Geotechnical & Environmental Services, Inc.
Las Vegas | Reno | Mesquite

SEISMIC HAZARD INVESTIGATION – FAULT STUDY
MULTI-FAMILY RESIDENCES PROJECT
6400 CHOCOLATE DRIVE
SUN VALLEY, RENO, NEVADA
APN 502-250-09

PROJECT NO. R20215772E2
September 9, 2022

Prepared for:

Pedcor Investments, LLC
770 3rd Avenue, SW
Carmel, Indiana 46032

GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

- Geotechnical Engineering
- Construction Materials Testing & Inspections
- Environmental Services
- AASHTO Accredited Testing Laboratories
- IAS Accredited

September 9, 2022
GES Project No. R20215772E2

Mr. Colin Patterson, PE
Pedcor Investments, LLC
770 3rd Avenue, SW
Carmel, Indiana 46032

RE: ***Seismic Hazard Investigation – Fault Study***
Multi-Family Residences Project
6400 Chocolate Drive
Sun Valley, Reno, Nevada
APN 502-250-09

Dear Mr. Patterson:

Geotechnical & Environmental Services, Inc. (GES) is pleased to present this Seismic Hazard Investigation – Fault Study for the proposed multi-family residences development located at 6400 Chocolate Drive in, Sun Valley, Reno, Nevada.

The Seismic Hazard Investigation – Fault Study included exploratory site reconnaissance, exploratory fault trenches, geologic research, and preparation of this report.

We appreciate this opportunity to provide our professional services. If you have any questions or comments regarding this information, please feel free to contact our office.

Sincerely,

Geotechnical & Environmental Services, Inc.

PROFESSIONAL ENGINEER-STATE OF NEVADA
SANDY SOLARES
EXP. 6-30-24
CIVIL
No. 026780

Kelly N Dustin, PG
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Sandy Solares, P.E.
Project Engineer

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SEISMIC HAZARD INVESTIGATION – FAULT STUDY
MULTI-FAMILY RESIDENCES
6400 CHOCOLATE DRIVE
SUN VALLEY, RENO, NEVADA
APN 502-250-09

1. INTRODUCTION

This report presents the results of our seismic hazard investigation – fault study for the presence of the Spanish Springs Valley Fault Zone (SSVFZ) on the planned multi-family residence development site located at 6400 Chocolate Drive in Sun Valley, Reno, within Assessor Parcel Number (APN) 502-250-09 in, Washoe County, Nevada. The approximate location of the site in reference to the city of Reno, Nevada is shown on Figure 1, Vicinity Map. The project site is currently approximately 45.5-acres of undeveloped land consisting of hills and valleys covered by native desert vegetation. The project site is bordered by Red Hill Open Space to the west, West 5th Avenue and private residences to the north, Chocolate Drive and private residences to the east, and the terminus of West 2nd Avenue to the south. The study limits and overall geologic conditions in the area are shown on Figure 2, Local Geologic Map.

The purpose of this investigation was to identify the location of potential ground surface rupture, if any, associated with the SSVFZ in the vicinity of the proposed development. Currently, two splays of the SSVFZ are mapped as crossing the project site in multiple locations, as shown on Figure 2, Local Geologic Map. The SSVFZ splays are mapped as crossing the project site with a north–south trend on the west and a northeast-southwest trend on the southeast. The western splay is mapped as traversing through an area where proposed buildings are planned, as shown on Figure 3, Conceptual Site Plan with Geology. Fault movement associated with the SSVFZ, including these splays, is normal faulting generally dipping to the east and SE. The SSVFZ is considered to be active by the U.S. Geological Survey and Nevada Bureau of Mines and Geology, Quaternary Faults and Folds Database for the United States. “Active faults” are defined as faults that have exhibited or are likely to have exhibited displacement during the Holocene, i.e., 11,700 years or less.

Based on the most recent conceptual design drawing received from Pedcor Investments, dated August 23, 2022, and our discussions with Mr. Colin Patterson of Pedcor Investments, we understand that the project is expected to include the design and construction of ±20 two-story residence buildings, a clubhouse and swimming pool, a playground and tot lot, mail kiosks, and other

minor recreational amenities; below grade structures are not anticipated. Other improvements are anticipated to consist of covered and uncovered parking spaces, paved interior parking areas and roadways, concrete curbs and gutters, sidewalks, and underground utilities. We understand the that final design grades are anticipated to be within 5 feet of existing site grades.

We recommend the project be built conforming to our recommendations presented in our Geotechnical Evaluation dated January 13, 2022, project number R20215772E1, as amended by the Findings and Recommendations presented herein.

1.1. SCOPE

This investigation was performed in accordance with GES Proposal No. R20215772E2r dated July 11, 2022, the scope of services for this seismic hazard investigation – fault study includes:

1. A detailed site reconnaissance, review of available published and unpublished geologic information for this area and air photo and LIDAR imagery interpretation to identify surficial geologic conditions.
2. Excavation and logging of four exploratory trenches roughly perpendicular to the general trend of the fault splays. We also used information obtained from test pits performed during our previous geotechnical evaluation at the site.
3. Backfilling, compaction and field density testing of the trench closures.
4. Preparation of this seismic hazard investigation – fault study report for the proposed development utilizing the findings of our field and office studies. **As the study has found indications of potential ground surface rupture underlying or within 50 feet of the proposed new buildings, setbacks for the proposed development are recommended herein.**

1.2. SCOPE LIMITATIONS

This report was prepared for the exclusive use of Pedcor Investments and their consultants for the express purpose stated above and with generally accepted professional geologic and engineering consulting principles and practices existing at the time this report was prepared and applicable to the location of the site. Any re-use of this report for a different purpose or by others not identified above shall be at the user's sole risk without liability to GES. To the extent that this report is based on information provided to GES by others, GES made efforts to verify this information to the extent practical. The opinions expressed and data collected are based on the

conditions of the site existing at the time of the field investigation. No other warranties, expressed or implied, are made by GES.

The conclusions presented herein are derived from the professional opinions of GES' team of Professional Geologists, Certified Environmental Managers, and Registered Professional Engineers. It should also be recognized that changes in the site conditions may occur with the passage of time due to environmental processes and/or acts of man, and that changes in building codes, the state of the practice or new information may require modifications to the recommendations presented herein. Accordingly, neither the client, nor any other party should rely on the information or conclusions contained in this report after three years from its date of issuance without the express written consent of GES. While we offer our professional opinions on the location of geologic features within the study area, it is plausible that unknown conditions within the quaternary alluvium exist and are currently undetected.

Accuracy and completeness of record information varies among information sources. Record information, such as geologic maps, for areas of Nevada may be preliminary, mapped prior to currently held notions of basin and range tectonics, or entirely not present. Our scope of services does not include identifying errors or insufficiencies in information accessed, however, we have made a reasonable effort to compensate for errors or insufficiencies in the information reviewed that are obvious in light of other information of which we have actual knowledge.

2. METHOD OF INVESTAGATION

The current standard of practice regarding investigations for fault rupture hazards is based on the recommendations of the Nevada Earthquake Safety Council "Guidelines for Evaluating Potential Surface Fault Rupture/Land Subsidence Hazards in Nevada" as revised on November 20, 1998. The guidelines recommend occupied buildings be offset a minimum of 50 feet from Holocene active and potentially active faults (i.e. displacement less than 11,700 years old) and that no critical facility be placed over a Late Quaternary fault defined as having ruptured in the past 130 thousand years.

Published and unpublished geologic literature, aerial photographs and LIDAR imagery of the project site and vicinity were reviewed to determine the regional and local geologic conditions. A list of the references reviewed during this investigation is included at the end of this report.

Our staff previously conducted reconnaissance at the project site in November 2021, during our subsurface investigation consisting of test pits for the geotechnical evaluation. During our February 10, 2022 and August 8, 2022 reconnaissance's performed as a part of the current investigation we looked for indications of damage or disruption of cultural features (site dirt roads, Chocolate Drive, etc) which might indicate past displacements; springs and seeps; bedrock/formational juxtapositions; and topographic indications of faulting (scarps, offset stream channels, etc.). Finally, our investigation included the excavation and detailed logging of four fault location trenches on the project site.

The locations of the fault trenches performed for this investigation were determined using survey points as provided by MAPCA Surveys, handheld GPS, and measuring tape measurements. The locations of the fault trenches on the site are as shown on Figure 3, Conceptual Site Plan and Geologic Map. These locations should be considered accurate only to the degree implied by the methods used.

The location, length, and date of trench excavation are as follows.

TABLE 1 – TRENCH LENGTH AND DATE OF LOGGING

Trench No.	Location on Site	Length (feet)	Date of Logging
1	Southwest	100	August 16 & 17, 2022
2	Southeast	75	August 17 & 19, 2022
3	West Middle	50	August 18, 2022
4	Northwest	50	August 19, 2022

The exploratory trenches were excavated using a Sany SY155U metal-track excavator equipped with a 36-inch-wide bucket and a Case CX57C mini-excavator equipped with a 12-inch-wide bucket. The trenches were benched for safety as per the OSHA Sloping and Benching of Excavations guidelines. The north (south-facing) or northwest (southeast-facing) trench walls were scraped/cleaned and logged by our professional geologist (PG) during the period from August 15 through 19, 2022, Local cleaning and observation of the opposite walls were performed where appropriate to support our interpretations. The logs of the exploratory trenches T-1 through T-4 are shown on Figures 6 through 9, and our observations are discussed in detail below.

Fault related features were observed in Trenches 1, 2, and 3. While no fault related features were observed in Trench 4, it is important to note Trench 4 was mainly comprised of highly fractured bedrock. The intense fracture patterns may have obscured or even concealed evidence of past faulting. Our field staff carefully observed all trench exposures, during different times of day and as the soils dried as evidence of faulting tends to be more evident depending on lighting and soil moisture. We also followed any observed contacts and marker beds along the lengths of the trenches. Two geologists, Ms. Kelly Dustin, PG and Ms. Carmen Bushorn, observed the full length of the trench exposures.

Upon completion of the logging, the trenches were backfilled using the materials from the excavation. The trench backfill was compacted in relatively thin lifts using an excavator-mounted segmented wheel. Our representatives were on-site intermittently during the duration of the backfilling procedures to perform field density testing in the exploratory trench backfill at representative locations and depths. The 20 field density tests performed in the trench backfill achieved at least 90 percent relative compaction.

The investigation and report, including principal geologic findings and recommendations, was performed, prepared, and reviewed under the overall supervision of Ms. Kelly Dustin, PG and Ms. Sandy Solares, PE.

3. GEOLOGIC SETTING

3.1. REGIONAL GEOLOGIC SETTING

The project site is located within the western most portion of the northern Basin and Range Province, which generally extends from the eastern base of the Sierra Nevada Mountains on the west, the Colorado Plateau to the east. The Basin and Range is a broad zone of extension that spans the width of Nevada and into western Utah; the general topography is characterized by numerous, roughly parallel, north-south trending mountain ranges separated by intervening basins. The region has undergone a complex geologic history of volcanic activity, folding, faulting, uplift, erosion, and sedimentation.

More locally, the project site is located on the western edge of Sun Valley which is one of the “North Valleys”. The North Valleys are a series of north- to north-northeast trending, fault-bounded alluvial basins separated by bedrock ranges located north of Reno and straddling the Nevada-California state line (Dee et al, 2018). The North Valleys are bounded by east-dipping normal

faults (extension) and form an important structural linkage between some of the most active faults in the Basin and Range province. The North Valleys are bounded to the north by the northwest-striking dextral faults of the Honey Lake and Warm Springs Valley fault zones (Wesnousky, 2005). To the south, the North Valleys are truncated by a northwest-striking normal oblique (dextral) fault; the Peavine Peak fault which is likely the northern continuation of the Carson Range fault system (Ramelli et al., 2003; 2005). The faulting in and around the North Valleys is part of the northern Walker Lane Seismic Belt where a portion of the Pacific/North American plate boundary strain is accommodated along north- and northeast-trending normal faults and northwest-trending right-lateral strike-slip faults.

The most recent published geologic mapping of this area *Preliminary Revised Geologic Maps of the Reno Urban Area, Nevada* (Ramelli et al, 2011), indicates the project site is underlain by Quaternary, middle Pleistocene, alluvial fan deposits, undivided, pre-donner Lake age (map unit Qfp), Tertiary, Miocene, igneous rocks, Andesite lava of Peavine Mountain, locally altered (map unit Tpa) and Tertiary, Miocene, igneous rocks, hydrothermally altered Granitic stock of Peavine Mountain (map unit Tg).

Additional published geologic mapping of the site vicinity by Bonham and Bingler (1973) indicates the project site is underlain by similarly described sediments and rocks. Quaternary alluvial fan deposits of Peavine Mountain (map unit Qpf), Tertiary igneous (hypabyssal) rocks, altered Granitic stock (map unit Tg) and Tertiary, igneous rocks, andesite flows of the Alta Formation locally altered (map unit Ta).

A local geologic map of the site vicinity is shown on Figure 2 – Local Geologic Map.

3.2. NEVADA AND REGIONAL SEISMICITY

While earthquakes occur throughout Nevada, the majority of the seismicity is concentrated in several major seismic belts, the Walker Lane Seismic Belt, the Central Nevada Seismic Belt, the Southern Nevada Seismic Belt, and the Eastern California Seismic Belt (see Figure 4, Regional Earthquake Epicenter Map). Earthquakes in eastern California (Walker Lane and Eastern California Seismic Belts) must also be considered due to the strain accommodation in these areas for the Pacific/North American plate boundary. The project site lies within the Walker Lane Seismic Belt which is a 140-km-wide (81 mile) strip of seismic activity which parallels the eastern side of the northern Sierra Nevada's. There is record of large and often damaging earthquakes in

and around the Reno-Carson City urban corridor in 1857, 1868, 1869 (Virginia City EQ, NV), 1887 (Carson City EQ, NV), 1914, 1933, 1948 (Verdi, NV), 1950 (Fort Sage Mountain EQ Sequence, CA), 1966, 1994 (Double Spring Flat EQ, NV), and 2008 (Mogul-Somersett Earthquake Swarm, NV).

3.3. THE SPANISH SPRINGS VALLEY FAULT ZONE AND SEISMICITY

The main portion of the SSVFZ is an NNE trending normal fault that has been mapped for approximately23 km along the western side of Spanish Springs Valley from north of the city of Sparks to the northern end of the valley. The normal faulting SSVFZ splays are generally mapped as E-SE dipping, with displacement down-dropping to the E-SE. However, locally splays are mapped as W-NW dipping, with displacement down-dropping to the W-NW. The fault splays in Sun Valley at the base of the Red Hills were mapped as early as 1973 by Bonham and Bingler. The U.S. Geological Survey and Nevada Bureau of Mines and Geology, Quaternary Faults and Folds Database for the United States has identified these N-NE trending normal faults in Sun Valley to the south of Spanish Springs Valley to be associated with the SSVFZ. The SSVFZ splays within the project site are mapped as relatively short north and northeast striking normal faults, that lay along the western margin of Sun Valley and at the topographic base of the hills of the Red Hill Recreation area. While detailed paleoseismic studies of the SSVFZ have not been conducted, prior reconnaissance mapping efforts have all suggested latest Quaternary deformation (i.e., active faulting).

Modern/recorded rupture on any portion of the SSVFZ has not occurred and the interpretation of the faulting history is complicated. However, a paper written by Koehler (2018) on active faulting in the North Valleys region of Reno, Kohler remarked that *geologic observations from the interpretation of lidar-derived hillshade images, aerial photographs, satellite imagery, and field reconnaissance indicate that the faults all exhibit evidence of late Quaternary deformation, including offset alluvial fan deposits and abrupt range-front escarpments. The results indicate that the faults of the North Valleys are capable seismic sources characterized by extension rates on the order of hundredths to tenths of millimeters per year.*

3.4. SITE GEOLOGY AND FIELD OBSERVATIONS

Our site reconnaissance's were performed on February 10, 2022 and August 8, 2022, by geologist Kelly Dustin; the weather during both visits was sunny and clear. The site reconnaissance was generally performed by walking the site in a zig-zag pattern from north to south. While no

indications of fault surface ruptures were observed on or immediately adjacent to the project site, surficial geologic features (i.e., eroded scarps) were interpreted generally in the western portion of the site. Our interpretation of site geologic and physiographic features at the project site are presented on Figure 3, Conceptual Site Plan and Geologic Map.

4. AERIAL PHOTOGRAPH and LIDAR IMAGERY INTERPRETATION

Available historical aerial photographs, flown in 1946, 1972, 1980, 1994, and 1999, and LIDAR imagery (nationalmap.gov) were interpreted for evidence of fault-related topographic features, vegetation and tonal lineaments, and to supplement the on-site geologic observations. Subtle topographic swales projecting across the site from north to south were observed, which generally align with the faulting identified in the geologic maps. The photographs and images are listed in the References section of this report.

5. SITE CONDITIONS

5.1. SURFACE

The project site is located in Sun Valley southwest of the intersection of 5th Avenue and Chocolate Drive. The project site is bordered by Red Hill Open Space to the west, West 5th Avenue and private residences to the north, Chocolate Drive and private residences to the east, and the terminus of West 2nd Avenue to the south. Regional topographic mapping indicates that the site generally slopes down to the east with steep slopes on the western and southern portions of the site and gentler slopes to the north and east portions of the site. The sites elevations rage between ±4940 feet and 4800 feet above mean sea level (AMSL).

The project site is currently approximately 45.5-acres of undeveloped land consisting of hills and valleys covered by native desert vegetation such as shrubs and sagebrush. The site is crisscrossed with dirt trails/roads. Outcrops of hydrothermally altered igneous rock was observed within the site on the hill at the SE corner of the site and intermittently along the western boundary.

5.2. SUBSURFACE

The trenches excavated for this study had an average depth of 12 feet below ground surface (bgs) and exhibited nonuniform sequences of soils and bedrock between trenches. Please note these are general descriptions of the fault trenches and should be used in conjunction with Figures 5-9 for a full understanding of the observations and findings.

Trench 1, located at the SE corner of the site was excavated generally along a NW to SE transect which was perpendicular to the NE-SW mapped fault splay in that location. Trench 1 was approximately 75 feet in length. Trenches 2, 3, and 4, located adjacent to the SW, middle west, and NW boundary of the site, respectively, were excavated generally along a west to east transect which was perpendicular to the north-south mapped fault splay in those locations. Trench 2 was approximately 100 feet in length and Trenches 3 and 4 were both approximately 50 feet in length.

Soils observed in Trench 1 consisted primarily of silty/sandy clays with fine gravels to approximately 4 feet bgs, underlain by sandy clay with occasional highly weathered hydrothermally altered andesite cobbles to approximately 8 feet bgs. These units were further underlain by hydrothermally altered bedrock. Minor distortion of lateral soil continuity as well as a section of fault gouge with remineralized edges, i.e., evidence of faulting, was observed within Trench 1's units B, C, and D; the continuation of the fault was lost in the hydrothermally altered bedrock (unit E). Faulting was not observed to continue into unit A (i.e., the upper ±1 - 2 feet). The fault was measured to have a strike of 220° with a dip of 050° and varied in width from 3 feet to 6 feet.

Soils observed in Trench 2 consisted primarily of sandy clays with gravels to approximately 2 feet bgs, underlain by sandy clay with hydrothermally altered andesite gravel and cobbles to approximately 2 to 12 feet bgs. The above soils were underlain in some areas by weakly to highly cemented sandy clay with angular cobbles, the highly cemented areas were highly fractured; one section had a layer of organics at the base. These units were further underlain by highly cemented and highly fractured silty sand. Minor to major distortion of lateral soil continuity as well as multiple sections of fault gouge with remineralized edges, i.e., evidence of faulting, were observed within Trench 2's units C, D, and E; faulting was not observed to continue into units A and B (i.e., the upper ±2 feet). Four faults' orientations (strike/dip) were measured as follows from west to east: 322°/071°, 352°/080°, 350°/072°, and 185°/055°. The faults width varied from a few centimeters wide to approximately 6 feet wide.

Soils observed in Trench 3 consisted primarily of silty to clayey sand with gravel to clay with sand with gravel to approximately 4 to 12 feet bgs, underlain by silty sand with hydrothermally altered andesite gravel and cobbles to approximately 12 feet bgs. These units were further underlain by clay with silt and fine sand. Minor distortion of lateral soil continuity as well as sections of fault gouge with remineralized edges, i.e., evidence of faulting, were observed within Trench 3's units

C and D. Faulting was not observed to continue into units A and B (i.e., the upper ±4 - 5 feet). Two faults' orientations (strike/dip) were measured as follows from west to east: 331°/080° and 351°/080°. The faults width varied from approximately 2 – 3.5 feet wide.

Soils observed in Trench 4 consisted primarily of sandy clay with gravel and cobbles to approximately 1 to 2 feet bgs. This was underlain by intensely fractured basalt bedrock to approximately 12 feet bgs. While no fault related features were observed in Trench 4, it is important to note Trench 4 was mainly comprised of intensely fractured bedrock. The intense fracture patterns may have obscured or even concealed evidence of past faulting. The predominant orientation (strike/dip) of the fractures within the basalt bedrock were measured and are generally oriented 000°/080°.

The following table is a list of the fault locations as surveyed by MAPCA. Note the coordinates are shifted slightly north of the centerline of the fault trenches. As the trenches were benched per OSHA regulations, approximate locations (slightly north) of fault locations at the surface were used. The coordinates are as follows:

TABLE 2 – FAULT LOCATION COORDINATES

Trench No.	MAPCA No.	Latitude	Longitude
Trench 1	25007	39.582319°	-119.789578°
Trench 2	25003	39.583796°	-119.790951°
Trench 2	25004	39.583791°	-119.790905°
Trench 2	25005	39.583785°	-119.790727°
Trench 2	25006	39.583784°	-119.790658°
Trench 3	25008	39.588163°	-119.790858°
Trench 3	25009	39.588163°	-119.790834°

The attached exploratory trench logs, Figures 6 through 9, and related information depict subsurface conditions only at the specific locations shown on Drawing 3, Conceptual Site Plan and Geologic Map, and on the particular dates designated in this report. Subsurface conditions at other locations may differ from conditions occurring at the above trench locations. Also, the passage of time may result in a change of subsurface conditions at these locations due to environmental changes.

6. FINDINGS AND RECOMMENDATIONS

These SSVFZ splays within the project site are considered to be active by the USGS and NBMG, meaning displacement has happened within the last 15,000 years. These fault splays have been assigned a slip rate of about 2mm per year. Based on our observations of the site and adjacent areas surface ruptures were not observed. However, evidence of faulting was observed in 7 subsurface locations. While no probability for future surface displacement is given by the USGS, in GES' professional opinion, the probability is moderate. Based on our review of aerial photos, observations during our site reconnaissance, and observations of the trench side walls, we have a high degree of confidence as to the location and trend of the fault zone.

As per the Nevada Earthquake Safety Council "Guidelines for Evaluating Potential Surface Fault Rupture/Land Subsidence Hazards in Nevada"; Minimum set-back distances from known faults and fissures for occupied structures from Holocene active faults shall be fifty (50) feet. Furthermore, no critical facility shall be placed directly over the trace of a Late Quaternary active fault.

Minor to moderate distress should be anticipated for improvements such as utilities, roadways, parking areas and other site improvements that cross over the fault zones. Proper maintenance such as sealing cracks as soon as observed to keep water from infiltrating into the cracks and creating additional distress.

Observations by an experienced grading inspector and/or an engineer should be performed on the exposed subgrade prior to placing fill and or performing site improvements. Observations should be performed and documented as to the location and/or absence of all surface ruptures.

7. REFERENCES

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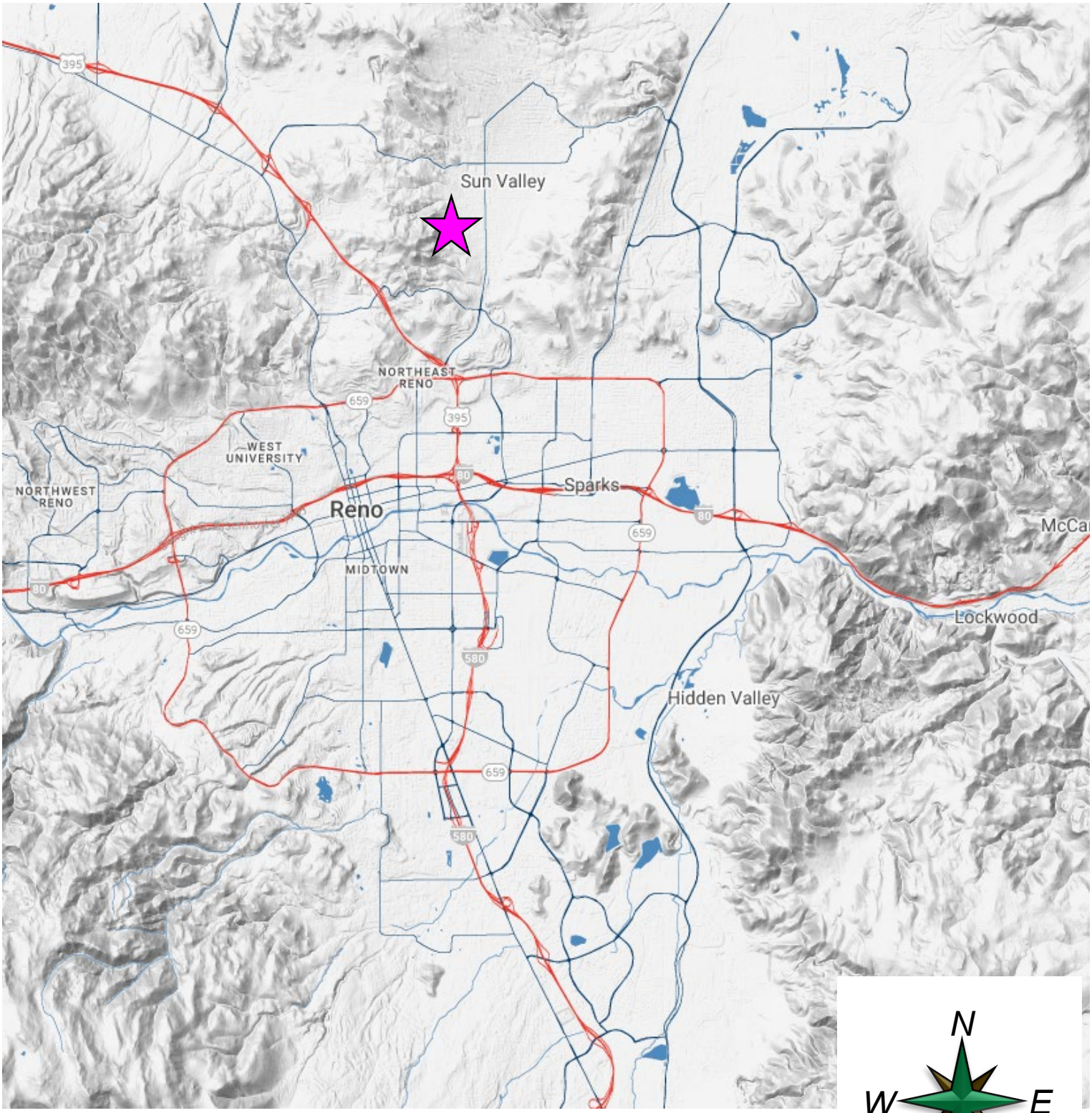
- U.S. Geological Survey, 2021, USGS 1:24000-scale Quadrangle for Reno, NV 2021: U.S. Geological Survey.

- Wesnousky, S. G., 2005, Active faulting in the Walker Lane, Tectonics, 24, TC3009.

AERIAL PHOTOGRAPHS

Source	Flight/Image No.	Date	Scale
GS-CV	Sun Valley #2-112	7.10.1946	1:51,000
Slemmons MSM	Sun Valley #331	June 1972	1:12,000
Slemmons MSM	Sun Valley #332	June 1972	1:12,000
NBMG	NJ11-1 #1-600	1.22.1980	1:40,000
NAPP	#7385-224	6.21.1994	1:40,000
USGS/NAPP	#11547-29	9.6.1999	1:40,000

FIGURES



LEGEND

Location of Chocolate Drive – Fault Study

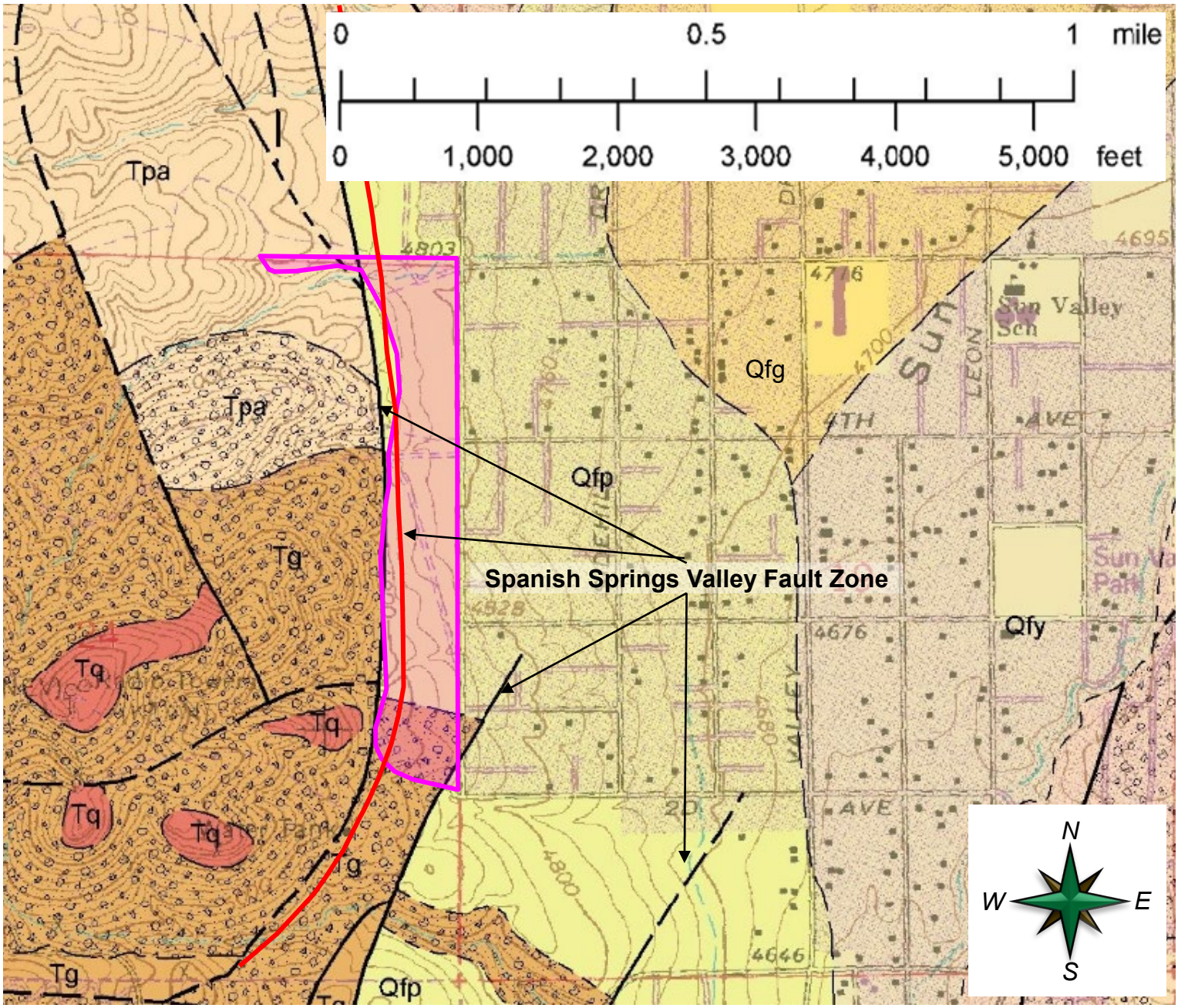
GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

7150 Placid Street
Las Vegas, Nevada 89119
702-365-1001
www.gesnevada.com

VICINITY MAP

SEISMIC HAZARD INVESTIGATION – FAULT STUDY
MULTI-FAMILY RESIDENCES
6400 CHOCOLATE DRIVE
SUN VALLEY, RENO, NEVADA

Image downloaded from Snazzymaps.com	Project No. R20215772E2	Figure 1



LEGEND

Qfy	Alluvial Fan Deposits - Holocene
Qfg	Alluvial Fan Deposits (granitic)- Undivided
Qfp	Alluvial Fan Deposits - Undivided
Tpa	Andesite Lava of Peavine Mountain
Tg	Granitic Stock of Peavine Mountain
Tq	Quartz-alunite Ledge

- Approximate Site Boundary
- Intense Hydrothermal Alteration
- Widespread Anthropogenic Development
- Fault – Solid where certain, long-dashed where approximate, & short-dashed where inferred
- Alternate Fault Location – Quaternary Fault and Fold Database of the United States
- Contact – long-dashed where approximate

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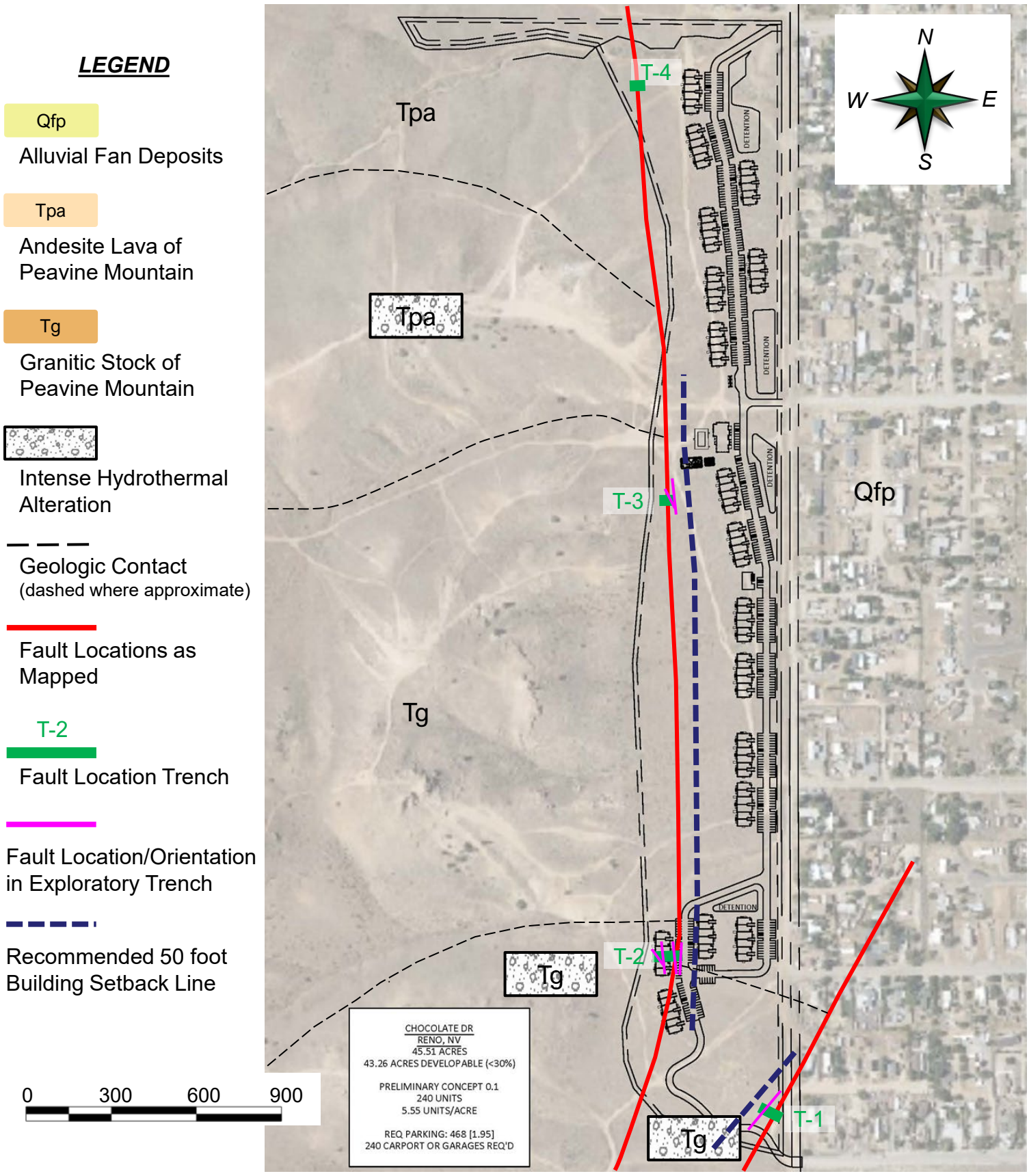
LOCAL GEOLOGIC MAP

SEISMIC HAZARD INVESTIGATION – FAULT STUDY
MULTI-FAMILY RESIDENCES
6400 CHOCOLATE DRIVE
SUN VALLEY, RENO, NEVADA

Preliminary Revised Geologic Maps Of The Reno Urban Area, Nevada - 2011	Project No. R20215772E2	Figure 2



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CONCEPTUAL SITE PLAN AND GEOLOGIC MAP

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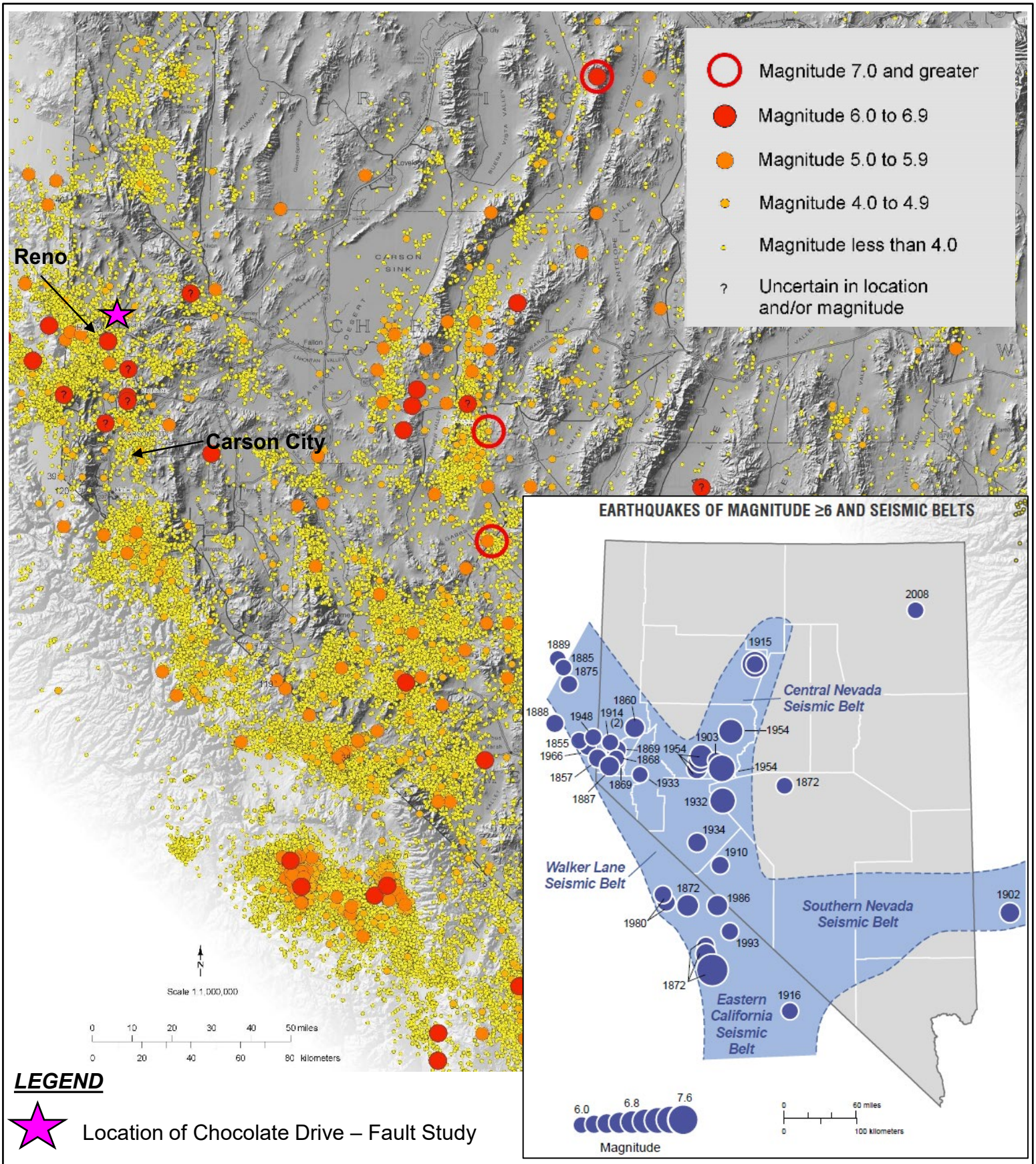
Base Conceptual Image Provided by Pedcor	Project No. R20215772E2	Figure 3



LEGEND

Location of Chocolate Drive – Fault Study

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REGIONAL EARTHQUAKE EPICENTER MAP

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Images modified from NBMG Map 179, 2012 - Earthquakes in Nevada – 1840s to 2010	Project No. R20215772E2	Figure 4

UNIT DESCRIPTIONS

Trench T-1

(A) Reddish to orangish brown sandy clay with fine gravels, occasional surficial cobbles and boulders

(B) Yellowish brown silty clay with fine gravel

(C) White sandy clay, fine gravel

(D) Yellowish orange sandy clay, occasional highly weathered hydrothermally altered andesite cobbles

(E) Whitish to light red hydrothermally altered bedrock, locally highly weathered

Trench T-2

(A) Dark brown sandy clay with gravel, ocassional surficial cobbles and boulders

(B) Reddish brown sandy clay with gravel

(C) Yellowish brown sandy clay with white hydrothermally altered andesite gravels and cobbles

(D) Yellowish brown sandy clay with angular cobbles, weak to highly cemented, highly cemented areas were highly fractured

(D1) Layer of organics at base of Unit D

(E) Yellowish Brown silty sand, highly cemented, highly fractured

Trench T-3

(A) Brown silty to clayey sand with gravel and occasional cobbles, occasional surficial boulders

(B) Reddish brown clay with sand and fine to occasionally coarse white hydrothermally altered gravel

(C) Yellowish brown silty sand with white hydrothermally altered gravel and cobbles

(D) Dark yellowish brown clay with silt and fine sand

Trench T-4

(A) Dark brown sandy clay with gravel and cobbles, occasionl surficial boulders

(B) Basalt bedrock, highly fractured

Note: Units are not consistent between trenches, read unit descriptors for each trench. Contacts between Units may be gradational/poorly defined.

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TRENCH UNIT DESCRIPTIONS

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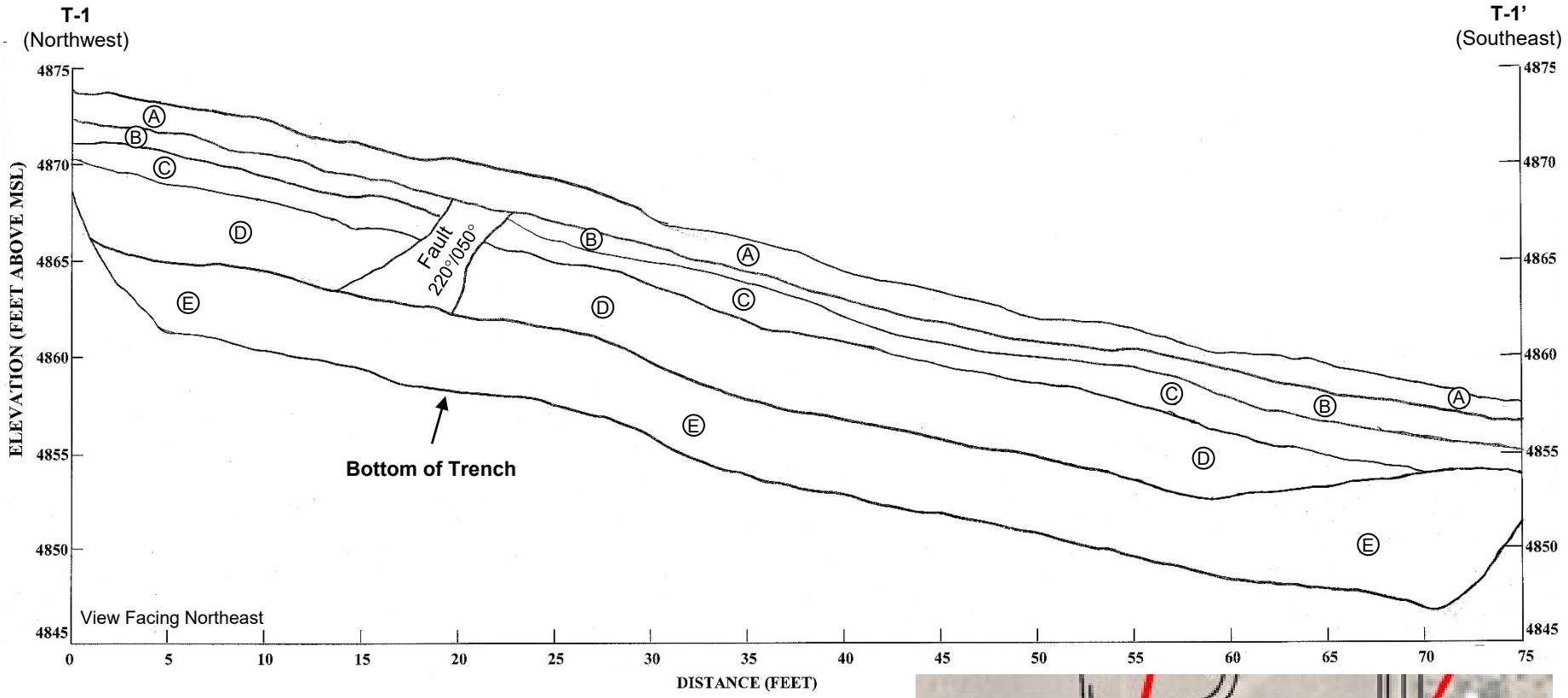

LEGEND

- Fault Locations as Mapped
- T-1 — Fault Location Trench
- Fault Location/Orientation in Exploratory Trench

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EXPLORATORY TRENCH T-1 LOG

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MULTI-FAMILY RESIDENCES
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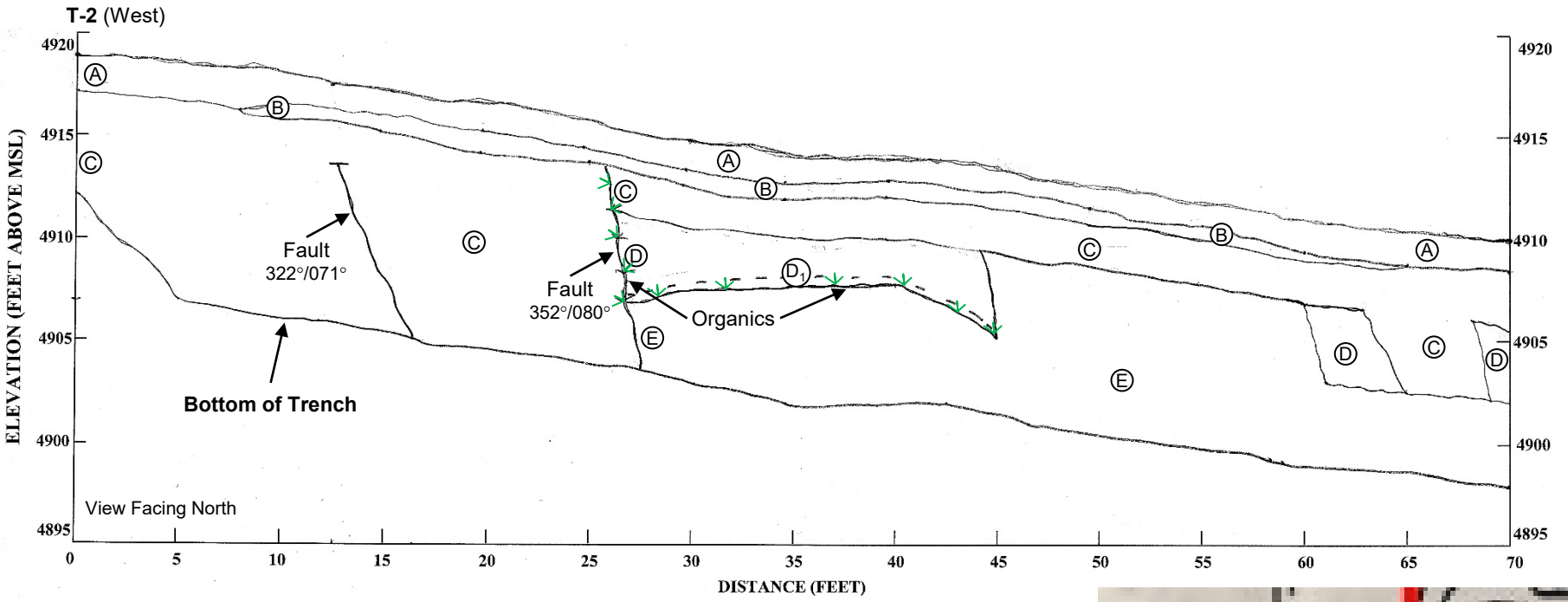
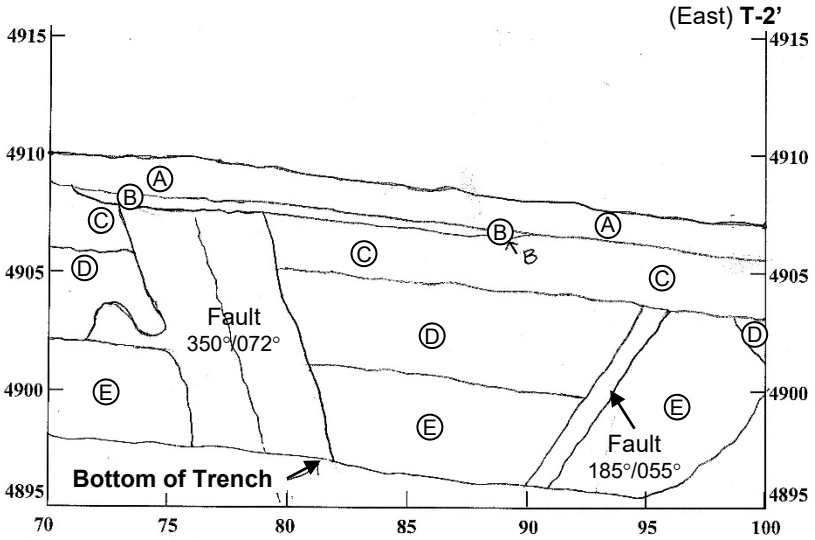
SUN VALLEY, RENO, NEVADA

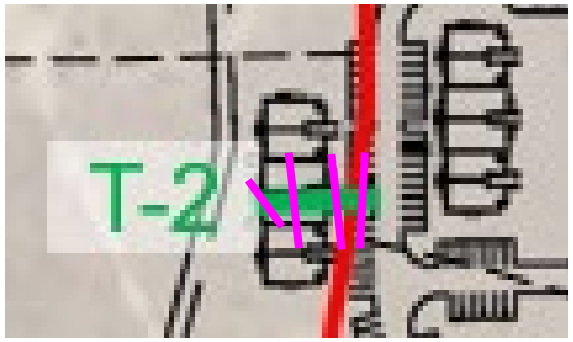
Project No. R20215772E2 | Figure 6





LEGEND

- Fault Locations as Mapped
- T-1 Fault Location Trench
- Fault Location/Orientation in Exploratory Trench



EXPLORATORY TRENCH T-2 LOG

SEISMIC HAZARD INVESTIGATION – FAULT STUDY
MULTI-FAMILY RESIDENCES
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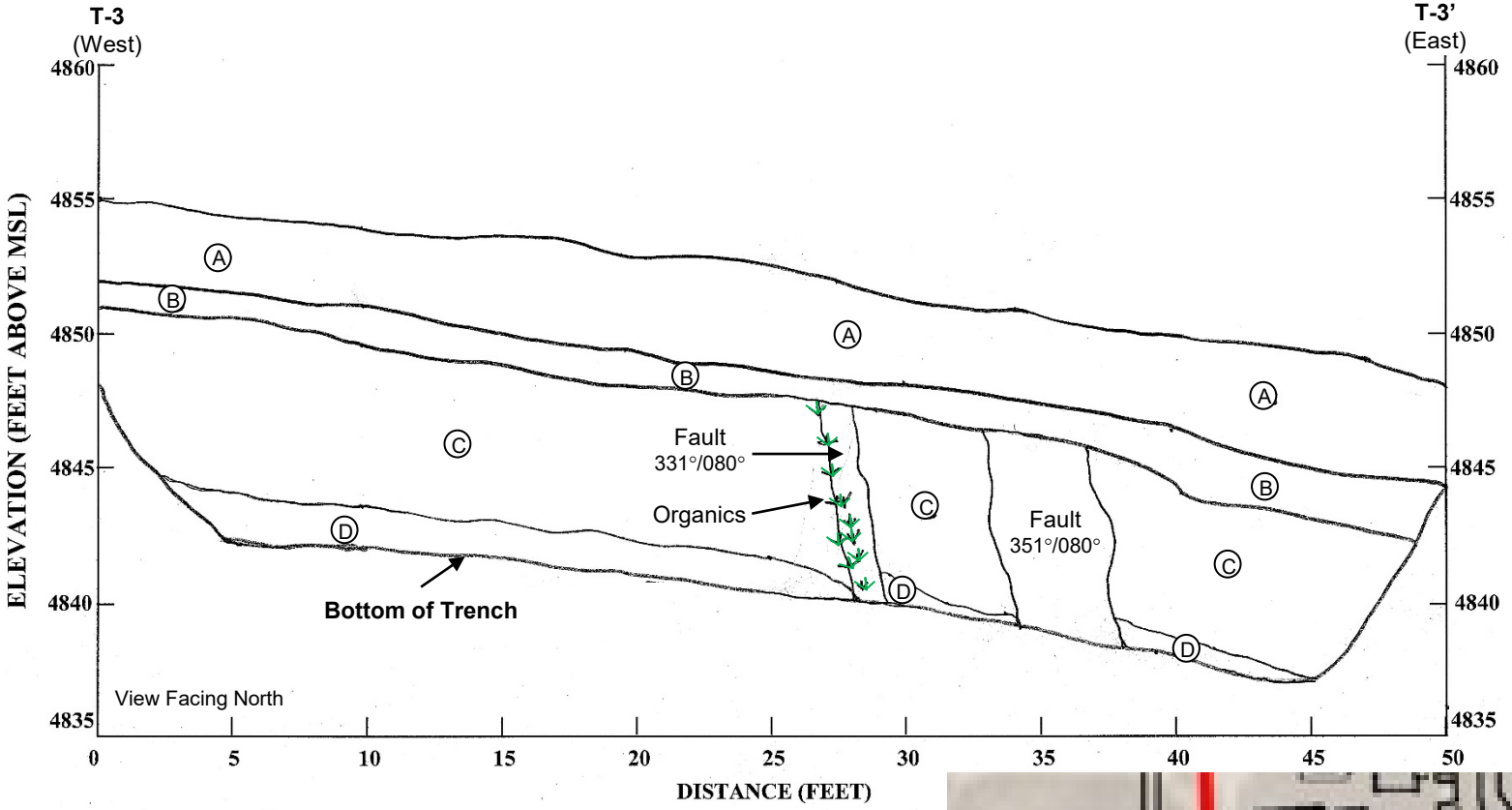
SUN VALLEY, RENO, NEVADA

Project No. R20215772E2	Figure 7



LEGEND

- Fault Locations as Mapped
- T-1 Fault Location Trench
- Fault Location/Orientation in Exploratory Trench

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EXPLORATORY TRENCH T-3 LOG

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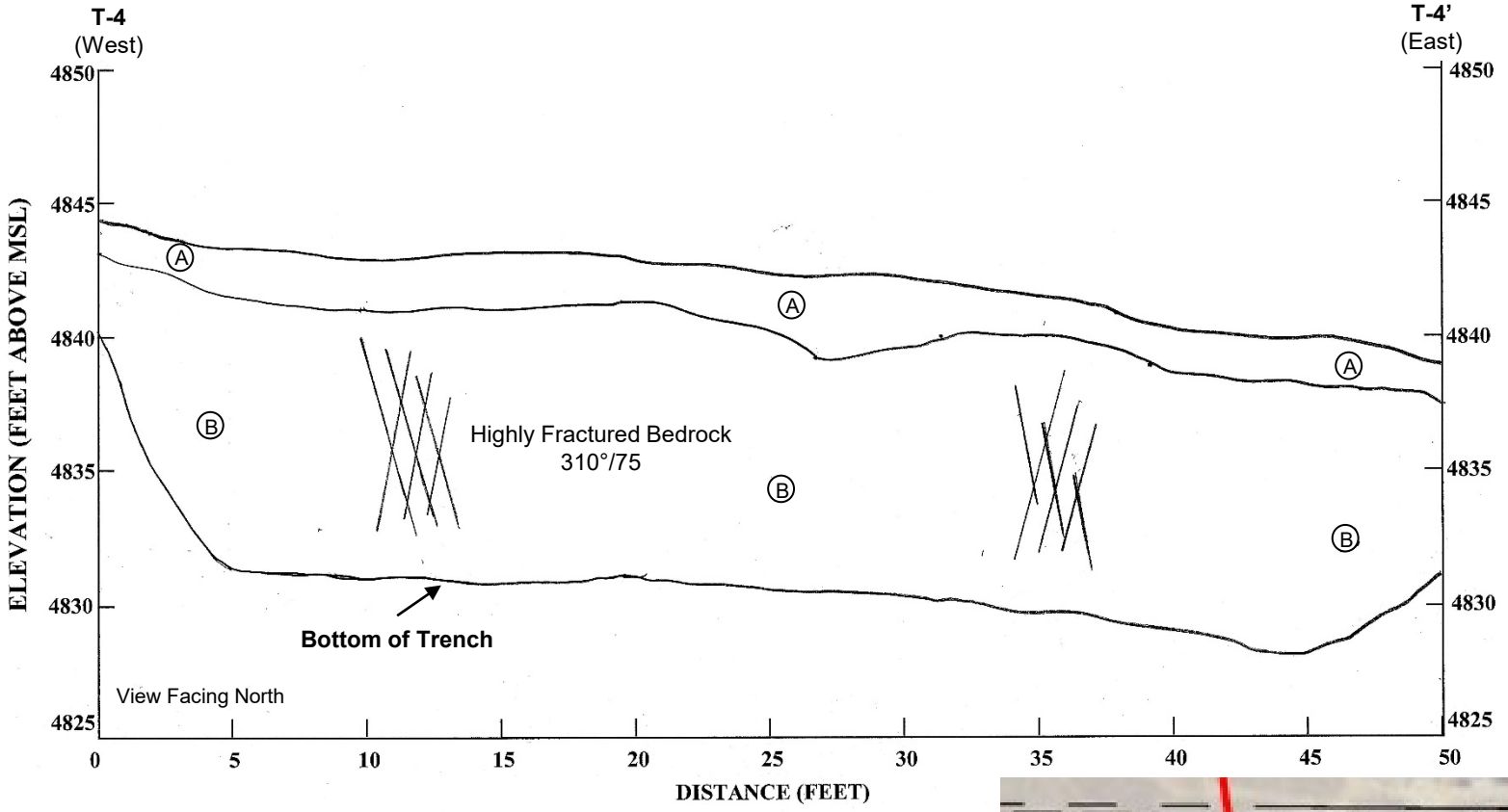
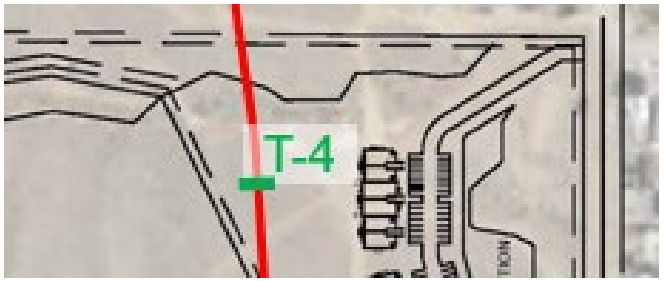
Project No. R20215772E2 | Figure 8



LEGEND

Fault Locations as Mapped

T-1 Fault Location Trench



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EXPLORATORY TRENCH T-4 LOG

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Project No. R20215772E2 | Figure 9