TECHNICAL REPORT
MINERAL RESOURCES INVESTIGATION
OCEAN BREEZE RANCH
BONSALL, SAN DIEGO COUNTY, CALIFORNIA
ENVIRONMENTAL LOG # PDS2016-TM-5615, PDS2016-MUP-16-012, PDS2016
PREPARED FOR

THE COUNTY OF SAN DIEGO
AND
OCEAN BREEZE FARMS, LLC
1550 SOUTH COAST HIGHWAY, SUITE 201
LAGUNA BEACH, CALIFORNIA 92651

W.O. 6960-A1.2-SC **MARCH 12, 2019**

GeoSoils, Inc.

Geotechnical • Geologic • Coastal • Environmental

5741 Palmer Way • Carlsbad, California 92010 • (760) 438-3155 • FAX (760) 931-0915 • www.geosoilsinc.com

March 12, 2019

W.O. 6960-A1.2-SC

Ocean Breeze Farms, LLC
1550 South Coast Highway, Suite 201
Laguna Beach, California 92651

Attention: Mr. Jim Conrad

Subject: Technical Report, Mineral Resource Investigation Report for Ocean Breeze Ranch, Bonsall, San Diego County, California, Environmental Log # PDS2016-TM-5615, PDS2016-MUP-16-012, PDS2016-MUP-16-013

Dear Mr. Conrad:

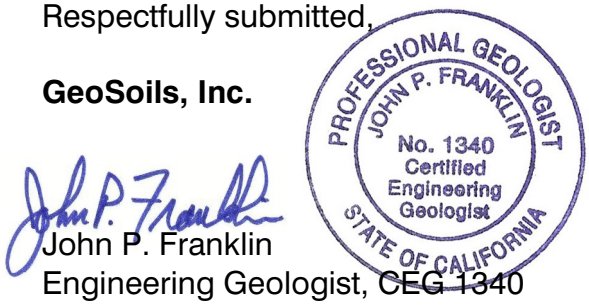
In accordance with your request and authorization, this report presents the findings of GeoSoils, Inc.'s (GSI's) mineral resource investigation for the Ocean Breeze Ranch property in the community of Bonsall, San Diego County, California. This Mineral Resource Investigation report has been prepared for the County of San Diego regarding the proposed Ocean Breeze Ranch (OBR) residential project in north San Diego County. Scoping information concerning Mineral Resources was included in the County of San Diego's project issue review letters dated December 21, 2016, September 11, 2018, and January 14, 2019.

The proposed OBR project is located in Mineral Resource Zones (deemed MRZ-2 and MRZ-3) by the State of California. The purpose of this report is to evaluate mineral resources at and near the site of the proposed development to determine their significance, if precluded from future extraction. Based on our investigation, there would be a loss of Quaternary-age alluvial deposits (younger and older), and granitic rock from the site area. The loss of these materials would be considered significant according to the County's "Guidelines for Determining Significance for Mineral Resources," as described in this report.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to contact our office.

Respectfully submitted,

GeoSoils, Inc.



John P. Franklin
Engineering Geologist, CEG 1340

RB/JPF/jh

Distribution: (2) Addressee (wet signed)

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FIGURES:

1.0 INTRODUCTION

This Mineral Resources Investigation has been prepared for the proposed Ocean Breeze Ranch (OBR) residential project in north San Diego County. Figures 1 and 2 show the regional location of the site. This report has been prepared per the County of San Diego's "Guidelines for Determining Significance and Report Content Requirements, Mineral Resources," first Revision, July 30, 2008.

1.1 Purpose

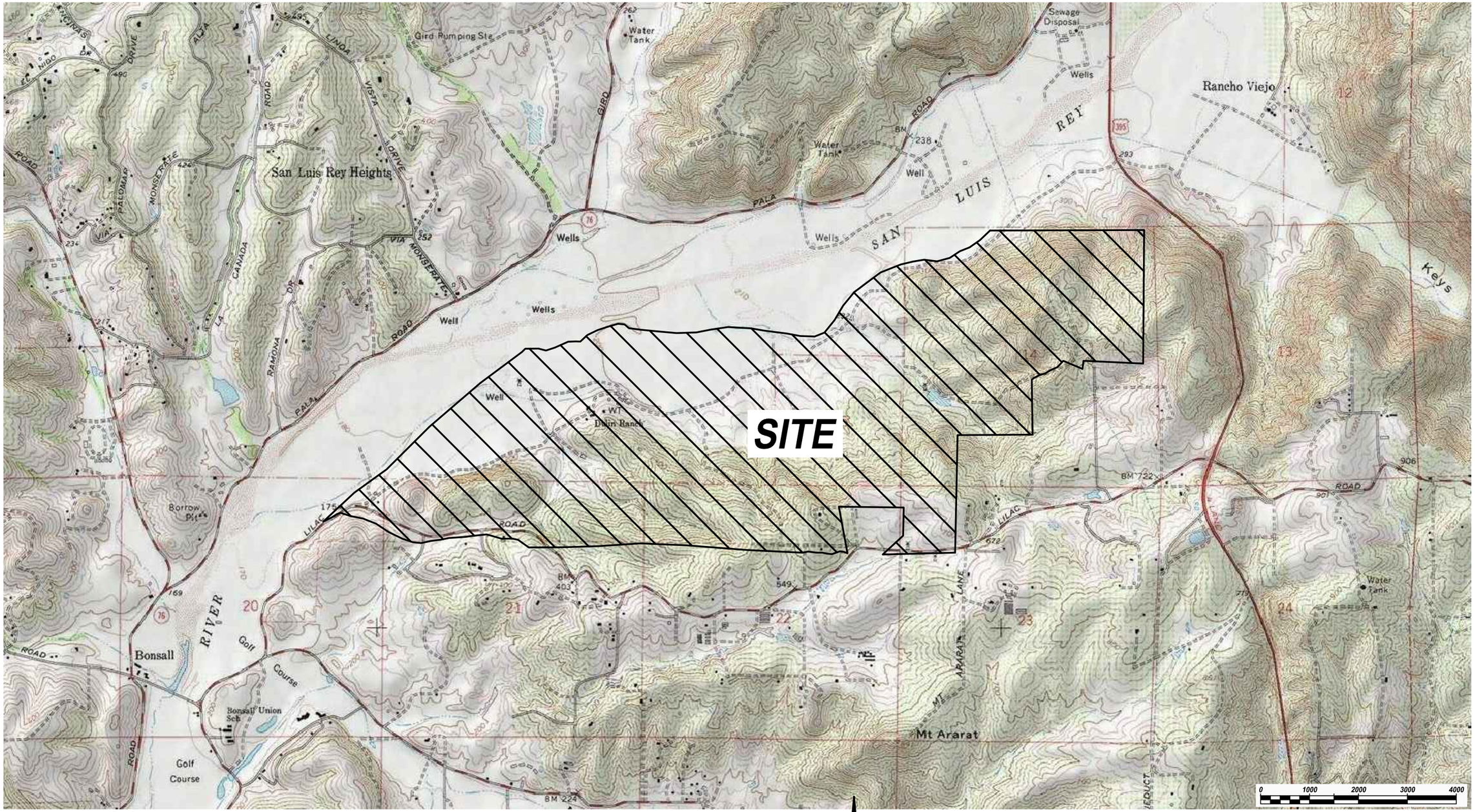
The proposed OBR project is located in land deemed MRZ-2 and MRZ-3 by the State of California[1] (1996). The purpose of this report is to evaluate mineral resources at the project to determine their significance, if precluded from future extraction.

1.2 Project Location and Description

The subject site is located in Bonsall, San Diego County, California (see Figure 1). More specifically, the subject site consists of an irregular shaped, approximately 1,400 acres (gross) property, located along the southern margin of the San Luis Rey River Valley, in the vicinity of Dulin Ranch Road, including hilly and more rugged terrain generally between Dulin Ranch Road and West Lilac Road, in the community of Bonsall, San Diego County, California (see Figure 2), south of Mission Road/Highway 76, and west of Interstate 15.

GSI understands that proposed development includes several Planning Areas (PAs) with different product anticipated. Current plans (Project Design Consultants [PDC], 2018a) indicate that there are three (3) planning areas, a hillside estate parcel, and a school parcel (which is to be sold to the school district). Each PA or parcel will contain an associated roadway(s), underground, and storm water (BMP) improvements, and their use is summarized in the following table:

[1] MRZ-2 areas are "Areas where adequate information indicates that significant mineral resources are present or where it is judged that a high likelihood for their presence exists," and MRZ-3 areas are "Areas containing mineral deposits the significance of which cannot be evaluated from available data," (Kohler and Miller, [CDMG Special Report 153], 1982).



Base Map: TOPO!® ©2003 National Geographic, U.S.G.S. Bonsall Quadrangle, California -- San Diego Co., 7.5 Minute, dated 1975, current, 1975.

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ALL LOCATIONS ARE APPROXIMATE

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REGIONAL MAP

Figure 1

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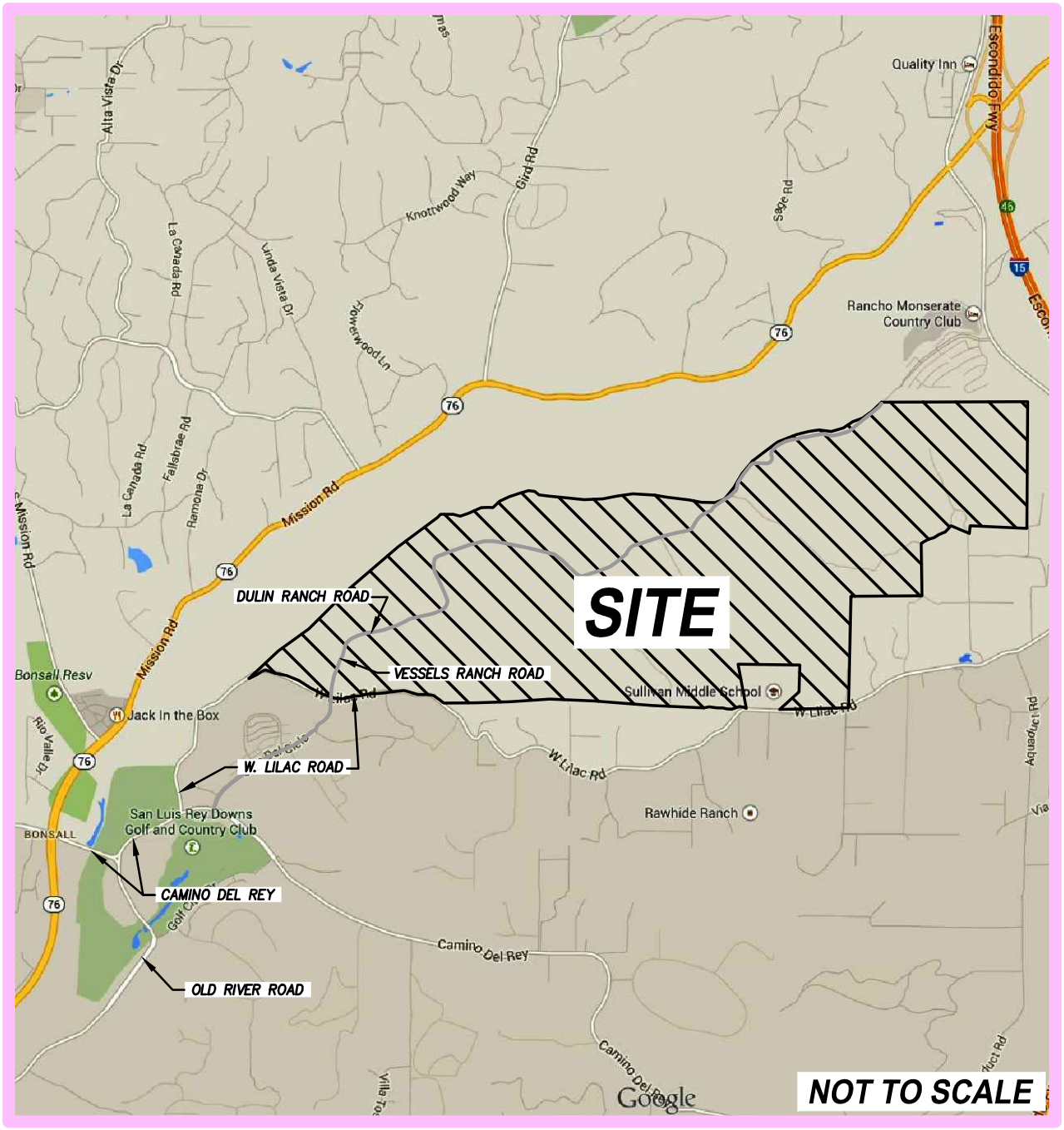

Base Map: Google Maps, Copyright 2017 Google, Map Data Copyright 2017 Google

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SITE LOCATION MAP

Figure 2

PLANNING AREA	APPROX. NUMBER OF LOTS	COMMENTS
PA 1	144 Lots	Graded Pads Indicated*
PA 2	237 Lots	Graded Pads Indicated*
PA 3	14 Lots	Raw Land, No Grading Indicated*
Hillside Estate Parcel	1 Lot	Raw Land, No Grading Indicated*
School Parcel	-	Raw Land, No Grading Indicated*
* - per PDC (2018b)		

The layout of the project, along with the acreage utilized, is shown on Figure 3, which uses PDC (2018b), as a base.

Cut and fill grading techniques are anticipated to bring Planning Area PA 1 to the desired grades. Within Planning Area PA 1, maximum cuts and fills on the order of 50 feet, and 46 feet, respectively, are anticipated, with graded slopes ranging from about 50 feet (cut), and 35 feet (fill) in height, at gradients ranging from 1.5:1 (horizontal to vertical [h:v]), or flatter, for cut slopes, and 2:1 (h:v), or flatter, for fill slopes. Within Planning Area PA 2, maximum fills on the order of 5 to 12 feet, are anticipated, with graded slopes ranging up to about 15 feet, or less, in height, at gradients of 2:1 (h:v), or flatter.

2.0 EXISTING CONDITIONS

2.1 Topographic Setting

Site topography is shown on Figure 1. Topographically, portions of the property (Planning Area PA 2) within the San Luis Rey Valley floor area are generally flat-lying/low gradient. South of the river valley (generally south of Dulin Ranch Road), the westernmost third of the property ascends from the valley floor to somewhat more rugged, inclined terrain, with slope gradients generally steeper than about 4:1 (h:v), that form a roughly east-west trending ridgeline across the southern portion of the site (south and east of Planning Area PA 1). Within the remaining, easternmost portion of the property, the relatively flat-lying river valley floor transitions to moderately sloping terrain, with north facing slopes at gradients generally on the order of 4:1 (h:v), or less (lower elevations of Planning Area PA 3). As with the western portion of the property, these low/moderate gradient slopes ascend to somewhat more rugged, craggy terrain along the southern portion of the property (Hillside Estate Parcel, and the upper elevations of Planning Area PA 3). Drainage is generally directed northward, from the crest of the east-west trending ridgeline, toward the San Luis Rey River, via tributary drainages incised into the north facing slope. On the backside, or south side of the ridge, drainage is generally directed offsite to the south.

The relatively flat-lying valley floor portion of the site has elevations ranging from about 180 to 225 feet Mean Sea Level (MSL), with the area of low gradient slopes, south of the valley floor, ranging from 180 to 225 feet MSL at the valley floor/margin, up to

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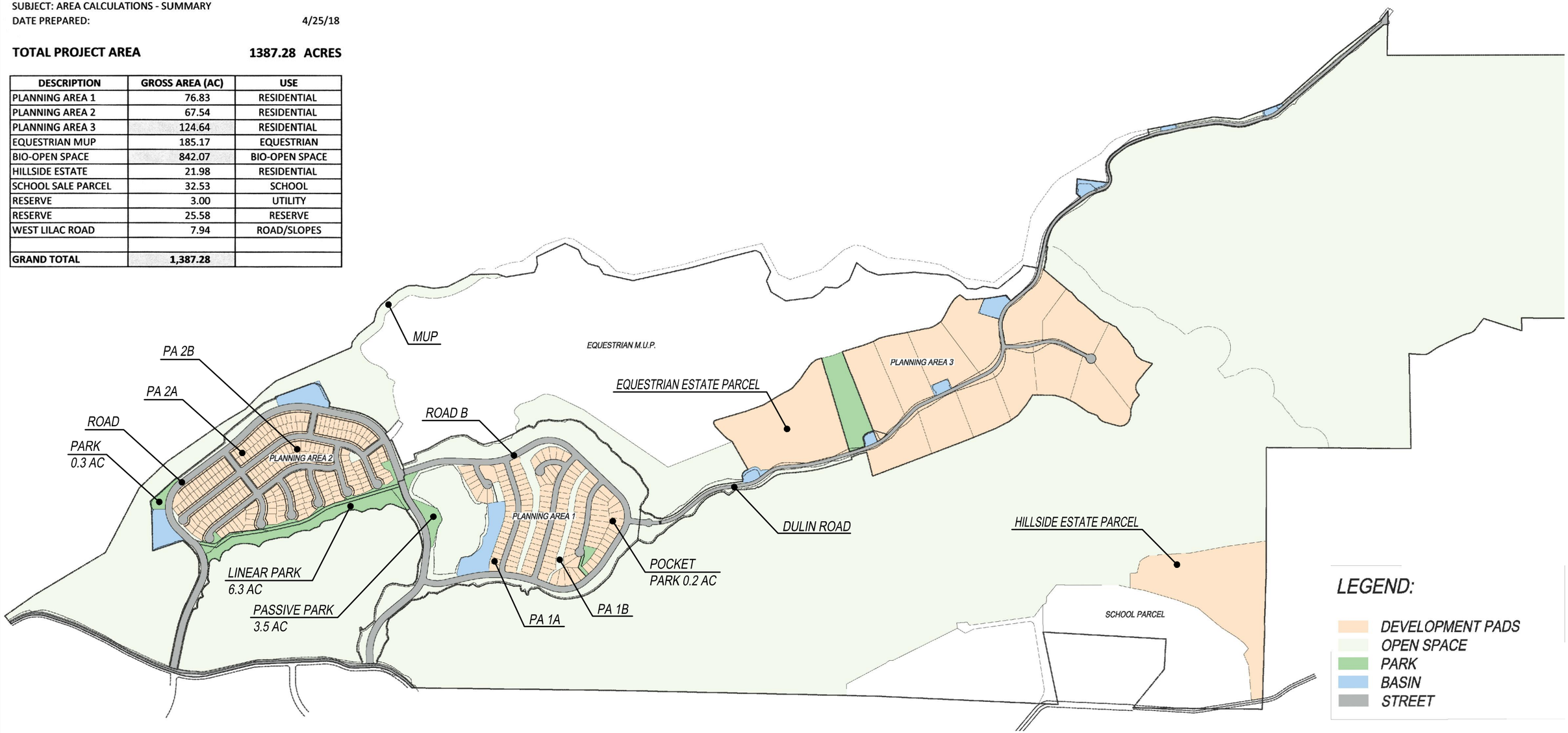
SUBJECT: AREA CALCULATIONS - SUMMARY
DATE PREPARED: 4/25/18

TOTAL PROJECT AREA **1387.28 ACRES**

DESCRIPTION	GROSS AREA (AC)	USE
PLANNING AREA 1	76.83	RESIDENTIAL
PLANNING AREA 2	67.54	RESIDENTIAL
PLANNING AREA 3	124.64	RESIDENTIAL
EQUESTRIAN MUP	185.17	EQUESTRIAN
BIO-OPEN SPACE	842.07	BIO-OPEN SPACE
HILLSIDE ESTATE	21.98	RESIDENTIAL
SCHOOL SALE PARCEL	32.53	SCHOOL
RESERVE	3.00	UTILITY
RESERVE	25.58	RESERVE
WEST LILAC ROAD	7.94	ROAD/SLOPES
GRAND TOTAL	**1,387.28**	



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N

GRAPHIC SCALE
1000 0 500 1000 2000 4000
1" = 1000'

PROJECT DESIGN CONSULTANTS
Planning | Landscape Architecture | Engineering | Survey
701 B Street, Suite 800
San Diego, CA 92101
619.235.6471 Tel
619.234.0349 Fax

OCEAN BREEZE RANCH
SITE PLAN EXHIBIT
04/25/18

GeoSoils, Inc.

PROPOSED LAND USE PLAN

Figure 3

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approximately 300 feet MSL. The somewhat rugged, steeper terrain that ascends to the south, range from about 200 to as much as 747 feet MSL. Thus, overall relief across the site is on the order of about 567 feet. Portions of the site (i.e., valley floor), generally within the low/flat-lying portions of the site, lie within a San Diego County 100-year floodplain.

The land within the MRZ-2 portion of the project area is located in the flat-lying/low gradient valley floor portion of the site, associated with the San Luis Rey River. The remainder of the project is located within a MRZ-3 zone consisting of low/moderate gradient slopes that ascend to somewhat more rugged, steeper terrain, south of the MRZ-2 zone.

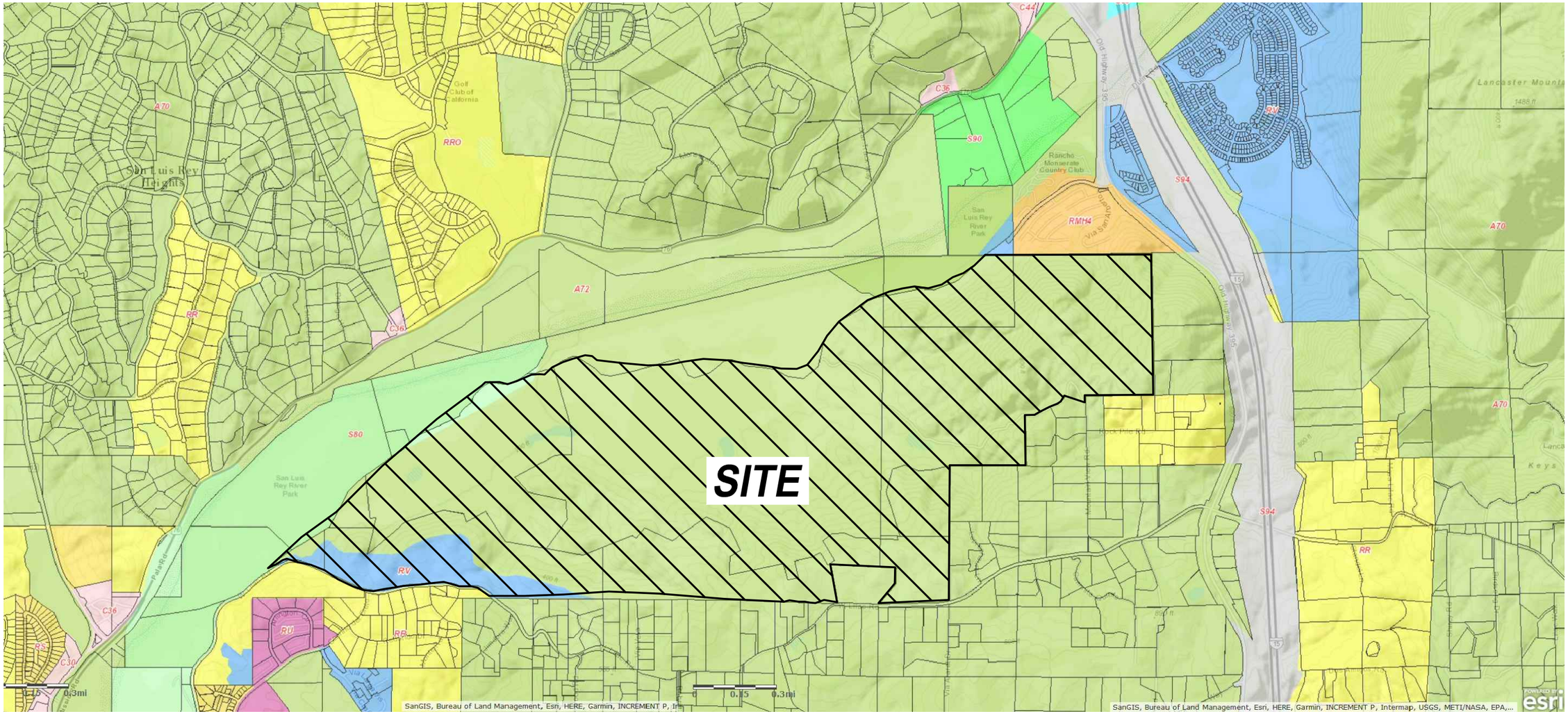
2.2 Land Use

The property is located in the community of Bonsall, within the unincorporated County of San Diego. As shown on Figure 4 (County of San Diego, Zoning Designation Map), the majority of the site is designated as "(A70) Agriculture." A small portion to the west of the site in the San Luis Rey River Park, is designated "(S80) Open Space." To the north the majority of the area north of Highway 76 is designated "(A70) Agriculture" or various types of "Rural Residential." South of West Lilac Road, the majority of the land is designated "(A70 and A72) for Agriculture," with the far southwest mainly a mixture of "Rural Residential and Agriculture." Directly east of Interstate-15, is a north-south trending strip of land designated as various types of "Rural Residential." Further east the majority of the land is considered "(A72) Agriculture."

The property is and has been used for both equestrian and agricultural purposes. Existing improvements generally consist of an equestrian facility located within the low lying, northerly portions of the site (north of Planning Area PA 1), with an existing residence, overlooking the equestrian facility. Scattered outbuildings are present throughout, and are predominately located in close proximity to the equestrian facility. Vegetation generally consists of some native trees, planted trees, grass pasture, areas of irrigated row crops, groves, and also areas with native grasses and brush. Figure 3, shows land use at the subject site. A review of the Mineral Resources Data System map (MRDS, 2017), shows four sand and gravel surface-type operations (Faubus Pit, San Luis Rey River Pit, Borrow Pits, and Brown Trucking DG Pit) in the vicinity of the subject site (see Figure 5, herein). Based on a review of Google imagery, it appears that the Faubus Pit was excavated to a depth of about 10 to 15 feet in localized areas; the San Luis Rey River Pit was also excavated to a depth of about 10 to 15 feet locally; the Borrow Pits were likewise excavated to a depth of about 10 to 15 feet locally; and, the Brown Trucking DG Pit (located in upland bedrock), was excavated to variable depths, ranging from about 5 to 10 feet.

2.3 Mineral Resource Potential

In 1975, the California Surface Mining and Reclamation Acta (SMARA), required the classification of land into Mineral Resource Zones (MRZs), based on the land's known or inferred mineral resource potential (County, 2008). Based on the Revised Mineral Land



Legend

A70,72	Agriculture
C30,36,44	Commerical and Office
RMH4	Residential Mobile Home
RR,RR0	Rural Residential
RS	Residential - Single
RU	Residential - Urban
RV	Residential - Variable
S80,90	Open Space
S94	Transportation and Utility

N

GRAPHIC SCALE

2000 0 1000 2000 4000

1" = 2000'

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ZONING DESIGNATIONS MAP

Figure 4

W.O. 6960-A1.2-SC	DATE: 03/19	SCALE: 1" = 2000'

PROJECT: OCEAN BREEZE RANCH
SUBJECT: AREA CALCULATIONS - SUMMARY
DATE PREPARED: 4/25/18

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DESCRIPTION	GROSS AREA (AC)	USE
PLANNING AREA 1	76.83	RESIDENTIAL
PLANNING AREA 2	67.54	RESIDENTIAL
PLANNING AREA 3	124.64	RESIDENTIAL
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BIO-OPEN SPACE	842.07	BIO-OPEN SPACE
HILLSIDE ESTATE	21.98	RESIDENTIAL
SCHOOL SALE PARCEL	32.53	SCHOOL
RESERVE	3.00	UTILITY
RESERVE	25.58	RESERVE
WEST LILAC ROAD	7.94	ROAD/SLOPES
GRAND TOTAL	1,387.28	

Brown Trucking Dg Pit

Faubus Pit

San Luis Rey River Pit

Borrow Pits

MRZ-2

MRZ-3

MRZ-3

MRZ-2

MRZ-3

MRZ-3

SITE

Project Boundary

1300'

1300'

Area = 17,360,239 sq.ft.
398.54 acres

Northern Limits of Residential Development

PLANNING AREA 3

PLANNING AREA 1

SCHOOL PARCEL

Vista Chief

Mountain Belle Claim

Freeman Mine

N

GRAPHIC SCALE

1500 0 750 1500 3000

1" = 1500'

BASE MAP: USGS (2017)

GSI LEGEND

MRZ-2 — MINERAL RESOURCE ZONE 2

MRZ-3 — MINERAL RESOURCE ZONE 3

— 1300 FT. NOISE SETBACK

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POTENTIAL ONSITE AND OFFSITE MINERAL RESOURCE IMPACTS

Figure 5

W.O. 6960-A1.2-SC	DATE: 03/19	SCALE: 1" = 1500'

Classification Map, provided by the Department of Conservation (Miller, 1996), the majority of the subject property lies within MRZ-3, with the northern-most portion of the property (north of Dulin Ranch Road) running through the San Luis Rey River Area falling within MRZ-2, Sector C. Sector C, encompasses about 2,160 acres, and follows the channel and floodplain deposits of the San Luis Rey River, beginning near the Highway 76 bridge upstream to near the Interstate 15 bridge (County, 2008). MRZ-2, is defined by the County (2008) as "areas underlain by mineral deposits where geologic data show that significant measured or indicated resources are present." According to the County, MRZ-3 are areas which contain known mineral deposits that may qualify as mineral resources. MRZ-3 areas can be reclassified as MRZ-2, if exploration shows significant mineral resources are present. The approximate delineation of Mineral Resource Zones present on the subject site are shown on Figure 6. According USGS website, several past private producers have mined Quaternary alluvium as a source of construction sand and gravel in the same MRZ-2 area, and rock in the same MRZ-3 area. The operations involve extracting recent alluvial deposits from the San Luis Rey River drainage, and rock in the upland areas. After being crushed, sized, and washed, the material may be suitable for concrete aggregate. There has been no available documented reclamation of the borrow pits. Also of note, Gius, et al. (2017) indicated that a small portion of the MRZ-2 area, within and north of the proposed Equestrian MUP (formerly Dulin Ranch), has been lost to land uses incompatible with mining. For conservatism, GSI has not excluded this small area from our analysis.

2.4 Geology

GSI performed geologic mapping and subsurface exploration of the subject site and documented their findings in GSI's geotechnical evaluation for Ocean Breeze Ranch (October 6, 2016). The regional and site specific geology from this investigation, is summarized below. The distribution of geologic units across the subject site is presented on Figure 7.

2.4.1 Regional Geology

The subject property is located within the Peninsular Ranges geomorphic province, which is characterized by steep, elongated mountain ranges and valleys that trend northwesterly (Norris and Webb, 1990). The Peninsular Ranges Geomorphic Province extends north to the base of the east-west aligned Santa Monica - San Gabriel Mountains, and south into Baja California. The province is bounded by the east-west trending Transverse Ranges Geomorphic Province to the north and northeast, by the Colorado Desert Geomorphic Province to the southeast, and by the Continental Borderlands Geomorphic Province to the west. The mountain ranges are underlain by basement rocks consisting of pre-Cretaceous metasedimentary rocks, Jurassic metavolcanic rocks, and Cretaceous plutonic (granitic) rocks, which have been uplifted, tilted, faulted, eroded and deeply incised since their formation.

DIVISION OF MINES AND GEOLOGY
JAMES F. DAVIS, STATE GEOLOGIST

STATE OF CALIFORNIA – PETE WILSON, GOVERNOR
THE RESOURCES AGENCY – DOUGLAS P. WHEELER, SECRETARY
DEPARTMENT OF CONSERVATION – ELIN D. MILLER, DIRECTOR

REVISED MINERAL LAND CLASSIFICATION
BONSALL QUADRANGLE
OPEN-FILE REPORT 96-04, PLATE 2 OF 14
(ADAPTED FROM OPEN-FILE REPORT 89-15, PLATE 1)

MRZ-2
Mixed Aggregate

PALOMAR GRADING
& PAVING INC.,
PANKEY RANCH SITE

MRZ-2

MRZ-3

SECTOR C, PER
GUIS, et al. (2017)

SITE

TOPOGRAPHIC BASE MAP BY U.S. GEOLOGICAL SURVEY
Reduced from 1:24,000

SCALE = 1:48,000

1 0 1 MILE
4000 0 4000 FEET
1 0 1 KILOMETER

BONSALL QUADRANGLE

N
14 1/2°

STUDY AREA

MAGNETIC NORTH,
AND DECLINATION

EXPLANATION

PRODUCTION-CONSUMPTION REGION BOUNDARY
(see text for discussion)

MINERAL RESOURCE ZONE BOUNDARIES

MRZ-2

MRZ-1 Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

MRZ-2 Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood exists for their presence.

MRZ-3 Areas containing mineral deposits the significance of which cannot be evaluated from available data.

MRZ-4 Areas where available information is inadequate for assignment to any other MRZ zone.

Area reclassified as MRZ-2 in this report.

REVISED MINERAL LAND CLASSIFICATION MAP
AGGREGATE RESOURCES ONLY
WESTERN SAN DIEGO COUNTY PRODUCTION-CONSUMPTION REGION

By
Russell V. Miller

1996

GRAPHIC SCALE
4000 0 2000 4000 8000
1" = 4000'

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MINERAL RESOURCES ZONES

Figure 6

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PROJECT DESIGN CONSULTANTS
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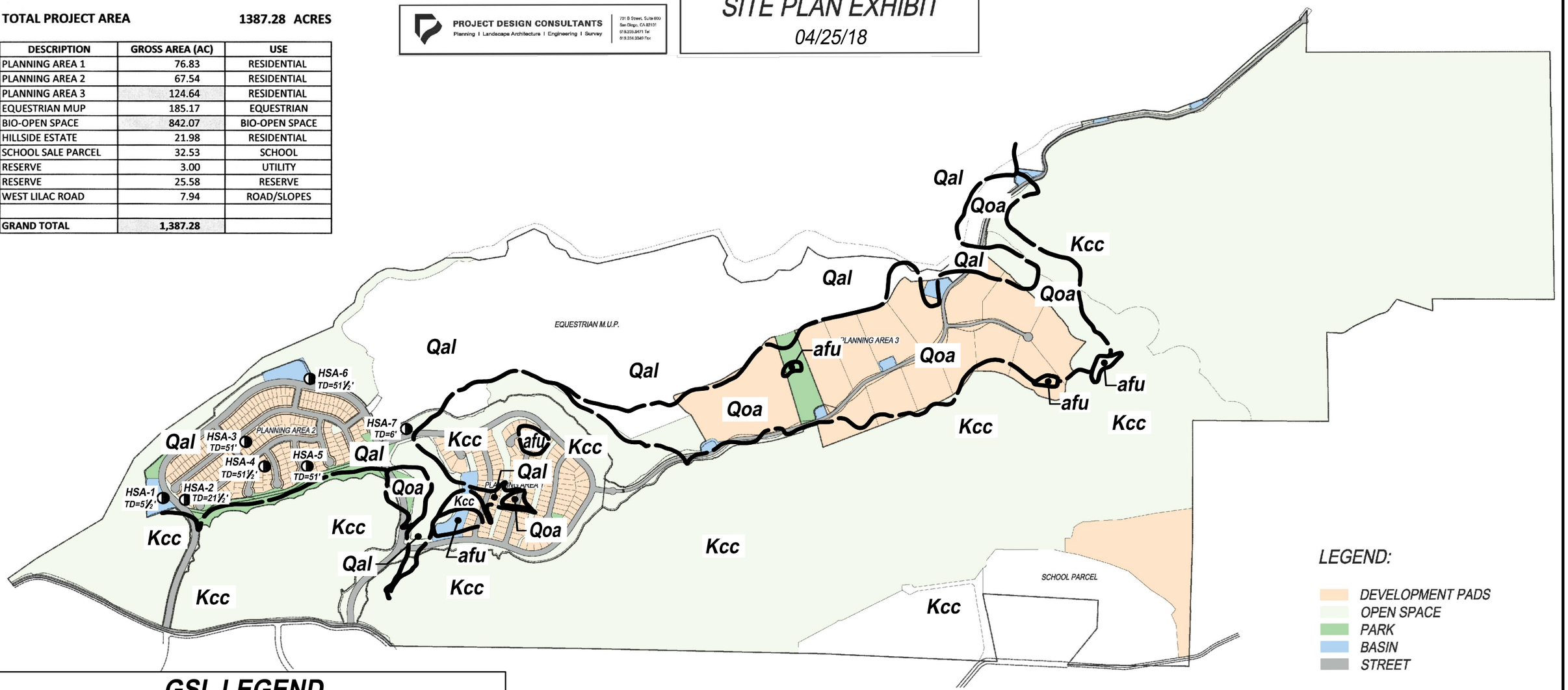

GSI LEGEND

- **afu** — ARTIFICIAL FILL – UNDOCUMENTED
- **Qal** — QUATERNARY ALLUVIUM, CIRCLED WHERE BURIED
- **Qoa** — QUATERNARY OLDER ALLUVIUM, CIRCLED WHERE BURIED
- **Kcc** — CRETACEOUS–AGE GRANITIC BEDROCK (TONOLITE OF COUGAR CANYON)
- **HSA-7** (TD=51 ½') — APPROXIMATE LOCATION OF HOLLOW–STEM AUGER BORING WITH TOTAL DEPTH IN FEET
- —?— APPROXIMATE LOCATION OF GEOLOGIC CONTACT (QUERIED WHERE UNCERTAIN)

N

GRAPHIC SCALE
1000 0 500 1000 2000 4000
1" = 1000'

LEGEND:
- DEVELOPMENT PADS
- OPEN SPACE
- PARK
- BASIN
- STREET

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GEOLOGIC MAP

Figure 7

W.O. 6960-A1.2-SC | DATE: 03/19 | SCALE: 1" = 1000'

In the Bonsall area during the mid to late Pleistocene (within the Quaternary-age), the granitic rocks belonging to the Peninsular Ranges Batholith have been eroded and alluvial deposits have since filled the lower valleys. Regional mapping by Tan (2000) indicates that the site is primarily underlain by Cretaceous-age granitic rock referred to as the Couser Canyon Tonalite. Pleistocene-age older alluvium (stream terrace deposits), and younger alluvium associated with deposits along the San Luis Rey River, also occurs in the site vicinity (Tan, 2000). Figure 7, shows the distribution of significant geologic units at the subject site. The MRZ-2 designation encompasses the alluvium in the San Luis Rey River, and the MRZ-3 designation includes the upland areas, which contains some older alluvium but primarily granitic rock, of varying composition. Below is a description of the significant geologic unit units found at the subject site.

2.4.2 Site Geologic Units

Quaternary-age Alluvium (Map Symbol - Qal)

Alluvium was observed within the northern portions of the site, in areas of flat lying ground, primarily north of Dulin Ranch Road, and generally within the 100-year floodplain, including Planning Area PA 2, the lower elevations of PA 1, and along the northern edge of PA 3.

Alluvium generally consists of light brown and very dark brown, interbedded sands, and silty sands, with silts and clays indicated at depth, based on CPT data. The thickness of this deposit generally varies from a daylight contact, adjacent to deposits of older alluvium and granitic bedrock, thickening northward to depths on the order of 42 to 62 feet below existing grades, based on field mapping, test pit, and CPT data. Within a tributary drainage located within a portion of Planning Area PA 3, alluvium was encountered to a depth of at least 17 feet below existing grades. Based on a review of California Department of Water Resources Bulletin No. 106-2 (State, 1967), the maximum thickness of alluvium along the nearby reach of the San Luis Rey river valley is less than 100 feet.

Quaternary-age Older Alluvium (Map Symbol - Qoa)

Deposits of Quaternary (Pleistocene)-age older alluvium (less than ±500,000 years old) were generally encountered at/near the surface, typically underlying the lower elevations of PA 1 and PA 3, forming the moderate slopes located between the valley floor and the southern highland ridge areas. Based on the distribution of these materials in plan view, and in cross section, the thickness of these sediments may be on the order of up to 30 to 50 feet locally. The older alluvium (stream terrace deposits) generally consists of interbedded silty sand, with lesser amounts of silty sand with some clay. Where observed in preparation of GSI (2016a), stream terrace deposits are light brown, brown, and yellowish brown, damp, and medium dense.

Cretaceous-age Granitic Bedrock (Map Symbol - Kcc)

Cretaceous-age granitic bedrock, referred to as the Couser Canyon Tonalite (Tan, 2000), was encountered near the surface, and at depth throughout the site. Where encountered, bedrock consists of fractured rock, disintegrating to sand and silty sand with brittle gravel- to cobble-size rock fragments in near-surface excavations. Bedrock was generally observed to be brown to olive brown, brownish yellow to yellowish brown, dry to moist, and dense.

2.4.3 Groundwater

In preparation of GSI (2015), during the month of March, 2014, the regional groundwater table was encountered at depths on the order of 13½ to 15½ feet below existing grades, within the relatively flat-lying, alluviated areas underlying Planning Area PA 2, and within the floodplain area north of Planning Area PA 3. These depths generally correspond to approximate elevations ranging from about 189½ feet above Mean Sea Level (MSL), up gradient, within alluvial areas north of Planning Area PA 3, to approximately 178 feet MSL, down gradient, toward the western end of the property, within the current boundaries of Planning Area PA 2.

In preparation of GSI (2016), groundwater was encountered in both the additional CPT soundings, and the hollow stem auger borings, at depths on the order of 11½ to 18 feet below existing grades within Planning Area PA 2, or at corresponding elevations of 178 to 179 feet MSL. Up gradient from Planning Area PA 2, within a tributary drainage located within the lower elevations of Planning Area PA 3, groundwater was encountered at a depth of about 21 feet below the surface grade, or at an approximate elevation of 204 feet MSL. Copies of the Boring Logs are provided following the text of this report (Section 6.0), and their location is shown on Figure 6, herein.

Over a two-year period, groundwater levels appear relatively constant within Planning Area PA 2. The variable levels noted near, and within portions of Planning Area PA 3 are considered to be due to perched water conditions, variations in geology, and geomorphology.

3.0 MINERAL RESOURCE IMPACT ANALYSIS

3.1 Guidelines for Determination of Significance

The guidelines for determining the significance of mineral resources present on the subject site, are provided in Section 4.0 in the County of San Diego Guidelines for Determining Significance, Mineral Resources (County, 2008). This section is used for evaluating the environmental effects the proposed development may have on mineral resources, and whether analysis of the impacts is necessary in accordance with the California Environmental Quality Act (CEQA). Each of the guidelines listed in the County's Guidelines for Determining Significance for Mineral Resources must be addressed.

3.2 Methodology

To evaluate whether or not the onsite deposits within the MRZ-2 would be considered significant for construction material, the anticipated material quality and extraction requirements need evaluation, then land use compatibility, and finally marketability and minimum dollar value for the extractable resource volume. MRZ-3 materials are areas containing mineral deposits the significance of which cannot be evaluated from available data.

The material waste percentage of the alluvial deposits in the region has been estimated at about 20 percent (URS, 2012). The bulk unit weight is estimated to be about 100 lbs/ft^3 or ±1.3 tons/yd^3 (URS, 2012).

Based on the previous GSI borings (included herein), the alluvial deposits could be excavated to depths up to about 20 feet using heavy-duty grading equipment, such as a track-mounted track hoe (e.g., Komatsu 400PC or similar equipment). Other earth moving equipment, such as a large dozer with ripper shanks and front end loader would be required to manage materials. It is possible that an onsite grizzly and crusher, may be required, and may not be precluded. The material would need to be sized, and washed, and possibly crushed, to be used.

The potentially mineable area is generally indicated on Figure 5, and consists of about a 398.54-acre (17,360,239 square foot) quarry. Alluvial deposits over this area would be excavated to an average depth of about 20 feet.

The total volume of the quarry (extracted to an average depth of 20 feet), would be approximately 398.54 acres or 17,360,402 square feet x 20 feet = 347,208,048 cubic feet; ÷ 27 cubic feet/cubic yard = 12,859,557 cubic yards; x (100-20 [waste])% = 10,287,646 cubic yds; x 1.3 tons/yd^3 = 13,373,940 tons (net).

3.2.1 Land Use Compatibility

Land use compatibility impacts are addressed below:

Onsite Impacts from Proposed Onsite Land Use

Our analysis of the minimum dollar value (see above and herein), indicates an onsite quarry would need to be at least 40.7 acres, assuming $14/ton. The northern most portion of the subject site lies within MRZ-2, which is within the San Luis Rey River 100-year floodplain, and underlain with Quaternary-age alluvial deposits. There are no known sand and gravel mines, quarries, or gemstone deposits located on the property. According to the Mineral Resource Data System (MRDS) there are four "past producers" of sand and gravel (Faubus Pit, San Luis Rey River Pit, Borrow Pits, and Brown Trucking DG Pit) in the vicinity of the subject site, of which only one (San Luis Rey River Pit) is within 1,300 feet of

the proposed development. However, there are no signs of recent operations being conducted in the area of the San Luis Rey River Pit. Of the four past producers, two (Faubus Pit and Borrow Pits) appear to have surface configurations/remnants of prior operations, but are not within 1,300 feet of the proposed development (see Figure 5). Furthermore, the MRDS shows these sites as not being significant economic deposits and operations. The MRDS shows gemstone deposit sites (Vista Chief, Mountain Belle Claim, and Freeman Mine) to the south of the subject property; however, these are well outside of the 1,300 foot set-back area, and should not be impacted by the proposed development (see Figure 5).

As stated, the proposed development is in Mineral Resource Zones, MRZ-2 and MRZ-3. A portion of the proposed development is underlain by Quaternary-age alluvium (MRZ-2). However, there are no known sand and gravel mines, quarries, or gemstone deposits located within the proposed development area. In addition, no mining/quarrying has occurred in recent past, and mining/quarrying is not contemplated for the project site in the future. The MRDS does not show any economically significant deposits and operations on the subject property.

The proposed OBR project would likely preclude sand and gravel mining on the same property. Our analysis of the minimum dollar value (see above), indicates an onsite quarry would need to be at least 40.7 acres. The potential mineable area is 398.54 acres (gross), and would meet or exceed the minimum dollar value per County Guidelines, in either scenario.

Offsite Impacts from Proposed Onsite Land Use

There are no active or recently active sand and gravel mines, quarries, or gemstone deposits within 1,300 feet of the proposed development. Based on a review of MRDS, the four previously mentioned sand and gravel operations in the vicinity of the subject site are either inactive or further than the adequate set-back distance of 1,300 feet from the proposed development. As shown on Figure 5, there are three gemstone deposit sites (Vista Chief, Mountain Belle Claim, and Freeman Mine) to the south of the subject property, however these are well outside of the 1,300-foot set-back area, and would not be impacted by the proposed development (see Figure 5). The mining would occur in the San Luis Rey River floodplain area, and it would be difficult to avoid flooding if a mine were to be located in the riverbed.

Onsite Impacts from Offsite Land Uses

There are no active or recently active sand and gravel mines, quarries, or gemstone deposits within 1,300 feet of the proposed development. The San Luis Rey River Pit is the only deposit that is within 1,300 feet of the proposed development; however, there is no evidence that this deposit has been worked in the recent past. According to the MRDS, these are surface-type sand and gravel operations, that are not economically significant.

The MRDS shows, gemstone deposit sites (Vista Chief, Mountain Belle Claim, and Freeman Mine) to the south of the subject property, however these are well outside of the 1,300 foot set-back area, and would not impact the proposed development (see Figure 5).

3.2.2 Marketability

According to the San Diego County General Plan Update EIR, the total amount of permitted aggregate resources in western San Diego County is only about 17 percent of the estimated 50-year demand for the County. With this projected deficit, the onsite materials at OBR may be marketable in the short term or in the next 50 years.

The proposed development may contain land considered MRZ-2 and MRZ-3, but these mineral resources are not considered marketable based on the shallow groundwater within the San Luis Rey River floodplain, and the potential for significant environmentally impacted mining operations would have on the region and groundwater resources. Furthermore, a review of the MRDS shows that all of the sand and gravel operations in the vicinity of the site are considered not economically significant. Given current operating costs and considering the necessary permits required, this condition is not expected to change in 50 years. Nonetheless, should open pit mining be allowed, approximately 20 percent of the material would be non-commercial waste material.

3.2.3 Minimum Dollar Value

Assuming a given deposit is marketable, the County significance criteria confiders whether or not a deposit meets a minimum dollar value. We have taken the minimum value as $12,500,000, per the County (2007/2008). The cost of sand and gravel in San Diego County ranges from about $8 or $9 per ton to maybe $18-$20 per ton for high quality materials (Mike Shaw, East County Sand, LLC, personal communication, February 2018).

Nonetheless, should open pit mining be allowed, approximately 20 percent of the material would be non-commercial waste material. The total volume of the quarry (extracted to an average depth of 20 feet), would be approximately 398.54 acres or 17,360,402 square feet x 20 feet = 347,208,048 cubic feet; ÷ 27 cubic feet/cubic yard =12,859,557 cubic yards; x (100-20 [waste])%=10,287,646 cubic yds; x 1.3 tons/yd^3 = 13,373,940 tons (net), assumed at $14/ton = $187,235,155 (2018 dollars), which is about $122,507, 233[2] in 1998 dollars. This is considered a significant impact, since it exceeds the $12,500,000 threshold. This threshold is also exceeded when considering the net acreage available within the 1,300-foot setback from the footprint of OBR. We note that mining/quarrying has not occurred nearby in recent years and likely will never occur, due to the negative environmental impact it would have on the region.

[2]Based on Consumer Price Index conversion: $1,000 in 1998 equaled $1,528.36 in 2018.

3.3 Significance of Impacts

Variably weathered alluvial deposits underlie a portion of the development area within the MRZ-2. These deposits may be only marginally suitable as sources of construction materials due to the high waste percentage, and the variable weathering of the alluvial constituents. Nonetheless, the loss of this MRZ-2 resource within the site area would be considered significant, pursuant to County guidelines.

3.4 Mitigation Measures and Design Considerations

The proposed development area would need to be reduced and redesigned to stay 1,300 feet from the MRZ-2 area, so as to be considered not significant. We understand that a reduced project of this scale would not go forward. In our opinion, no feasible mitigation can reasonably be proposed.

3.5 Conclusion

In conclusion, the loss of the MRZ-2 mineral resources from the site would be considered significant.

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5.0 LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

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6.0 PREVIOUS GSI BORING LOGS IN MRZ-2

BORING LOG

GeoSoils, Inc.

W.O. 6960-A-SC

PROJECT: OCEAN BREEZE RANCH, LLC
5820 West Lilac Road, Bonsall

BORING HSA-1 *SHEET* 1 *OF* 1

DATE EXCAVATED 5-19-16

SAMPLE METHOD: 140 Lb. Hammer @ 30" Drop

Approx. Elevation: 189'

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Seepage

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/Ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
				SM				**COLLUVIUM (TOPSOIL):**
1			8	SP	97.3	5.9	22.4	@ 0' SILTY SAND, grayish brown, dry , loose; few roots, burrowed.
2								**QUATERNARY ALLUVIUM:**
3								@ 1' SAND with SILT, brown, slightly moist, loose.
4								
5								
6								Total Depth = 5½'
7								No Groundwater Encountered
8								Backfilled 05/19/16
9								Infiltration Test Performed From 3' to 5½'
10								
11								
12								
13								
14								
15								
16								
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18								
19								
20								
21								
22								
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24								
25								
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27								
28								
29								

BORING LOG

GeoSoils, Inc.

W.O. 6960-A-SC

PROJECT: OCEAN BREEZE RANCH, LLC
5820 West Lilac Road, Bonsall

BORING HSA-2 *SHEET* 1 *OF* 1

DATE EXCAVATED 5-19-16

SAMPLE METHOD: 140 Lb. Hammer @ 30" Drop

Approx. Elevation: 190'

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Seepage

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/Ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
1				SM				**COLLUVIUM (TOPSOIL):** @ 0 ' SILTY SAND, grayish brown, dry, loose; few roots, burrowed.
2			8	SP	96.0	7.8	28.4	**QUATERNARY ALLUVIUM:** @ 1½' SAND with SILT, brown, dry, loose.
5			9		88.7	7.6	23.2	@ 5' As per 1½'.
10			10					@ 10' SAND with SILT, brown, moist, loose to medium dense; micaceous.
13								@ 13' Groundwater encountered.
15			13	SW				@ 15' SAND, brown, saturated, medium dense; fine to medium grained.
20			22	SP				@ 20' SAND, dark gray, saturated, medium dense; medium grained.
22								Total Depth = 21½' Groundwater Encountered @ 13' (EL = 177' MSL) Backfilled 05/19/16

BORING LOG

GeoSoils, Inc.

W.O. 6960-A-SC

PROJECT: OCEAN BREEZE RANCH, LLC
5820 West Lilac Road, Bonsall

BORING HSA-3 *SHEET* 1 *OF* 2

DATE EXCAVATED 5-19-16

SAMPLE METHOD: 140 Lb. Hammer @ 30" Drop

Approx. Elevation: 190'

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Seepage

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/Ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
1				SM				**COLLUVIUM (TOPSOIL):**
2								@ 0' SILTY SAND, grayish brown, slightly moist, loose; few roots and many burrows.
3				SM/SP				**QUATERNARY ALLUVIUM:**
4								@ 2' SILTY SAND to SAND, brown, dry, loose.
5			8					
6								@ 5' As per 2'.
7								
8								
9								
10			14	SP	94.4	14.0	49.5	@ 10' SAND, brown, moist, loose.
11								
12								@ 11½' Groundwater encountered.
13								
14								
15			14					@ 15' SAND, dark grayish brown, saturated, medium dense; fine to medium grained.
16								
17								
18								
19								
20			26		108.9	15.3	78.1	@ 20' SAND, dark grayish brown, saturated, medium dense; medium to coarse grained.
21								
22								
23								
24								
25			20					@ 25' SAND, medium to dark gray, saturated, medium dense; medium grained.
26								
27								
28								
29								

BORING LOG

GeoSoils, Inc.

W.O. 6960-A-SC

PROJECT: OCEAN BREEZE RANCH, LLC
5820 West Lilac Road, Bonsall

BORING HSA-3 *SHEET* 2 *OF* 2

DATE EXCAVATED 5-19-16

SAMPLE METHOD: 140 Lb. Hammer @ 30" Drop

Approx. Elevation: 190'

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Seepage

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/Ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
31			39	SP	102.7	21.7	100	@ 30' SAND, dark gray, saturated, medium dense to dense; medium grained.
35			10					@ 35' SAND, dark gray, saturated, medium dense; fine to medium grained.
40			21		103.0	23.0	100	@ 40' As per 35'.
45			20					@ 45' As per 40'.
50			26		134.0	17.6	100	@ 50' SAND, dark gray brown, saturated, dense.
51								Total Depth = 51' Groundwater Encountered @ 11½' (EL = 178½' MSL) Backfilled 05/19/16

BORING LOG

GeoSoils, Inc.

W.O. 6960-A-SC

PROJECT: OCEAN BREEZE RANCH, LLC
5820 West Lilac Road, Bonsall

BORING HSA-4 *SHEET* 1 *OF* 2

DATE EXCAVATED 5-19-16

SAMPLE METHOD: 140 Lb. Hammer @ 30" Drop

Approx. Elevation: 193'

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Seepage

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/Ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
1				SM				**COLLUVIUM (TOPSOIL):** @ 0' SILTY SAND, light brown, dry, loose; few roots, burrowed.
2				SW				**QUATERNARY ALLUVIUM:** @ 2 ' SAND with SILT, brown, slightly moist, loose.
5		■	15			6.8		@ 5' SAND with SILT, brown, slightly moist, loose.
10		■	8					@ 10' SAND with SILT, brown, moist, loose.
13								@ 13½' Groundwater encountered.
15		■	19		108.8	20.4	100	@ 15' SAND, dark to medium gray, saturated, medium dense; fine grained.
20		■	23	SP				@ 20' SAND, medium gray, saturated, medium dense; fine to medium grained.
25		■	41		109.2	19.4	100	@ 25' SAND, medium gray, saturated, medium dense; fine to medium grained.

BORING LOG

GeoSoils, Inc.

W.O. 6960-A-SC

PROJECT: OCEAN BREEZE RANCH, LLC
5820 West Lilac Road, Bonsall

BORING HSA-4 *SHEET* 2 *OF* 2

DATE EXCAVATED 5-19-16

SAMPLE METHOD: 140 Lb. Hammer @ 30" Drop

Approx. Elevation: 193'

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Seepage

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/Ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
31			12	SP				@ 30' SAND, dark gray, saturated, medium dense; fine grained.
35			24	SP/SM	97.5	26.4	100	@ 35' SAND with SILT, very dark gray, saturated, medium dense; fine grained, micaceous.
40			34	SP				@ 40' SAND, very dark gray, saturated, dense; fine grained.
45			51		113.6	13.6	100	@45 SAND, medium gray to dark gray, saturated, dense; fine to medium grained.
50			49					@ 50' SAND, dary gray, saturated, dense; fine to medium grained.
52								Total Depth = 51½' Groundwater Encountered @ 13½' (EL = 179½' MSL) Backfilled With Bentonite 05/19/16

BORING LOG

GeoSoils, Inc.

W.O. 6960-A-SC

PROJECT: OCEAN BREEZE RANCH, LLC
5820 West Lilac Road, Bonsall

BORING HSA-5 *SHEET* 1 *OF* 2

DATE EXCAVATED 5-18-16

SAMPLE METHOD: 140 Lb. Hammer @ 30" Drop

Approx. Elevation: 197'

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Seepage

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/Ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
1				SM				**COLLUVIUM (TOPSOIL):**
2								@ 0' SILTY SAND, grayish brown, dry, loose; few roots, burrowed.
3				SM				**QUATERNARY ALLUVIUM:**
4								@ 2' SILTY SAND, brown, slightly moist, loose; fine.
5			10					
6								@ 5' As per 2'.
7								
8								
9								
10			11	SP	93.1	11.6	39.5	@ 10' SAND with SILT, dark brown, slightly moist, loose.
11								
12								
13								
14								
15			12					@ 15' As Per 10', moist, medium dense.
16								
17								
18 ▽								@ 18' Groundwater encountered.
19								
20			15		No Recovery			@ 20' No recovery.
21								
22								
23								
24								
25			12					@ 25' SAND with SILT, dark brown, saturated, medium dense.
26								
27								
28								
29								

BORING LOG

GeoSoils, Inc.

W.O. 6960-A-SC

PROJECT: OCEAN BREEZE RANCH, LLC
5820 West Lilac Road, Bonsall

BORING HSA-5 *SHEET* 2 *OF* 2

DATE EXCAVATED 5-18-16

SAMPLE METHOD: 140 Lb. Hammer @ 30" Drop

Approx. Elevation: 197'

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Seepage

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/Ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
31–34			37	SW	112.0	17.7	100	@ 30 SAND with SILT, dark gray, saturated, medium dense; fine to coarse grained.
35–39			15	SP/ML				@ 35' SAND with SILT, dark gray brown, saturated, medium dense; and SANDY SILT, dark gray, saturated, stiff.
40–44			44	SP	104.1	24.5	100	@ 40' SAND with SILT, gray, saturated, medium dense to dense.
45–49			28	SP/SW				@ 45' SAND with SILT and gravel, dark gray, saturated, medium dense to dense.
50–51			30	SP	108.7	18.1	100	@ 50' SAND with SILT, brown, saturated, medium dense.
51–59								Total Depth = 51' Groundwater Encountered @ 18' (EL = 179' MSL) Backfilled 05/18/16

BORING LOG

GeoSoils, Inc.

W.O. 6960-A-SC

PROJECT: OCEAN BREEZE RANCH, LLC
5820 West Lilac Road, Bonsall

BORING HSA-6 *SHEET* 1 *OF* 2

DATE EXCAVATED 5-18-16

SAMPLE METHOD: 140 Lb. Hammer @ 30" Drop

Approx. Elevation: 195'

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Seepage

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/Ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
1				SM				**COLLUVIUM (TOPSOIL):**
2								@ 0' SILTY fine SAND, dark gray, slightly moist, loose; burrowed, roots.
3				SM				**QUATERNARY ALLUVIUM:**
4								@ 2' SILTY SAND, dark brown, slightly moist, loose; fine grained, micaceous.
5			13		97.4	7.7	29.1	@ 5' As per 2', moist, loose to medium dense.
6								
7								
8								
9								
10			12					@ 10' As per 5', medium dense.
11								
12								
13								
14								
15			17	SP	104.2	21.1	95	@ 15' SAND, gray brown, moist to wet, medium dense; medium grained, few fines.
16								
17 ▽								@ 17' Groundwater encountered.
18								
19								
20			18					@ 20' SAND with SILT, dark gray, saturated, medium dense.
21								
22								
23								
24								
25			29					@ 25' As per 20'.
26								
27								
28								
29								

BORING LOG

GeoSoils, Inc.

W.O. 6960-A-SC

PROJECT: OCEAN BREEZE RANCH, LLC
5820 West Lilac Road, Bonsall

BORING HSA-6 *SHEET* 2 *OF* 2

DATE EXCAVATED 5-18-16

SAMPLE METHOD: 140 Lb. Hammer @ 30" Drop

Approx. Elevation: 195'

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Seepage

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/Ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
31			19	SP				@ 30' SAND with SILT, dark gray, saturated, medium dense; fine to coarse grained.
35			47		113.7	16.1	100	@ 35' As per 30', dense.
40			8					@ 40' As per 35', loose; some gravel.
45			46		107.8	19.2	100	@ 45' As per 40', dense; no gravel.
50			50					@ 50' As per 45'.
52								Total Depth = 51½' Groundwater Encountered @ 17' (EL = 178' MSL) Backfilled with Bentonite Clay 05/18/16

BORING LOG

GeoSoils, Inc.

W.O. 6960-A-SC

PROJECT: OCEAN BREEZE RANCH, LLC
5820 West Lilac Road, Bonsall

BORING HSA-7 *SHEET* 1 *OF* 1

DATE EXCAVATED 7-5-16

SAMPLE METHOD: 140 Lb. Hammer @ 30" Drop

Approx. Elevation: 202'

Standard Penetration Test

Undisturbed, Ring Sample

Groundwater

Seepage

Depth (ft.)	Sample: Bulk	Sample: Undisturbed	Sample: Blows/Ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Saturation (%)	Description of Material
1				SM				**COLLUVIUM (TOPSOIL):**
2								@ 0' SILTY SAND, dark grayish brown, wet, loose.
3				SM				**QUATERNARY ALLUVIUM:**
4								@ 2' SILTY SAND, grayish brown, wet, loose.
5		▨		SM	94.0	14.0	50	
6								Total Depth = 6'
7								No Groundwater Encountered
8								Backfilled 07/5/16
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