHING

Intermediate Floors/Framing: N/A

Ground Floor: SLAB ON GRADE

Columns: TIMBER Foundation: CONT. CONCRETE

General Condition of Structure: FAIR

Levels Below Grade? NONE

Special Features and Comments: MASONRY VENEER

LATERAL-FORCE-RESISTING SYSTEM

	Longitudinal	Transverse
System:	WOOD FRAMED SHEAR WALLS	WOOD FRAMED SHEAR WALLS
Vertical Elements:	WOOD FRAMED BEARING WALLS	WOOD FRAMED BEARING WALLS
Diaphragms:	STRAIGHT SHEATHED	STRAIGHT SHEATHED
Connections:	POSITIVE AND FRICTION	POSITIVE AND FRICTION

EVALUATION DATA

BSE-1N Spectral Response Accelerations: S_{DS}= 0.588 S_{D1}=

Soil Factors: Class= D F_a= 1.223 F_v=

BSE-2E Spectral Response Accelerations: S_{XS}= 0.693 S_{X1}= 0.569

Level of Seismicity: HIGH Performance Level: LIMITED SAFETY (S-4)

Building Period: T= 0.16

Spectral Acceleration: S_a= 0.693

Modification Factor: $C_mC_1C_2$= 1.3 (TABLE 4-7) Building Weight: W= ± 260.6 KIPS (EACH)

Pseudo Lateral Force: $V = C_mC_1C_2S_aW$= 235 KIPS (EACH)

BUILDING CLASSIFICATION: W2

REQUIRED TIER 1 CHECKLISTS

	Yes	No
Basic Configuration Checklist	☑	☐
Building Type W2 Structural Checklist	☑	☐
Nonstructural Component Checklist	☑	☐

FURTHER EVALUATION REQUIREMENT:

Table 17-1. Very Low Seismicity Checklist

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Structural Components			
C (NC) N/A U	LOAD PATH: The structure contains a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation.	5.4.1.1	A.2.1.1
C NC (N/A) U	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.4.3.7.	5.7.1.1	A.5.1.1

Note: C = Compliant, NC = Noncompliant, N/A = Not Applicable, and U = Unknown.

Table 17-2. Collapse Prevention Basic Configuration Checklist

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Low Seismicity			
Building System—General			
C (NC) N/A U	LOAD PATH: The structure contains a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation.	5.4.1.1	A.2.1.1
C (NC) N/A U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 0.25% of the height of the shorter building in low seismicity, 0.5% in moderate seismicity, and 1.5% in high seismicity.	5.4.1.2	A.2.1.2
C NC (N/A) U	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure.	5.4.1.3	A.2.1.3
Building System—Building Configuration			
C NC (N/A) U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above.	5.4.2.1	A.2.2.2
C NC (N/A) U	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above.	5.4.2.2	A.2.2.3
C (NC) N/A U	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation.	5.4.2.3	A.2.2.4
C NC (N/A) U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines.	5.4.2.4	A.2.2.5
C NC (N/A) U	MASS: There is no change in effective mass of more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered.	5.4.2.5	A.2.2.6
C NC (N/A) U	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension.	5.4.2.6	A.2.2.7

continues

Table 17-2 *(Continued)*. Collapse Prevention Basic Configuration Checklist

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Moderate Seismicity (Complete the Following Items in Addition to the Items for Low Seismicity)			
Geologic Site Hazards			
C NC N/A U	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance do not exist in the foundation soils at depths within 50 ft (15.2 m) under the building.	5.4.3.1	A.6.1.1
C NC N/A U	SLOPE FAILURE: The building site is located away from potential earthquake-induced slope failures or rockfalls so that it is unaffected by such failures or is capable of accommodating any predicted movements without failure.	5.4.3.1	A.6.1.2
C NC N/A U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated.	5.4.3.1	A.6.1.3
High Seismicity (Complete the Following Items in Addition to the Items for Moderate Seismicity)			
Foundation Configuration			
C NC N/A U	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$.	5.4.3.3	A.6.2.1
C NC N/A U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C.	5.4.3.4	A.6.2.2

Note: C = Compliant, NC = Noncompliant, N/A = Not Applicable, and U = Unknown.

Table 17-3. Immediate Occupancy Basic Configuration Checklist

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Very Low Seismicity			
Building System—General			
C NC N/A U	LOAD PATH: The structure contains a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation.	5.4.1.1	A.2.1.1
C NC N/A U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 0.5% of the height of the shorter building in low seismicity, 1.0% in moderate seismicity, and 3.0% in high seismicity.	5.4.1.2	A.2.1.2
C NC N/A U	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure.	5.4.1.3	A.2.1.3
Building System—Building Configuration			
C NC N/A U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above.	5.4.2.1	A.2.2.2
C NC N/A U	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above.	5.4.2.2	A.2.2.3
C NC N/A U	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation.	5.4.2.3	A.2.2.4
C NC N/A U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines.	5.4.2.4	A.2.2.5
C NC N/A U	MASS: There is no change in effective mass of more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered.	5.4.2.5	A.2.2.6

continues

Table 17-6. Collapse Prevention Structural Checklist for Building Type W2

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Low and Moderate Seismicity			
Seismic-Force-Resisting System			
C NC N/A U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2.	5.5.1.1	A.3.2.1.1
C **NC** N/A U	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than the following values: Structural panel sheathing 1,000 lb/ft Diagonal sheathing 700 lb/ft Straight sheathing 100 lb/ft All other conditions 100 lb/ft	5.5.3.1.1	A.3.2.7.1
C NC **N/A** U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior stucco walls as the primary seismic-force-resisting system.	5.5.3.6.1	A.3.2.7.2
C NC **N/A** U	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used for shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building.	5.5.3.6.1	A.3.2.7.3
C **NC** N/A U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces.	5.5.3.6.1	A.3.2.7.4
C NC **N/A** U	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to transfer overturning and shear forces through the floor.	5.5.3.6.2	A.3.2.7.5
C NC **N/A** U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1.	5.5.3.6.3	A.3.2.7.6
C NC **N/A** U	CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels.	5.5.3.6.4	A.3.2.7.7
C **NC** N/A U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces.	5.5.3.6.5	A.3.2.7.8
Connections			
C **NC** N/A U	WOOD POSTS: There is a positive connection of wood posts to the foundation.	5.7.3.3	A.5.3.3
C **NC** N/A U	WOOD SILLS: All wood sills are bolted to the foundation.	5.7.3.3	A.5.3.4
C **NC** N/A U	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support.	5.7.4.1	A.5.4.1
High Seismicity (Complete the Following Items in Addition to the Items for Low and Moderate Seismicity)			
Connections			
C **NC** N/A U	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft (1.8 m) or less with acceptable edge and end distance provided for wood and concrete.	5.7.3.3	A.5.3.7
Diaphragms			
C NC N/A U	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints.	5.6.1.1	A.4.1.1
C NC N/A U	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof elevation.	5.6.1.1	A.4.1.3
C NC **N/A** U	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension.	5.6.1.5	A.4.1.8
C **NC** N/A U	STRAIGHT SHEATHING: All straight-sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered.	5.6.2	A.4.2.1
C **NC** N/A U	SPANS: All wood diaphragms with spans greater than 24 ft (7.3 m) consist of wood structural panels or diagonal sheathing.	5.6.2	A.4.2.2

continues

Table 17-6 *(Continued)*. Collapse Prevention Structural Checklist for Building Type W2

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
C NC N/A U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft (12.2 m) and have aspect ratios less than or equal to 4-to-1.	5.6.2	A.4.2.3
C NC N/A U	OTHER DIAPHRAGMS: The diaphragms do not consist of a system other than wood, metal deck, concrete, or horizontal bracing.	5.6.5	A.4.7.1

Note: C = Compliant, NC = Noncompliant, N/A = Not Applicable, and U = Unknown.

Table 17-7. Immediate Occupancy Checklist for Building Type W2

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Very Low Seismicity			
Seismic-Force-Resisting System			
C NC N/A U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2.	5.5.1.1	A.3.2.1.1
C NC N/A U	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than the following values: Structural panel sheathing 1,000 lb/ft (14.6 kN/m) Diagonal sheathing 700 lb/ft (10.2 kN/m) Straight sheathing 100 lb/ft (1.5 kN/m) All other conditions 100 lb/ft (1.5 kN/m)	5.5.3.1.1	A.3.2.7.1
C NC N/A U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior stucco walls as the primary seismic-force-resisting system.	5.5.3.6.1	A.3.2.7.2
C NC N/A U	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used for shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building.	5.5.3.6.1	A.3.2.7.3
C NC N/A U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces.	5.5.3.6.1	A.3.2.7.4
C NC N/A U	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to transfer overturning and shear forces through the floor.	5.5.3.6.2	A.3.2.7.5
C NC N/A U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-2.	5.5.3.6.3	A.3.2.7.6
C NC N/A U	CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels.	5.5.3.6.4	A.3.2.7.7
C NC N/A U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces.	5.5.3.6.5	A.3.2.7.8
C NC N/A U	HOLD-DOWN ANCHORS: All shear walls have hold-down anchors attached to the end studs constructed in accordance with acceptable construction practices.	5.5.3.6.6	A.3.2.7.9
Connections			
C NC N/A U	WOOD POSTS: There is a positive connection of wood posts to the foundation.	5.7.3.3	A.5.3.3
C NC N/A U	WOOD SILLS: All wood sills are bolted to the foundation.	5.7.3.3	A.5.3.4
C NC N/A U	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support.	5.7.4.1	A.5.4.1

continues

Table 17-38. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
Life Safety Systems			
C NC (N/A) U	**HR—not required; LS—LMH; PR—LMH.** FIRE SUPPRESSION PIPING: Fire suppression piping is anchored and braced in accordance with NFPA-13.	13.7.4	A.7.13.1
C NC (N/A) U	**HR—not required; LS—LMH; PR—LMH.** FLEXIBLE COUPLINGS: Fire suppression piping has flexible couplings in accordance with NFPA-13.	13.7.4	A.7.13.2
C NC (N/A) U	**HR—not required; LS—LMH; PR—LMH.** EMERGENCY POWER: Equipment used to power or control Life Safety systems is anchored or braced.	13.7.7	A.7.12.1
C NC (N/A) U	**HR—not required; LS—LMH; PR—LMH.** STAIR AND SMOKE DUCTS: Stair pressurization and smoke control ducts are braced and have flexible connections at seismic joints.	13.7.6	A.7.14.1
C NC (N/A) U	**HR—not required; LS—MH; PR—MH.** SPRINKLER CEILING CLEARANCE: Penetrations through panelized ceilings for fire suppression devices provide clearances in accordance with NFPA-13.	13.7.4	A.7.13.3
C NC (N/A) U	**HR—not required; LS—not required; PR—LMH.** EMERGENCY LIGHTING: Emergency and egress lighting equipment is anchored or braced.	13.7.9	A.7.3.1
Hazardous Materials			
C NC (N/A) U	**HR—LMH; LS—LMH; PR—LMH.** HAZARDOUS MATERIAL EQUIPMENT: Equipment mounted on vibration isolators and containing hazardous material is equipped with restraints or snubbers.	13.7.1	A.7.12.2
C NC (N/A) U	**HR—LMH; LS—LMH; PR—LMH.** HAZARDOUS MATERIAL STORAGE: Breakable containers that hold hazardous material, including gas cylinders, are restrained by latched doors, shelf lips, wires, or other methods.	13.8.3	A.7.15.1
C (NC) N/A U	**HR—MH; LS—MH; PR—MH.** HAZARDOUS MATERIAL DISTRIBUTION: Piping or ductwork conveying hazardous materials is braced or otherwise protected from damage that would allow hazardous material release.	13.7.3 13.7.5	A.7.13.4
C (NC) N/A U	**HR—MH; LS—MH; PR—MH.** SHUTOFF VALVES: Piping containing hazardous material, including natural gas, has shutoff valves or other devices to limit spills or leaks.	13.7.3 13.7.5	A.7.13.3
C (NC) N/A U	**HR—LMH; LS—LMH; PR—LMH.** FLEXIBLE COUPLINGS: Hazardous material ductwork and piping, including natural gas piping, have flexible couplings.	13.7.3 13.7.5	A.7.15.4
C NC (N/A) U	**HR—MH; LS—MH; PR—MH.** PIPING OR DUCTS CROSSING SEISMIC JOINTS: Piping or ductwork carrying hazardous material that either crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements.	13.7.3 13.7.5 13.7.6	A.7.13.6
Partitions			
C NC (N/A) U	**HR—LMH; LS—LMH; PR—LMH.** UNREINFORCED MASONRY: Unreinforced masonry or hollow-clay tile partitions are braced at a spacing of at most 10 ft (3.0 m) in Low or Moderate Seismicity, or at most 6 ft (1.8 m) in High Seismicity.	13.6.2	A.7.1.1
C NC (N/A) U	**HR—LMH; LS—LMH; PR—LMH.** HEAVY PARTITIONS SUPPORTED BY CEILINGS: The tops of masonry or hollow-clay tile partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1
C NC (N/A) U	**HR—not required; LS—MH; PR—MH.** DRIFT: Rigid cementitious partitions are detailed to accommodate the following drift ratios: in steel moment frame, concrete moment frame, and wood frame buildings, 0.02; in other buildings, 0.005.	13.6.2	A.7.1.2
C NC (N/A) U	**HR—not required; LS—not required; PR—MH.** LIGHT PARTITIONS SUPPORTED BY CEILINGS: The tops of gypsum board partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1
C NC (N/A) U	**HR—not required; LS—not required; PR—MH.** STRUCTURAL SEPARATIONS: Partitions that cross structural separations have seismic or control joints.	13.6.2	A.7.1.3

continues

Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C (NC) N/A U	**HR—not required; LS—not required; PR—MH.** TOPS: The tops of ceiling-high framed or panelized partitions have lateral bracing to the structure at a spacing equal to or less than 6 ft (1.8 m).	13.6.2	A.7.1.4
Ceilings			
C NC (N/A) U	**HR—H; LS—MH; PR—LMH.** SUSPENDED LATH AND PLASTER: Suspended lath and plaster ceilings have attachments that resist seismic forces for every 12 ft^2 (1.1 m^2) of area.	13.6.4	A.7.2.3
C NC (N/A) U	**HR—not required; LS—MH; PR—LMH.** SUSPENDED GYPSUM BOARD: Suspended gypsum board ceilings have attachments that resist seismic forces for every 12 ft^2 (1.1 m^2) of area.	13.6.4	A.7.2.3
(C) NC N/A U	**HR—not required; LS—not required; PR—MH.** INTEGRATED CEILINGS: Integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) and ceilings of smaller areas that are not surrounded by restraining partitions are laterally restrained at a spacing no greater than 12 ft (3.6 m) with members attached to the structure above. Each restraint location has a minimum of four diagonal wires and compression struts, or diagonal members capable of resisting compression.	13.6.4	A.7.2.2
(C) NC N/A U	**HR—not required; LS—not required; PR—MH.** EDGE CLEARANCE: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) have clearances from the enclosing wall or partition of at least the following: in Moderate Seismicity, 1/2 in. (13 mm); in High Seismicity, 3/4 in. (19 mm).	13.6.4	A.7.2.4
C NC (N/A) U	**HR—not required; LS—not required; PR—MH.** CONTINUITY ACROSS STRUCTURE JOINTS: The ceiling system does not cross any seismic joint and is not attached to multiple independent structures.	13.6.4	A.7.2.5
(C) NC N/A U	**HR—not required; LS—not required; PR—H.** EDGE SUPPORT: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) are supported by closure angles or channels not less than 2 in. (51 mm) wide.	13.6.4	A.7.2.6
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** SEISMIC JOINTS: Acoustical tile or lay-in panel ceilings have seismic separation joints such that each continuous portion of the ceiling is no more than 2,500 ft^2 (232.3 m^2) and has a ratio of long-to-short dimension no more than 4-to-1.	13.6.4	A.7.2.7
Light Fixtures			
(C) NC N/A U	**HR—not required; LS—MH; PR—MH.** INDEPENDENT SUPPORT: Light fixtures that weigh more per square foot than the ceiling they penetrate are supported independent of the grid ceiling suspension system by a minimum of two wires at diagonally opposite corners of each fixture.	13.6.4 13.7.9	A.7.3.2
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** PENDANT SUPPORTS: Light fixtures on pendant supports are attached at a spacing equal to or less than 6 ft. Unbraced suspended fixtures are free to allow a 360-degree range of motion at an angle not less than 45 degrees from horizontal without contacting adjacent components. Alternatively, if rigidly supported and/or braced, they are free to move with the structure to which they are attached without damaging adjoining components. Additionally, the connection to the structure is capable of accommodating the movement without failure.	13.7.9	A.7.3.3
(C) NC N/A U	**HR—not required; LS—not required; PR—H.** LENS COVERS: Lens covers on light fixtures are attached with safety devices.	13.7.9	A.7.3.4
Cladding and Glazing			
C NC (N/A) U	**HR—MH; LS—MH; PR—MH.** CLADDING ANCHORS: Cladding components weighing more than 10 lb/ft^2 (0.48 kN/m^2) are mechanically anchored to the structure at a spacing equal to or less than the following: for Life Safety in Moderate Seismicity, 6 ft (1.8 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 ft (1.2 m)	13.6.1	A.7.4.1

continues

Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C NC N/A U	**HR—not required; LS—MH; PR—MH.** CLADDING ISOLATION: For steel or concrete moment-frame buildings, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.3
C NC N/A U	**HR—MH; LS—MH; PR—MH.** MULTI-STORY PANELS: For multi-story panels attached at more than one floor level, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.4
C NC N/A U	**HR—not required; LS—MH; PR—MH.** THREADED RODS: Threaded rods for panel connections detailed to accommodate drift by bending of the rod have a length-to-diameter ratio greater than 0.06 times the story height in inches for Life Safety in Moderate Seismicity and 0.12 times the story height in inches for Life Safety in High Seismicity and Position Retention in any seismicity.	13.6.1	A.7.4.9
C NC N/A U	**HR—MH; LS—MH; PR—MH.** PANEL CONNECTIONS: Cladding panels are anchored out of plane with a minimum number of connections for each wall panel, as follows: for Life Safety in Moderate Seismicity, 2 connections; for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 connections.	13.6.1.4	A.7.4.5
C NC N/A U	**HR—MH; LS—MH; PR—MH.** BEARING CONNECTIONS: Where bearing connections are used, there is a minimum of two bearing connections for each cladding panel.	13.6.1.4	A.7.4.6
C NC N/A U	**HR—MH; LS—MH; PR—MH.** INSERTS: Where concrete cladding components use inserts, the inserts have positive anchorage or are anchored to reinforcing steel.	13.6.1.4	A.7.4.7
C NC N/A U	**HR—not required; LS—MH; PR—MH.** OVERHEAD GLAZING: Glazing panes of any size in curtain walls and individual interior or exterior panes more than 16 ft^2 (1.5 m^2) in area are laminated annealed or laminated heat-strengthened glass and are detailed to remain in the frame when cracked.	13.6.1.5	A.7.4.8
Masonry Veneer			
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** TIES: Masonry veneer is connected to the backup with corrosion-resistant ties. There is a minimum of one tie for every 2-2/3 ft^2 (0.25 m^2), and the ties have spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 36 in. (914 mm); for Life Safety in High Seismicity and for Position Retention in any seismicity, 24 in. (610 mm).	13.6.1.2	A.7.5.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** SHELF ANGLES: Masonry veneer is supported by shelf angles or other elements at each floor above the ground floor.	13.6.1.2	A.7.5.2
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** WEAKENED PLANES: Masonry veneer is anchored to the backup adjacent to weakened planes, such as at the locations of flashing.	13.6.1.2	A.7.5.3
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** UNREINFORCED MASONRY BACKUP: There is no unreinforced masonry backup.	13.6.1.1 13.6.1.2	A.7.7.2
C NC N/A U	**HR—not required; LS—MH; PR—MH.** STUD TRACKS: For veneer with cold-formed steel stud backup, stud tracks are fastened to the structure at a spacing equal to or less than 24 in. (610 mm) on center.	13.6.1.1 13.6.1.2	A.7.6.1

continues

Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C NC N/A U	**HR—not required; LS—MH; PR—MH.** ANCHORAGE: For veneer with concrete block or masonry backup, the backup is positively anchored to the structure at a horizontal spacing equal to or less than 4 ft along the floors and roof.	13.6.1.1 13.6.1.2	A.7.7.1
C NC N/A U	**HR—not required; LS—not required; PR—MH.** WEEP HOLES: In veneer anchored to stud walls, the veneer has functioning weep holes and base flashing.	13.6.1.2	A.7.5.6
C NC N/A U	**HR—not required; LS—not required; PR—MH.** OPENINGS: For veneer with cold-formed-steel stud backup, steel studs frame window and door openings.	13.6.1.1 13.6.1.2	A.7.6.2
Parapets, Cornices, Ornamentation, and Appendages			
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** URM PARAPETS OR CORNICES: Laterally unsupported unreinforced masonry parapets or cornices have height-to-thickness ratios no greater than the following: for Life Safety in Low or Moderate Seismicity, 2.5; for Life Safety in High Seismicity and for Position Retention in any seismicity, 1.5.	13.6.5	A.7.8.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** CANOPIES: Canopies at building exits are anchored to the structure at a spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 10 ft (3.0 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 6 ft (1.8 m).	13.6.6	A.7.8.2
C NC N/A U	**HR—H; LS—MH; PR—LMH.** CONCRETE PARAPETS: Concrete parapets with height-to-thickness ratios greater than 2.5 have vertical reinforcement.	13.6.5	A.7.8.3
C NC N/A U	**HR—MH; LS—MH; PR—LMH.** APPENDAGES: Cornices, parapets, signs, and other ornamentation or appendages that extend above the highest point of anchorage to the structure or cantilever from components are reinforced and anchored to the structural system at a spacing equal to or less than 6 ft (1.8 m). This evaluation statement item does not apply to parapets or cornices covered by other evaluation statements.	13.6.6	A.7.8.4
Masonry Chimneys			
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** URM CHIMNEYS: Unreinforced masonry chimneys extend above the roof surface no more than the following: for Life Safety in Low or Moderate Seismicity, 3 times the least dimension of the chimney; for Life Safety in High Seismicity and for Position Retention in any seismicity, 2 times the least dimension of the chimney.	13.6.7	A.7.9.1
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** ANCHORAGE: Masonry chimneys are anchored at each floor level, at the topmost ceiling level, and at the roof.	13.6.7	A.7.9.2
Stairs			
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** STAIR ENCLOSURES: Hollow-clay tile or unreinforced masonry walls around stair enclosures are restrained out of plane and have height-to-thickness ratios not greater than the following: for Life Safety in Low or Moderate Seismicity, 15-to-1; for Life Safety in High Seismicity and for Position Retention in any seismicity, 12-to-1.	13.6.2 13.6.8	A.7.10.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** STAIR DETAILS: The connection between the stairs and the structure does not rely on post-installed anchors in concrete or masonry, and the stair details are capable of accommodating the drift calculated using the Quick Check procedure of Section 4.4.3.1 for moment-frame structures or 0.5 in. for all other structures without including any lateral stiffness contribution from the stairs.	13.6.8	A.7.10.2
Contents and Furnishings			
C NC N/A U	**HR—LMH; LS—MH; PR—MH.** INDUSTRIAL STORAGE RACKS: Industrial storage racks or pallet racks more than 12 ft high meet the requirements of ANSI/RMI MH 16.1 as modified by ASCE 7, Chapter 15.	13.8.1	A.7.11.1

continues

Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C (NC) N/A U	**HR—not required; LS—H; PR—MH.** TALL NARROW CONTENTS: Contents more than 6 ft (1.8 m) high with a height-to-depth or height-to-width ratio greater than 3-to-1 are anchored to the structure or to each other.	13.8.2	A.7.11.2
C (NC) N/A U	**HR—not required; LS—H; PR—H.** FALL-PRONE CONTENTS: Equipment, stored items, or other contents weighing more than 20 lb (9.1 kg) whose center of mass is more than 4 ft (1.2 m) above the adjacent floor level are braced or otherwise restrained.	13.8.2	A.7.11.3
C NC (N/A) U	**HR—not required; LS—not required; PR—MH.** ACCESS FLOORS: Access floors more than 9 in. (229 mm) high are braced.	13.6.10	A.7.11.4
C NC (N/A) U	**HR—not required; LS—not required; PR—MH.** EQUIPMENT ON ACCESS FLOORS: Equipment and other contents supported by access floor systems are anchored or braced to the structure independent of the access floor.	13.7.7 13.6.10	A.7.11.5
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** SUSPENDED CONTENTS: Items suspended without lateral bracing are free to swing from or move with the structure from which they are suspended without damaging themselves or adjoining components.	13.8.2	A.7.11.6
Mechanical and Electrical Equipment			
C (NC) N/A U	**HR—not required; LS—H; PR—H.** FALL-PRONE EQUIPMENT: Equipment weighing more than 20 lb (9.1 kg) whose center of mass is more than 4 ft (1.2 m) above the adjacent floor level, and which is not in-line equipment, is braced.	13.7.1 13.7.7	A.7.12.4
C NC (N/A) U	**HR—not required; LS—H; PR—H.** IN-LINE EQUIPMENT: Equipment installed in line with a duct or piping system, with an operating weight more than 75 lb (34.0 kg), is supported and laterally braced independent of the duct or piping system.	13.7.1	A.7.12.5
C (NC) N/A U	**HR—not required; LS—H; PR—MH.** TALL NARROW EQUIPMENT: Equipment more than 6 ft (1.8 m) high with a height-to-depth or height-to-width ratio greater than 3-to-1 is anchored to the floor slab or adjacent structural walls.	13.7.1 13.7.7	A.7.12.6
C NC (N/A) U	**HR—not required; LS—not required; PR—MH.** MECHANICAL DOORS: Mechanically operated doors are detailed to operate at a story drift ratio of 0.01.	13.6.9	A.7.12.7
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** SUSPENDED EQUIPMENT: Equipment suspended without lateral bracing is free to swing from or move with the structure from which it is suspended without damaging itself or adjoining components.	13.7.1 13.7.7	A.7.12.8
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** VIBRATION ISOLATORS: Equipment mounted on vibration isolators is equipped with horizontal restraints or snubbers and with vertical restraints to resist overturning.	13.7.1	A.7.12.9
C (NC) N/A U	**HR—not required; LS—not required; PR—H.** HEAVY EQUIPMENT: Floor-supported or platform-supported equipment weighing more than 400 lb (181.4 kg) is anchored to the structure.	13.7.1 13.7.7	A.7.12.10
(C) NC N/A U	**HR—not required; LS—not required; PR—H.** ELECTRICAL EQUIPMENT: Electrical equipment is laterally braced to the structure.	13.7.7	A.7.12.11
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** CONDUIT COUPLINGS: Conduit greater than 2.5 in. (64 mm) trade size that is attached to panels, cabinets, or other equipment and is subject to relative seismic displacement has flexible couplings or connections.	13.7.8	A.7.12.12
Piping			
C (NC) N/A U	**HR—not required; LS—not required; PR—H.** FLEXIBLE COUPLINGS: Fluid and gas piping has flexible couplings.	13.7.3 13.7.5	A.7.13.2

continues

Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C (NC) N/A U	**HR—not required; LS—not required; PR—H.** FLUID AND GAS PIPING: Fluid and gas piping is anchored and braced to the structure to limit spills or leaks.	13.7.3 13.7.5	A.7.13.4
C (NC) N/A U	**HR—not required; LS—not required; PR—H.** C-CLAMPS: One-sided C-clamps that support piping larger than 2.5 in. (64 mm) in diameter are restrained.	13.7.3 13.7.5	A.7.13.5
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** PIPING CROSSING SEISMIC JOINTS: Piping that crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements.	13.7.3 13.7.5	A.7.13.6
Ducts			
(C) NC N/A U	**HR—not required; LS—not required; PR—H.** DUCT BRACING: Rectangular ductwork larger than 6 ft^2 (0.56 m^2) in cross-sectional area and round ducts larger than 28 in. (711 mm) in diameter are braced. The maximum spacing of transverse bracing does not exceed 30 ft (9.2 m). The maximum spacing of longitudinal bracing does not exceed 60 ft (18.3 m).	13.7.6	A.7.14.2
(C) NC N/A U	**HR—not required; LS—not required; PR—H.** DUCT SUPPORT: Ducts are not supported by piping or electrical conduit.	13.7.6	A.7.14.3
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** DUCTS CROSSING SEISMIC JOINTS: Ducts that cross seismic joints or isolation planes or are connected to independent structures have couplings or other details to accommodate the relative seismic displacements.	13.7.6	A.7.14.4
Elevators			
C NC (N/A) U	**HR—not required; LS—H; PR—H.** RETAINER GUARDS: Sheaves and drums have cable retainer guards.	13.7.11	A.7.16.1
C NC (N/A) U	**HR—not required; LS—H; PR—H.** RETAINER PLATE: A retainer plate is present at the top and bottom of both car and counterweight.	13.7.11	A.7.16.2
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** ELEVATOR EQUIPMENT: Equipment, piping, and other components that are part of the elevator system are anchored.	13.7.11	A.7.16.3
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** SEISMIC SWITCH: Elevators capable of operating at speeds of 150 ft/min (0.30 m/min) or faster are equipped with seismic switches that meet the requirements of ASME A17.1 or have trigger levels set to 20% of the acceleration of gravity at the base of the structure and 50% of the acceleration of gravity in other locations.	13.7.11	A.7.16.4
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** SHAFT WALLS: Elevator shaft walls are anchored and reinforced to prevent toppling into the shaft during strong shaking.	13.7.11	A.7.16.5
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** COUNTERWEIGHT RAILS: All counterweight rails and divider beams are sized in accordance with ASME A17.1.	13.7.11	A.7.16.6
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** BRACKETS: The brackets that tie the car rails and the counterweight rail to the structure are sized in accordance with ASME A17.1.	13.7.11	A.7.16.7
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** SPREADER BRACKET: Spreader brackets are not used to resist seismic forces.	13.7.11	A.7.16.8
C NC (N/A) U	**HR—not required; LS—not required; PR—H.** GO-SLOW ELEVATORS: The building has a go-slow elevator system.	13.7.11	A.7.16.9

Note: C = Compliant, NC = Noncompliant, N/A = Not Applicable, and U = Unknown.
[a] Performance Level: HR = Hazards Reduced, LS = Life Safety, and PR = Position Retention.
[b] Level of Seismicity: L = Low, M = Moderate, and H = High.

Liquefaction Map

November 8, 2019

High Moderate Low

1:1,400

0 0.01 0.01 0.03 mi

0 0.01 0.03 0.05 km

Landslide Map

November 8, 2019

Landslide Hazard

Red: Band_1

Green: Band_2

Blue: Band_3

1:1,400

0 0.01 0.01 0.03 mi

0 0.01 0.03 0.05 km

Active Faults Map

November 8, 2019

Active Faults

1:1,400

0 0.01 0.01 0.03 mi

0 0.01 0.03 0.05 km

1717 City View St, Eugene, OR 97402, USA

Latitude, Longitude: 44.04088, -123.12713489999999

Date	1/7/2020, 11:45:31 AM
Design Code Reference Document	ASCE41-17
Custom Probability	
Site Class	D - Stiff Soil

Type	Description	Value
Hazard Level		BSE-2N
S_S	spectral response (0.2 s)	0.721
S_1	spectral response (1.0 s)	0.411
S_{XS}	site-modified spectral response (0.2 s)	0.882
S_{X1}	site-modified spectral response (1.0 s)	0.776
F_a	site amplification factor (0.2 s)	1.223
F_v	site amplification factor (1.0 s)	1.889
ssuh	max direction uniform hazard (0.2 s)	0.827
crs	coefficient of risk (0.2 s)	0.871
ssrt	risk-targeted hazard (0.2 s)	0.721
ssd	deterministic hazard (0.2 s)	1.5
s1uh	max direction uniform hazard (1.0 s)	0.478
cr1	coefficient of risk (1.0 s)	0.859
s1rt	risk-targeted hazard (1.0 s)	0.411
s1d	deterministic hazard (1.0 s)	0.68

Type	Description	Value
Hazard Level		BSE-1N
S_{XS}	site-modified spectral response (0.2 s)	0.588
S_{X1}	site-modified spectral response (1.0 s)	0.517

Type	Description	Value
Hazard Level		BSE-2E
S_S	spectral response (0.2 s)	0.493
S_1	spectral response (1.0 s)	0.279
S_{XS}	site-modified spectral response (0.2 s)	0.693
S_{X1}	site-modified spectral response (1.0 s)	0.569
f_a	site amplification factor (0.2 s)	1.406
f_v	site amplification factor (1.0 s)	2.043

Type	Description	Value
Hazard Level		BSE-1E
S_S	spectral response (0.2 s)	0.121
S_1	spectral response (1.0 s)	0.057
S_{XS}	site-modified spectral response (0.2 s)	0.193
S_{X1}	site-modified spectral response (1.0 s)	0.137
F_a	site amplification factor (0.2 s)	1.6
F_v	site amplification factor (1.0 s)	2.4

Type	Description	Value
Hazard Level		TL Data
T-Sub-L	Long-period transition period in seconds	16

Pali Consulting

January 16, 2020

MEMORANDUM

Westmoreland Elementary School
Preliminary Geologic Hazards Evaluation
ZCS Engineering and Architecture
Attention Mr. Andre Latyk
Pali Consulting Project #013-20-048

1.0 INTRODUCTION

Pali Consulting, Inc. (Pali Consulting) presents this evaluation of geologic hazards at Westmoreland Elementary School in Eugene, Oregon. ZCS Engineering and Architecture (ZCS) is performing seismic rehabilitation design for the school. As part of their work, ZCS requested that we complete a preliminary evaluation of geologic hazards present at the site, in particular those related to earthquakes. The evaluation is to determine if geotechnical hazards resulting from earthquake shaking are likely to be present at the site for consideration in their grant application for the seismic upgrade funding. Specific geotechnical design is not provided in this memorandum and no subsurface explorations were completed. The site is located at 1717 City View Street in Eugene, Oregon. Our work was completed in general accordance with our master service agreement with ZCS Engineering and Architecture, dated September 27, 2018, and Task Order 42.

2.0 BACKGROUND

We reviewed the geology of the site and mapped seismic hazards, including earthquake induced landsliding, liquefaction, and active faults. A summary of our review follows.

2.1 GEOLOGY

The geology in the area is mapped on the Oregon Department of Geology and Mineral Industries' (DOGAMI) website (https://gis.dogami.oregon.gov/maps/geologicmap/#, accessed January 2020). The website maps the site on the boundary between Quaternary Surficial Deposits to the north and east, and sandstone to the west and south. The surficial deposits are described as unconsolidated mixed-grained sediments that can be derived from a number of sources, including alluvium, colluvium, glacial, landslide,

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eolian, outburst flood, and many others. The sandstone is described as Eocene to Oligocene marine sedimentary rocks of the Eugene Formation. The units are more specifically described in DOGAMI Open File Report O-10-03 Geologic Map of the Southern Willamette Valley, Benton, Lane, Linn, Marion, and Polk Counties, Oregon (McClaughry, Wiley, Ferns, and Madin, 2010). The alluvial deposits (Ha) are described as unconsolidated gravel, sand, silt and clay deposited in active stream channels and on adjoining flood plains, and the unit is reported to be up to 50 feet thick. To the west and south, siliciclastic marine sedimentary rocks (Tms) are further described as micaceous and arkosic sandstone, siltstone and minor volcaniclastic conglomerate. It is reported that this unit may be susceptible to landslides where bedding planes are moderately to steeply dipping. These types of sedimentary rocks likely underlie the Quaternary deposits within the school area, but at an unknown depth.

We reviewed well logs near the site on the Oregon Water Resources Department website (https://apps.wrd.state.or.us/apps/gw/well_log/, accessed January 2020). Several well logs were reviewed in proximity to the school site and generally within the same terrace landform. These well logs had similar profiles, generally consisting of clay or silt with sand and gravel overlying sedimentary bedrock at various depths to the depths explored, which were up to 200 feet below the ground surface (bgs). The sedimentary bedrock was described as blue sandstone or claystone and generally noted as shallow as 30 feet bgs in two logs to as deep as 80 to 100 feet bgs in two other logs. One log described hard basalt at 23 feet bgs rather than sedimentary rock, although this is doubtful. All well logs reported relatively shallow static water levels of between about 5 to 25 feet bgs, although many logs did not indicate a static water level.

2.2 LiDAR, Topography and Landforms

We interpreted digital information related to landforms at the site, using LiDAR and topographic maps available on the DOGAMI website (https://gis.dogami.oregon.gov/maps/hazvu/, accessed January 2020) and on Google Earth ™. These sources show the school is located on a wide and relatively flat alluvial terrace at the south end of the Willamette Valley. The terrace surface is generally planar, with little relief and approximately 7 miles wide northeast/southwest at the school location, widening to the north. The terrace is being incised by streams and rivers locally, most notably Amazon Creek and the Willamette and McKenzie Rivers, which are approximately 0.25, 2 and 5.5 miles to the northeast of the school, respectively. The ground surface at the site slopes gently downward to the northeast toward Amazon Creek, and moderately steep uphill to several unnamed ridges and hilltops about a quarter mile to the southwest.

2.3 Other Reports and Documents

We were not able to locate records of existing geotechnical reports or other sources of information.

2.4 Geologic Hazards

Geologic hazards were accessed and reviewed on the DOGAMI HazVu website (https://gis.dogami.oregon.gov/maps/hazvu/, accessed January 2020). We found the following regarding hazards mapped at the site:

- Subject to strong to very strong shaking from Cascadia and local earthquakes.
- No landslides are mapped in areas where buildings are located, which also have a low to moderate landslide hazard.
- Soil liquefaction hazard is mapped as none to moderate.
- Not within the FEMA 100-year floodplain.

- Not within a tsunami inundation zone.
- Nearest active faults are approximately 25 miles to the southeast of the site.

3.0 CONCLUSIONS

The site is located within an area mapped as subject to strong to very strong shaking from Cascadia and Local earthquake sources. The site is also mapped with a moderate liquefaction hazard on the east side of the school and a low to moderate landslide hazard. Other geologic hazards are low, not mapped, or likely not present at the site.

Based on our review of the site landforms (geomorphology), geology, and well logs, we conclude the following:

- Earthquake shaking is present at the site as mapped,
- Soil liquefaction hazard is probably moderate, and
- Landslide hazard is probably low.

Earthquake shaking will be addressed by code-level design for the facility. Soil liquefaction and landslide hazards are described in more detail below.

3.1 SOIL LIQUEFACTION

Soil liquefaction can result in post-seismic settlement, soil strength loss, and lateral spread. We note the following site-specific factors related to soil liquefaction at this site:

- Groundwater Depth. Nearby well logs show static groundwater depths in the area at between 5 to 25 feet bgs. Below a few feet of topsoil, soils appear to consist of clays and silts with some sand and gravel. The site is on an alluvial terrace of the Willamette River and nearby Amazon Creek, which is incised only a few feet into the terrace. Groundwater at the school could, therefore, be relatively shallow during much of the year. Soils below groundwater level could be subject to liquefaction.
- Soil Composition. Soils in nearby well logs are variable, described as gravel, sand, silt and clay which appears interbedded, typical of alluvial terraces. The majority of well logs documents the soils as predominately clay. From the well log descriptions, liquefaction of the sands and gravels appears likely and may extend to many tens of feet bgs. Potential liquefaction of clays is less likely.
- Soil Age. Aged soils are less prone to liquefaction than young soils. Holocene age soils, those formed or deposited in the last 10,000 or so years, are considered to be liquefiable, while older Pleistocene age soils (about 10,000 to 2,000,000 years old) are less likely to liquefy. The soils are identified as mostly Holocene with some Late Pleistocene alluvium. This suggests site soils are likely to liquefy.

Based on our review and analyses it is our opinion that site soils have a moderate potential to experience liquefaction under strong earthquake shaking. This is based on the presence of silt, sand and gravel which are potentially liquefiable, likely saturation of soils to between 5 and 25 feet bgs, and the mostly Holocene

geologic age of the soils. If liquefaction occurs, we expect that seismic-induced settlement will occur. The magnitude of settlement depends largely on the thickness of liquefiable soils and their composition. The potential for local bearing capacity failure will depend on the depth to the top of the liquefiable soils.

Typically, about 10 feet of non-liquefiable soil below footing subgrade greatly reduces the bearing capacity failure hazard. Sufficient information to estimate settlement magnitude is not available. Two well logs showed sands and gravels to around 30 feet bgs before encountering bedrock, but other logs showed bedrock around 80 to 100 feet bgs, so the extent of such soils could not be verified. Many well logs showed interbedded silts with the gravels and sands which would act to reduce settlement compared to only sands and gravels, while some logs showed strictly clay which would not liquify. Based on the information available, seismic-induced differential settlements could exceed design thresholds for the immediate occupancy performance level and possibly for the limited life safety performance level as well. Local bearing failure is less likely and may be reduced by overlying non-liquefiable soils but is still possible.

3.2 Landslide Hazard

The area of moderate landslide hazard near the school is not associated with an obvious physical feature in the LiDAR data and is most likely due to geologic mapping of the sandstone/alluvium contact. Such features would not pose a significant landslide hazard to the school, as the slope gradient at the site is fairly gentle, so we interpret landslide hazards to still be low.

3.3 Foundations

Because of the potential for soil liquefaction, foundation design should consider and address this hazard. Choosing an appropriate foundation system at this point is not possible, as the depth to bearing material is unknown. Based on one boring log, the alluvial deposits extend to 100 feet or more bgs. If this depth is representative of the site, underpinning or pile-supporting the school structure may not be feasible. However, most well logs indicated alluvium is shallow, extending only to around 30 feet bgs. Underpinning will be the most likely measure to mitigate for seismic-induced settlement in this case and which would also address local bearing capacity failure. The depth of liquefiable soils and any underlying bearing layer are not known and will affect the feasibility and depth of underpinning elements.

If liquefiable soils are too deep to make underpinning possible, the most likely mitigation would be to connect new and existing footings with grade beams and strengthen structural connections to reduce differential settlements and prevent collapse. It is unlikely this would be able to achieve the immediate occupancy operational level but could possibly achieve the limited life safety operational level.

Based on the data reviewed, underpinning to a depth of 30 to 50 feet bgs appears to be the most likely and feasible foundation mitigation design.

3.4 Additional Geotechnical Explorations

Subsurface explorations are recommended to confirm site conditions, confirm our interpretation of geologic hazards, and to provide final geotechnical design parameters.

4.0 CLOSING AND LIMITATIONS

This report is based on available public information and our geotechnical experience. No subsurface explorations were completed. The opinions and recommendations contained within this report are, therefore, based on evaluation of very limited information and should not be construed as a warranty or guarantee of site conditions or performance. Soil conditions can differ from those portrayed in the sources we reviewed, as well as during different seasons, from earth processes, from storms, or other factors that occur after our work has been completed.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with the standard of care in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

We appreciate the opportunity to provide this information for you. Please contact us if we can be of further assistance or if you have any questions.

Document ID: 013-19-048WestmorelandESHazardMemo

Appendix C: Construction Cost Estimate Worksheets

ENGINEER'S OPINION OF PROBABLE COST - LANE SCHOOL WESTMORELAND CAMPUS PHASE 1 SEISMIC REHABILITATION

SUMMARY

Description	Deficiencies (Ref. Seismic Evaluation Report Sec. 4.0)	Quantity	Units	Unit Price	Total Price for Construction Item
GENERAL CONDITIONS					
General Conditions		10%	%		$ 130,167.50
Preconstruction Services		2%	%		$ 26,033.50
Escalation		7%	%		$ 102,051.32
Bonding & Insurance		3%	%		$ 43,736.28
Contractor Profit & Overhead		6%	%		$ 87,472.56
				General Conditions Subtotal	$ 389,461.16
Non-Structural Elements					
Misc MEP	N1, N2, N3, N5, N11, N12	1	Lump Sum	$ 84,600.00	$ 84,600.00
Misc Non-Structural	N4, N8, N10	1	Lump Sum	$ 33,900.00	$ 33,900.00
				Non-Structural Subtotal	$ 118,500.00
Construction Cost Per Building Part					
				Building Part 'C' Subtotal	$ 890,500.00
				Building Part 'D' Subtotal	$ 292,675.00
				Sub-Total Construction Cost	$ 1,691,100.00
				Contingency 15%	$ 253,665.00
				Total Construction Cost	$ 1,944,765.00

Cost Estimate Summary

Engineering			$ 281,900.00
Architectural Consulting	$ 29,200.00		
Structural / Rehabilitation Engineering	$ 213,900.00		
Geotechnical Consulting	$ 19,400.00		
Materials Testing for Design	$ 19,400.00		
Seismic Feasibility Study Reimbursement	$ -		
Construction Management			$ 58,300.00
Construction			$ 1,759,100.00
Sub-Total Construction Cost	$ 1,691,100.00		
Special Inspection Services for Construction	$ 9,700.00		
Permitting Fees	$ 58,300.00		
Relocation of FF&E			$ 25,400.00
Contingency			$ 253,665.00
		Total Project Funding Requirement	$ 2,378,365.00

ENGINEER'S OPINION OF PROBABLE COST - LANE SCHOOL WESTMORELAND CAMPUS PHASE 1 SEISMIC REHABILITATION

BUILDING PART - 'C'

Description	Deficiencies (Ref. Seismic Evaluation Report Sec. 4.0)	Quantity	Units	Unit Price	Total Price for Construction Item
Demolition & Asbestos Abatement					
Soft Demolition	S3, S5, S6, S7, S8, S10	9000	Square Foot	$ 2.00	$ 18,000.00
Abatement	S1, S6, S7, S8, S9, S10	4800	Square Foot	$ 5.00	$ 24,000.00
Built-Up Roof Demo	S1, S12, S13, S14	8400	Square Foot	$ 4.00	$ 33,600.00
			Demolition & Asbestos Subtotal		$ 75,600.00
Foundation / Floor Strengthening Construction					
Bolting of Extg Walls to footings	S10	1100	Linear Foot	$ 35.00	$ 38,500.00
Floor Finish Patch / Replacement	S6, S7, S8, S9, S10	800	Square Foot	$ 7.00	$ 5,600.00
Spread Footings for Columns / Holdown	N9	6	Each	$ 2,500.00	$ 15,000.00
Micropile	S5	82	Each	$ 4,500.00	$ 369,000.00
Micropile Caps	S3	82	Each	$ 1,000.00	$ 82,000.00
			Foundation Level Subtotal		$ 510,100.00
Wall Strengthening Construction					
Painting of Wall	S6, S7, S8, S10	9000	Square Foot	$ 3.00	$ 27,000.00
Sheathing of Existing Walls	S6, S7, S8	9000	Square Foot	$ 5.00	$ 45,000.00
Cantilever Columns	N9	6	Each	$ 1,500.00	$ 9,000.00
Sheathing of Existing Walls	S6, S7, S8	1000	Square Foot	$ 5.00	$ 5,000.00
Interior Wall Finish Repair	S6, S7, S8, S10	9000	Square Foot	$ 2.00	$ 18,000.00
Brick Veneer Ties	N6, N7, N8	400	Square Foot	$ 30.00	$ 12,000.00
			Wall Strengthening Subtotal		$ 116,000.00
Roof Strengthening Construction					
New Roof Sheathing	S12, S13, S14	13900	Square Foot	$ 4.00	$ 55,600.00
Diaphragm Attachments - In-Plane Shear	S1, S6, S7, S8	1100	Linear Foot	$ 20.00	$ 22,000.00
New Single Ply Roof	S12, S13, S14	13900	Square Foot	$ 8.00	$ 111,200.00
			Roof Strengthening Subtotal		$ 188,800.00
			Building Part 'C' - Total Construction Cost		$ 890,500.00

ENGINEER'S OPINION OF PROBABLE COST - LANE SCHOOL WESTMORELAND CAMPUS PHASE 1 SEISMIC REHABILITATION

BUILDING PART - 'D'

Description	Deficiencies (Ref. Seismic Evaluation Report Sec. 4.0)	Quantity	Units	Unit Price	Total Price for Construction Item
Demolition & Asbestos Abatement					
Soft Demolition	S3, S5, S6, S7, S8, S10	4500	Square Foot	$ 2.00	$ 9,000.00
Abatement	S1, S6, S7, S8, S9, S10	1500	Square Foot	$ 5.00	$ 7,500.00
Built-Up Roof Demo	S1, S12, S13, S14	2700	Square Foot	$ 4.00	$ 10,800.00
			Demolition & Asbestos Subtotal		$ 27,300.00
Foundation / Floor Strengthening Construction					
Bolting of Extg Walls to footings	S10	300	Linear Foot	$ 35.00	$ 10,500.00
Floor Finish Patch / Replacement	S6, S7, S8, S9, S10	725	Square Foot	$ 7.00	$ 5,075.00
Spread Footings for Columns / Holdown	N9	3	Each	$ 2,500.00	$ 7,500.00
Micropile	S5	27	Each	$ 4,500.00	$ 121,500.00
Micropile Caps	S3	27	Each	$ 1,000.00	$ 27,000.00
			Foundation Level Subtotal		$ 171,575.00
Wall Strengthening Construction					
Painting of Wall	S6, S7, S8, S10	4500	Square Foot	$ 3.00	$ 13,500.00
Sheathing of Existing Walls	S6, S7, S8	3000	Square Foot	$ 5.00	$ 15,000.00
Cantilever Columns	N9	3	Each	$ 1,500.00	$ 4,500.00
New 2x Framed Shear Walls	S6, S7, S8	500	Square Foot	$ 10.00	$ 5,000.00
Interior Wall Finish Repair	S6, S7, S8, S10	3000	Square Foot	$ 2.00	$ 6,000.00
Brick Veneer Ties	N6, N7, N8	160	Square Foot	$ 30.00	$ 4,800.00
			Wall Strengthening Subtotal		$ 48,800.00
Roof Strengthening Construction					
New Roof Sheathing	S12, S13, S14	3250	Square Foot	$ 4.00	$ 13,000.00
Diaphragm Attachments - In-Plane Shear	S1, S6, S7, S8	300	Linear Foot	$ 20.00	$ 6,000.00
New Single Ply Roof	S12, S13, S14	3250	Square Foot	$ 8.00	$ 26,000.00
			Roof Strengthening Subtotal		$ 45,000.00
			Building Part 'D' - Total Construction Cost		$ 292,675.00

Appendix D: Benefit Cost Analysis Worksheets

Oregon Seismic Rehabilitation Grant Application: Benefit-Cost Analysis

Entity:	**Lane Education Service District**		
Point of Contact	**Bradley Johnston**		
Telephone:	**(541)461-8260**		
E-Mail:	bjohnston@lesd.k12.or.us		
BCA File Name:	**BCA-WestmorelandWest**	**BCA Date:**	**12/21/2019**

Building Name:	**Lane School Westmoreland Campus Phase 1**
Site ID:	**Westmoreland_ES**
Facility Use:	**School**

Is the Building in the Oregon BCA Tool Database: Yes or No? **No**

How Many Structurally Different Building Parts Are There?

User-Defined	Database
7	Not Listed

Unique Building ID Number	Building Part Square Footage	Percent of Total SF	Percent of Occupancy	Percent of Operating Budget	Building Part Being Retrofitted?
Westmoreland_ESA	25,300	43.98%	43.98%	43.98%	No
Westmoreland_ESB	3,800	6.61%	6.61%	6.61%	No
Westmoreland_ESC	14,930	25.96%	25.96%	25.96%	Yes
Westmoreland_ESD	2,620	4.55%	4.55%	4.55%	Yes
Westmoreland_ESE	2,950	5.13%	5.13%	5.13%	No
Westmoreland_ESF	5,800	10.08%	10.08%	10.08%	No
Westmoreland_ESG	2,120	3.69%	3.69%	3.69%	No
Totals:	**57,520**	**100.00%**	**100.00%**	**100.00%**	

Seismic Retrofit Cost Estimate per SRGP Application: **$2,378,365**

Benefit-Cost Analysis: Summary Results
Lane School Westmoreland Campus Phase 1

Building Part	Benefits
Westmoreland_ESA	
Westmoreland_ESB	
Westmoreland_ESC	$608,699
Westmoreland_ESD	$106,818
Westmoreland_ESE	
Westmoreland_ESF	
Westmoreland_ESG	
Total Benefits	**$715,517**
Total Cost	**$2,378,365**
Benefit-Cost Ratio	**0.301**

Benefits by Category Avoided Damages and Losses	
Building Damage	$273,857
Contents Damage	$68,464
Displacement Costs	$36,600
Loss of Function Costs	$9,849
Casualties	$326,747
Total	**$715,517**

Occupancy Data

For benefit-cost analysis, the average occupancy on a 24/7/365 basis is used for casualty calculations.
Enter data below ONLY for the occupancy categories applicable to this building - all other green cell entries should be left blank.
There are entries below for: employees, visitors, students, meetings or special events and patients.

NOTE: for buildings with similar occupancies each month, complete the tables on the left side only.

NOTE: For buildings with different summer occupancies, complete the tables both on the left and right sides. If this does not apply, enter "0" for number of summer months

Employees: 12 Months per Year or Academic Year for Schools				
Day of Week	Time of Day	Hours per Day	Average Employees in Building	Calculated 24/7/365 Occupancy
Monday - Friday	Day	8	55	9.795
Monday - Friday	Evening	8	5	0.890
Monday - Friday	Night			
Saturday	Day			
Saturday	Evening			
Saturday	Night			
Sunday	Day			
Sunday	Evening			
Sunday	Night			
			Subtotal:	10.685

Employees: Summer Months			Number of Months:	3
Day of Week	Time of Day	Hours per Day	Average Employees in Building	Calculated 24/7/365 Occupancy
Monday - Friday	Day	8	2	0.119
Monday - Friday	Evening			
Monday - Friday	Night			
Saturday	Day			
Saturday	Evening			
Saturday	Night			
Sunday	Day			
Sunday	Evening			
Sunday	Night			
			Subtotal:	0.119

Visitors: 12 Months per Year or Academic Year for Schools			
Day of Week	Average Number of Visitors Per Day	Average Time in Building (Minutes)	Calculated 24/7/365 Occupancy
Monday - Friday	5	30	0.056
Saturday			
Sunday			
		Subtotal:	0.056

Visitors: Summer Months		Number of Months:	3
Day of Week	Average Number of Visitors Per Day	Average Time in Building (Minutes)	Calculated 24/7/365 Occupancy
Monday - Friday			
Saturday			
Sunday			
		Subtotal:	

K-12 Students: Academic Year	
Average Daily Number of Students:	128
Hours per Day:	6
Days per Year:	170
Calculated 24/7/365 Occupancy:	14.904

K-12 Students: Summer School	
Average Daily Number of Students:	
Hours per Day:	
Days per Year:	
Calculated 24/7/365 Occupancy:	

College Students: Academic Year				
Number of Weeks per Year of Classes:				
Course	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Calculated 24/7/365 Occupancy
1 Hr. Courses	1			
1.5 Hr. Courses	1.5			
2 Hr. Courses	2			
3 Hr. Courses	3			
Other	N/A			
Other	N/A			
			Subtotal:	

College Students: Summer School				
Number of Weeks per Year of Classes:				
Course	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Calculated 24/7/365 Occupancy
1 Hr. Courses	1			
1.5 Hr. Courses	1.5			
2 Hr. Courses	2			
3 Hr. Courses	3			
Other	N/A			
Other	N/A			
			Subtotal:	

Occupancy Data

Meetings, Sports Events etc.				
Event	Events per Year	People per Event	Average Duration per Event (hours)	Calculated 24/7/365 Occupancy
IEP Meetings	130	6	1.5	0.134
Family Nights	2	50	2	0.023
Board Meeting	1	25	2	0.006
			Subtotal:	0.162

Patients			
Total Number of In-Patient Beds:			
Average Daily Number of In-Patients			
Average Percentage Occupancy			
Day of Week	Average Number of Out-Patients per Day	Average Time in Building (Hours)	Calculated 24/7/365 Occupancy
Monday - Friday			
Saturday			
Sunday			
		Out-Patients:	
		In-Patients:	
		Total Patients:	

Occupancy Data

SUMMARY OCCUPANCY DATA:
Average 24/7/365 Occupancy

Occupancy Category	12 Months or Academic Year	Summer
Employees	10.685	0.119
Visitors	0.056	
Students: K-12	14.904	
Students: College		
Meetings & Special Events	0.162	N/A
Patients		N/A
Subtotals:	25.807	0.119
Avg 24/7/365 Occupancy:	25.926	

DATA DOCUMENTATION: OCCUPANCY	
Provide brief documentation below and/or references to other documents included with your application (with page number), for the sources of the occupancy data and estimates.	
Employees: Numbers	
Employees: Hours Per Day	
Visitors: Number Per Day	
Visitors: Average Time in Building	
K-12 Students: Number	
K-12 Students: Hours Per Day	
K-12 Students: Days Per Year	
Additional Comments Re: above Occupancy Data	
College Student Occupancy Data	

Meetings, Sports Events and Other Special Events	
NOTES:	It is NOT necessary to provide separate documentation for every special event listed. Rather, provide an Overview Statement of the sources of special event occupancy estimates.
	Provide specific documentation for high occupancy events or very frequent events with high Calculated 24/7/365 Occupancy, especially for occupancies that appear "unusual" or potentially "out of bounds."
Overview Statement Re: Sources of Special Events Occupancy Estimates	

Hospital Patient Data	
Number of Patient Beds	
Average Daily Number of In-Patients	
Average Daily Number of Out-Patients	
Average Time in Building for Out-Patients	

College Student Occupancy Data
These tables calculate the inputs required to determine the average 24/7/365 occupancy for the classes in the building. The tables are organized by course duration (1 hr, 1.5 hr, etc) with two additional tables provided to capture different course lengths. Do not duplicate information that has already been provided on the Occupancy worksheet.

Instructions
Enter requested course data into the green shaded cells. Tables for the Academic Year are in Row 9, Tables for Summer School are in Row 64. Use the Other / Additional Courses tables for class durations that aren't specified elsewhere or if additional space is required.

Occupancy data entered on this page are generally available for and entered for the entire school or facility and then allocated to building parts on the Main Page

However, if you enter data on the Main Page for only parts of a facility, then the occupancy data on this page <u>must</u> also be <u>only</u> for those facility parts entered on the Main Page.

See: USER GUIDE PAGES 16-17 for further guidance

Academic Year: 1 Hour Courses

Course Name	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Student Hours per Week
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
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	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	Totals:	0	0.00	0.0

Academic Year: 1.5 Hour Courses

Course Name	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Student Hours per Week
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
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	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	Totals:	0	0.00	0.0

Academic Year: 2 Hour Courses

Course Name	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Student Hours per Week
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
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	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	Totals:	0	0.00	0.0

Academic Year: 3 Hour Courses

Course Name	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Student Hours per Week
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
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	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	Totals:	0	0.00	0.0

Academic Year: Other / Additional Courses

Course Name	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Student Hours per Week
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
	Totals:	0	0.00	0.0

Academic Year: Other / Additional Courses

Course Name	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Student Hours per Week
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
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				0.0
				0.0
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				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
	Totals:	0	0.00	0.0

Summer School: 1 Hour Courses

Course Name	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Student Hours per Week
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	1			0.0
	Totals:	0	0.00	0.0

Summer School: 1.5 Hour Courses

Course Name	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Student Hours per Week
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	1.5			0.0
	Totals:	0	0.00	0.0

Summer School: 2 Hour Courses

Course Name	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Student Hours per Week
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	2			0.0
	Totals:	0	0.00	0.0

Summer School: 3 Hour Courses

Course Name	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Student Hours per Week
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	3			0.0
	Totals:	0	0.00	0.0

Summer School: Other / Additional Courses

Course Name	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Student Hours per Week
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
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				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
	Totals:	0	0.00	0.0

Summer School: Other / Additional Courses

Course Name	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Student Hours per Week
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
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				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
	Totals:	0	0.00	0.0

Annual Operating Budget for this Facility

Employees:

	Classification	Number of FTEs[1]	Average Annual Salary per Employee	Total Benefits as Percent of Salary	Annual Salary and Benefits
1	Custodian	0.81	$46,571	95.00%	**$73,559**
2	Custodian	0.5	$46,571	86.00%	**$43,311**
3	Facilities Manager	0.25	$86,632	62.00%	**$35,086**
4	Teacher	10	$54,300	70.00%	**$923,100**
5	Behavior Consultant	2.9	$71,800	63.00%	**$339,399**
6	Instructional Assistant	28.88	$21,800	103.00%	**$1,278,056**
7	Program Assistant	1	$39,500	81.00%	**$71,495**
8	Special Ed Supervisor	0.93	$86,000	60.00%	**$127,968**
9					**$0**
10					**$0**
	Total Number of FTEs:	**45.27**		**Subtotal:**	**$2,891,973**

[1] FTEs: Full time equivalents

Other Building Expenses

Category		Annual Cost
Supplies		$58,000
Building Maintenance		$54,000
Utilities		$56,000
Insurance		$16,000
Rent		$0
Average Annual Capital Goods		$53,000
OTHER: specify below		
Percent of District Office/Headquarters Annual Operating Budget Attributed to This Building:	6.70%	**$76,195**
If rent is zero (building owned), a proxy rent is calculated automatically, based on the value of the building:		**$1,449,504**
	Subtotal:	**$1,762,699**

Total Building Annual Operating Budget:	**$4,654,672**

Annual Operating Budget for this Facility

For entities with multiple facilities, a fraction of the operating budget for a District Office of Headquarters building may be attributed to the building being retrofitted. That is, the annual operating budget for the building above may include part of the operating budget for the District Office or Headquarters Building. If so, complete the following tables:

District Office/Headquarters Building Employees

	Classification	Number of FTEs[1]	Average Annual Salary per Employee	Total Benefits as Percent of Salary	Annual Salary and Benefits
1	Custodian	0.5	$46,571	86.00%	**$43,311**
2	Custodian	0.5	$35,776	80.00%	**$32,198**
3	Custodian	0.19	$46,571	95.00%	**$17,255**
4	Executive Assistant	0.2	$66,669	75.00%	**$23,334**
5	Facilities Manager	0.75	$86,632	62.00%	**$105,258**
6					**$0**
7					**$0**
8					**$0**
9					**$0**
10					**$0**
	Total Number of FTEs:	**2.14**		**Subtotal:**	**$221,356**

District Office/Headquarters Building Expenses

Category		Annual Cost
Supplies		$31,000
Building maintenance		$59,000
Utilities		$71,000
Insurance		$19,000
Rent		$0
Average Annual Capital Goods		$151,000
OTHER: specify below		
Enter replacement value of building:	$8,355,452	
If rent is zero (building owned), a proxy rent is calculated		**$584,882**
	Subtotal:	**$915,882**

Total Annual Operating Budget for District Office/Headquarters Building:	**$1,137,238**

DOCUMENTATION: ANNUAL OPERATING BUDGET	
NOTE:	**The Annual Operating Budget is used as a "proxy" for the value of services provided from a building and is used to count the benefits of avoiding loss of service in future earthquake events.**
Operating Budget by Categories	
Percent of District Office or Headquarters Annual Operating Budget Attributed to the Facility	

Building Part A: Data for Benefit-Cost Analysis

Building Name:	**Lane School Westmoreland Campus Phase 1**
Building ID:	**Westmoreland_ESA**
Building Part Name / Description:	**Classroom Wing (Not Included in Scope)**

Evaluation for Building Part A

Seismic Hazard Data		
Region of Seismicity	Moderately High	
PGA Ground Motion (g)	2% in 50 year	0.400
	5% in 50 year	0.287
	10% in 50 year	0.189
	20% in 50 year	0.083
Spectral Accelerations (g)	S_{xs}, 2% in 50 year	0.903
	S_{x1}, 2% in 50 year	0.613
	S_{xs}, 10% in 50 year	0.408
	S_{x1}, 10% in 50 year	0.265

Data Entry Item	User Entered Values	Default Values	Used for BCA
Site Data			
County	Lane		Lane
Decimal Latitude	44.041		44.041
Decimal Longitude	123.129		123.129
Soil Type	D		D
Construction Data			
Primary Structure Type (FEMA 154)	W2		W2
Number of Stories	1		1
Year Built	1950		1950
Rapid Visual Screening Data			
Severe Vertical Irregularity	No		No
Moderate Vertical Irregularity	Yes		Yes
Plan Irregularity	Yes		Yes
Pre-Code	Yes		Yes
Post-Benchmark	No		No
Building Data			
Historic Importance	None	None	None
Historic Adjustment Modifier	N/A	N/A	1.00
Building Square Footage - SF	25,300	N/A	25,300
Building Replacement - $/SF		$360.00	$360.00
Building Replacement Value - $	N/A	N/A	$9,108,000
Historic Building Replacement - $/SF	N/A	N/A	$360.00
Historic Building Replacement Value - $	N/A	N/A	$9,108,000
Contents Value - % of Building Value		25%	25%
Displacement Costs - $/SF/month		$2.50	$2.50
Displacement Costs - One Time		$3.00	$3.00
Average Annual Occupancy	11.40	11.40	11.40
Annual Operating Budget	$2,047,344	$2,047,344	$2,047,344
Seismic Fragility Curves			
Before Mitigation			
Slight Damage State		0.10	0.10
Moderate Damage State		0.16	0.16
Extensive Damage State		0.31	0.31
Complete Damage State		0.50	0.50
Beta		0.66	0.66
After Mitigation			
Retrofit Building Type		W2	W2
Retrofit Performance Objective		LS	LS
Slight Damage State		0.10	0.10
Moderate Damage State		0.16	0.16
Extensive Damage State		0.31	0.31
Complete Damage State		0.50	0.50
Beta		0.66	0.66

Data Documentation: Building Part A	
Provide brief documentation below and/or references to other documents included with your application (with page number), but ONLY for data entries in Column C, which replace the default values in Column D.	
Soil Type	
Primary Structure Type	
Number of Stories	
Year Built	
Severe Vertical Irregularity	
Moderate Vertical Irregularity	
Plan Irregularity	
Pre-Code	
Post-Benchmark	
Historic Importance (if not none)	
Building Square Footage	
Building Replacement Value $/SF	
Contents Value % of Building Value	
Displacement Costs One Time	
Displacement Costs $/SF/month	
Fragility Curve Parameters Before Mitigation	
Fragility Curve Parameters After Mitigation	
Other Comments	

Building Part B: Data for Benefit-Cost Analysis

Building Name:	**Lane School Westmoreland Campus Phase 1**
Building ID:	**Westmoreland_ESB**
Building Part Name / Description:	**Gymnasium (Not Included in Scope)**

Evaluation for Building Part B

Seismic Hazard Data		
Region of Seismicity	Moderately High	
PGA Ground Motion (g)	2% in 50 year	0.400
	5% in 50 year	0.287
	10% in 50 year	0.189
	20% in 50 year	0.083
Spectral Accelerations (g)	S_{xs}, 2% in 50 year	0.903
	S_{x1}, 2% in 50 year	0.613
	S_{xs}, 10% in 50 year	0.408
	S_{x1}, 10% in 50 year	0.265

Data Entry Item	User Entered Values	Default Values	Used for BCA
Site Data			
County	Lane		Lane
Decimal Latitude	44.041		44.041
Decimal Longitude	123.129		123.129
Soil Type	D		D
Construction Data			
Primary Structure Type (FEMA 154)	W2		W2
Number of Stories	1		1
Year Built	1950		1950
Rapid Visual Screening Data			
Severe Vertical Irregularity	No		No
Moderate Vertical Irregularity	No		No
Plan Irregularity	Yes		Yes
Pre-Code	Yes		Yes
Post-Benchmark	No		No
Building Data			
Historic Importance	None	None	None
Historic Adjustment Modifier	N/A	N/A	1.00
Building Square Footage - SF	3,800	N/A	3,800
Building Replacement - $/SF	$360.00	$360.00	$360.00
Building Replacement Value - $	N/A	N/A	$1,368,000
Historic Building Replacement - $/SF	N/A	N/A	$360.00
Historic Building Replacement Value - $	N/A	N/A	$1,368,000
Contents Value - % of Building Value	25%	25%	25%
Displacement Costs - $/SF/month	$2.50	$2.50	$2.50
Displacement Costs - One Time	$3.00	$3.00	$3.00
Average Annual Occupancy	1.71	1.71	1.71
Annual Operating Budget	$307,506	$307,506	$307,506
Seismic Fragility Curves			
Before Mitigation			
Slight Damage State		0.11	0.11
Moderate Damage State		0.17	0.17
Extensive Damage State		0.33	0.33
Complete Damage State		0.54	0.54
Beta		0.66	0.66
After Mitigation			
Retrofit Building Type	W2	W2	W2
Retrofit Performance Objective	IO	LS	IO
Slight Damage State		0.11	0.11
Moderate Damage State		0.17	0.17
Extensive Damage State		0.33	0.33
Complete Damage State		0.54	0.54
Beta		0.66	0.66

Data Documentation: Building Part B	
Provide brief documentation below and/or references to other documents included with your application (with page number), but ONLY for data entries in Column C, which replace the default values in Column D.	
Soil Type	
Primary Structure Type	
Number of Stories	
Year Built	
Severe Vertical Irregularity	
Moderate Vertical Irregularity	
Plan Irregularity	
Pre-Code	
Post-Benchmark	
Historic Importance (if not none)	
Building Square Footage	
Building Replacement Value $/SF	
Contents Value % of Building Value	
Displacement Costs One Time	
Displacement Costs $/SF/month	
Fragility Curve Parameters Before Mitigation	
Fragility Curve Parameters After Mitigation	
Other Comments	

Building Part C: Data for Benefit-Cost Analysis

Building Name:	**Lane School Westmoreland Campus Phase 1**
Building ID:	**Westmoreland_ESC**
Building Part Name / Description:	**Classroom Wing - Limited Safety**

Evaluation for Building Part C

Seismic Hazard Data		
Region of Seismicity	Moderately High	
PGA Ground Motion (g)	2% in 50 year	0.400
	5% in 50 year	0.287
	10% in 50 year	0.189
	20% in 50 year	0.083
Spectral Accelerations (g)	S_{xs}, 2% in 50 year	0.903
	S_{x1}, 2% in 50 year	0.613
	S_{xs}, 10% in 50 year	0.408
	S_{x1}, 10% in 50 year	0.265

Data Entry Item	User Entered Values	Default Values	Used for BCA
Site Data			
County	Lane		Lane
Decimal Latitude	44.041		44.041
Decimal Longitude	123.129		123.129
Soil Type	D		D
Construction Data			
Primary Structure Type (FEMA 154)	W2		W2
Number of Stories	1		1
Year Built	1950		1950
Rapid Visual Screening Data			
Severe Vertical Irregularity	No		No
Moderate Vertical Irregularity	Yes		Yes
Plan Irregularity	Yes		Yes
Pre-Code	Yes		Yes
Post-Benchmark	No		No
Building Data			
Historic Importance	None	None	None
Historic Adjustment Modifier	N/A	N/A	1.00
Building Square Footage - SF	14,930	N/A	14,930
Building Replacement - $/SF		$360.00	$360.00
Building Replacement Value - $	N/A	N/A	$5,374,800
Historic Building Replacement - $/SF	N/A	N/A	$360.00
Historic Building Replacement Value - $	N/A	N/A	$5,374,800
Contents Value - % of Building Value		25%	25%
Displacement Costs - $/SF/month		$2.50	$2.50
Displacement Costs - One Time		$3.00	$3.00
Average Annual Occupancy	6.73	6.73	6.73
Annual Operating Budget	$1,208,175	$1,208,175	$1,208,175
Seismic Fragility Curves			
Before Mitigation			
Slight Damage State		0.10	0.10
Moderate Damage State		0.16	0.16
Extensive Damage State		0.31	0.31
Complete Damage State		0.50	0.50
Beta		0.66	0.66
After Mitigation			
Retrofit Building Type	W2	W2	W2
Retrofit Performance Objective	LS	LS	LS
Slight Damage State		0.22	0.22
Moderate Damage State		0.43	0.43
Extensive Damage State		0.85	0.85
Complete Damage State		1.52	1.52
Beta		0.62	0.62

Data Documentation: Building Part C	
Provide brief documentation below and/or references to other documents included with your application (with page number), but ONLY for data entries in Column C, which replace the default values in Column D.	
Soil Type	
Primary Structure Type	
Number of Stories	
Year Built	
Severe Vertical Irregularity	
Moderate Vertical Irregularity	
Plan Irregularity	
Pre-Code	
Post-Benchmark	
Historic Importance (if not none)	
Building Square Footage	
Building Replacement Value $/SF	
Contents Value % of Building Value	
Displacement Costs One Time	
Displacement Costs $/SF/month	
Fragility Curve Parameters Before Mitigation	
Fragility Curve Parameters After Mitigation	
Other Comments	

Building Part D: Data for Benefit-Cost Analysis

Building Name:	**Lane School Westmoreland Campus Phase 1**
Building ID:	**Westmoreland_ESD**
Building Part Name / Description:	**Classroom Wing - Limited Safety**

Evaluation for Building Part D

Seismic Hazard Data		
Region of Seismicity	Moderately High	
PGA Ground Motion (g)	2% in 50 year	0.400
	5% in 50 year	0.287
	10% in 50 year	0.189
	20% in 50 year	0.083
Spectral Accelerations (g)	S_{xs}, 2% in 50 year	0.903
	S_{x1}, 2% in 50 year	0.613
	S_{xs}, 10% in 50 year	0.408
	S_{x1}, 10% in 50 year	0.265

Data Entry Item	User Entered Values	Default Values	Used for BCA
Site Data			
County	Lane		Lane
Decimal Latitude	44.041		44.041
Decimal Longitude	123.129		123.129
Soil Type	D		D
Construction Data			
Primary Structure Type (FEMA 154)	W2		W2
Number of Stories	1		1
Year Built	1950		1950
Rapid Visual Screening Data			
Severe Vertical Irregularity	No		No
Moderate Vertical Irregularity	Yes		Yes
Plan Irregularity	Yes		Yes
Pre-Code	Yes		Yes
Post-Benchmark	No		No
Building Data			
Historic Importance	None	None	None
Historic Adjustment Modifier	N/A	N/A	1.00
Building Square Footage - SF	2,620	N/A	2,620
Building Replacement - $/SF		$360.00	$360.00
Building Replacement Value - $	N/A	N/A	$943,200
Historic Building Replacement - $/SF	N/A	N/A	$360.00
Historic Building Replacement Value - $	N/A	N/A	$943,200
Contents Value - % of Building Value		25%	25%
Displacement Costs - $/SF/month		$2.50	$2.50
Displacement Costs - One Time		$3.00	$3.00
Average Annual Occupancy	1.18	1.18	1.18
Annual Operating Budget	$212,017	$212,017	$212,017
Seismic Fragility Curves			
Before Mitigation			
Slight Damage State		0.10	0.10
Moderate Damage State		0.16	0.16
Extensive Damage State		0.31	0.31
Complete Damage State		0.50	0.50
Beta		0.66	0.66
After Mitigation			
Retrofit Building Type	W2	W2	W2
Retrofit Performance Objective	LS	LS	LS
Slight Damage State		0.22	0.22
Moderate Damage State		0.43	0.43
Extensive Damage State		0.85	0.85
Complete Damage State		1.52	1.52
Beta		0.62	0.62

Data Documentation: Building Part D	
Provide brief documentation below and/or references to other documents included with your application (with page number), but ONLY for data entries in Column C, which replace the default values in Column D.	
Soil Type	
Primary Structure Type	
Number of Stories	
Year Built	
Severe Vertical Irregularity	
Moderate Vertical Irregularity	
Plan Irregularity	
Pre-Code	
Post-Benchmark	
Historic Importance (if not none)	
Building Square Footage	
Building Replacement Value $/SF	
Contents Value % of Building Value	
Displacement Costs One Time	
Displacement Costs $/SF/month	
Fragility Curve Parameters Before Mitigation	
Fragility Curve Parameters After Mitigation	
Other Comments	

Building Part E: Data for Benefit-Cost Analysis

Building Name:	**Lane School Westmoreland Campus Phase 1**
Building ID:	**Westmoreland_ESE**
Building Part Name / Description:	**Cafeteria (Not Included in Scope)**

Evaluation for Building Part E

Seismic Hazard Data		
Region of Seismicity	Moderately High	
PGA Ground Motion (g)	2% in 50 year	0.400
	5% in 50 year	0.287
	10% in 50 year	0.189
	20% in 50 year	0.083
Spectral Accelerations (g)	S_{xs}, 2% in 50 year	0.903
	S_{x1}, 2% in 50 year	0.613
	S_{xs}, 10% in 50 year	0.408
	S_{x1}, 10% in 50 year	0.265

Data Entry Item	User Entered Values	Default Values	Used for BCA
Site Data			
County	Lane		Lane
Decimal Latitude	44.041		44.041
Decimal Longitude	123.129		123.129
Soil Type	D		D
Construction Data			
Primary Structure Type (FEMA 154)	W2		W2
Number of Stories	1		1
Year Built	1950		1950
Rapid Visual Screening Data			
Severe Vertical Irregularity	No		No
Moderate Vertical Irregularity	Yes		Yes
Plan Irregularity	No		No
Pre-Code	Yes		Yes
Post-Benchmark	No		No
Building Data			
Historic Importance	None	None	None
Historic Adjustment Modifier	N/A	N/A	1.00
Building Square Footage - SF	2,950	N/A	2,950
Building Replacement - $/SF		$360.00	$360.00
Building Replacement Value - $	N/A	N/A	$1,062,000
Historic Building Replacement - $/SF	N/A	N/A	$360.00
Historic Building Replacement Value - $	N/A	N/A	$1,062,000
Contents Value - % of Building Value		25%	25%
Displacement Costs - $/SF/month		$2.50	$2.50
Displacement Costs - One Time		$3.00	$3.00
Average Annual Occupancy	1.33	1.33	1.33
Annual Operating Budget	$238,722	$238,722	$238,722
Seismic Fragility Curves			
Before Mitigation			
Slight Damage State		0.11	0.11
Moderate Damage State		0.18	0.18
Extensive Damage State		0.34	0.34
Complete Damage State		0.56	0.56
Beta		0.66	0.66
After Mitigation			
Retrofit Building Type	W2	W2	W2
Retrofit Performance Objective	IO	LS	IO
Slight Damage State		0.11	0.11
Moderate Damage State		0.18	0.18
Extensive Damage State		0.34	0.34
Complete Damage State		0.56	0.56
Beta		0.66	0.66

Data Documentation: Building Part E	
Provide brief documentation below and/or references to other documents included with your application (with page number), but ONLY for data entries in Column C, which replace the default values in Column D.	
Soil Type	
Primary Structure Type	
Number of Stories	
Year Built	
Severe Vertical Irregularity	
Moderate Vertical Irregularity	
Plan Irregularity	
Pre-Code	
Post-Benchmark	
Historic Importance (if not none)	
Building Square Footage	
Building Replacement Value $/SF	
Contents Value % of Building Value	
Displacement Costs One Time	
Displacement Costs $/SF/month	
Fragility Curve Parameters Before Mitigation	
Fragility Curve Parameters After Mitigation	
Other Comments	

Building Part F: Data for Benefit-Cost Analysis

Building Name:	**Lane School Westmoreland Campus Phase 1**
Building ID:	**Westmoreland_ESF**
Building Part Name / Description:	**Classroom Wing (Not Included in Scope)**

Evaluation for Building Part F

Seismic Hazard Data		
Region of Seismicity	Moderately High	
PGA Ground Motion (g)	2% in 50 year	0.400
	5% in 50 year	0.287
	10% in 50 year	0.189
	20% in 50 year	0.083
Spectral Accelerations (g)	S_{xs}, 2% in 50 year	0.903
	S_{x1}, 2% in 50 year	0.613
	S_{xs}, 10% in 50 year	0.408
	S_{x1}, 10% in 50 year	0.265

Data Entry Item	User Entered Values	Default Values	Used for BCA
Site Data			
County	Lane		Lane
Decimal Latitude	44.041		44.041
Decimal Longitude	123.129		123.129
Soil Type	D		D
Construction Data			
Primary Structure Type (FEMA 154)	W2		W2
Number of Stories	1		1
Year Built	1950		1950
Rapid Visual Screening Data			
Severe Vertical Irregularity	No		No
Moderate Vertical Irregularity	Yes		Yes
Plan Irregularity	Yes		Yes
Pre-Code	Yes		Yes
Post-Benchmark	No		No
Building Data			
Historic Importance	None	None	None
Historic Adjustment Modifier	N/A	N/A	1.00
Building Square Footage - SF	5,800	N/A	5,800
Building Replacement - $/SF		$360.00	$360.00
Building Replacement Value - $	N/A	N/A	$2,088,000
Historic Building Replacement - $/SF	N/A	N/A	$360.00
Historic Building Replacement Value - $	N/A	N/A	$2,088,000
Contents Value - % of Building Value		25%	25%
Displacement Costs - $/SF/month		$2.50	$2.50
Displacement Costs - One Time		$3.00	$3.00
Average Annual Occupancy	2.61	2.61	2.61
Annual Operating Budget	$469,351	$469,351	$469,351
Seismic Fragility Curves			
Before Mitigation			
Slight Damage State		0.10	0.10
Moderate Damage State		0.16	0.16
Extensive Damage State		0.31	0.31
Complete Damage State		0.50	0.50
Beta		0.66	0.66
After Mitigation			
Retrofit Building Type		W2	W2
Retrofit Performance Objective		LS	LS
Slight Damage State		0.10	0.10
Moderate Damage State		0.16	0.16
Extensive Damage State		0.31	0.31
Complete Damage State		0.50	0.50
Beta		0.66	0.66

Data Documentation: Building Part F	
Provide brief documentation below and/or references to other documents included with your application (with page number), but ONLY for data entries in Column C, which replace the default values in Column D.	
Soil Type	
Primary Structure Type	
Number of Stories	
Year Built	
Severe Vertical Irregularity	
Moderate Vertical Irregularity	
Plan Irregularity	
Pre-Code	
Post-Benchmark	
Historic Importance (if not none)	
Building Square Footage	
Building Replacement Value $/SF	
Contents Value % of Building Value	
Displacement Costs One Time	
Displacement Costs $/SF/month	
Fragility Curve Parameters Before Mitigation	
Fragility Curve Parameters After Mitigation	
Other Comments	

Building Part G: Data for Benefit-Cost Analysis

Building Name:	**Lane School Westmoreland Campus Phase 1**
Building ID:	**Westmoreland_ESG**
Building Part Name / Description:	**Boiler Room (Not Included in Scope)**

Evaluation for Building Part G

Seismic Hazard Data		
Region of Seismicity	Moderately High	
PGA Ground Motion (g)	2% in 50 year	0.400
	5% in 50 year	0.287
	10% in 50 year	0.189
	20% in 50 year	0.083
Spectral Accelerations (g)	S_{xs}, 2% in 50 year	0.903
	S_{x1}, 2% in 50 year	0.613
	S_{xs}, 10% in 50 year	0.408
	S_{x1}, 10% in 50 year	0.265

Data Entry Item	User Entered Values	Default Values	Used for BCA
Site Data			
County	Lane		Lane
Decimal Latitude	44.041		44.041
Decimal Longitude	123.129		123.129
Soil Type	D		D
Construction Data			
Primary Structure Type (FEMA 154)	URM		URM
Number of Stories	1		1
Year Built	1950		1950
Rapid Visual Screening Data			
Severe Vertical Irregularity	No		No
Moderate Vertical Irregularity	Yes		Yes
Plan Irregularity	No		No
Pre-Code	Yes		Yes
Post-Benchmark	No		No
Building Data			
Historic Importance	None	None	None
Historic Adjustment Modifier	N/A	N/A	1.00
Building Square Footage - SF	2,120	N/A	2,120
Building Replacement - $/SF		$360.00	$360.00
Building Replacement Value - $	N/A	N/A	$763,200
Historic Building Replacement - $/SF	N/A	N/A	$360.00
Historic Building Replacement Value - $	N/A	N/A	$763,200
Contents Value - % of Building Value		25%	25%
Displacement Costs - $/SF/month		$2.50	$2.50
Displacement Costs - One Time		$3.00	$3.00
Average Annual Occupancy	0.96	0.96	0.96
Annual Operating Budget	$171,556	$171,556	$171,556
Seismic Fragility Curves			
Before Mitigation			
Slight Damage State		0.12	0.12
Moderate Damage State		0.16	0.16
Extensive Damage State		0.24	0.24
Complete Damage State		0.34	0.34
Beta		0.66	0.66
After Mitigation			
Retrofit Building Type	W2	C2	W2
Retrofit Performance Objective	LS	LS	LS
Slight Damage State		0.12	0.12
Moderate Damage State		0.16	0.16
Extensive Damage State		0.24	0.24
Complete Damage State		0.34	0.34
Beta		0.66	0.66

Data Documentation: Building Part G	
Provide brief documentation below and/or references to other documents included with your application (with page number), but ONLY for data entries in Column C, which replace the default values in Column D.	
Soil Type	
Primary Structure Type	
Number of Stories	
Year Built	
Severe Vertical Irregularity	
Moderate Vertical Irregularity	
Plan Irregularity	
Pre-Code	
Post-Benchmark	
Historic Importance (if not none)	
Building Square Footage	
Building Replacement Value $/SF	
Contents Value % of Building Value	
Displacement Costs One Time	
Displacement Costs $/SF/month	
Fragility Curve Parameters Before Mitigation	
Fragility Curve Parameters After Mitigation	
Other Comments	

Appendix E: Schematic Seismic Retrofit Drawings

LANE SCHOOL SEISMIC RETROFIT
LANE ESD WESTMORELAND CAMPUS PHASE 1

LANE EDUCATION SERVICES DISTRICT
1717 CITY VIEW ST.
EUGENE, OREGON 97402

ABBREVIATIONS

ABBREVIATIONS

(E)	EXISTING	L.P.	LOW POINT
(N)	NEW	M.C.	MEDICINE CABINET
(R)	REMOVE	M.D.F.	MEDIUM DENSITY FIBERBOARD
A.C.	ASPHALT CONCRETE	M.D.O.	MEDIUM DENSITY OVERLAY
A.C.B.	ACOUSTICAL BOARD	MEMB.	MEMBRANE
A.C.P.	ACOUSTICAL PANEL	MH.	MANHOLE
A.C.T.	ACOUSTICAL CEILING TILE	MIR.	MIRROR
A.D.	AREA DRAIN	M.O.	MASONRY OPENING
ADJ.	ADJUSTABLE	M.P.	MIDPOINT
A.F.	ACCESS FLOORING	M.S.	MACHINE SCREW
AGGR.	AGGREGATE	MTD.	MOUNTED
A.F.	ABOVE FINISHED FLOOR	MUL.	MULLION
BD.	BOARD	NOM.	NOMINAL
BITUM.	BITUMINOUS	N.T.S.	NOT TO SCALE
BKP.	BACKING PLATE	OBS.	OBSCURE
BM.	BEAM	O.C.	ON CENTER
BOT./B.O.	BOTTOM/BOTTOM OF	O.C.D.	OVERHEAD COILING DOOR
C.B.	CATCH BASIN	O.C.G	OVERHEAD COILING GRILLE
CEM.	CEMENT	O.D.	OUTSIDE DIAMETER
CER.	CERAMIC	O.F.C.I.	OWNER FURNISHED CONTRACTOR INSTALLED
C.G.	CORNER GUARD	O.F.D.	OVERFLOW DRAIN
C.I.	CAST IRON	O.F.O.I.	OWNER FURNISHED OWNER INSTALLED
C.J	CONTROL JOINT	OH.	OPPOSITE HAND
CLG.	CEILING	PL.	PLATE
CLKG.	CAULKING	P.LAM.	PLASTIC LAMINATE
CLO.	CLOSET	PLAS.	PLASTER
CLR.	CLEAR	P.C.P.	PORTLAND CEMENT PLASTER
CMU	CONCRETE MASONRY UNIT	PR.	PAIR
C.O.	CASED OPENING	PTN.	PARTITION
CONN	CONNECTION	R.C.P.	REFLECTED CEILING PLAN
CORR.	CORRIDOR	R.D.	ROOF DRAIN
CPT.	CARPET	RL.	RELOCATE
CTSK.	COUNTERSUNK	R.O.	ROUGH OPENING
C.T.	CERAMIC TILE	RWD.	REDWOOD
CTR.	CENTER	R.W.L.	RAIN WALL LEADER
D.F.	DRINKING FOUNTAIN	REV.	REVERSED
DET.	DETAIL	S.C.	SOLID CORE
DISP.	DISPENSER	S.C.D.	SEE CIVIL DRAWINGS
DR.	DOOR	SHR.	SHOWER
DWR.	DRAWER	S.J.	SCORE JOINT
D.S.	DOWNSPOUT	S.L.D.	SEE LANDSCAPING DRAWINGS
D.S.A.	DRY STANDPIPE	S.M.	SHEET METAL
E.J.	EXPANSION JOINT	S.M.D	SEE MECHANICAL DRAWINGS
EL.	ELEVATION	S.O.G.	SLAB ON GRADE
EXPO.	EXPOSED	S.S.D.	SEE STRUCTURAL DRAWINGS
EXP.	EXPANSION	STR.	STRUCTURAL
F.A.	FIRE ALARM	ST.S.	SELF TAPPING SCREW
FB.	FLAT BAR	SUSP.	SUSPENDED
F.D.	FLOOR DRAIN	TRD.	TREAD
FDN.	FOUNDATION	T.B.	TOWEL BAR
FE	FIRE EXTINGUISHER	T.C.	TOP OF CURB
F.A.	FLAT HEAD	T&G.	TONGUE AND GROOVE
F.O.C	FACE OF CONCRETE	THK.	THICK
F.O.F	FACE OF FINISH	T.P.	TOP OF PAVEMENT
F.O.S.	FACE OF STUDS	T.W.	TOP OF WALL
F.S.	FULL SIZE	V.I.F.	VERIFY IN FIELD
FTG.	FOOTING	V.T.R.	VENT THROUGH ROOF
FUT.	FUTURE	W.C.	WATER CLOSET
G.A.	GAUGE	W.O.	WINDOW OPENING
G.L.	GRID LINE		
GLB.	GLULAM BEAM		
G.B.	GRAB BAR		
GND.	GROUND		
GYP.	GYPSUM		
G.W.B.	GYPSUM WALL BOARD		
H.B.	HOSE BIBB		
H.C.	HOLLOW CORE		
H.M.	HOLLOW METAL		
J.B.	JUNCTION BOX		
J.O.H.	JAMB OPENING HEIGHT		
J.O.W.	JAMB WIDTH		
JT.	JOINT		
LAM.	LAMINATE		

PROJECT INFORMATION

PROJECT NARRATIVE

INTENT OF THESE DRAWINGS IS TO ILLUSTRATE THE LEVEL OF UNDERSTANDING THE APPLICANT HAS WITH REGARDS TO THE EFFORT THAT WILL BE REQUIRED TO SEISMICALLY REHABILITATE THE BUILDING. THESE SCHEMATIC DRAWINGS HAVE BEEN PREPARED USING THE CURRENT OREGON STRUCTURAL SPECIALITY CODE (OSSC) AND THE ASCE 41 (SEISMIC REHABILITATION OF EXISTING BUILDINGS) AS THE REFERENCES FOR PRESCRIBED LOADING AND BUILDING PERFORMANCE LEVEL RATINGS.

THE DRAWING ILLUSTRATES BOTH EXISTING CONDITIONS AND GENERAL REPAIRS THAT WOULD NEED TO BE ACCOMPLISHED TO REACH AN ACCEPTABLE LEVEL OF PERFORMANCE (LIMITED SAFETY AND/OR IMMEDIATE OCCUPANCY) ACCORDING TO CURRENT CODE.

"STRUCTURAL PERFORMANCE LEVEL, LIMITED SAFETY, MEANS POST-EARTHQUAKE DAMAGE STATE IN WHICH SIGNIFICANT DAMAGE TO THE STRUCTURE HAS OCCURRED BUT SOME MARGIN AGAINST EITHER PARTIAL OR TOTAL STRUCTURAL COLLAPSE REMAINS. SOME STRUCTURAL ELEMENTS AND COMPONENTS ARE SEVERELY DAMAGED BUT THIS HAS NOT RESULTED IN LARGE FALLING DEBRIS HAZARDS, EITHER INSIDE OR OUTSIDE THE BUILDING. INJURIES MAY OCCUR DURING THE EARTHQUAKE; HOWEVER, THE OVERALL RISK OF LIFE-THREATENING INJURY AS A RESULT OF STRUCTURAL DAMAGE IS EXPECTED TO BE LOW. IT SHOULD BE POSSIBLE TO REPAIR THE STRUCTURE; HOWEVER, FOR ECONOMIC REASONS THIS MAY NOT BE PRACTICAL. ALTHOUGH THE DAMAGED STRUCTURE IS NOT AN IMMINENT COLLAPSE RISK, IT WOULD BE PRUDENT TO IMPLEMENT STRUCTURAL REPAIRS OR INSTALL TEMPORARY BRACING PRIOR TO REOCCUPANCY"

STRUCTURAL DEFICIENCIES

S1: NO CONTINUOUS LOAD PATH BETWEEN ROOF DIAPHRAGM AND FOUNDATION ELEMENTS.
S2: ADJACENT BUILDING ARE NOT RESTRAINED TO LIMIT POUNDING EFFECTS.
S3: SEISMIC FORCE RESISTING ELEMENTS ARE NOT CONTINUOUS TO FOUNDATION.
S4: PLAN IRREGULARITIES CREATE TORSIONAL EFFECTS UNDER SEISMIC LOADING.
S5: DOGAMI HazVu MAPS INDICATE POTENTIAL LIQUEFACTION HAZARDS.
S6: STRAIGHT SHEATHED SHEAR WALLS ARE NOT ADEQUATE TO RESIST IN-PLANE FORCES.
S7: STRAIGHT SHEATHED SHEAR WALLS DO NOT MEET REQUIRED ASPECT RATIOS.
S8: NO WOOD STRUCTURAL PANEL SHEAR WALLS OR ALTERNATIVE CONSTRUCTION TO TRANSFER FORCES.
S9: NO POSITIVE CONNECTIONS PROVIDED AT POSTS TO FOUNDATION ELEMENTS.
S10: SILL PLATES ARE NOT ADEQUATELY ANCHORED TO FOUNDATION ELEMENTS.
S11: NO POSITIVE CONNECTIONS PROVIDED AT GIRDER TO COLUMNS.
S12: STRAIGHT SHEATHED DIAPHRAGMS EXCEED MAXIMUM ALLOWABLE SPAN LIMITS.
S13: DIAPHRAGMS EXCEED MAXIMUM ALLOWABLE SPANS.

NON-STRUCTURAL DEFICIENCIES

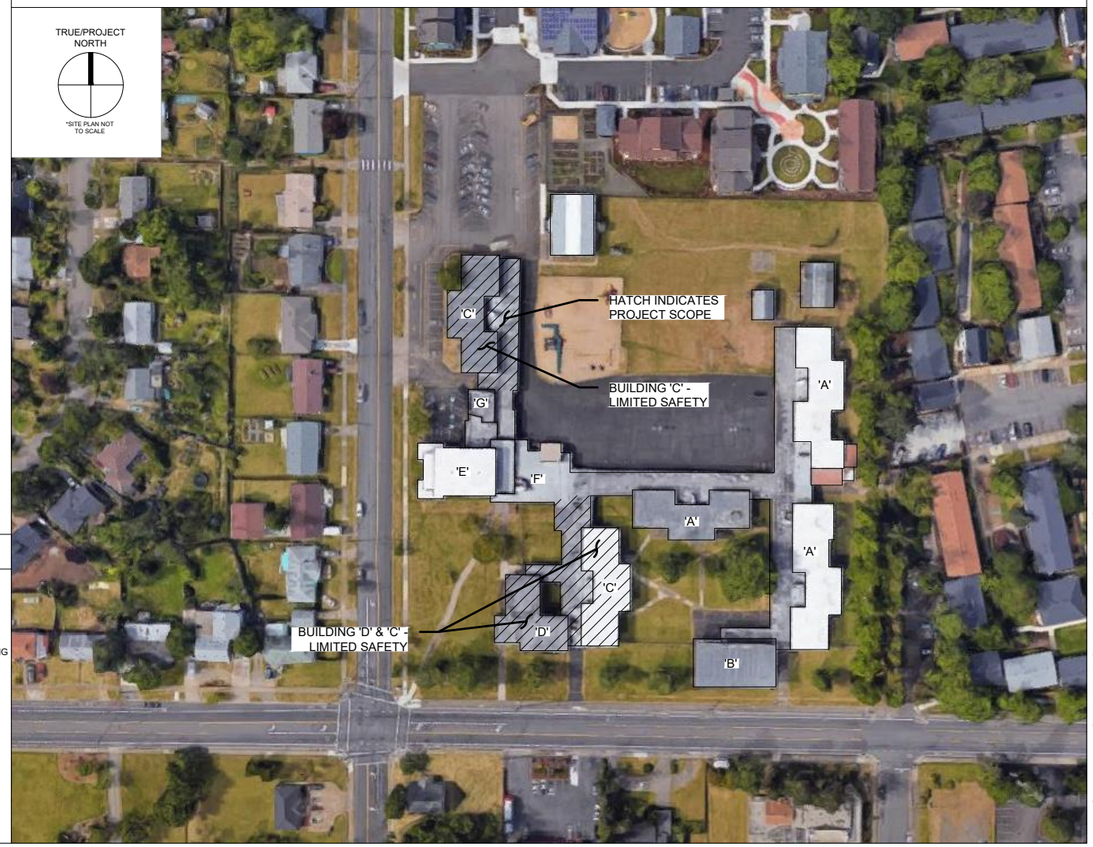
N1: PIPES CONVEYING NATURAL GAS ARE NOT ADEQUATELY RESTRAINED.
N2: VERIFICATION IS NEEDED TO DETERMINE IF SHUTOFF VALVES ARE PRESENT.
N3: FLEXIBLE COUPLINGS ARE NOT PROVIDED ON NATURAL GAS PIPING.
N4: TOPS OF INTERIOR PARTITION WALLS ARE NOT ADEQUATELY ATTACHED TO THE DIAPHRAGMS.
N5: SUPPORTS FOR LARGE PIPING ARE NOT RESTRAINED.
N6: MASONRY VENEER ADJACENT TO EGRESS PATHS IS NOT ADEQUATELY TIE TO STRUCTURE.
N7: MASONRY VENEER IS NOT ANCHORED TO THE BACKUP ADJACENT TO WEAKENED PLANES.
N8: WEEP HOLES ARE NOT PRESENT IN SOME OF THE MASONRY VENEER.
N9: COVERED WALKWAY CANOPIES ARE NOT ADEQUATELY RESTRAINED.
N10: SHELVING UNITS ARE NOT RESTRAINED TO RESIST OVERTURNING FORCES.
N11: ITEMS & MECHANICAL UNITS MORE THAN 4 FT. ABOVE FLOOR LEVEL ARE NOT ADEQUATELY RESTRAINED.
N12: LARGE EQUIPMENT IS NOT ANCHORED TO STRUCTURE.

VICINITY MAP

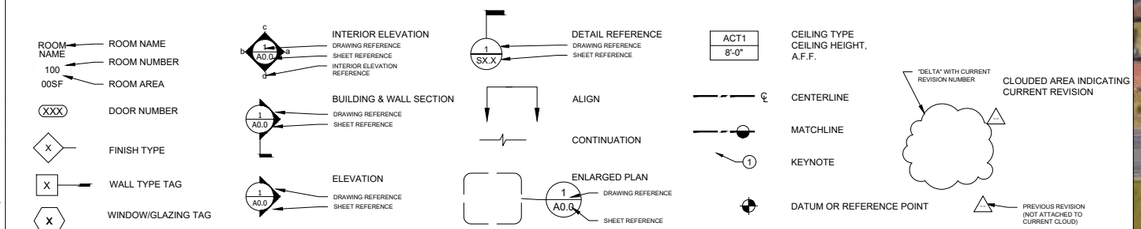
EXTERIOR PHOTO

SHEET INDEX

SITE LAYOUT



SYMBOLS



ONE INCH EQUALS FULL SCALE

ZCS ENGINEERING ARCHITECTURE
127 NW D Street, Grants Pass, Oregon 97526 | 541-479-3865

LANE ESD
1200 HIGHWAY 99 NORTH
EUGENE, OREGON 97402

WESTMORELAND CAMPUS SEISMIC RETROFIT GRANT APPLICATION PHASE I

LANE ESD

STRUCTURAL ENGINEER — REGISTERED PROFESSIONAL ENGINEER — OREGON — 08, 2014 — MATTHEW R. SMITH — EXPIRES: 06-30-20

PRELIMINARY - NOT FOR CONSTRUCTION

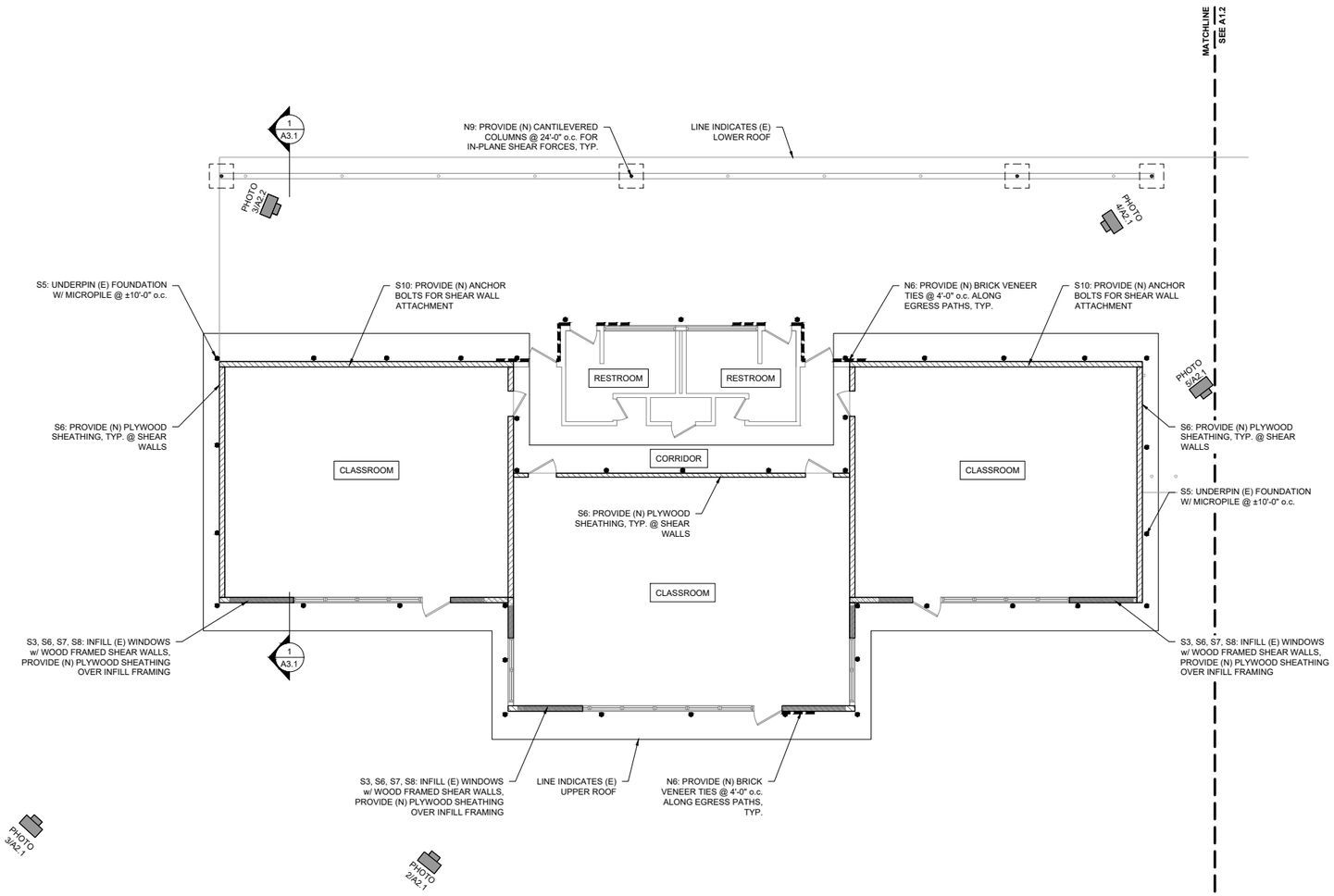
REVISION ID:	DATE:

PROJECT NO:	G-1294-19
DRAWN:	CJD
CHECKED:	BMT, SLC
DATE:	01-17-20

COVER SHEET

G0.0

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION



ONE INCH EQUALS FULL SCALE

1
A1.1

BUILDING 'C' FLOOR PLAN

1/8" = 1'-0"

ZCS
ENGINEERING
ARCHITECTURE

127 NW D Street, Grants Pass,
Oregon 97526 | 541-479-3865

LANE ESD
1200 HIGHWAY 99 NORTH
EUGENE, OREGON 97402

WESTMORELAND CAMPUS SEISMIC RETROFIT GRANT APPLICATION PHASE I

LANE ESD

STRUCTURAL
REGISTERED PROFESSIONAL ENGINEER
OREGON
08, 2014
MATTHEW R. SMITH
EXPIRES: 06-30-20

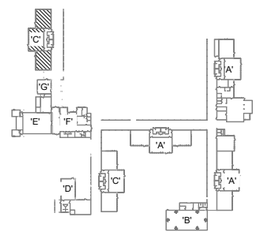
-PRELIMINARY-
NOT FOR CONSTRUCTION

REVISION ID:	DATE:

PROJECT NO:	G-1294-19
DRAWN:	CJD
CHECKED:	BMT, SLC
DATE:	01-17-20

BUILDING 'C'
FLOOR PLAN

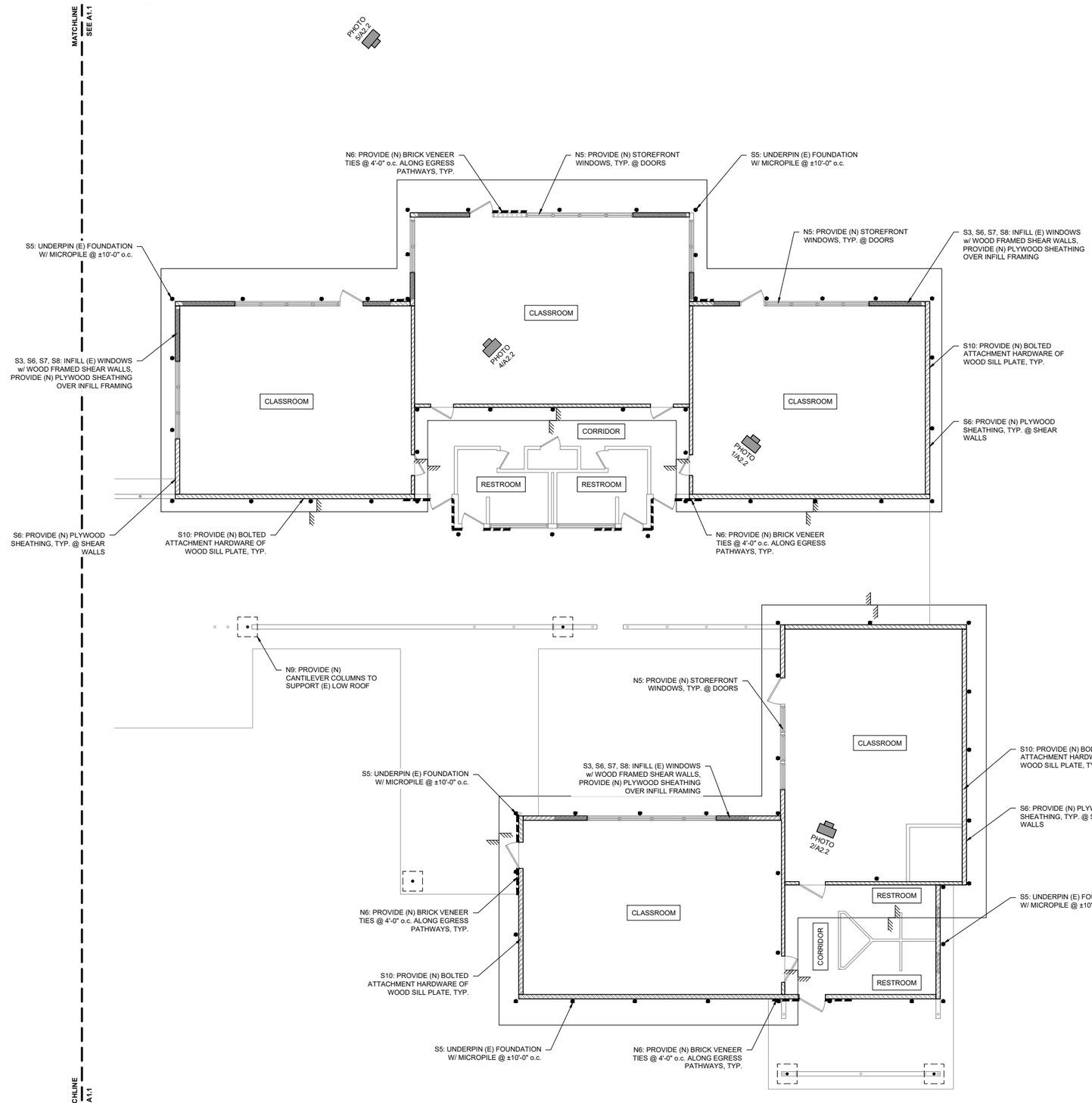
A1.1



KEYPLAN

N.T.S.

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION



ONE INCH EQUALS FULL SCALE

1 / A1.2 **BUILDING 'C' & 'D' FLOOR PLAN**

1/8" = 1'-0"

ZCS ENGINEERING ARCHITECTURE
127 NW D Street, Grants Pass, Oregon 97526 | 541-479-3865

LANE ESD
1200 HIGHWAY 99 NORTH
EUGENE, OREGON 97402

WESTMORELAND CAMPUS SEISMIC RETROFIT GRANT APPLICATION PHASE I

LANE ESD

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON JUNE 08, 2014 MATTHEW R. SMITH EXPIRES: 06-30-20

PRELIMINARY- NOT FOR CONSTRUCTION

REVISION ID:	DATE:

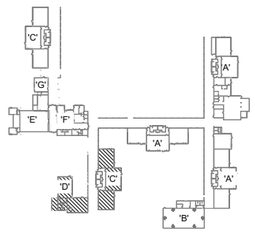
PROJECT NO:	G-1294-19
DRAWN:	CJD
CHECKED:	BMT, SLC
DATE:	01-17-20

BUILDING 'C' & 'D' FLOOR PLAN

A1.2

KEYPLAN

N.T.S.



FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

1 A2.1 **PHOTO**

N.T.S.

3 A2.1 **PHOTO**

N.T.S.

2 A2.1 **PHOTO**

N.T.S.

4 A2.1 **PHOTO**

N.T.S.

5 A2.1 **PHOTO**

N.T.S.

ONE INCH EQUALS FULL SCALE

ZCS ENGINEERING ARCHITECTURE

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Oregon 97526 | 541-479-3865

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WESTMORELAND CAMPUS SEISMIC RETROFIT GRANT APPLICATION PHASE I

LANE ESD

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON 08, 2014 MATTHEW R. SMITH EXPIRES: 06-30-20

PRELIMINARY - NOT FOR CONSTRUCTION

REVISION ID:	DATE:

PROJECT NO:	G-1294-19
DRAWN:	CJD
CHECKED:	BMT, SLC
DATE:	01-17-20

PHOTOS

A2.1

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

1 A2.2 **PHOTO**

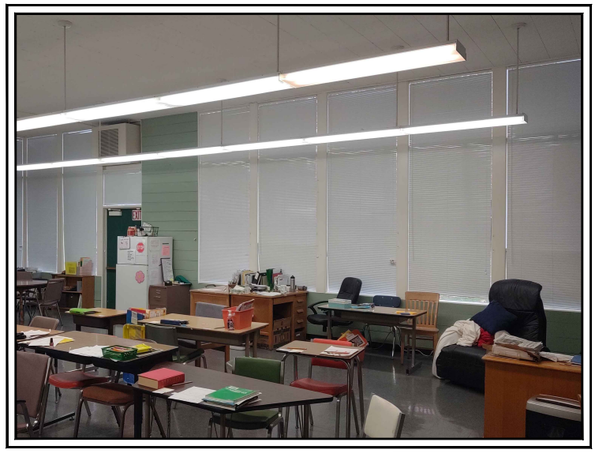
N.T.S.

3 A2.2 **PHOTO**

N.T.S.

2 A2.2 **PHOTO**

N.T.S.



4 A2.2 **PHOTO**

N.T.S.

5 A2.2 **PHOTO**

N.T.S.

ONE INCH EQUALS FULL SCALE

ZCS
ENGINEERING
ARCHITECTURE

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Oregon 97526 | 541-479-3865

LANE ESD
1200 HIGHWAY 99 NORTH
EUGENE, OREGON 97402

WESTMORELAND CAMPUS SEISMIC RETROFIT GRANT APPLICATION PHASE I

LANE ESD

STRUCTURAL
REGISTERED PROFESSIONAL ENGINEER
OREGON
JANUARY 08, 2014
MATTHEW R. SMITH
EXPIRES: 06-30-20

PRELIMINARY - NOT FOR CONSTRUCTION

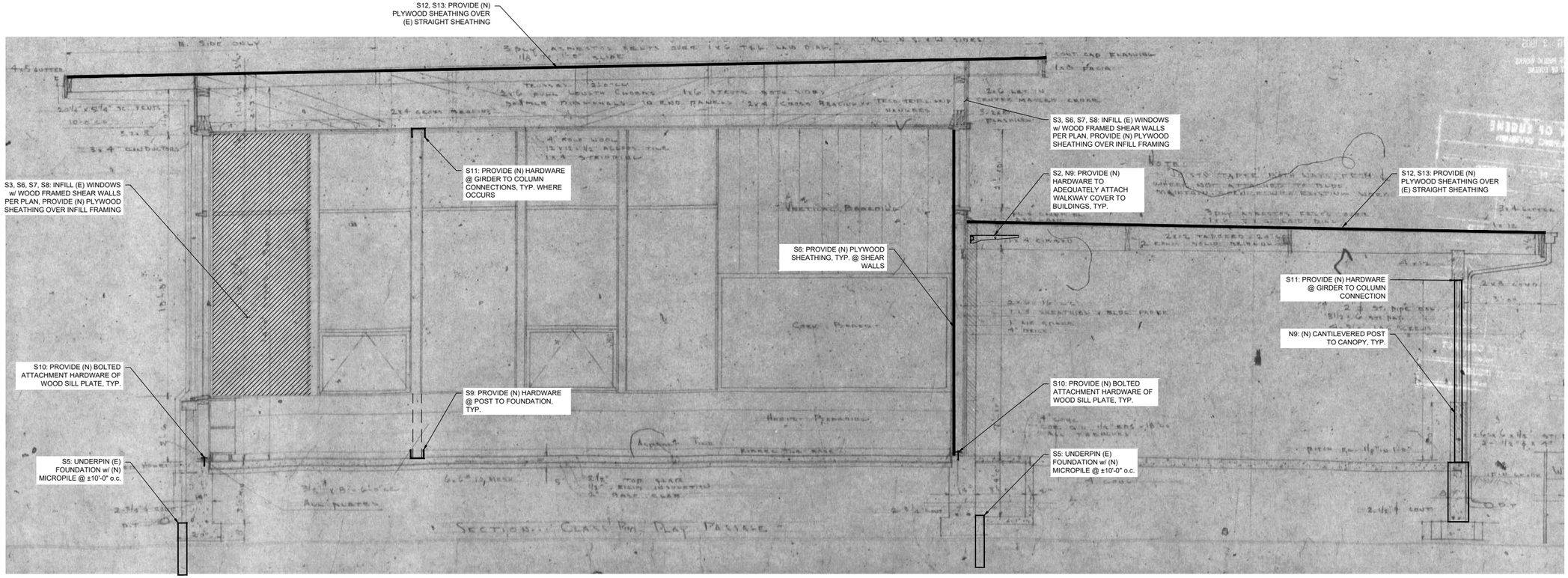
REVISION ID:	DATE:

PROJECT NO:	G-1294-19
DRAWN:	CJD
CHECKED:	BMT, SLC
DATE:	01-17-20

PHOTOS

A2.2

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION



1 A3.1 **TYPICAL SECTION @ CLASSROOM**

1/2"= 1'-0"

ONE INCH EQUALS FULL SCALE

ZCS ENGINEERING ARCHITECTURE
127 NW D Street, Grants Pass, Oregon 97526 | 541-479-3865

LANE ESD
1200 HIGHWAY 99 NORTH
EUGENE, OREGON 97402

WESTMORELAND CAMPUS SEISMIC RETROFIT GRANT APPLICATION PHASE I

LANE ESD

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON 08, 2014 MATTHEW R. SMITH EXPIRES: 06-30-20
PRELIMINARY NOT FOR CONSTRUCTION

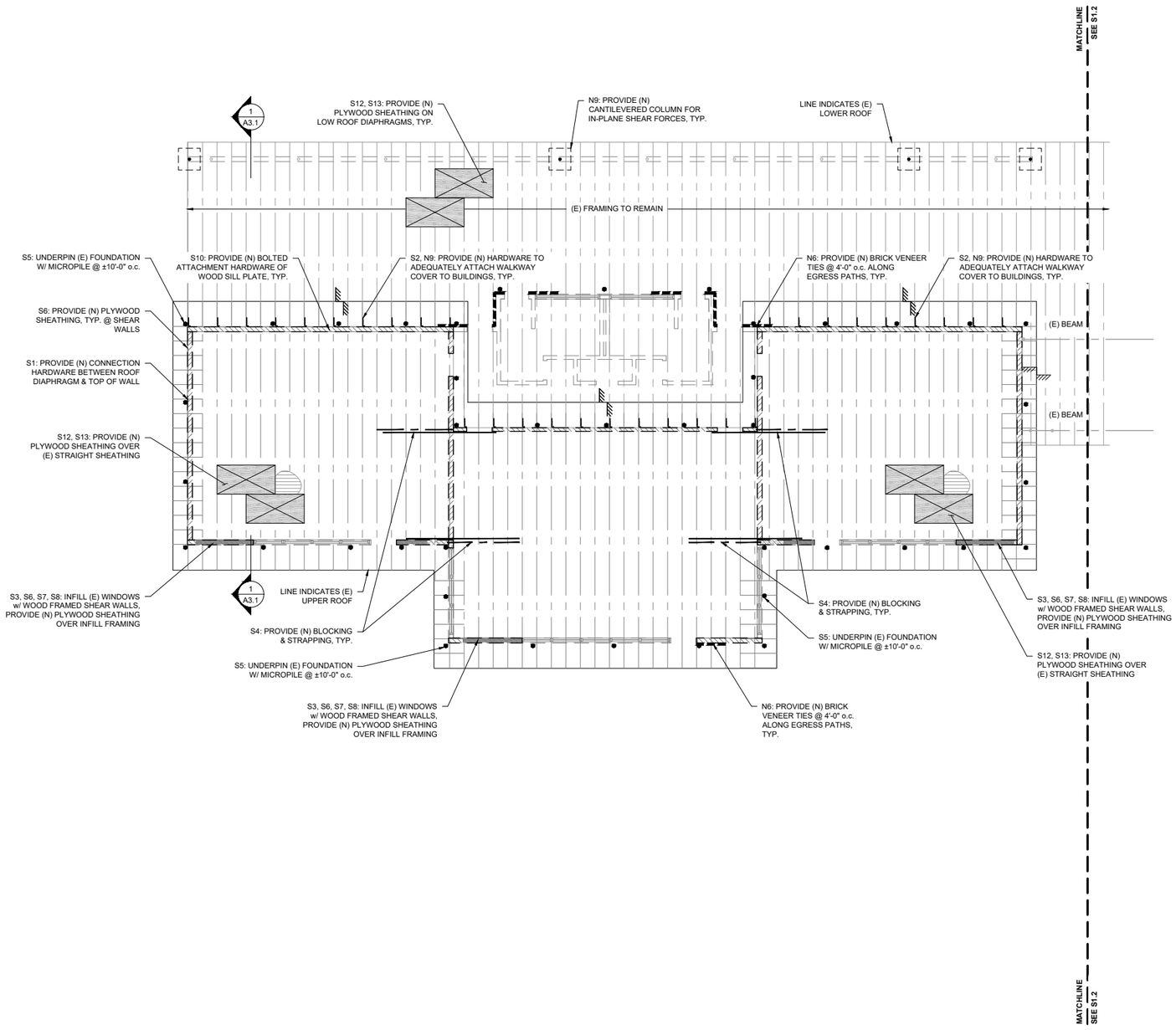
REVISION ID:	DATE:

PROJECT NO:	G-1294-19
DRAWN:	CJD
CHECKED:	BMT, SLC
DATE:	01-17-20

TYPICAL SECTION

A3.1

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION



ONE INCH EQUALS FULL SCALE

1
S1.1

BUILDING 'C' ROOF FRAMING PLAN

1/8" = 1'-0"

ZCS
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ARCHITECTURE

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LANE ESD
1200 HIGHWAY 99 NORTH
EUGENE, OREGON 97402

WESTMORELAND CAMPUS SEISMIC RETROFIT GRANT APPLICATION PHASE I

LANE ESD

STRUCTURAL
REGISTERED PROFESSIONAL ENGINEER
OREGON
JUNE 08, 2014
MATTHEW R. SMITH
EXPIRES: 06-30-20

PRELIMINARY - NOT FOR CONSTRUCTION

REVISION ID:	DATE:

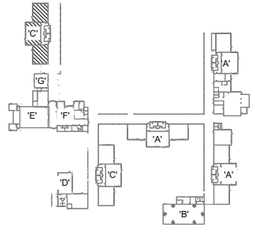
PROJECT NO:	G-1294-19
DRAWN:	CJD
CHECKED:	BMT, SLC
DATE:	01-17-20

BUILDING 'C' ROOF FRAMING PLAN

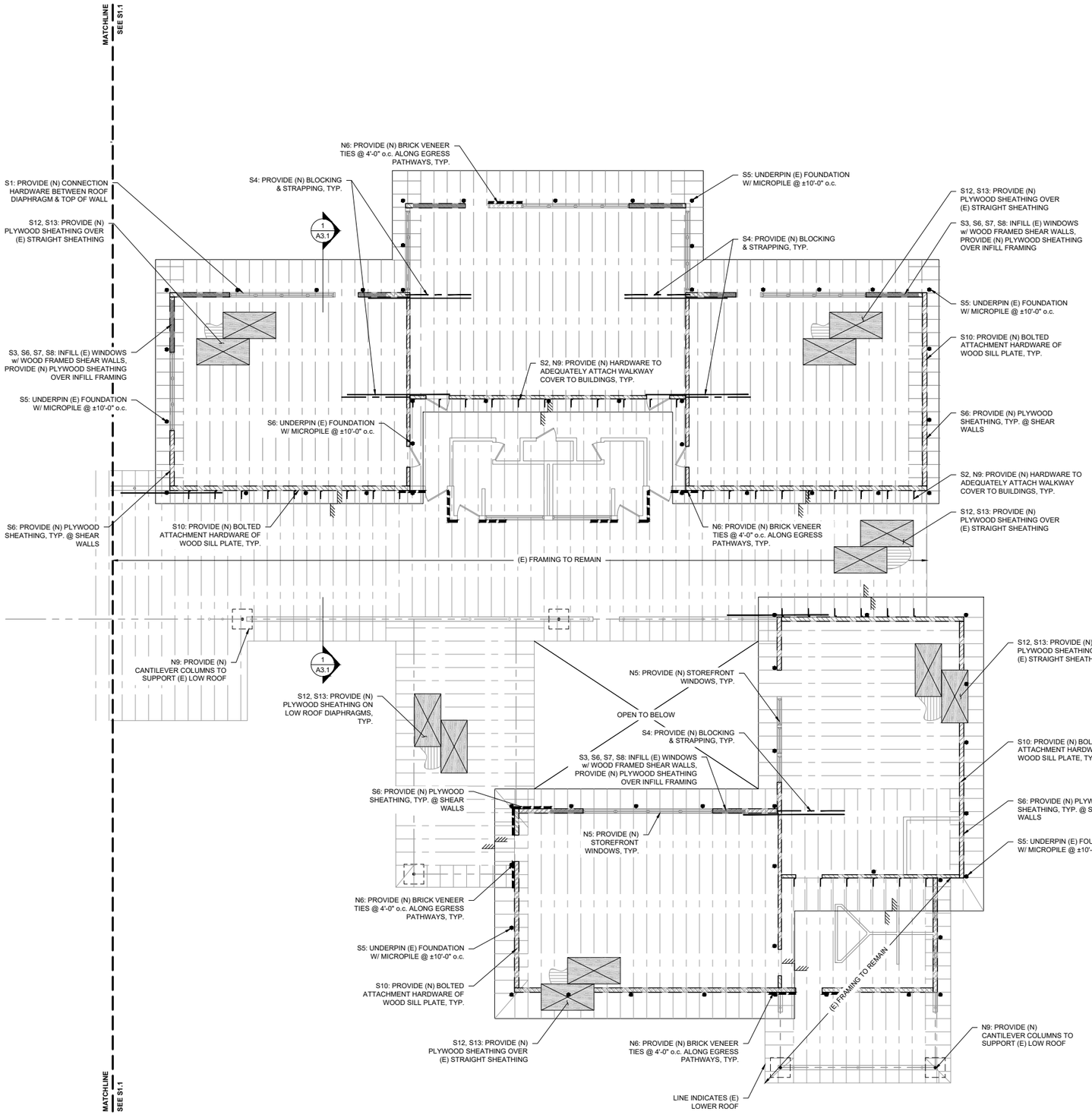
S1.1

KEYPLAN

N.T.S.



FOR AGENCY REVIEW - NOT FOR CONSTRUCTION



ONE INCH EQUALS FULL SCALE

1/8" = 1'-0"

1 S1.2 BUILDING 'C' & 'D' ROOF FRAMING PLAN

ZCS ENGINEERING ARCHITECTURE
127 NW D Street, Grants Pass, Oregon 97526 | 541-479-3865

LANE ESD
1200 HIGHWAY 99 NORTH
EUGENE, OREGON 97402

WESTMORELAND CAMPUS SEISMIC RETROFIT GRANT APPLICATION PHASE I

LANE ESD

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON JAN. 08, 2014 MATTHEW R. SMITH
-PRELIMINARY- NOT FOR CONSTRUCTION
EXPIRES: 06-30-20

REVISION ID:	DATE:

PROJECT NO:	G-1294-19
DRAWN:	CJD
CHECKED:	BMT, SLC
DATE:	01-17-20

KEYPLAN N.T.S.

BUILDING 'C' & 'D' ROOF FRAMING PLAN

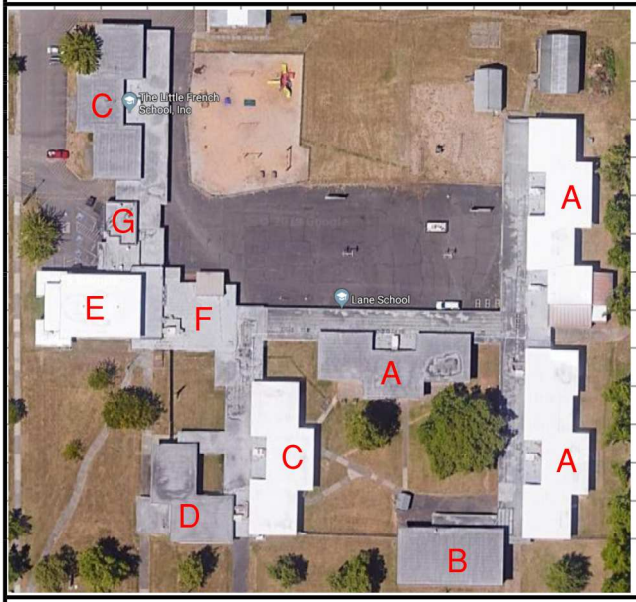
S1.2

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

Appendix F: RVS Score

Rapid Visual Screening of Buildings for Potential Seismic Hazards
FEMA P-154 Data Collection Form

Westmoreland_ES A **Level 1**
HIGH Seismicity



Address: 1717 CITY VIEW STREET
EUGENE, OR **Zip:** 97402
Other Identifiers: CLASSROOM WINGS
Building Name: LANE SCHOOL (WESTMORELAND CAMPUS)
Use: EDUCATION
Latitude: 44.041 **Longitude:** -123.129
S_S: 0.721 **S_1:** 0.411
Screener(s): SLC **Date/Time:** 12/17/19

No. Stories: Above Grade: 1 Below Grade: 0 **Year Built:** 1950 ☐ EST
Total Floor Area (sq. ft.): 37,320 **Code Year:** 1993
Additions: ☐ None ☐ Yes, Year(s) Built:

Occupancy: Assembly ☐ Commercial ☐ Emer. Services ☐ Historic ☐ Shelter
Industrial ☐ Office ■ School ☐ Government
Utility ☐ Warehouse Residential, # Units:

Soil Type: ☐ A Hard Rock ☐ B Avg Rock ☐ C Dense Soil ■ D Stiff Soil ☐ E Soft Soil ☐ F Poor Soil **DNK** *If DNK, assume Type D.*

Geologic Hazards: Liquefaction: Yes/No/DNK Landslide: Yes/No/DNK Surf. Rupt.: Yes/No/DNK

Adjacency: ☐ Pounding ☐ Falling Hazards from Taller Adjacent Building

Irregularities: ■ Vertical (type/severity) OPENINGS (WINDOWS) - MODERATE
■ Plan (type) RE-ENTRANT CORNERS

Exterior Falling Hazards: ☐ Unbraced Chimneys ☐ Heavy Cladding or Heavy Veneer ☐ Parapets ☐ Appendages ☐ Other:

COMMENTS:

☐ Additional sketches or comments on separate page

BASIC SCORE, MODIFIERS, AND FINAL LEVEL 1 SCORE, S_{L1}

FEMA BUILDING TYPE W2	Do Not Know	W1	W1A	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)	C1 (MRF)	C2 (SW)	C3 (URM INF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM	MH
Basic Score		**3.6**	**3.2**	**2.9**	**2.1**	**2.0**	**2.6**	**2.0**	**1.7**	**1.5**	**2.0**	**1.2**	**1.6**	**1.4**	**1.7**	**1.7**	**1.0**	**1.5**
Severe Vertical Irregularity, V_{L1}		-1.2	-1.2	-1.2	-1.0	-1.0	-1.1	-1.0	-0.8	-0.9	-1.0	-0.7	-1.0	-0.9	-0.9	-0.9	-0.7	NA
Moderate Vertical Irregularity, V_{L1}		-0.7	-0.7	-0.7	-0.6	-0.6	-0.7	-0.6	-0.5	-0.5	-0.6	-0.4	-0.6	-0.5	-0.5	-0.5	-0.4	NA
Plan Irregularity, P_{L1}		-1.1	-1.0	-1.0	-0.8	-0.7	-0.9	-0.7	-0.6	-0.6	-0.8	-0.5	-0.7	-0.6	-0.7	-0.7	-0.4	NA
Pre-Code		-1.1	-1.0	-0.9	-0.6	-0.6	-0.8	-0.6	-0.2	-0.4	-0.7	-0.1	-0.5	-0.3	-0.5	-0.5	0.0	-0.1
Post-Benchmark		1.6	1.9	2.2	1.4	1.4	1.1	1.9	NA	1.9	2.1	NA	2.0	2.4	2.1	2.1	NA	1.2
Soil Type A or B		0.1	0.3	0.5	0.4	0.6	0.1	0.6	0.5	0.4	0.5	0.3	0.6	0.4	0.5	0.5	0.3	0.3
Soil Type E (1-3 stories)		0.2	0.2	0.1	-0.2	-0.4	0.2	-0.1	-0.4	0.0	0.0	-0.2	-0.3	-0.1	-0.1	-0.1	-0.2	-0.4
Soil Type E (> 3 stories)		-0.3	-0.6	-0.9	-0.6	-0.6	NA	-0.6	-0.4	-0.5	-0.7	-0.3	NA	-0.4	-0.5	-0.6	-0.2	NA
Minimum Score, S_{MIN}		*1.1*	*0.9*	*0.7*	*0.5*	*0.5*	*0.6*	*0.5*	*0.5*	*0.3*	*0.3*	*0.3*	*0.2*	*0.2*	*0.3*	*0.3*	*0.2*	*1.0*

FINAL LEVEL 1 SCORE, $S_{L1} \geq S_{MIN}$: 0.7 FEMA-154 COLLAPSE POTENTIAL - HIGH (>10%)

EXTENT OF REVIEW

Exterior: ☐ Partial ■ All Sides ☐ Aerial
Interior: ☐ None ☐ Visible ■ Entered
Drawings Reviewed: ■ Yes ☐ No
Soil Type Source: ASSUMED
Geologic Hazards Source: DOGAMI
Contact Person: SLC

LEVEL 2 SCREENING PERFORMED?

☐ Yes, Final Level 2 Score, S_{L2} _____ ■ No
Nonstructural hazards? ■ Yes ☐ No

OTHER HAZARDS

Are There Hazards That Trigger A Detailed Structural Evaluation?

☐ Pounding potential (unless S_{L2} > cut-off, if known)
☐ Falling hazards from taller adjacent building
☐ Geologic hazards or Soil Type F
☐ Significant damage/deterioration to the structural system

ACTION REQUIRED

Detailed Structural Evaluation Required?

☐ Yes, unknown FEMA building type or other building
☐ Yes, score less than cut-off
☐ Yes, other hazards present
■ No

Detailed Nonstructural Evaluation Recommended? *(check one)*

☐ Yes, nonstructural hazards identified that should be evaluated
■ No, nonstructural hazards exist that may require mitigation, but a detailed evaluation is not necessary
☐ No, no nonstructural hazards identified ☐ DNK

Where information cannot be verified, screener shall note the following: EST = Estimated or unreliable data OR DNK = Do Not Know

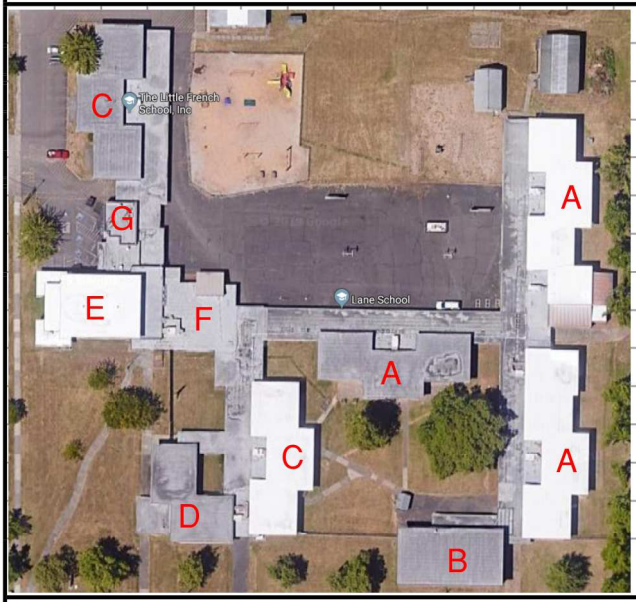
Legend: MRF = Moment-resisting frame; BR = Braced frame; RC = Reinforced concrete; SW = Shear wall; URM INF = Unreinforced masonry infill; TU = Tilt up; MH = Manufactured Housing; LM = Light metal; FD = Flexible diaphragm; RD = Rigid diaphragm

Rapid Visual Screening of Buildings for Potential Seismic Hazards

FEMA P-154 Data Collection Form

Westmoreland_ES B **Level 1**

HIGH Seismicity



Address: 1717 CITY VIEW STREET

EUGENE, OR **Zip:** 97402

Other Identifiers: GYM

Building Name: LANE SCHOOL (WESTMORELAND CAMPUS)

Use: EDUCATION

Latitude: 44.041 **Longitude:** -123.129

S_S: 0.721 **S_1:** 0.411

Screener(s): SLC **Date/Time:** 12/17/19

No. Stories: Above Grade: 1 Below Grade: 0 **Year Built:** 1950 ☐ EST

Total Floor Area (sq. ft.): 37,320 **Code Year:** 1993

Additions: ☐ None ■ Yes, Year(s) Built: DNK

Occupancy: Assembly ☐ Commercial ☐ Emer. Services ☐ Historic ☐ Shelter
Industrial ☐ Office ■ School ☐ Government
Utility ☐ Warehouse ☐ Residential, # Units: ☐

Soil Type: ☐ A Hard Rock ☐ B Avg Rock ☐ C Dense Soil ■ D Stiff Soil ☐ E Soft Soil ☐ F Poor Soil **DNK** *If DNK, assume Type D.*

Geologic Hazards: Liquefaction: Yes/No/DNK Landslide: Yes/No/DNK Surf. Rupt.: Yes/No/DNK

Adjacency: ☐ Pounding ☐ Falling Hazards from Taller Adjacent Building

Irregularities: ☐ Vertical (type/severity) ☐
■ Plan (type) SETBACK/LOW ROOF

Exterior Falling Hazards: ☐ Unbraced Chimneys ☐ Heavy Cladding or Heavy Veneer ☐ Parapets ☐ Appendages ☐ Other: ☐

COMMENTS:

☐ Additional sketches or comments on separate page

BASIC SCORE, MODIFIERS, AND FINAL LEVEL 1 SCORE, S_{L1}

FEMA BUILDING TYPE W2 (Do Not Know)	W1	W1A	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)	C1 (MRF)	C2 (SW)	C3 (URM INF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM	MH
Basic Score	**3.6**	**3.2**	**2.9**	**2.1**	**2.0**	**2.6**	**2.0**	**1.7**	**1.5**	**2.0**	**1.2**	**1.6**	**1.4**	**1.7**	**1.7**	**1.0**	**1.5**
Severe Vertical Irregularity, V_{L1}	-1.2	-1.2	-1.2	-1.0	-1.0	-1.1	-1.0	-0.8	-0.9	-1.0	-0.7	-1.0	-0.9	-0.9	-0.9	-0.7	NA
Moderate Vertical Irregularity, V_{L1}	-0.7	-0.7	-0.7	-0.6	-0.6	-0.7	-0.6	-0.5	-0.5	-0.6	-0.4	-0.6	-0.5	-0.5	-0.5	-0.4	NA
Plan Irregularity, P_{L1}	-1.1	-1.0	-1.0	-0.8	-0.7	-0.9	-0.7	-0.6	-0.6	-0.8	-0.5	-0.7	-0.6	-0.7	-0.7	-0.4	NA
Pre-Code	-1.1	-1.0	-0.9	-0.6	-0.6	-0.8	-0.6	-0.2	-0.4	-0.7	-0.1	-0.5	-0.3	-0.5	-0.5	0.0	-0.1
Post-Benchmark	1.6	1.9	2.2	1.4	1.4	1.1	1.9	NA	1.9	2.1	NA	2.0	2.4	2.1	2.1	NA	1.2
Soil Type A or B	0.1	0.3	0.5	0.4	0.6	0.1	0.6	0.5	0.4	0.5	0.3	0.6	0.4	0.5	0.5	0.3	0.3
Soil Type E (1-3 stories)	0.2	0.2	0.1	-0.2	-0.4	0.2	-0.1	-0.4	0.0	0.0	-0.2	-0.3	-0.1	-0.1	-0.1	-0.2	-0.4
Soil Type E (> 3 stories)	-0.3	-0.6	-0.9	-0.6	-0.6	NA	-0.6	-0.4	-0.5	-0.7	-0.3	NA	-0.4	-0.5	-0.6	-0.2	NA
Minimum Score, S_{MIN}	*1.1*	*0.9*	*0.7*	*0.5*	*0.5*	*0.6*	*0.5*	*0.5*	*0.3*	*0.3*	*0.3*	*0.2*	*0.2*	*0.3*	*0.3*	*0.2*	*1.0*

FINAL LEVEL 1 SCORE, $S_{L1} \geq S_{MIN}$: 1.0 FEMA-154 COLLAPSE POTENTIAL - MODERATE (<10%)

EXTENT OF REVIEW

Exterior: ☐ Partial ■ All Sides ☐ Aerial
Interior: ☐ None ☐ Visible ■ Entered
Drawings Reviewed: ■ Yes ☐ No
Soil Type Source: ASSUMED
Geologic Hazards Source: DOGAMI
Contact Person: SLC

LEVEL 2 SCREENING PERFORMED?

☐ Yes, Final Level 2 Score, S_{L2} _____ ■ No
Nonstructural hazards? ■ Yes ☐ No

OTHER HAZARDS

Are There Hazards That Trigger A Detailed Structural Evaluation?

☐ Pounding potential (unless S_{L2} > cut-off, if known)
☐ Falling hazards from taller adjacent building
☐ Geologic hazards or Soil Type F
☐ Significant damage/deterioration to the structural system

ACTION REQUIRED

Detailed Structural Evaluation Required?

☐ Yes, unknown FEMA building type or other building
☐ Yes, score less than cut-off
☐ Yes, other hazards present
■ No

Detailed Nonstructural Evaluation Recommended? *(check one)*

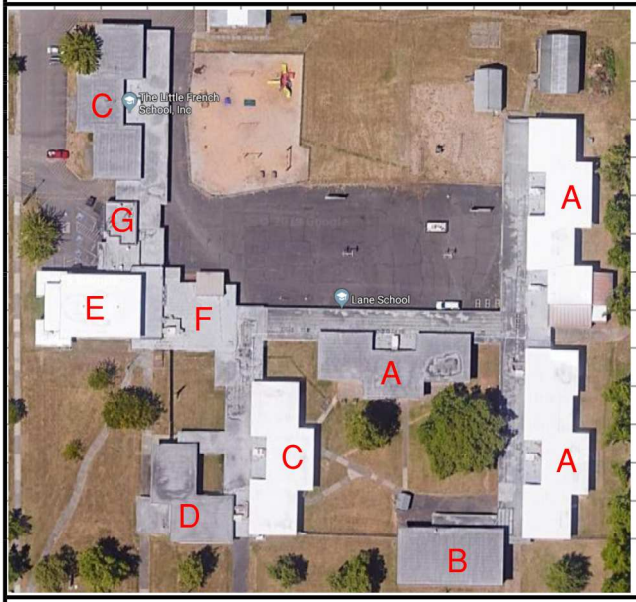
☐ Yes, nonstructural hazards identified that should be evaluated
■ No, nonstructural hazards exist that may require mitigation, but a detailed evaluation is not necessary
☐ No, no nonstructural hazards identified ☐ DNK

Where information cannot be verified, screener shall note the following: EST = Estimated or unreliable data OR DNK = Do Not Know

Legend: MRF = Moment-resisting frame; BR = Braced frame; RC = Reinforced concrete; SW = Shear wall; URM INF = Unreinforced masonry infill; TU = Tilt up; MH = Manufactured Housing; LM = Light metal; FD = Flexible diaphragm; RD = Rigid diaphragm

Rapid Visual Screening of Buildings for Potential Seismic Hazards
FEMA P-154 Data Collection Form

Westmoreland_ES C **Level 1**
HIGH Seismicity



Address: 1717 CITY VIEW STREET
EUGENE, OR **Zip:** 97402
Other Identifiers: CLASSROOM WINGS
Building Name: LANE SCHOOL (WESTMORELAND CAMPUS)
Use: EDUCATION
Latitude: 44.041 **Longitude:** -123.129
S_S: 0.721 **S_1:** 0.411
Screener(s): SLC **Date/Time:** 12/17/19

No. Stories: Above Grade: 1 Below Grade: 0 **Year Built:** 1950 ☐ EST
Total Floor Area (sq. ft.): 37,320 **Code Year:** 1993
Additions: ☐ None ☐ Yes, Year(s) Built:

Occupancy: Assembly ☐ Commercial ☐ Emer. Services ☐ Historic ☐ Shelter
Industrial ☐ Office ■ School ☐ Government
Utility ☐ Warehouse Residential, # Units: ☐

Soil Type: ☐ A Hard Rock ☐ B Avg Rock ☐ C Dense Soil ■ D Stiff Soil ☐ E Soft Soil ☐ F Poor Soil **DNK** *If DNK, assume Type D.*

Geologic Hazards: Liquefaction: Yes/No/DNK Landslide: Yes/No/DNK Surf. Rupt.: Yes/No/DNK

Adjacency: ☐ Pounding ☐ Falling Hazards from Taller Adjacent Building

Irregularities: ■ Vertical (type/severity) OPENINGS (WINDOWS) - MODERATE
■ Plan (type) RE-ENTRANT CORNERS

Exterior Falling Hazards: ☐ Unbraced Chimneys ☐ Heavy Cladding or Heavy Veneer ☐ Parapets ☐ Appendages ☐ Other:

COMMENTS:

☐ Additional sketches or comments on separate page

BASIC SCORE, MODIFIERS, AND FINAL LEVEL 1 SCORE, S_{L1}

FEMA BUILDING TYPE W2	Do Not Know	W1	W1A	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)	C1 (MRF)	C2 (SW)	C3 (URM INF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM	MH
Basic Score		**3.6**	**3.2**	**2.9**	**2.1**	**2.0**	**2.6**	**2.0**	**1.7**	**1.5**	**2.0**	**1.2**	**1.6**	**1.4**	**1.7**	**1.7**	**1.0**	**1.5**
Severe Vertical Irregularity, V_{L1}		-1.2	-1.2	-1.2	-1.0	-1.0	-1.1	-1.0	-0.8	-0.9	-1.0	-0.7	-1.0	-0.9	-0.9	-0.9	-0.7	NA
Moderate Vertical Irregularity, V_{L1}		-0.7	-0.7	-0.7	-0.6	-0.6	-0.7	-0.6	-0.5	-0.5	-0.6	-0.4	-0.6	-0.5	-0.5	-0.5	-0.4	NA
Plan Irregularity, P_{L1}		-1.1	-1.0	-1.0	-0.8	-0.7	-0.9	-0.7	-0.6	-0.6	-0.8	-0.5	-0.7	-0.6	-0.7	-0.7	-0.4	NA
Pre-Code		-1.1	-1.0	-0.9	-0.6	-0.6	-0.8	-0.6	-0.2	-0.4	-0.7	-0.1	-0.5	-0.3	-0.5	-0.5	0.0	-0.1
Post-Benchmark		1.6	1.9	2.2	1.4	1.4	1.1	1.9	NA	1.9	2.1	NA	2.0	2.4	2.1	2.1	NA	1.2
Soil Type A or B		0.1	0.3	0.5	0.4	0.6	0.1	0.6	0.5	0.4	0.5	0.3	0.6	0.4	0.5	0.5	0.3	0.3
Soil Type E (1-3 stories)		0.2	0.2	0.1	-0.2	-0.4	0.2	-0.1	-0.4	0.0	0.0	-0.2	-0.3	-0.1	-0.1	-0.1	-0.2	-0.4
Soil Type E (> 3 stories)		-0.3	-0.6	-0.9	-0.6	-0.6	NA	-0.6	-0.4	-0.5	-0.7	-0.3	NA	-0.4	-0.5	-0.6	-0.2	NA
Minimum Score, S_{MIN}		*1.1*	*0.9*	*0.7*	*0.5*	*0.5*	*0.6*	*0.5*	*0.5*	*0.3*	*0.3*	*0.3*	*0.2*	*0.2*	*0.3*	*0.3*	*0.2*	*1.0*

FINAL LEVEL 1 SCORE, $S_{L1} \geq S_{MIN}$: 0.7 FEMA-154 COLLAPSE POTENTIAL - HIGH (>10%)

EXTENT OF REVIEW

Exterior: ☐ Partial ■ All Sides ☐ Aerial
Interior: ☐ None ☐ Visible ■ Entered
Drawings Reviewed: ■ Yes ☐ No
Soil Type Source: ASSUMED
Geologic Hazards Source: DOGAMI
Contact Person: SLC

LEVEL 2 SCREENING PERFORMED?

☐ Yes, Final Level 2 Score, S_{L2} _____ ■ No
Nonstructural hazards? ■ Yes ☐ No

OTHER HAZARDS

Are There Hazards That Trigger A Detailed Structural Evaluation?

☐ Pounding potential (unless S_{L2} > cut-off, if known)
☐ Falling hazards from taller adjacent building
☐ Geologic hazards or Soil Type F
☐ Significant damage/deterioration to the structural system

ACTION REQUIRED

Detailed Structural Evaluation Required?

☐ Yes, unknown FEMA building type or other building
☐ Yes, score less than cut-off
☐ Yes, other hazards present
■ No

Detailed Nonstructural Evaluation Recommended? *(check one)*

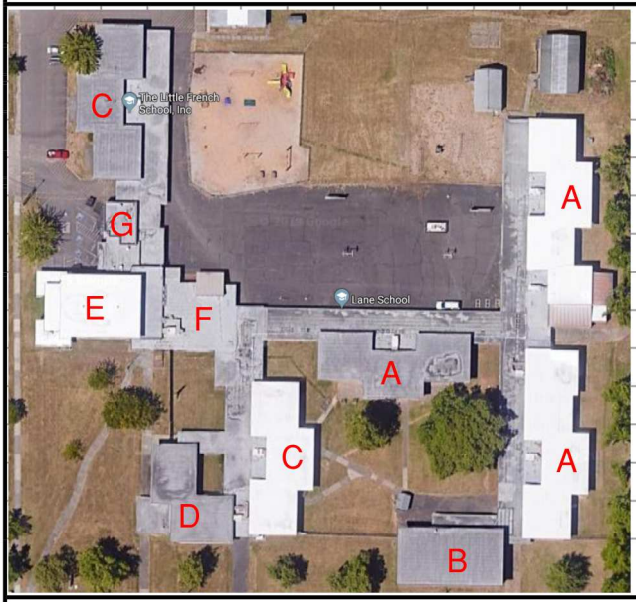
☐ Yes, nonstructural hazards identified that should be evaluated
■ No, nonstructural hazards exist that may require mitigation, but a detailed evaluation is not necessary
☐ No, no nonstructural hazards identified ☐ DNK

Where information cannot be verified, screener shall note the following: EST = Estimated or unreliable data OR DNK = Do Not Know

Legend: MRF = Moment-resisting frame; BR = Braced frame; RC = Reinforced concrete; SW = Shear wall; URM INF = Unreinforced masonry infill; TU = Tilt up; MH = Manufactured Housing; LM = Light metal; FD = Flexible diaphragm; RD = Rigid diaphragm

Rapid Visual Screening of Buildings for Potential Seismic Hazards
FEMA P-154 Data Collection Form

Westmoreland_ES D **Level 1**
HIGH Seismicity



Address: 1717 CITY VIEW STREET
EUGENE, OR **Zip:** 97402
Other Identifiers: CLASSROOM WINGS
Building Name: LANE SCHOOL (WESTMORELAND CAMPUS)
Use: EDUCATION
Latitude: 44.041 **Longitude:** -123.129
S_S: 0.721 **S_1:** 0.411
Screener(s): SLC **Date/Time:** 12/17/19

No. Stories: Above Grade: 1 Below Grade: 0 **Year Built:** 1950 ☐ EST
Total Floor Area (sq. ft.): 37,320 **Code Year:** 1993
Additions: ☐ None ☐ Yes, Year(s) Built:

Occupancy: Assembly ☐ Commercial ☐ Emer. Services ☐ Historic ☐ Shelter
Industrial ☐ Office ■ School ☐ Government
Utility ☐ Warehouse Residential, # Units: ☐

Soil Type: ☐A Hard Rock ☐B Avg Rock ☐C Dense Soil ■D Stiff Soil ☐E Soft Soil ☐F Poor Soil **DNK** *If DNK, assume Type D.*

Geologic Hazards: Liquefaction: Yes/No/DNK Landslide: Yes/No/DNK Surf. Rupt.: Yes/No/DNK

Adjacency: ☐ Pounding ☐ Falling Hazards from Taller Adjacent Building

Irregularities: ■ Vertical (type/severity) OPENINGS (WINDOWS) - MODERATE
■ Plan (type) RE-ENTRANT CORNERS, LOW ROOF

Exterior Falling Hazards: ☐ Unbraced Chimneys ☐ Heavy Cladding or Heavy Veneer ☐ Parapets ☐ Appendages ☐ Other:

COMMENTS:

☐ Additional sketches or comments on separate page

BASIC SCORE, MODIFIERS, AND FINAL LEVEL 1 SCORE, S_{L1}

FEMA BUILDING TYPE W2	Do Not Know	W1	W1A	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)	C1 (MRF)	C2 (SW)	C3 (URM INF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM	MH
Basic Score		**3.6**	**3.2**	**2.9**	**2.1**	**2.0**	**2.6**	**2.0**	**1.7**	**1.5**	**2.0**	**1.2**	**1.6**	**1.4**	**1.7**	**1.7**	**1.0**	**1.5**
Severe Vertical Irregularity, V_{L1}		-1.2	-1.2	-1.2	-1.0	-1.0	-1.1	-1.0	-0.8	-0.9	-1.0	-0.7	-1.0	-0.9	-0.9	-0.9	-0.7	NA
Moderate Vertical Irregularity, V_{L1}		-0.7	-0.7	-0.7	-0.6	-0.6	-0.7	-0.6	-0.5	-0.5	-0.6	-0.4	-0.6	-0.5	-0.5	-0.5	-0.4	NA
Plan Irregularity, P_{L1}		-1.1	-1.0	-1.0	-0.8	-0.7	-0.9	-0.7	-0.6	-0.6	-0.8	-0.5	-0.7	-0.6	-0.7	-0.7	-0.4	NA
Pre-Code		-1.1	-1.0	-0.9	-0.6	-0.6	-0.8	-0.6	-0.2	-0.4	-0.7	-0.1	-0.5	-0.3	-0.5	-0.5	0.0	-0.1
Post-Benchmark		1.6	1.9	2.2	1.4	1.4	1.1	1.9	NA	1.9	2.1	NA	2.0	2.4	2.1	2.1	NA	1.2
Soil Type A or B		0.1	0.3	0.5	0.4	0.6	0.1	0.6	0.5	0.4	0.5	0.3	0.6	0.4	0.5	0.5	0.3	0.3
Soil Type E (1-3 stories)		0.2	0.2	0.1	-0.2	-0.4	0.2	-0.1	-0.4	0.0	0.0	-0.2	-0.3	-0.1	-0.1	-0.1	-0.2	-0.4
Soil Type E (> 3 stories)		-0.3	-0.6	-0.9	-0.6	-0.6	NA	-0.6	-0.4	-0.5	-0.7	-0.3	NA	-0.4	-0.5	-0.6	-0.2	NA
Minimum Score, S_{MIN}		*1.1*	*0.9*	*0.7*	*0.5*	*0.5*	*0.6*	*0.5*	*0.5*	*0.3*	*0.3*	*0.3*	*0.2*	*0.2*	*0.3*	*0.3*	*0.2*	*1.0*

FINAL LEVEL 1 SCORE, $S_{L1} \geq S_{MIN}$: 1.0 FEMA-154 COLLAPSE POTENTIAL - MODERATE (<10%)

EXTENT OF REVIEW

Exterior: ☐ Partial ■ All Sides ☐ Aerial
Interior: ☐ None ☐ Visible ■ Entered
Drawings Reviewed: ■ Yes ☐ No
Soil Type Source: ASSUMED
Geologic Hazards Source: DOGAMI
Contact Person: SLC

LEVEL 2 SCREENING PERFORMED?

☐ Yes, Final Level 2 Score, S_{L2} _____ ■ No
Nonstructural hazards? ■ Yes ☐ No

OTHER HAZARDS

Are There Hazards That Trigger A Detailed Structural Evaluation?

☐ Pounding potential (unless S_{L2} > cut-off, if known)
☐ Falling hazards from taller adjacent building
☐ Geologic hazards or Soil Type F
☐ Significant damage/deterioration to the structural system

ACTION REQUIRED

Detailed Structural Evaluation Required?

☐ Yes, unknown FEMA building type or other building
☐ Yes, score less than cut-off
☐ Yes, other hazards present
■ No

Detailed Nonstructural Evaluation Recommended? *(check one)*

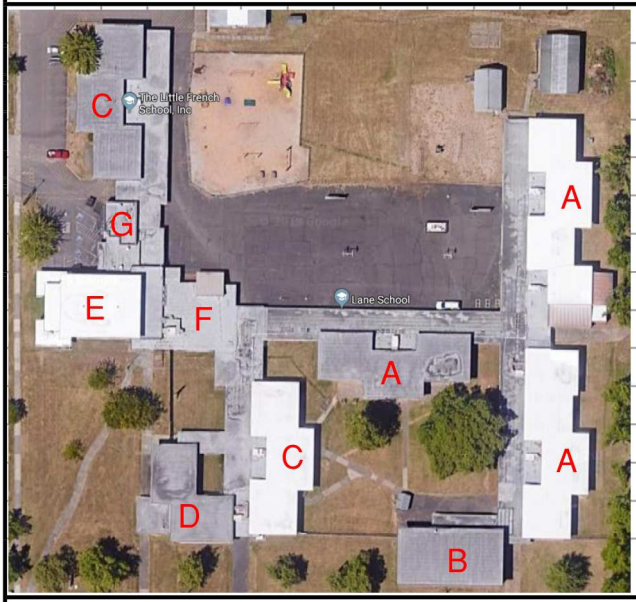
☐ Yes, nonstructural hazards identified that should be evaluated
■ No, nonstructural hazards exist that may require mitigation, but a detailed evaluation is not necessary
☐ No, no nonstructural hazards identified ☐ DNK

Where information cannot be verified, screener shall note the following: EST = Estimated or unreliable data OR DNK = Do Not Know

Legend: MRF = Moment-resisting frame; BR = Braced frame; RC = Reinforced concrete; SW = Shear wall; URM INF = Unreinforced masonry infill; TU = Tilt up; MH = Manufactured Housing; LM = Light metal; FD = Flexible diaphragm; RD = Rigid diaphragm

Rapid Visual Screening of Buildings for Potential Seismic Hazards
FEMA P-154 Data Collection Form

Westmoreland_ES E **Level 1**
HIGH Seismicity



Address: 1717 CITY VIEW STREET
EUGENE, OR **Zip:** 97402
Other Identifiers: CLASSROOM WINGS
Building Name: LANE SCHOOL (WESTMORELAND CAMPUS)
Use: EDUCATION
Latitude: 44.041 **Longitude:** -123.129
S_S: 0.721 **S_1:** 0.411
Screener(s): SLC **Date/Time:** 12/17/19

No. Stories: Above Grade: 1 Below Grade: 0 **Year Built:** 1960 ☐ EST
Total Floor Area (sq. ft.): 37,320 **Code Year:** 1993
Additions: ☐ None ☐ Yes, Year(s) Built:

Occupancy: Assembly ☐ Commercial ☐ Emer. Services ☐ Historic ☐ Shelter
Industrial ☐ Office ■ School ☐ Government
Utility ☐ Warehouse Residential, # Units:

Soil Type: ☐ A Hard Rock ☐ B Avg Rock ☐ C Dense Soil ■ D Stiff Soil ☐ E Soft Soil ☐ F Poor Soil **DNK** *If DNK, assume Type D.*

Geologic Hazards: Liquefaction: Yes/No/DNK Landslide: Yes/No/DNK Surf. Rupt.: Yes/No/DNK

Adjacency: ■ Pounding ☐ Falling Hazards from Taller Adjacent Building

Irregularities: ■ Vertical (type/severity) LOW ROOF
☐ Plan (type)

Exterior Falling Hazards: ☐ Unbraced Chimneys ☐ Heavy Cladding or Heavy Veneer
☐ Parapets ☐ Appendages
☐ Other:

COMMENTS:

☐ Additional sketches or comments on separate page

BASIC SCORE, MODIFIERS, AND FINAL LEVEL 1 SCORE, S_{L1}

FEMA BUILDING TYPE W2	Do Not Know	W1	W1A	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)	C1 (MRF)	C2 (SW)	C3 (URM INF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM	MH
Basic Score		**3.6**	**3.2**	**2.9**	**2.1**	**2.0**	**2.6**	**2.0**	**1.7**	**1.5**	**2.0**	**1.2**	**1.6**	**1.4**	**1.7**	**1.7**	**1.0**	**1.5**
Severe Vertical Irregularity, V_{L1}		-1.2	-1.2	-1.2	-1.0	-1.0	-1.1	-1.0	-0.8	-0.9	-1.0	-0.7	-1.0	-0.9	-0.9	-0.9	-0.7	NA
Moderate Vertical Irregularity, V_{L1}		-0.7	-0.7	-0.7	-0.6	-0.6	-0.7	-0.6	-0.5	-0.5	-0.6	-0.4	-0.6	-0.5	-0.5	-0.5	-0.4	NA
Plan Irregularity, P_{L1}		-1.1	-1.0	-1.0	-0.8	-0.7	-0.9	-0.7	-0.6	-0.6	-0.8	-0.5	-0.7	-0.6	-0.7	-0.7	-0.4	NA
Pre-Code		-1.1	-1.0	-0.9	-0.6	-0.6	-0.8	-0.6	-0.2	-0.4	-0.7	-0.1	-0.5	-0.3	-0.5	-0.5	0.0	-0.1
Post-Benchmark		1.6	1.9	2.2	1.4	1.4	1.1	1.9	NA	1.9	2.1	NA	2.0	2.4	2.1	2.1	NA	1.2
Soil Type A or B		0.1	0.3	0.5	0.4	0.6	0.1	0.6	0.5	0.4	0.5	0.3	0.6	0.4	0.5	0.5	0.3	0.3
Soil Type E (1-3 stories)		0.2	0.2	0.1	-0.2	-0.4	0.2	-0.1	-0.4	0.0	0.0	-0.2	-0.3	-0.1	-0.1	-0.1	-0.2	-0.4
Soil Type E (> 3 stories)		-0.3	-0.6	-0.9	-0.6	-0.6	NA	-0.6	-0.4	-0.5	-0.7	-0.3	NA	-0.4	-0.5	-0.6	-0.2	NA
Minimum Score, S_{MIN}		*1.1*	*0.9*	*0.7*	*0.5*	*0.5*	*0.6*	*0.5*	*0.5*	*0.3*	*0.3*	*0.3*	*0.2*	*0.2*	*0.3*	*0.3*	*0.2*	*1.0*

FINAL LEVEL 1 SCORE, $S_{L1} \geq S_{MIN}$: 1.3 FEMA-154 COLLAPSE POTENTIAL - MODERATE (<10%)

EXTENT OF REVIEW

Exterior: ☐ Partial ■ All Sides ☐ Aerial
Interior: ☐ None ☐ Visible ■ Entered
Drawings Reviewed: ■ Yes ☐ No
Soil Type Source: ASSUMED
Geologic Hazards Source: DOGAMI
Contact Person: SLC

LEVEL 2 SCREENING PERFORMED?

☐ Yes, Final Level 2 Score, S_{L2} _____ ■ No
Nonstructural hazards? ■ Yes ☐ No

OTHER HAZARDS

Are There Hazards That Trigger A Detailed Structural Evaluation?

☐ Pounding potential (unless S_{L2} > cut-off, if known)
☐ Falling hazards from taller adjacent building
☐ Geologic hazards or Soil Type F
☐ Significant damage/deterioration to the structural system

ACTION REQUIRED

Detailed Structural Evaluation Required?

☐ Yes, unknown FEMA building type or other building
☐ Yes, score less than cut-off
☐ Yes, other hazards present
■ No

Detailed Nonstructural Evaluation Recommended? *(check one)*

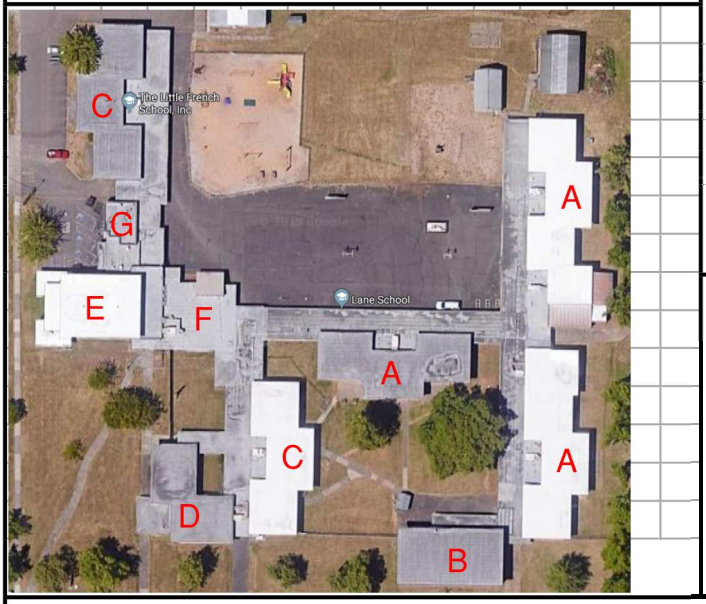
☐ Yes, nonstructural hazards identified that should be evaluated
■ No, nonstructural hazards exist that may require mitigation, but a detailed evaluation is not necessary
☐ No, no nonstructural hazards identified ☐ DNK

Where information cannot be verified, screener shall note the following: EST = Estimated or unreliable data OR DNK = Do Not Know

Legend: MRF = Moment-resisting frame; BR = Braced frame; RC = Reinforced concrete; SW = Shear wall; URM INF = Unreinforced masonry infill; TU = Tilt up; MH = Manufactured Housing; LM = Light metal; FD = Flexible diaphragm; RD = Rigid diaphragm

Rapid Visual Screening of Buildings for Potential Seismic Hazards
FEMA P-154 Data Collection Form

Westmoreland_ES F **Level 1**
HIGH Seismicity



Address: 1717 CITY VIEW STREET
EUGENE, OR **Zip:** 97402
Other Identifiers: CLASSROOM WINGS
Building Name: LANE SCHOOL (WESTMORELAND CAMPUS)
Use: EDUCATION
Latitude: 44.041 **Longitude:** -123.129
S_S: 0.721 **S_1:** 0.411
Screener(s): SLC **Date/Time:** 12/17/19

No. Stories: Above Grade: 1 Below Grade: 0 **Year Built:** 1960 ☐ EST
Total Floor Area (sq. ft.): 37,320 **Code Year:** 1993
Additions: ☐ None ☐ Yes, Year(s) Built:

Occupancy: Assembly ☐ Commercial ☐ Emer. Services ☐ Historic ☐ Shelter
Industrial ☐ Office ■ School ☐ Government
Utility ☐ Warehouse Residential, # Units:

Soil Type: ☐ A Hard Rock ☐ B Avg Rock ☐ C Dense Soil ■ D Stiff Soil ☐ E Soft Soil ☐ F Poor Soil **DNK** *If DNK, assume Type D.*

Geologic Hazards: Liquefaction: Yes/No/DNK Landslide: Yes/No/DNK Surf. Rupt.: Yes/No/DNK

Adjacency: ■ Pounding ☐ Falling Hazards from Taller Adjacent Building

Irregularities: ■ Vertical (type/severity) LOW ROOF
■ Plan (type) RE-ENTRANT CORNER

Exterior Falling Hazards: ☐ Unbraced Chimneys ☐ Heavy Cladding or Heavy Veneer ☐ Parapets ☐ Appendages ☐ Other:

COMMENTS:

☐ Additional sketches or comments on separate page

BASIC SCORE, MODIFIERS, AND FINAL LEVEL 1 SCORE, S_{L1}

FEMA BUILDING TYPE W2	Do Not Know	W1	W1A	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)	C1 (MRF)	C2 (SW)	C3 (URM INF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM	MH
Basic Score		**3.6**	**3.2**	**2.9**	**2.1**	**2.0**	**2.6**	**2.0**	**1.7**	**1.5**	**2.0**	**1.2**	**1.6**	**1.4**	**1.7**	**1.7**	**1.0**	**1.5**
Severe Vertical Irregularity, V_{L1}		-1.2	-1.2	-1.2	-1.0	-1.0	-1.1	-1.0	-0.8	-0.9	-1.0	-0.7	-1.0	-0.9	-0.9	-0.9	-0.7	NA
Moderate Vertical Irregularity, V_{L1}		-0.7	-0.7	-0.7	-0.6	-0.6	-0.7	-0.6	-0.5	-0.5	-0.6	-0.4	-0.6	-0.5	-0.5	-0.5	-0.4	NA
Plan Irregularity, P_{L1}		-1.1	-1.0	-1.0	-0.8	-0.7	-0.9	-0.7	-0.6	-0.6	-0.8	-0.5	-0.7	-0.6	-0.7	-0.7	-0.4	NA
Pre-Code		-1.1	-1.0	-0.9	-0.6	-0.6	-0.8	-0.6	-0.2	-0.4	-0.7	-0.1	-0.5	-0.3	-0.5	-0.5	0.0	-0.1
Post-Benchmark		1.6	1.9	2.2	1.4	1.4	1.1	1.9	NA	1.9	2.1	NA	2.0	2.4	2.1	2.1	NA	1.2
Soil Type A or B		0.1	0.3	0.5	0.4	0.6	0.1	0.6	0.5	0.4	0.5	0.3	0.6	0.4	0.5	0.5	0.3	0.3
Soil Type E (1-3 stories)		0.2	0.2	0.1	-0.2	-0.4	0.2	-0.1	-0.4	0.0	0.0	-0.2	-0.3	-0.1	-0.1	-0.1	-0.2	-0.4
Soil Type E (> 3 stories)		-0.3	-0.6	-0.9	-0.6	-0.6	NA	-0.6	-0.4	-0.5	-0.7	-0.3	NA	-0.4	-0.5	-0.6	-0.2	NA
Minimum Score, S_{MIN}		*1.1*	*0.9*	*0.7*	*0.5*	*0.5*	*0.6*	*0.5*	*0.5*	*0.3*	*0.3*	*0.3*	*0.2*	*0.2*	*0.3*	*0.3*	*0.2*	*1.0*

FINAL LEVEL 1 SCORE, $S_{L1} \geq S_{MIN}$: 0.7 FEMA-154 COLLAPSE POTENTIAL - HIGH (>10%)

EXTENT OF REVIEW

Exterior: ☐ Partial ■ All Sides ☐ Aerial
Interior: ☐ None ☐ Visible ■ Entered
Drawings Reviewed: ■ Yes ☐ No
Soil Type Source: ASSUMED
Geologic Hazards Source: DOGAMI
Contact Person: SLC

LEVEL 2 SCREENING PERFORMED?

☐ Yes, Final Level 2 Score, S_{L2} _____ ■ No
Nonstructural hazards? ■ Yes ☐ No

OTHER HAZARDS

Are There Hazards That Trigger A Detailed Structural Evaluation?

☐ Pounding potential (unless S_{L2} > cut-off, if known)
☐ Falling hazards from taller adjacent building
☐ Geologic hazards or Soil Type F
☐ Significant damage/deterioration to the structural system

ACTION REQUIRED

Detailed Structural Evaluation Required?

☐ Yes, unknown FEMA building type or other building
☐ Yes, score less than cut-off
☐ Yes, other hazards present
■ No

Detailed Nonstructural Evaluation Recommended? *(check one)*

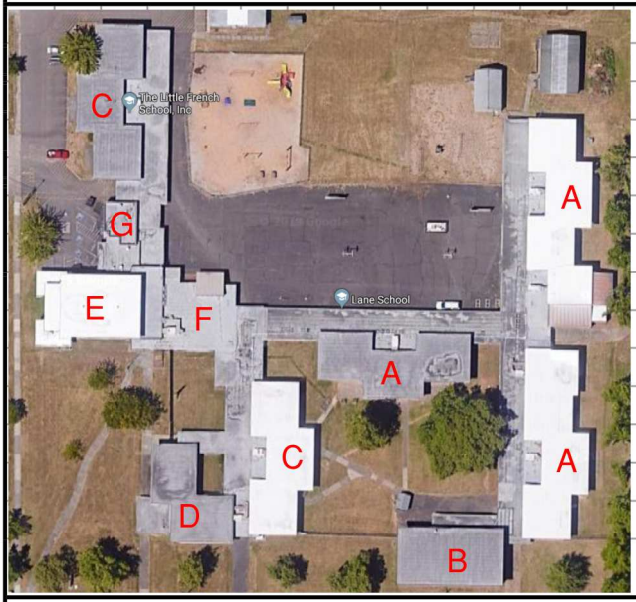
☐ Yes, nonstructural hazards identified that should be evaluated
■ No, nonstructural hazards exist that may require mitigation, but a detailed evaluation is not necessary
☐ No, no nonstructural hazards identified ☐ DNK

Where information cannot be verified, screener shall note the following: EST = Estimated or unreliable data OR DNK = Do Not Know

Legend: MRF = Moment-resisting frame; BR = Braced frame; RC = Reinforced concrete; SW = Shear wall; URM INF = Unreinforced masonry infill; TU = Tilt up; MH = Manufactured Housing; LM = Light metal; FD = Flexible diaphragm; RD = Rigid diaphragm

Rapid Visual Screening of Buildings for Potential Seismic Hazards
FEMA P-154 Data Collection Form

Westmoreland_ES G **Level 1**
HIGH Seismicity



Address: 1717 CITY VIEW STREET
EUGENE, OR **Zip:** 97402
Other Identifiers: CLASSROOM WINGS
Building Name: LANE SCHOOL (WESTMORELAND CAMPUS)
Use: EDUCATION
Latitude: 44.041 **Longitude:** -123.129
S_S: 0.721 **S_1:** 0.411
Screener(s): SLC **Date/Time:** 12/17/19

No. Stories: Above Grade: 1 Below Grade: 0 **Year Built:** 1950 ☐ EST
Total Floor Area (sq. ft.): 37,320 **Code Year:**
Additions: ☐ None ☐ Yes, Year(s) Built:

Occupancy: Assembly ☐ Commercial ☐ Emer. Services ☐ Historic ☐ Shelter
Industrial ☐ Office ■ School ☐ Government
Utility ☐ Warehouse Residential, # Units:

Soil Type: ☐ A Hard Rock ☐ B Avg Rock ☐ C Dense Soil ■ D Stiff Soil ☐ E Soft Soil ☐ F Poor Soil **DNK** *If DNK, assume Type D.*

Geologic Hazards: Liquefaction: Yes/No/DNK Landslide: Yes/No/DNK Surf. Rupt.: Yes/No/DNK

Adjacency: ■ Pounding ☐ Falling Hazards from Taller Adjacent Building

Irregularities: ■ Vertical (type/severity) LOW ROOF
☐ Plan (type)

Exterior Falling Hazards: ☐ Unbraced Chimneys ☐ Heavy Cladding or Heavy Veneer
■ Parapets ☐ Appendages
☐ Other:

COMMENTS:

☐ Additional sketches or comments on separate page

BASIC SCORE, MODIFIERS, AND FINAL LEVEL 1 SCORE, S_{L1}

FEMA BUILDING TYPE URM	Do Not Know	W1	W1A	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)	C1 (MRF)	C2 (SW)	C3 (URM INF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM	MH
Basic Score		**3.6**	**3.2**	**2.9**	**2.1**	**2.0**	**2.6**	**2.0**	**1.7**	**1.5**	**2.0**	**1.2**	**1.6**	**1.4**	**1.7**	**1.7**	**1.0**	**1.5**
Severe Vertical Irregularity, V_{L1}		-1.2	-1.2	-1.2	-1.0	-1.0	-1.1	-1.0	-0.8	-0.9	-1.0	-0.7	-1.0	-0.9	-0.9	-0.9	-0.7	NA
Moderate Vertical Irregularity, V_{L1}		-0.7	-0.7	-0.7	-0.6	-0.6	-0.7	-0.6	-0.5	-0.5	-0.6	-0.4	-0.6	-0.5	-0.5	-0.5	-0.4	NA
Plan Irregularity, P_{L1}		-1.1	-1.0	-1.0	-0.8	-0.7	-0.9	-0.7	-0.6	-0.6	-0.8	-0.5	-0.7	-0.6	-0.7	-0.7	-0.4	NA
Pre-Code		-1.1	-1.0	-0.9	-0.6	-0.6	-0.8	-0.6	-0.2	-0.4	-0.7	-0.1	-0.5	-0.3	-0.5	-0.5	0.0	-0.1
Post-Benchmark		1.6	1.9	2.2	1.4	1.4	1.1	1.9	NA	1.9	2.1	NA	2.0	2.4	2.1	2.1	NA	1.2
Soil Type A or B		0.1	0.3	0.5	0.4	0.6	0.1	0.6	0.5	0.4	0.5	0.3	0.6	0.4	0.5	0.5	0.3	0.3
Soil Type E (1-3 stories)		0.2	0.2	0.1	-0.2	-0.4	0.2	-0.1	-0.4	0.0	0.0	-0.2	-0.3	-0.1	-0.1	-0.1	-0.2	-0.4
Soil Type E (> 3 stories)		-0.3	-0.6	-0.9	-0.6	-0.6	NA	-0.6	-0.4	-0.5	-0.7	-0.3	NA	-0.4	-0.5	-0.6	-0.2	NA
Minimum Score, S_{MIN}		*1.1*	*0.9*	*0.7*	*0.5*	*0.5*	*0.6*	*0.5*	*0.5*	*0.3*	*0.3*	*0.3*	*0.2*	*0.2*	*0.3*	*0.3*	*0.2*	*1.0*

FINAL LEVEL 1 SCORE, $S_{L1} \geq S_{MIN}$: 0.6 FEMA-154 COLLAPSE POTENTIAL - HIGH (>10%)

EXTENT OF REVIEW

Exterior: ☐ Partial ■ All Sides ☐ Aerial
Interior: ☐ None ☐ Visible ■ Entered
Drawings Reviewed: ■ Yes ☐ No
Soil Type Source: ASSUMED
Geologic Hazards Source: DOGAMI
Contact Person: SLC

LEVEL 2 SCREENING PERFORMED?

☐ Yes, Final Level 2 Score, S_{L2} _____ ■ No
Nonstructural hazards? ■ Yes ☐ No

OTHER HAZARDS

Are There Hazards That Trigger A Detailed Structural Evaluation?

☐ Pounding potential (unless S_{L2} > cut-off, if known)
☐ Falling hazards from taller adjacent building
☐ Geologic hazards or Soil Type F
☐ Significant damage/deterioration to the structural system

ACTION REQUIRED

Detailed Structural Evaluation Required?

☐ Yes, unknown FEMA building type or other building
☐ Yes, score less than cut-off
☐ Yes, other hazards present
■ No

Detailed Nonstructural Evaluation Recommended? *(check one)*

☐ Yes, nonstructural hazards identified that should be evaluated
■ No, nonstructural hazards exist that may require mitigation, but a detailed evaluation is not necessary
☐ No, no nonstructural hazards identified ☐ DNK

Where information cannot be verified, screener shall note the following: EST = Estimated or unreliable data OR DNK = Do Not Know

Legend: MRF = Moment-resisting frame; BR = Braced frame; RC = Reinforced concrete; SW = Shear wall; URM INF = Unreinforced masonry infill; TU = Tilt up; MH = Manufactured Housing; LM = Light metal; FD = Flexible diaphragm; RD = Rigid diaphragm