APPENDIX 3.7-A - GEOTECHNICAL EVALUATION

Customer	**Consultant**
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SUBJECT:	Rincon del Rio Nevada County, California

Ms. Choudhuri,

In accordance with our signed Agreement dated February 15, 2011, we prepared this geotechnical existing conditions review of the Rincon del Rio Continuing Care Retirement Community Project (Project) based on the original Geotechnical Feasibility Study completed by LUMOS and Associates (LUMOS Report) in October 2007 (LUMOS Job Number: 7122.000).

Project Location

The 215-acre Project encompasses four parcels identified by the following Nevada County Assessor's Parcel Numbers: 57-240-17, 57-240-18, 57-240-19 and 57-130-13. The Project is located at the east terminus of Rincon Way one-half mile east of State Route 49, south of the Lake of the Pines community in Nevada County, California (Figure 1). An aerial photograph of the Project area with the general site boundaries is shown as Figure 2.

Project Description

The Project, as currently proposed, includes a variety of independent and supportive living arrangements including independent living, assisted living, nursing care, physical rehabilitation, and memory impairment housing within a campus setting featuring commercial and recreational uses and transportation and a variety of other services. The Project would provide housing for approximately 415 residents within 345 attached and detached housing units. The Project would be clustered and would be limited to a 40-acre envelope located on the western half of the site with the remaining approximately 170 acres to remain as undeveloped open space. The Project proposal also includes recreational elements such as walking trails, pedestrian bridges, community gardens, aquatic fitness center, and outdoor sports courts (e.g. tennis, volley-ball, etc.).

Site Conditions

On June 17, 2001, ACE staff completed a visual site reconnaissance of the Project and we generally concur with the existing conditions as described in the LUMOS Report. ACE observed the following:

A. The Project site features varied topography, including rolling hills with somewhat flatter terrain in the central area.

B. Based on the USGS topographical map, elevations within the site range from about 1,300 feet above mean sea level (msl) near the Bear River to approximately 1,700 feet above msl near on the eastern side of the site (Figure 3).

C. The Project site is currently sparsely developed. Current development includes:

i. An existing single family residential structure located near the southwest corner of the Project site.

ii. The Combie Aqueduct (Magnolia Ditch) traverses the western half of the Project as shown on Figure 2.

iii. A large pond is located in the central portion of the Project. The pond surface area is about 2-1/2 to 3 acres. Water in the pond is retained by an earthen dam about 300 feet in length and up to about 30 feet in height.

D. The Bear River generally flows east to west along the approximate southern boundary of the Project.

E. The site is generally covered with foothill oak and pine woodlands and seasonal grasses.

Regional Geology

We concur with the description of the regional geology (Sierra Nevada Geologic Province) included LUMOS Report that the site is located within the "Foothills Fault Zone" of the Sierra Nevada Geologic Province. The Foothills Fault Zone is generally located between the cities of Folsom and Oroville and is bound on the east by the northward trending Melones fault zone and on the west by the northwestward trending Bear Mountain fault zone.

Faults in the immediate vicinity of the Project within the Foothills fault zone are generally considered inactive and are not considered a seismic source for the Project. Seismic sources that are likely to produce ground shaking at the site are located more than 40 miles away, however, a full analysis of the seismic design parameters is beyond the scope of this review and should be performed during the design level geotechnical investigation.

Site Geology

We generally concur with the description of the site geology included LUMOS Report that the site is dominated by Paleozoic to Mesozoic age mafic metavolcanic rocks covered by a relatively thin veneer of soil.

Numerous rock outcrops are located throughout the site. Rock outcrops as shown in Figures 4.2 and 4.3 are indicative of massive unweathered rock that can present significant excavation difficulty during construction (e.g., grading and underground utility installation, etc.).

Soil

We concur with the general USDA-NRCS soil descriptions. Within the foothills soil formation is strongly influenced by the underlying bedrock (parent material). Both the Boomer soil and Sobrante soil are generally neutral to slightly acidic. The depth to contact with weathered bedrock generally varies from about 1 to 4 feet but may be greater. The actual depth to bedrock within construction areas should be determined during the design level geotechnical investigation.

Erosion hazard within a soil series is dependent on both the soil grain size characteristics and slope. We expect that exposed soil on the site pose a medium to high erosion potential when disturbed.

Based on the physical description of the soil, we expect the expansion potential to be low to medium.

Grading

Site construction activities that occur in rock areas, as noted in the LUMOS, report may require pre-ripping or blasting or a combination of both. The design level geotechnical investigation should include field measurements such as seismic velocity to determine the grading characteristics of the near surface rock. In addition, the design level geotechnical investigation should include recommendations for utility construction in rock. Grading and utility construction in these conditions can be considerably more expensive than the same activities in areas with deep soil cover.

Foundation Recommendations

Based on the anticipated structures consisting of relatively lightly loaded one and two story structures, we anticipate isolated spread and strip footings will be used. Typically, allowable bearing capacities for these types of structures in the soil conditions anticipated will be on the order of 2,000 to 3,500 pounds per square foot (ASD).

Conclusions

We performed our review of the existing Geotechnical Feasibility Study and have the following observations and recommendations:

- The Geotechnical Feasibility Study completed by LUMOS for the Project is generally consistent with our on-site observations and our review of published geologic maps.
- We recommend that upon completion of the Project planning a design level geotechnical investigation be prepared including soil borings and/or test pits, seismic survey, laboratory testing, and analysis.
- Geotechnical recommendations should be based on the civil grading plan and include conclusions and recommendations for grading and construction in both soil and rock conditions.
- Geotechnical design parameters (e.g. allowable foundation bearing capacity, seismic design parameters etc.) determined during the investigation should be based on the most recent California Building Code.
- During construction operations geotechnical on-site testing and observation services be provided documenting that items including but not limited to grading, compaction, and footing preparation is in accordance with the design level geotechnical investigation.

We strived to perform our professional services in accordance with generally accepted engineering principles and practices currently employed in the area: no warranty is expressed or implied. Note that our findings and opinions are based solely on research of practically available and reviewable publications. No physical subsurface exploration was made on the Property. More accurate findings should be developed by performing site specific exploration at the Property.

If you have any questions or comments regarding this letter, please call and we will be glad to discuss them with you.

Sincerely,
Acacia Consultants & Engineers Inc.

Bryan C. Yates, AICP
Project Manager

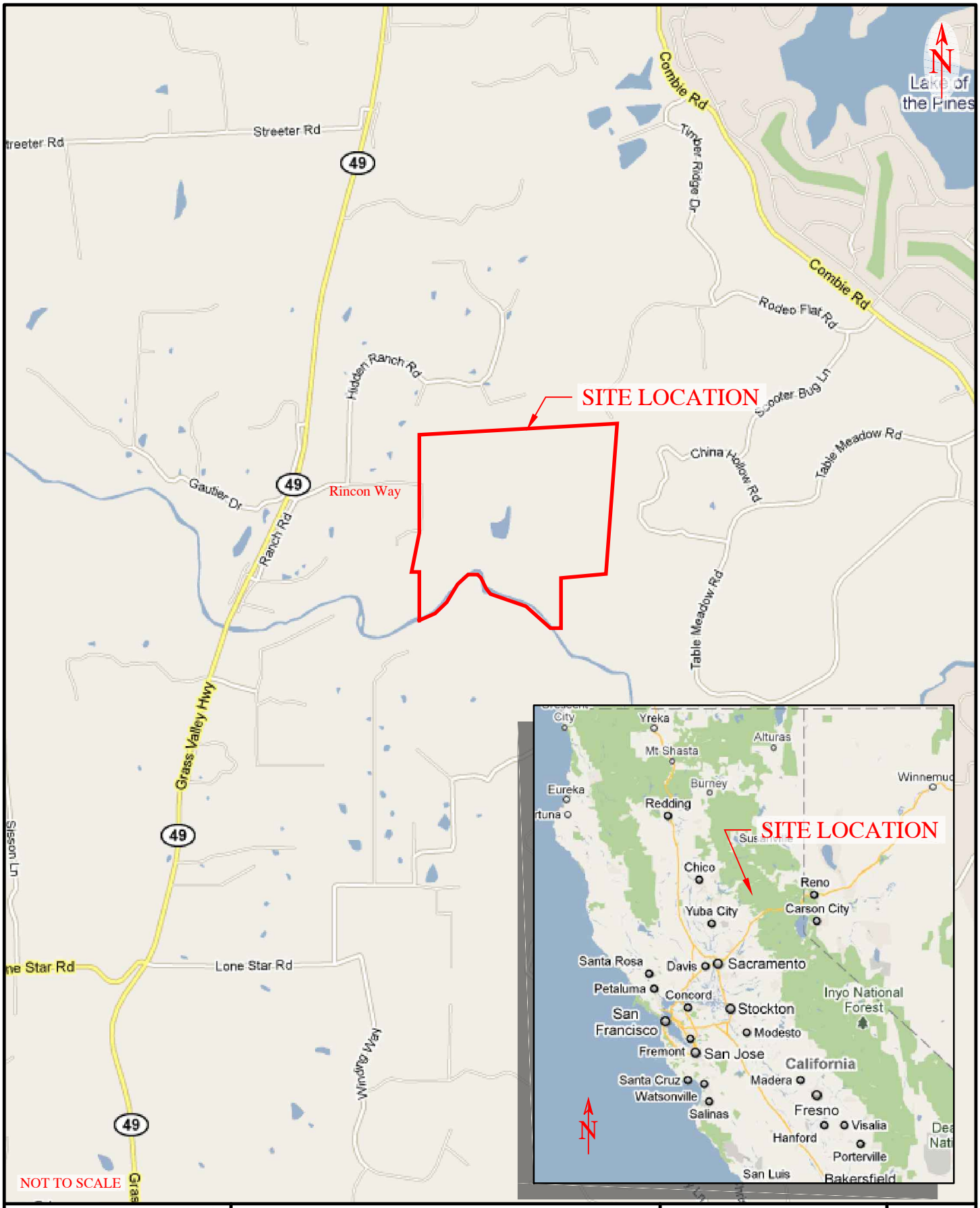
William Kenney, GE
Principal Engineer

Attachments:
Figure 1: Vicinity Map
Figure 2: Aerial Photograph
Figure 3: Historical Topographic Map
Figures 4.1 to 4.3: Site Photos
Figure 5: USGS 10% in 50yr PE

References:
Geotechnical Feasibility Study for Rincon del Rio, Lumos and Associates, Inc., October 2007, Project Number 7122.000

Geologic Map of California, Chico Sheet, John L. Burnett and Charles W. Jennings, 1965

Geologic Map of California, Sacramento Sheet, Rudolph C. Strand and James B. Koenig, 1965



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RINCON DEL RIO

CONTINUING CARE RETIREMENT CENTER

VICINITY MAP

PROJECT NO.	AC106
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FIGURE NO. 1

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AERIAL PHOTOGRAPH

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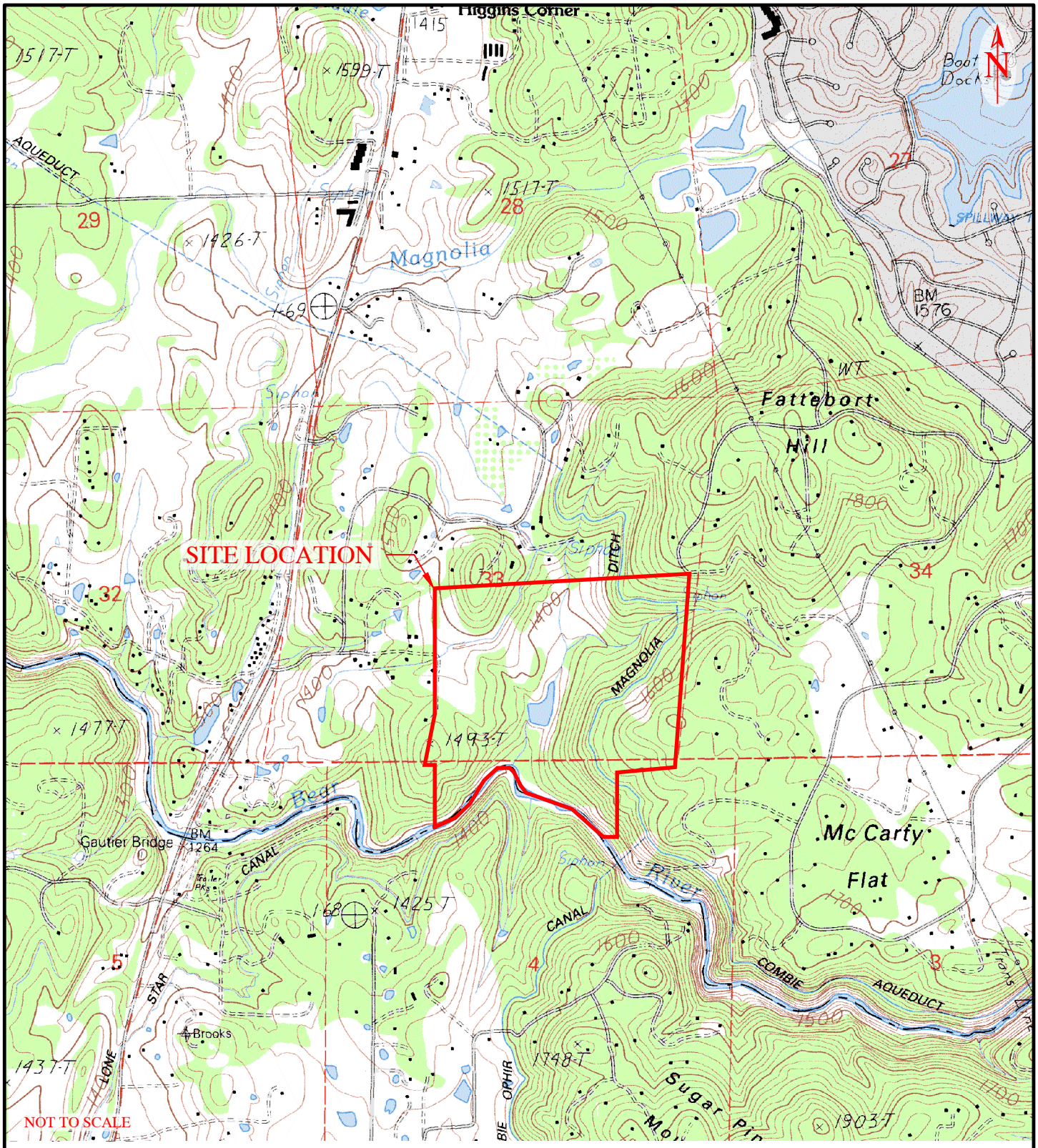
FIGURE NO. 2



LAKE COMBIE QUADRANGLE 7.5 MINUTE TOPOGRAPHICAL MAP

PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY

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COMPILED FROM AERIAL PHOTOGRAPHS TAKEN 1987

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HISTORICAL TOPOGRAPHIC MAP

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FIGURE NO. 3

EAST FACING VIEW FROM
CLUBHOUSE

SOUTH FACING VIEW FROM
NORTH CENTRAL AREA

NORTH EAST FACING VIEW
THROUGH THE WEST AREA
OF THE SITE

SOUTH WEST FACING VIEW
OF THE POND LOCATED OJN
SITE

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SITE PHOTOS

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FIGURE NO.
4.1

NORTH WEST FACING VIEW OF THE POND WITHIN THE SITE

WEST FACING VIEW OF THE CANAL LOCATED AT THE NORTH EAST CORNER OF THE SITE

EAST FACING VIEW OF THE CANAL LOCATED AT THE NORTH EAST CORNER OF THE SITE

ROCK OUTCROP LOCATED IN THE NORTH WEST AREA OF THE SITE

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SITE PHOTOS

PROJECT NO.	AC106		FIGURE NO. 4.2
DATE	JUNE 2011		
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CENTRAL AREA OF SITE

WEST FACING VIEW ALONG
SOUTH BOUNDARY

EAST FACING VIEW ALONG
SOUTH BOUNDARY

NORTH WEST AREA OF SITE

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FIGURE NO.
4.3

NORTH WEST AREA OF SITE

ROCK OUTCROP IN NORTH WEST AREA OF SITE

ROCK OPUTCROP IN EAST AREA OF SITE

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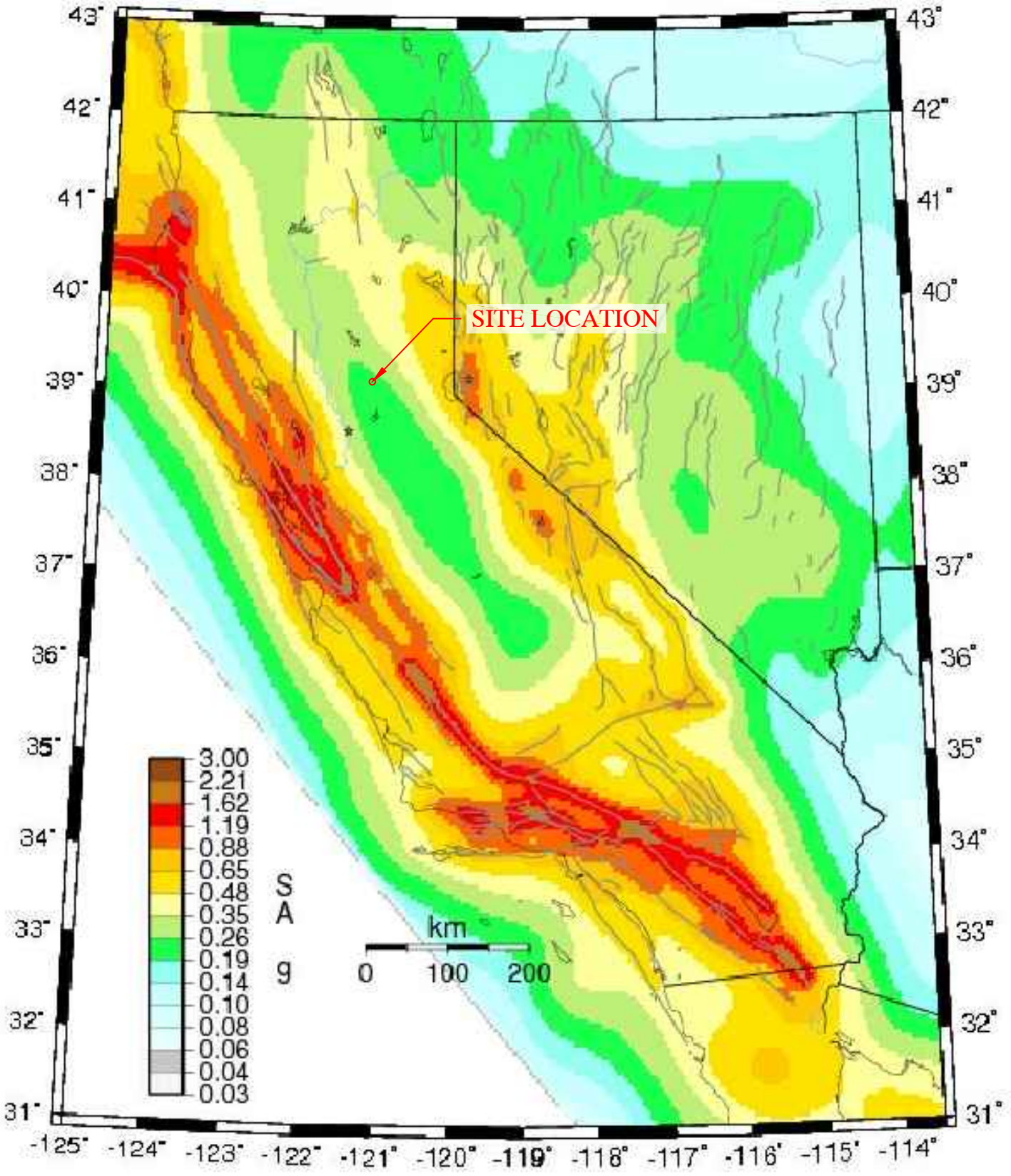
FIGURE NO. 4.4



NOT TO SCALE

SOURCE: UNITED STATES GEOLOGICAL SURVEY

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USGS 5-hz SA with 10% in 50yr PE

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DATE	JUNE 2011
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FIGURE NO. 5.0

GEOTECHNICAL FEASIBILITY STUDY
for

Rincon del Rio

Nevada County, California

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Prepared by:
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October, 2007

JN: 7122.000

GEOTECHNICAL FEASIBILITY STUDY

Rincon del Rio

TABLE OF CONTENTS

Project Description

Proposed is "Rincon del Rio," a Continuing Care Retirement Community (CCRC), which is located on approximately 235 acres in an unincorporated area of southern Nevada County, California, west of California State Highway 49 and north of the Bear River. Unimproved roads emanating from Rincon Way in the northeast corner and Rodeo Flat Road in the northwest corner afford site access. A site vicinity map is provided as Plate 1.

At this time, anticipated uses in the CCRC include single-family detached cottages, attached residential units, walking paths, and a small park. While a general use for the property has been established, specific site plans, layout, and density have not yet been determined.

The preliminary findings of this report have been prepared on our understanding of the proposed development as outlined above. A final geotechnical study and report should be conducted after a tentative map or other appropriate permit/entitlement has been approved. This final geotechnical report should include logs of exploratory test pits, excavation characteristics of onsite material, laboratory test data, discussion of soil bearing capacities, foundation recommendations, slope stability analysis, and general grading requirements.

Site Conditions

The site is mostly undeveloped. Currently the property owners private residence occupies the southeast portion, a golf driving range exists in the northwestern corner of the property. An approximate 3.25-acre pond is located in the south central area, fed by a south flowing drainage and is retained by an approximate 30-foot tall earthen dam. A Nevada Irrigation District (NID) canal snakes through the eastern portion of the site, flowing from south to north. The

remainder of the land is undeveloped and primarily used for agricultural and range land purposes.

Elevations of the site range from 1278 feet above sea level in the southwest corner to 1683 feet above sea level in the northeast corner. Natural slopes range from gently rolling hills, less than 5:1 horizontal to vertical, to 1.25:1 horizontal to vertical.

Site vegetation consists namely of moderately dense annual grasses and deciduous trees, such as live oaks and blue oaks. North facing slopes support moderate to heavy under brush and some evergreens. Riparian vegetation such as tall green grasses, reeds, blackberries, trees, and other bushes delineate the main south flowing drainage and pond.

Regional Geology

The site is located in the central eastern area of the Sierra Nevada Geomorphic Province of northern California. This province is characterized by a 40 to 100 mile wide and nearly 400 mile long west dipping fault block with a long gentle dipping slope to the west and a steep eastern slope. Its elevations vary from 400 feet at the Great Valley boundary in the west to summits of more than 14,000 feet adjacent to the Basin and Range Province in the east.

This area is rather complex geologically, containing a wide variety of igneous, metamorphic, and sedimentary rocks, as well as active or potentially active faults. The metamorphic rocks of the Sierra Nevada Province have been subjected to intense folding and faulting associated with the Foothills Fault Zone, which has produced an area of steeply east dipping, northwesterly striking bedrock series through the center of the province.

Site Geology

Our review of geologic maps and site reconnaissance indicates the site is situated between the Wolf Creek Fault Zone and the Weimar Fault Zone, which are components of the Foothills Fault System. Onsite material is dominated by Paleozoic to Mesozoic age mafic metavolcanic rocks (G.J. Saucedo, 1992). A local geology map is provided as Plate 2.

The Foothills Fault system is a large fault system, and is a dominant structural feature of the western Sierra Nevada. The steeply east dipping to vertical component faults trend northwestward through an area about 200 miles long and 30 miles wide. Younger rocks overlap the faulted Paleozoic and Mesozoic rocks, and the total extent of the fault system is unknown. It is probably not limited to the western Sierra Nevada, but may extend north where it is buried by material of the Cascade Ranges. Faults are marked by belts as much as 4 miles wide, of cataclysmically deformed and recrystallized rocks and by truncated folds. Net displacement on some of the component faults exceeds 3,000 feet and may be measurable in miles. Major faults cut beds of Late Jurassic age material and are in turn cut by plutonic rocks of Late Jurassic to Middle Cretaceous age. Faults that controlled deposition of quartz veins and Gold ore bodies of the Mother Lode belt are apparently younger and structurally less important features superimposed on the fault zones of the larger system (Clark, 1960). GSA Bulletin.

The geologic map of the Chico Quadrangle, California also indicates an approximately located, north trending fault on the property. To the south of the site, this fault juxtaposes Mesozoic age plutonic rocks against Paleozoic to Mesozoic age metavolcanic rocks. This fault is most likely associated with the Wolf Creek Fault Zone to the west.

The closest fault to the site is the Wolf Creek Fault, anticipated ground shaking and intensities should be governed by a design earthquake occurring within 60 miles of the site. Ground shaking intensities may be on the order of a maximum credible earthquake of 6.5 in moment magnitude and a maximum ground acceleration of 0.29g, which corresponds to a ten percent (10%) probability of exceedance in fifty (50) yeas.

Soils

As part of our investigation, Lumos reviewed the web based USDA-NRCS soil survey. The soil survey indicates the project site is underlain by: Boomer series and Sobrante series soils, more specifically: Boomer Loam, Boomer Rock Outcrop and Sobrante Loam. A soils map is provided as Plate 3.

The official soil series descriptions indicate the Boomer series consists of deep and very deep, well drained soils that formed in material weathered from metavolcanic rock. These soils are on uplands and slopes range from 2 to 75 percent. These soils are well drained with slow to very rapid runoff and moderately slow permeability.

The Sobrante series consists of moderately deep, well drained soils that formed in material weathered from igneous and metamorphic rocks. These soils are on foothills and have slopes of 2 to 75 percent.

Grading

It is expected that cut and fill grading operations will be required to achieve desired grades. Much of the site is composed of shallow soils underlain by hard fractured bedrock. It is expected that cuts exceeding 2 feet will require heavy ripping and/or blasting. Oversize material (greater than 8 inches) will be generated; disposal or reduction of this material will be required.

Foundation Recommendations

Foundation systems could be either slab-on-grade with appropriate moisture barriers or perimeter footings with interior piers.

The most economical method of foundation support lies in spread footings bearing on only structural fill, only native granular soil, or only bedrock. In no case should a combination of these materials (structural fill, native granular soil, or bedrock) be used under a structure foundation(s). We anticipate low to moderate bearing capacities for conventional spread footings.

Conclusions

Based on the results of our recent site visit, literature, and map research, it is Lumos' opinion that the subject site is generally suitable for the proposed development. However, detailed site investigation(s) and field report(s) will be required for the design and construction of any proposed improvements.

David A. Sullivan, MBA, PE
Location Principal

Chad Borean
Project Designer

References

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Appendix A

From: Google Maps.

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Rincon del Rio

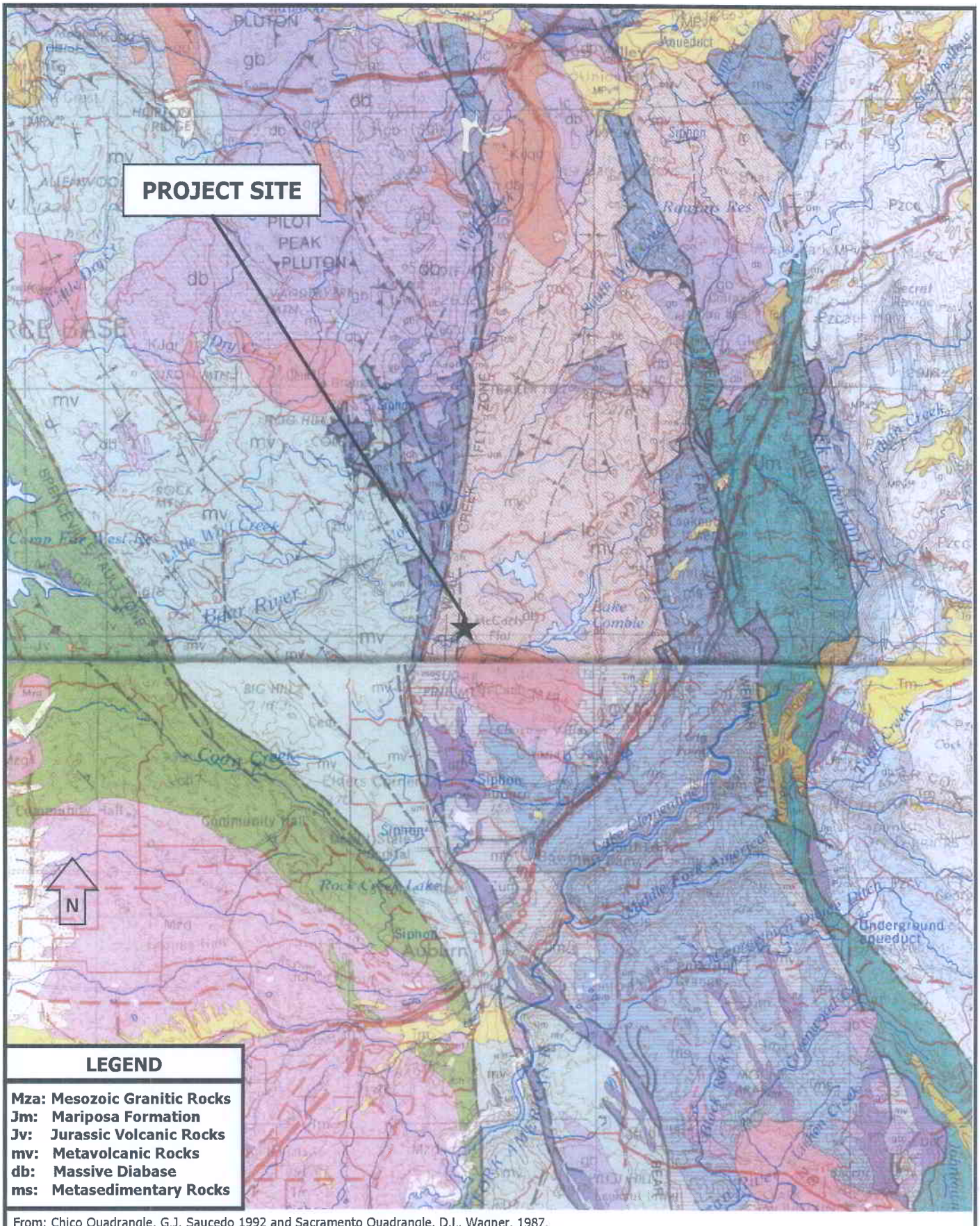
LOCATION MAP

Job Number: 7122.000

Date: October 3, 2007

PLATE

1



LEGEND

Mza: Mesozoic Granitic Rocks
Jm: Mariposa Formation
Jv: Jurassic Volcanic Rocks
mv: Metavolcanic Rocks
db: Massive Diabase
ms: Metasedimentary Rocks

From: Chico Quadrangle, G.J. Saucedo 1992 and Sacramento Quadrangle, D.L. Wagner, 1987.

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Rincon del Rio

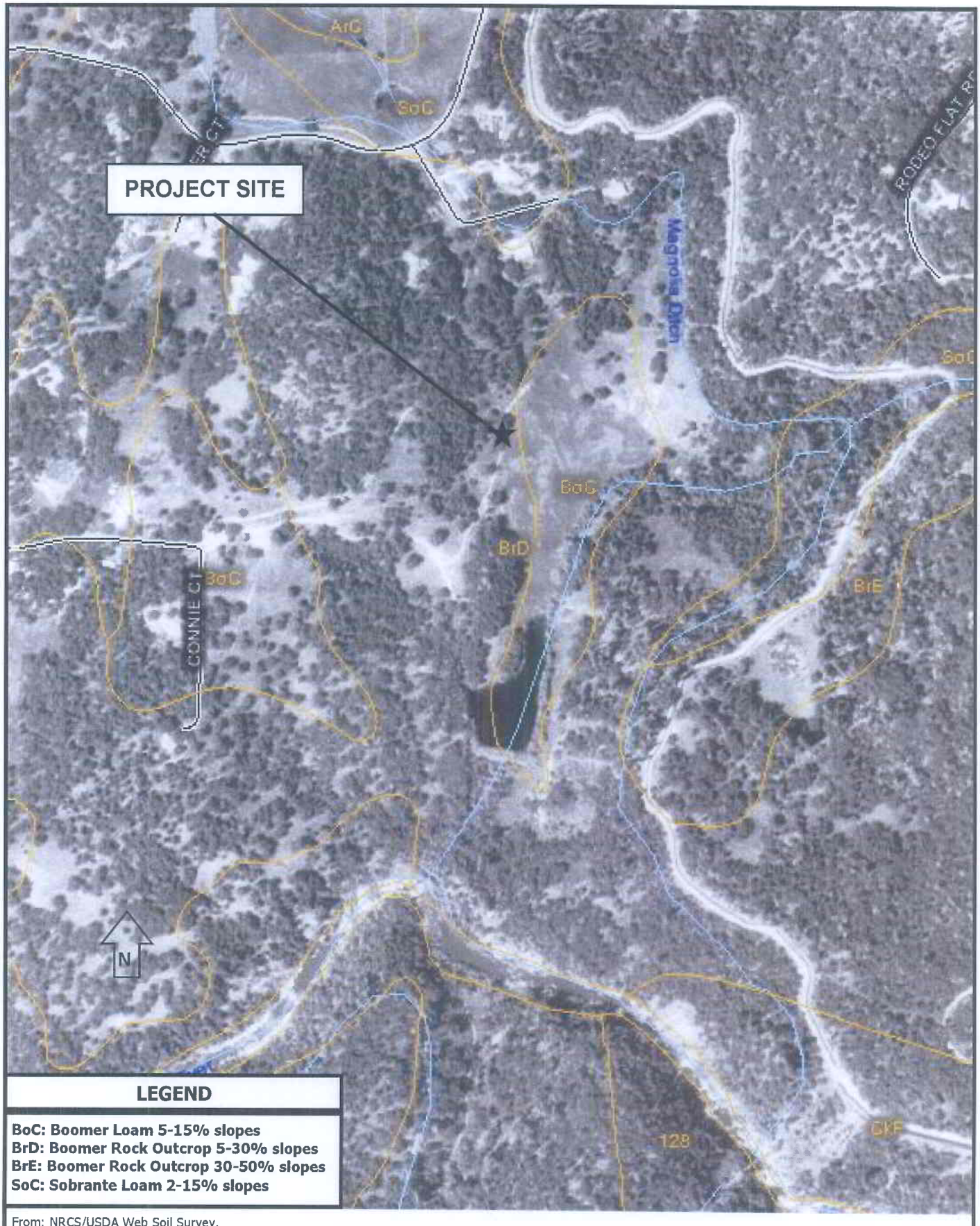
GEOLOGIC MAP

Job Number: 7122.000

Date: October 3, 2007

PLATE

2



From: NRCS/USDA Web Soil Survey.

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Rincon del Rio

SOILS MAP

Job Number: 7122.000

Date: October 3, 2007

PLATE

3