COUNTY OF SAN DIEGO

GUIDELINES FOR DETERMINING SIGNIFICANCE AND REPORT FORMAT AND CONTENT REQUIREMENTS

MINERAL RESOURCES

LAND USE AND ENVIRONMENT GROUP

Department of Planning and Land Use
Department of Public Works

First Revision
July 30, 2008

APPROVAL

I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Mineral Resources** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and were considered by the Director of Planning and Land Use, in coordination with the Director of Public Works on the 30th day of July, 2008.

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I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Mineral Resources,** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and have hereby been approved by the Deputy Chief Administrative Officer (DCAO) of the Land Use and Environment Group on the 30th day of July, 2008. The Director of Planning and Land Use is authorized to approve revisions to these Guidelines for Determining Significance for Biological Resources and Report Format and Content Requirements for Biological Resources and Resource Management Plans except any revisions to the Guidelines for Determining Significance presented in Section 4.0 must be approved by the Deputy CAO.

Approved, July 30, 2008

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CHANDRA WALLAR
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COUNTY OF SAN DIEGO

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EXPLANATION

These Guidelines for Determining Significance for Mineral Resources and information presented herein shall be used by County staff for the review of discretionary projects and environmental documents pursuant to the California Environmental Quality Act (CEQA). These Guidelines present a range of quantitative, qualitative, and performance levels for particular environmental effects. Normally, (in the absence of substantial evidence to the contrary), non-compliance with a particular standard stated in these Guidelines will mean the project will result in a significant effect, whereas compliance will normally mean the effect will be determined to be "less than significant." Section 15064(b) of the State CEQA Guidelines states:

> "The determination whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on factual and scientific data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

The intent of these Guidelines is to provide a consistent, objective and predictable evaluation of significant effects. These Guidelines are not binding on any decision-maker and do not substitute for the use of independent judgment to determine significance or the evaluation of evidence in the record. The County reserves the right to modify these Guidelines in the event of scientific discovery or alterations in factual data that may alter the common application of a Guideline.

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List of Acronyms

AC	Asphalt Concrete
CEQA	California Environmental Quality Act
CGS	California Geologic Survey
CPA	Community Planning Area
DMG	Division of Mines and Geology
MRZ	Mineral Resource Zone
NEPA	National Environmental Policy Act
NSSGA	National Stone, Sand and Gravel Association
P-C	Production-Consumption Region
PCC	Portland Cement Concrete
SMARA	Surface Mining and Reclamation Act
SMGB	State Mining and Geology Board
USGS	United States Geologic Survey

INTRODUCTION

This document provides guidance for evaluating adverse environmental effects that a proposed project may have on mineral resources. Specifically, this document addresses the following questions listed in the State CEQA Guidelines, Appendix G, Section X., Mineral Resources:

Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

The primary goal of this document is to establish guidelines for limiting the encroachment of incompatible land uses into areas of known, existing, and potential mineral resources. Impacts to the supply can and have occurred when incompatible land uses are located on or close to these resources.

From a CEQA perspective, projects located on or near a historic gold, gemstone, or other rare mineral resource mine would be analyzed on a case-by-case basis to determine if the mine is a significant historic resource. The "County of San Diego Guidelines for Determining Significance – Cultural Resources: Archeological and Historic Resources" addresses such historic resources.

1.0 GENERAL PRINCIPLES AND EXISTING CONDITIONS

Construction materials are essential to the existing and future needs of San Diego County, providing materials for the construction of roads, parking lots, buildings, homes, schools, hospitals, shopping centers and other essential infrastructure. The County's supply of aggregate materials is large and could meet County demands for mineral resources over the next several generations. However, the western portion of the County has undergone rapid development that has encroached upon existing and potential future mining sites. As a result, the locally permitted construction aggregate supply has not kept up with demand, resulting in San Diego now having the highest prices for aggregate of any region in the State. To meet the demand, aggregate is now being imported into the County from several locations throughout southern California and sand is being brought in by barge from Mexico. Reliance upon imported aggregate has become necessary to keep up with demand, even though transportation increases the cost of mineral resources for all users. Conservation of the remaining areas from which mineral resources can be extracted must be carefully evaluated to avoid shortfalls in construction aggregate supply. While not as critical, other locally important mineral resources in the County include rocks that can be used for dimension stones, and also minerals of historical significance including precious metals (gold) and gemstones.

1.1 Defining Mineral Resources

In evaluating impacts under CEQA, the term “mineral resources” is used. In mining and conservation, economists, engineers, and scientists use the term “mineral resources” to mean a concentration or occurrence of natural, solid, inorganic or fossilized organic material in or on the earth’s crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction.

For purposes of this document, there are three general categories of mineral resources important to San Diego County:

- **Construction materials** – sand, gravel, and crushed rock. This is economically the most important category of mineral resources.

- **Industrial and chemical mineral materials** – limestone, dolomite, and marble (except where used as construction aggregate); specialty sands, clays, phosphate, borates and gypsum, feldspar, talc, building stone and dimension stone.

- **Metallic and rare minerals** – precious metals (gold, silver, platinum), iron and other ferro-alloy metals, copper, lead, zinc, gemstones and semi-precious materials, and optical–grade calcite.

1.1.1 Construction Materials

Sand, gravel, and crushed rock provide essential construction aggregate materials for modern society and are economically the most important mineral resource category in San Diego County. Aggregate is used in one form or another for the construction of roads, parking lots, buildings, homes, schools, hospitals, shopping centers and other essential infrastructure. The highest grade aggregate is used to provide the bulk and strength to Portland Concrete Cement (PCC) and Asphalt Cement (AC), and lesser grade materials can be used for other applications such as Class II base, sub-base, fill, and rip-rap.

PCC and AC Aggregate. Rigid specifications for PCC and AC have been established by several agencies including the U.S. Bureau of Reclamation, the U.S. Army Corps of Engineers, and the California Department of Transportation to ensure the construction of strong, durable structures capable of withstanding the physical and chemical effects of weathering and use. As an example, specifications for PCC prohibit or limit the use of rock materials which contain gypsum, pyrite, zeolite, opal, chalcedony, chert, siliceous shale, volcanic glass, and some high-silica volcanic rocks (CGS, 2006). Each can cause physical and/or chemical effects which make the rock unsuitable for use as PCC. These restrictive specifications make PCC or AC aggregate the scarcest and most valuable form of aggregate. Within the County, crushed rock is the primary source of locally mined PCC aggregate. PCC sand is very scarce in the County because local mining of alluvial sand and gravel deposits is limited due in part to environmental and

regulatory constraints of permitting and extracting sand and gravel from instream and floodplain areas.

Alluvial Sand and Gravel. Within the unincorporated portion of the County, alluvial sand and gravel deposits are generally found in river and stream valleys, alluvial fans, and in intermountain alluvial valleys (see Figure 1). Alluvial materials are generally composed of a range of grain sizes that make them readily compactable while retaining good internal drainage. These characteristics make them a preferred material for fills and bases for pavements and other structures. The rounded particles of alluvial gravel are preferred over the angular particles of crushed rock for PCC aggregate. In addition, alluvial gravel deposits are usually loose, easily handled, and require minimal ripping, drilling, blasting, and crushing as compared to rock quarries.

Crushed Rock. Within the unincorporated portion of the County, potential deposits for crushed rock are extensive (hundreds of square miles) and include Cretaceous granitic rocks of the Peninsular Ranges batholith that underlie approximately 70 percent of the unincorporated portion of the County, Upper Jurassic and Lower Cretaceous Santiago Peak metavolcanics, and Tertiary marine and non-marine sedimentary formations (see Figure 1). To produce crushed rock requires significant mining and processing including ripping, drilling, blasting, and crushing of the rock, which makes crushed rock materials more costly to produce than naturally-occurring alluvial sand and gravel deposits. However, PCC made with crushed rock aggregate can generally be satisfactory and can supplement the local supply of alluvial sand and gravel.

1.1.2 Industrial and Chemical Mineral Materials

Industrial and chemical mineral materials found within the County include, but are not limited to, ash, boron, clay, bentonite, kaolinite, dolomite, feldspar, graphite, gypsum, mica, perlite, phosphorous, pumice, quartz, specialty sands, sodium, and dimension stone. Dimension stone consists of large, sound, relatively flawless blocks or slabs of stone used for buildings, monuments, paving, countertops, etc. In San Diego County dimension stone of granite, gabbro, marble and limestone are quarried.

Most of the unincorporated portion of the County, especially east of the urbanized areas, is underlain by granitic rocks. Granite is one of the most versatile stone types because it is capable of taking a wide variety of finishes, which allows designers to custom-tailor the stone to specific aesthetic or performance requirements. Composed mostly of quartz and feldspars, granite is scratch resistant and durable. Granite is a choice material for high precision applications such as surface plates, and machine mounts and press rolls, where tolerances can be measured in micro-inches (millionths of an inch).

1.1.3 Metallic and Rare Minerals

No gold and only a few gemstone mines are currently active in the County, but each has played a very important historic role in the settlement of several towns largely in the backcountry of eastern San Diego County. Historical mining sites are important for their scientific, educational, and recreation uses. In addition, some historical mines may still contain resources of commercial value.

Attachment A provides a brief summary of the history of gold and gemstone mining in San Diego County. Though gemstones are not a necessary commodity for an expanding population, they provide other benefits to the region, such as worldwide recognition as there are a number of unique and rare gems that have been and are continuing to be mined in San Diego County.

1.2 Geologic Environments

Geologic processes in San Diego County such as intrusive emplacement of magma, volcanism, erosion, sedimentation, and hydrothermal processes determine the type, location, and concentration of all mineral resources. The following general geologic environments created from these various geologic processes are the most important to mineral resources that are found within the County (Figure 1):

- **Quaternary alluvium –** Sand and gravel can easily be mined and processed for construction materials from this geologic environment.

- **Tertiary Age sedimentary rocks –** Conglomerate and other sedimentary rock types can be quarried for construction materials from this geologic environment.

- **Cretaceous Age crystalline rocks and Upper Jurassic metavolcanics –** Granitic rocks and other rock types can be quarried for coarse aggregates that are needed for concrete, riprap (broken rock) for breakwaters and bank protection, as well as decorative and dimension stone from this geologic environment.

1.3 Mining Economics

Although the geologic considerations are the dominant factors determining the ultimate availability of most minerals, the economic factors usually determine when and if a particular mineral deposit can be mined. In both dollar value and tonnage, the extraction of sand and gravel is the most productive type of mining in San Diego County. The deposits are vital to community development, which cannot occur without them. To be of use, however, deposits must be close enough to urban centers to supply the needs economically. While most mineral resources are considered exhaustible resources, rapid replenishment of sands and gravels can occur in certain alluvial settings within floodways and stream channels such as the San Luis Rey River valley, making these deposits economically the most desirable areas for potential

mining operations. However, environmental and regulatory constraints make obtaining new permits for these areas difficult.

Some basic considerations for determination of the economic feasibility for potential mining locations in San Diego County include:

- **Supply and Demand –** The number of permitted quarries in the County have not kept pace with the increasing demand for sand and aggregate. The shortage of local PCC sand has partially contributed to the San Diego region having the highest price for aggregate of any regional market in California. As of January 2006, the total permitted aggregate resources in western San Diego County were 198 million tons, a 28% decrease from January 2001 (CGS, 2006). This amount of permitted aggregate resources represents only 17% of the 50-year estimated demand of 1,164 million tons for the County. If no additional mines are permitted in the County, only five active mines may remain by the year 2030. Prices will continue to increase due to the imbalance between supply and demand, and any new permitted aggregate mines in the local market will likely benefit economically from this situation. Supply of gemstones and other rare minerals is low and as a result, demand and cost for these types of minerals will continue to remain high.

- **Onsite mining and processing costs –** Onsite mining and processing of sand and gravel aggregate derived from alluvial deposits is less expensive than crushing rock. Crushed rock requires higher mining and processing costs due to ripping, drilling, blasting, and crushing of the rock. Mining of dimension stone is also expensive. Mining for gemstones is labor intensive and the resulting volume of minerals is small. It is also costly to extract gemstones and other rare minerals.

- **Transportation costs –** Transportation plays an important role in the cost of mineral resources to the consumer, and is the principal constraint in defining the market area for an aggregate mining operation. The cost of aggregate increases approximately 15 cents per ton for every mile it is hauled from the source location (CGS, 2006). Due to the expensive mining and processing combined with transportation costs of crushed rock, proximity to urban centers is important to reduce costs. According to the local mining community, this currently restricts crushed rock operations to urbanized areas within the western portion of San Diego County. Compared to crushed rock, alluvial sand and gravel mining and processing is relatively inexpensive, and there is also a scarcity of PCC sand being mined in the County. According to the local mining community, this has made it economically feasible for alluvial sand and gravel mines to be potentially permitted in the eastern portion of the County provided there is a very efficient freeway or railway access to get the materials to market in the urbanized western portion of the County. Unlike construction minerals, the cost of transporting gemstones is low.

1.4 Planning for Mineral Resources

1.4.1 History

The planning and environmental review process for mining in California was triggered essentially by a 1967 amendment to California's General Code, which added "natural resources" to those items that must be considered in land use planning. Then in 1973 the California Division of Mines and Geology published a report that showed (a) the need for mineral resources, (b) how mineral resources were being needlessly lost to the people of the state, and (c) what the loss of mineral resources would cost citizens of California by the year 2000. This report was the official acknowledgement that management of mineral resources is a critical part of the planning process.

Construction Aggregate Shortage. Several studies have disclosed the shortage and effects of urbanization on mineral resource extraction and in some cases also included recommendations for planning for future extraction of construction aggregate:

- "Planning for Sand and Gravel in San Diego" by the City of San Diego (1966) identified the kinds of community problems associated with the extraction and processing of sand and gravel and suggested measures for their solution.

- "Urban Geology Master Plan for California" by DMG (Alfors et al. 1973) estimated that between 1970 and the year 2000, the mineral resource losses to urbanization in California would total $17 billion, an amount based on the added cost to the public for increased transportation, relocating mining operations further from markets, and the use of lower grade deposits that would require more processing.

- "The River Sand Resource Study for the San Diego Coastal Plain" by County of San Diego (1974) concluded that the supply of construction quality sand authorized at that time for extraction was nearing the crisis stage. Though enough sand existed in the County, not all of it was available or of the quality needed for construction materials.

- "Update of Mineral Land Classification: Aggregate Materials in the Western San Diego County Production-Consumption Region" by DMG (1996), the DMG concluded that aggregate reserves had significantly decreased since 1982 and that the demand for aggregate would continue to be met in the western portion of the County only until 2016.

- "Map Sheet 52 – Aggregate Availability in California" by the California Geological Survey (2006), stated that the highest priced aggregate in the State of California is the San Diego area. PCC grade sand, which is in very short supply, averaged approximately $20-$22/ton, and coarse PCC grade aggregate was more abundant and averaged approximately $15/ton. The total permitted aggregate resources as of January 2006 were 198 million tons, a 28% decrease from January 2001. The permitted aggregate resources of 198 million tons were only 17% of the 50-year estimated demand of 1,164 million tons. Due to the shortage in supply in the San Diego area, aggregate was being imported from the San Gabriel Valley, the San Bernardino production area and Temescal Valley, and southwest Imperial County. In addition, sand was also being shipped by barge from Mexico into the San Diego Bay region.

1.4.2 Current Planning Issues

Construction mineral resource production and growth has been a planning issue in San Diego County for many years. To keep the price of mineral resources as low as possible, and thus keep the cost of housing and supporting infrastructure as low as possible, mines need to be close to the area that is being built. Construction mineral resources are heavy, and transportation increases their cost dramatically. Balancing the need for construction materials with urbanization, competing and incompatible land uses, public perception of mines, and permitting requirements is a planning challenge.

Urbanization and Permanent Resource Loss – Despite society's dependence on construction materials, urban expansion often works to the detriment of the potential future extraction and use of those essential raw materials. Extraction of mineral resources for construction is often precluded by another existing land use. For example, aggregate resources that exist under a housing development or shopping center cannot be extracted. Also, if a housing development were allowed adjacent to an area with suitable aggregate for extraction, land use compatibility issues arise that also could preclude the extraction of the aggregate. Cumulatively, vast areas of potentially mineable mineral resources within the western region of the County have been permanently lost due to urbanization.

Noise Setbacks – Noise from quarry and mining activities is typically the largest environmental impact to nearby noise sensitive land uses (such as residential developments, industrial developments, commercial developments, and major public facilities). In order to meet the noise standards outlined in the County Noise Ordinance, an adequate setback between noise-related activities associated with extractive uses is necessary to protect sensitive land uses from noise that exceeds the allowable limits of the County Noise Ordinance. Although setback distances may vary from project to project, a general noise setback area of approximately 1,300 feet is usually an adequate distance for most typical potential extractive operations to achieve allowable noise levels (in compliance with the County Noise Ordinance). For example, 1,300 feet would usually attenuate typical heavy equipment noise levels of 75 to 90 dBA to the County Noise Ordinance standard of 50 dBA for daytime residential land use. It is important to

note that the setback is relative to the property line of a noise sensitive land use. The range of the setback area may vary, depending on the noise levels produced by the quarry, proposed blasting, production methods, extent of crushing and screening activities, topographic and site conditions, etc. Setback distance will also depend on the applicable sound level limits at property line as determined by the County Noise Ordinance. The size of the setback may also vary depending on the presence of natural or man-made noise barriers between the noise source and the property line. For example, significant topography could attenuate noise associated with extractive activities at the property line, allowing for a reduced setback to achieve Noise Ordinance Compliance.

Open Space for Sensitive Environmental Resources – Permanent open spaces placed on parcels for the protection of sensitive environmental resources permanently remove the ability for that land to be utilized for future extraction of mineral resources. Such open spaces often exist in prime aggregate extraction areas such as floodways and provide another difficulty in finding suitable lands for new mines.

Public Concerns – Residents are concerned about potential dust, noise, blasting vibrations, truck traffic, unsightly scars on the land, and loss of habitat caused by aggregate mining, even if these impacts can be mitigated to less than significant under CEQA.

Permitting Requirements – New mines must meet a variety of permitting requirements by various agencies before the mine project can be approved, which may include the following:

- Major Use Permit (which includes an Environmental Impact Report administered under CEQA) from the County of San Diego
- Stormwater Permit from the County of San Diego
- Reclamation Permit from the County of San Diego
- Clean Water Act Section 404 Permit from the Army Corps of Engineers if “waters of the U.S.” are involved.
- Fish and Game Code Section 1603 Agreement with the California Department of Fish & Game if streambeds are involved.

1.5 Mineral Resource Potential

1.5.1 Classification and Designation

The California Surface Mining and Reclamation Act (SMARA) of 1975 required the classification of land into Mineral Resource Zones (MRZs), according to the land’s known or inferred mineral resource potential. The process was based solely on geology, without regard to existing land use or land ownership. The primary goal of classification is to ensure that the mineral potential of land is recognized by local government decision-makers and considered before they make land-use decisions that could preclude mining. The intent was that when resources were identified and the

scarcity was verified, those lands would be protected for future extraction. However, many local governments must choose between mining and its most common competing land use, residential development.

The State Mining and Geology Board prioritizes areas to be classified and/or designated. The highest priority areas are those within the State that are subject to urban expansion or other irreversible land uses that would preclude mineral extraction. Areas where such a possibility is perceived to be most severe, such as Western San Diego County, are given highest priority. About the western one-third of the County was classified into distinct Mineral Resource Zones (MRZs) according to the California Mineral Land Classification System in 1982.

The lands classified in San Diego County are known as the Western San Diego County Production-Consumption (P-C) Zone (Figure 2) and extend from the southern Camp Pendleton boundary, south to the International Border, and from the ocean to an irregular boundary about one-third of the way across the County. The P-C Zone takes in all of the incorporated areas of the County, and the unincorporated communities of Jamul, Alpine, Ramona, Valley Center and Rainbow. Along the San Luis Rey River the boundary extends to Pauma Valley. The remaining lands to the east are referred to as uncategorized zones.

The lands classified for PCC-grade aggregate by the California DMG in 1982 were designated by the State Mining and Geology Board (SMGB) in 1985 as having aggregate resources of regional significance. Deposits that are acceptable for use as PCC-grade are the rarest and most valuable of aggregate resources (DMG 1996). Active mines that extract mineral commodities other than PCC-grade aggregate were not classified.

1.5.2 Mineral Resource Zones

The mineral resource zones as discussed below are shown on Figure 2.

Mineral Resource Zone 1 (MRZ-1)

MRZ-1 are areas where adequate geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. This zone is applied by the California Geologic Survey to lands where well developed lines of reasoning, based on economic-geologic principles and adequate data, indicate that the likelihood for occurrence of significant mineral deposits is nil or slight.

Six areas in the unincorporated County are designated as MRZ-1. Five are in the North Metro Community Planning Area (CPA), just north of the City of Escondido, and one is at the intersection of SR 94 and SR 54, in the Rancho San Diego area of the Valle de Oro CPA.

Mineral Resource Zone 2 (MRZ-2)

MRZ-2 are areas underlain by mineral deposits where geologic data show that significant measured or indicated resources are present. A typical MRZ-2 area would include an operating mine, or an area where extensive sampling has indicated the presence of a significant mineral deposit.

The 1982 classification identified 22 sectors in the unincorporated County as having aggregate deposits, of which 19 (Table 1) are still extractable. Sectors are MRZ-2 areas that meet the SMGB's guidelines as eligible to be designated of regional or statewide significance.

Table 1
Aggregate Resource Sectors

SECTOR	LOCATION
San Luis Rey River Area	
Sector A	A small hill of Santiago Peak Volcanics, east of Oceanside. About 587 acres.
Sector B	Channel and flood-plain deposits of the San Luis Rey River from near North River Road in Oceanside and extending about 6 miles upstream. About 1,307 acres.
Sector C	Channel and flood-plain deposits of the San Luis Rey River from near the Highway 78 bridge upstream to near the Interstate 15 bridge. About 2,160 acres.
Sector D	Alluvial deposits of the San Luis Rey River, extending discontinuously from the Interstate 15 bridge, upstream to the community of Rincon. About 3,704 acres.
Sector E	Alluvial fan deposits on the northern and eastern side of San Luis Rey River from Pala to Pauma Valley. About 5,818 acres.
Sector F	Alluvial fan deposits on the eastern side of San Luis Rey River near the community of Rincon. About 857 acres.
Sector H	Part of the granitic rock in the Merriam Mountains, north of San Marcos. About 124 acres.
San Pasqual Valley	
Sector I	Channel and flood-plain deposits in the San Dieguito River and tributaries from Lake Hodges to the eastern end of San Pasqual Valley. About 3,521 acres.
Kearny Mesa-Mission Valley Area	
Sector J	Mesa-forming Stadium and Pomerado conglomerates centered on the Miramar area. 34,961 acres.
Sector K	Metavolcanic rocks of the Santiago Peak Volcanics located in Mission Gorge. About 386 acres.
Upper San Diego River	
Sector M	Channel and flood-plain deposits of the San Diego River from the City of Santee to within 1 mile of El Capitan Dam. About 2,150 acres.
Sweetwater River	
Sector N	Alluvial deposits of the Sweetwater River located near the community of Sunnyside. About 150 acres.
Sector O	Alluvial deposits of the Sweetwater River located at the upper end Sweetwater Reservoir. About 183 acres.
Sector P	Alluvial deposits of the Sweetwater River located in upper Jamacha Valley. About 343

	acres.
Sector Q	Alluvial deposits of the Sweetwater River extending from near the Singing Hills Golf Course upstream about 4 miles. About 400 acres.
Otay Valley Area	
Sector R	Channel and flood-plain deposits of the Otay River from Interstate 805 to near the head of Otay Valley. About 2,727 acres.
Sector S	Metavolcanic rock deposits of Rock Mountain on the north side of upper Otay Valley. About 360 acres.
Tijuana River	
Sector U	Flood-plain deposits of the Tijuana River from the international boundary downstream about 4 miles. About 2,197 acres.
Border Highlands	
Sector V	Conglomerate deposits of the San Diego Formation in the Border Highlands, immediately south of the Tijuana River. About 475 acres.

Source: California Department of Conservation, Division of Mines and Geology, Special Report 153.

Additional deposits have been classified or reclassified as MRZ-2 for PCC-grade aggregate in the unincorporated County since 1982:

Table 2
Lands Classified Since 1982

Property	Location
Sycamore Ridge Property	Granitic rock deposit in the Merriam Mountains. About 486 acres.
Pankey Ranch Site (Rosemary's Mountain Quarry)	Predominantly granitic rock in northern San Diego County just east of the intersection of I-15 and SR-76, classified for mixed construction aggregate, with some material being suitable for PCC-grade aggregate. About 76 acres.
San Marcos Quarry	Granitics of mostly quartz diorite and granodiorite on the northeastern part of the property and metavolcanics on the southwestern part, reclassified as MRZ-2 from MRZ-3, for construction aggregate and PCC-grade aggregate. About 544 acres.
TTT Quarry	Light-colored, fresh, fine-grained quartz monzonite in Lakeside was reclassified from MRZ-3 to MRZ-2 for PCC-grade aggregate.
San Vicente Creek	Sand deposits in the creek and floodplain downstream from the dam reclassified from MRZ-4 to MRZ-2 for PCC-grade aggregate in Lakeside. About 450 acres.
Hester's Granite Quarry	Quarry in the Valle de Oro area reclassified from MRZ-3 to MRZ-2 for PCC-grade aggregate. The deposit is deeply weathered hornblende gabbro (granitic), sold as decomposed granite and base material. Large hard boulders are broken and used for riprap and crushed aggregate. About 100 acres.
Jamul Creek/Dulzura Creek	Metavolcanic rock on the southern side of Jamul Creek and Dulzura Creek, about a mile upstream of the Lower Otay Reservoir classified MRZ-2 for PCC-grade aggregate. About 148 acres (outside the P-C Region).
Twin Oaks Valley Road, National Quarries	Has been commercially mined since 1940. Mostly mined for dimension stone. Currently mined for aggregates, decomposed granite, boulders, rip-rap, and dimension stone. Quarry is 6 parcels totaling 210.9 acres

Sources: California Department of Conservation, Division of Mines and Geology, Open-File Report 96-04; California Department of Conservation, Division of Mines and Geology, Special Report 191.

Mineral Resource Zone 3 (MRZ-3)

MRZ-3 areas contain known mineral deposits that may qualify as mineral resources. Further exploration work within these areas could result in the reclassification of specific localities into the MRZ-2 category. Most of the rest of the land in the Western San Diego P-C Region is MRZ-3, except a few small areas that are MRZ-4.

Mineral Resource Zone 4 (MRZ-4)

MRZ-4 areas are those where geologic information does not rule out either the presence or absence of mineral resources. The distinction between the MRZ-1 and MRZ-4 categories is important for land-use considerations. The MRZ-4 classification does not imply that there is little likelihood for the presence of mineral resources but rather there is a lack of knowledge regarding mineral occurrence. Further exploration could result in the reclassification of MRZ-4 lands.

Uncategorized Zones

Uncategorized zones are all the lands outside the Western San Diego County P-C Region.

2.0 EXISTING REGULATIONS AND STANDARDS

There are several State and local policies and programs that aim to identify and conserve mineral resources. The following list details the existing laws, regulations, policies and programs that address mineral resource identification and conservation.

2.1 State Regulations and Standards

California Environmental Quality Act Guidelines [Public Resources Code 21000-21178; California Code of Regulations, Guidelines for Implementation of CEQA, Appendix G, Title 14, Chapter 3, §15000-15387. http://ceres.ca.gov/topic/env_law/ceqa/]
Analysis of impacts to mineral resources is required under CEQA. The CEQA Guidelines are concerned with assessing impacts associated with the loss of availability of mineral resources that are of value to the State or region and of locally-important recovery sites that are delineated on a local general plan, specific plan or other land use plan.

Surface Mining and Reclamation Act [Public Resources Code §2710-2797 http://www.leginfo.ca.gov]
Urban preemption of prime mineral deposits and conflicts between mining and other uses throughout California led to passage of the Surface Mining and Reclamation Act of 1975 (SMARA), which establishes policies for the conservation, development, and reclamation of mineral lands, and contains specific provisions for the classification of mineral lands by the State Geologist.

SMARA requires all cities and counties to incorporate in their general plans the mapped designations approved by the Division of Mines and Geology (DMG). These designations are to include lands categorized as Mineral Resource Zones (MRZs). MRZ classifications are set forth in guidelines developed by the State Mining and Geology Board (Guidelines for Classification and Designation of Mineral Lands, 1998) and are used to communicate information concerning the existence of mineral resources. Most of the production and consumption of aggregates within San Diego County is within the westernmost one-third of the County, an area referred to as the Western San Diego County Production-Consumption (P-C) Region. Roughly two-thirds of San Diego County remain unmapped, because when SMARA was passed in 1975, only lands designated as urban areas (i.e. P-C Regions) were required to be classified because the minerals there were in danger of being lost to development. In 1980, SMARA was amended to provide for the classification of non-urban areas as well. However, the non-urban portions of San Diego County have not yet been classified by the SMGB.

Section 2762(d) of SMARA has specific lead agency noticing requirements prior to permitting a use which would preclude future extraction of identified mineral resources, defined as either: (1) the potential to extract minerals in MRZ-2 lands, or (2) land designated in a lead agency's general plan as having important minerals to be protected. Prior to permitting a use that would threaten the potential to extract minerals in either of these two areas, the lead agency (County) shall prepare a statement specifying its reasons for permitting the proposed use. The statement is required to be forwarded to the State Geologist and State Mining and Geology Board for review and is required to comply with the public review requirements of CEQA. The public review period for the mineral resources portion of the notice shall be no less than 60 days from the date of notice. The lead agency (County) is required to prepare a written response to the comments received. In particular, when the lead agency's position is at variance with the recommendations and objections raised in comments, the written response shall address in detail why specific comments and suggestions were not accepted.

2.2 Local Regulations and Standards

San Diego County General Plan [http://ceres.ca.gov/planning/counties/San_Diego/plans.html]
The County's General Plan provides guidance for the management of mineral resources. Mineral resources are discussed in the General Plan's Regional Land Use Element and Conservation Element, as detailed below.

Land Use Element (Part II) of the San Diego County General Plan
[http://ceres.ca.gov/planning/counties/San_Diego/plans.html]
The County of San Diego Regional Land Use Element of the General Plan establishes designated areas considered unsuitable for urban development due to environmental sensitivity and also designates extractive areas containing economically extractable mineral resources.

Conservation Element (Part X) of the San Diego County General Plan
[http://ceres.ca.gov/planning/counties/San_Diego/plans.html]

The County of San Diego Conservation Element of the General Plan establishes estimations for the availability, location, and value of local mineral resources. The Conservation Element also addresses the protection and preservation of mineral deposits (including gemstone deposits) and historical mining sites for commercial extraction and for scientific, education and recreational uses.

San Diego County Zoning Ordinance, [Sections 2820 and 6550 http://www.sdcounty.ca.gov/dplu/docs/z2000.pdf and http://www.sdcounty.ca.gov/dplu/docs/z6000.pdf
Sections 2820 and 6550, Extractive Use Regulations of the County of San Diego Zoning Ordinance are zoning designations that may be used to signify the presence of mineral deposits and/or to preserve areas with valuable mineral deposits until the deposits can be extracted.

The Special Purpose Regulation (S82), Extractive Use Designation (25), and Impact Sensitive Land Use Designation (24) are Zoning and Land Use designations that the County of San Diego uses to group lands of known, existing, and potential mineral resources.

The S82 Extractive Use Regulations identify and create zones within the County where mining and quarrying uses are permitted. While the S82 designates these mineral resource zones, the General Plan Extractive Land Use Designation (25) and Impact-Sensitive Land Use Designation (24) are applied to areas containing economically extractable mineral resources. In some cases, Impact-Sensitive Land Use Designation (24) is not always applied as a designation for mineral resources and can be used to designate resources such as for the protection of biological habitat or other environmentally sensitive resources.

Grading, Clearing and Watercourses Ordinance
Chapter 7, entitled Surface Mining, of Division 7 of Title 8 of the County Code (commencing at Section 87.701) implements SMARA.

3.0 TYPICAL ADVERSE EFFECTS

3.1 Incompatible Land Uses

The primary typical adverse effect to mineral resources in San Diego County is the loss of their availability by the placement of inappropriate and incompatible land uses, which either directly or indirectly make the resource inaccessible for future extraction. Incompatible land uses may include improvements of high cost, such as high-density residential developments, intensive industrial developments, commercial developments, and major public facilities (DMG 1996). Mining operations require an adequate setback from these land uses due to the variety of environmental issues associated with mining, which include, but are not limited to, noise, traffic, air quality, and visual resources impacts. Impacts from noise typically require the largest setback and past County approved noise studies indicate a setback of approximately 1,300 feet is needed for most typical extractive operations. The setback is relative to the property line and may vary depending on site specific conditions such as topography or intervening structures that reduce noise levels at the property line.

Compatible uses may include non-urbanized areas, very low density residential development, land that does not have high-cost improvements, and lands used for agriculture, silviculture, grazing, or open space (Note: there may be cases where open space designated to protect sensitive environmental resources is not compatible to mining).

3.2 Importation of Mineral Resources

If aggregate materials and dimension stone reserves become inaccessible locally, the construction industry would be forced to import more of these supplies than they already do, which may lead to additional indirect impacts. For example, importation of mineral commodities for construction operations results in increased truck traffic, which in turn degrades air quality, increases ambient noise levels, etc.

4.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

This section provides guidance for evaluating adverse environmental effects a project may have on mineral resources. These Guidelines are based on the State CEQA Guidelines, Appendix G, Section X. The primary goal of these Guidelines is to establish measurable standards for determining when an impact will be considered significant pursuant to CEQA.

The following significance guidelines should guide the evaluation of whether a significant impact to mineral resources will occur as a result of project implementation. A project will generally be considered to have a significant effect if it proposes any of the following, absent specific evidence to the contrary. Conversely, if a project does not propose any of the following, it will generally not be considered to have a significant effect on mineral resources, absent specific evidence of such an effect.

1. ***The project is:***

    - ***On or within the vicinity (generally up to 1,300 feet from the site) of an area classified as MRZ-2; or***
    - ***On land classified as MRZ-3; or***
    - ***Underlain by Quaternary alluvium; or***
    - ***On a known sand and gravel mine, quarry, or gemstone deposit;***

    AND

    The project will result in the permanent loss of availability of a known mineral resource that would be of value to the region and the residents of the state;

    AND

    The deposit is minable, processable, and marketable under the technologic and economic conditions that exist at present or which can be estimated to exist in the next 50 years and meets or exceeds one or more of the following minimum values (in 1998 equivalent dollars):

    - ***Construction materials (sand and gravel, crushed rock)*** ***$12,500,000***
    - ***Industrial and chemical mineral materials (limestone, dolomite, and marble [except where used as construction aggregate]; specialty sands, clays, phosphate, borates*** ***$2,500,000***

and gypsum, feldspar, talc, building stone and dimension stone)

- ***Metallic and rare minerals (precious metals [gold, silver, platinum], iron and other ferro-alloy metals, copper, lead, zinc, uranium, rare earths, gemstones and semi-precious materials, and optical–grade calcite)*** ***$1,250,000***

2. The project would result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Significance Guideline 1 addresses question a) of Section X of Appendix G of the State CEQA Guidelines. MRZ-2 and MRZ-3 areas are shown on Figure 2. A typical MRZ-2 area would include an operating mine, or an area where extensive sampling has indicated the presence of a significant mineral deposit. MRZ-3 areas contain known mineral deposits that may qualify as mineral resources and could result in the reclassification of specific localities into the MRZ-2 category. Areas of Quaternary alluvium are indicated on Figure 1. It is now economically feasible to mine alluvial deposits in the eastern portion of the County provided there is relatively fast access to Interstates and/or State routes to economically bring the product to market in the western region of San Diego County. Existing (and in some cases historic) sand and gravel mines, quarries, and gemstone deposits are shown on Figure 3. Some mines with important resources in the County may not be recorded in the County's database and, therefore, would not be shown on Figure 3. However, that does not preclude consideration of other sites not shown. A significant impact would occur if these important resources were to become permanently inaccessible and the resources have been determined to be minable, processable, and marketable under the technologic and economic conditions that exist at present or which can be estimated to exist in the next 50 years and meets or exceeds the CGS State Geologist minimum dollar values for mineral resources.

Significance Guideline 2 addresses question b) of Section X of Appendix G of the State CEQA Guidelines. This guideline addresses projects which would result in the loss of availability of mineral resources on lands zoned as S82 by the Extractive Land Use Overlay, or General Plan Extractive Land Use Designation (25) and Impact-Sensitive Land Use Designation (24). The S82 is a Zoning designation where mining and quarrying are allowed, and the General Plan 25 and 24 designations are applied to areas with economically extractable mineral resources. The County of San Diego uses these designations to group lands of known, existing, and potential mineral resources. In some cases, Impact-Sensitive Land Use Designation (24) is not always applied as a

designation for mineral resources and can be used to designate resources such as for the protection of biological habitat or other environmentally sensitive resources.

Any project within a MRZ-2 zone, or within 1,300 feet of a MRZ-2 zone, is required to analyze mineral resource impacts up to 1,300 feet from the project site. 1,300 feet is the setback generally required to achieve acceptable noise levels from a mining or quarry operation to offsite noise sensitive land uses. If the project contributes to permanent losses of onsite and/or offsite MRZ-2 zoned mineral resources (up to 1,300 feet from the project site) that exceed the marketability and minimum dollar values, the impact would be considered significant.

Conversely, the mineral resources of a project site under Guidelines 1 and 2 above may already be lost if the site is surrounded by residential, commercial, or other land uses that are incompatible to mining. Therefore, the mineral resources on project sites located in those areas may not be considered a significant loss if it is deemed that they have already been lost by existing incompatible land uses up to 1,300 feet from the project site. For projects which propose permanent open space for the protection of sensitive environmental resources, the land within the open space may be considered to be permanently inaccessible for future mining activities and could contribute to mineral resource loss.

5.0 STANDARD MITIGATION AND PROJECT DESIGN FACTORS

A project will be evaluated for its effect on mineral resources under the criteria specified in Section 4.0. If mitigation or project design factors are identified that could reduce a significant effect, those shall be incorporated into the project. While project design elements and/or mitigation shall be incorporated into a project, it may not always be possible to reduce the impact to below a level of significant. In general, if mitigation or project redesign does not reduce a significant impact to mineral resources to below a level of significant, the impact will be considered significant and unmitigable.

The standard mitigation and design factors for impacts to mineral resources are meant to ensure that a significant resource will not be made inaccessible for future extraction. For this reason, the only mitigation and design factors appropriate would be to extract the resource and reclaim the site before project approval; to avoid the site, which would only be possible if the project site is large enough to accommodate avoidance and to also not be impacted by future mining of the resource; or to approve only land-uses that can be considered minor or temporary in nature.

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Figure 1 – San Diego County Geologic Environments

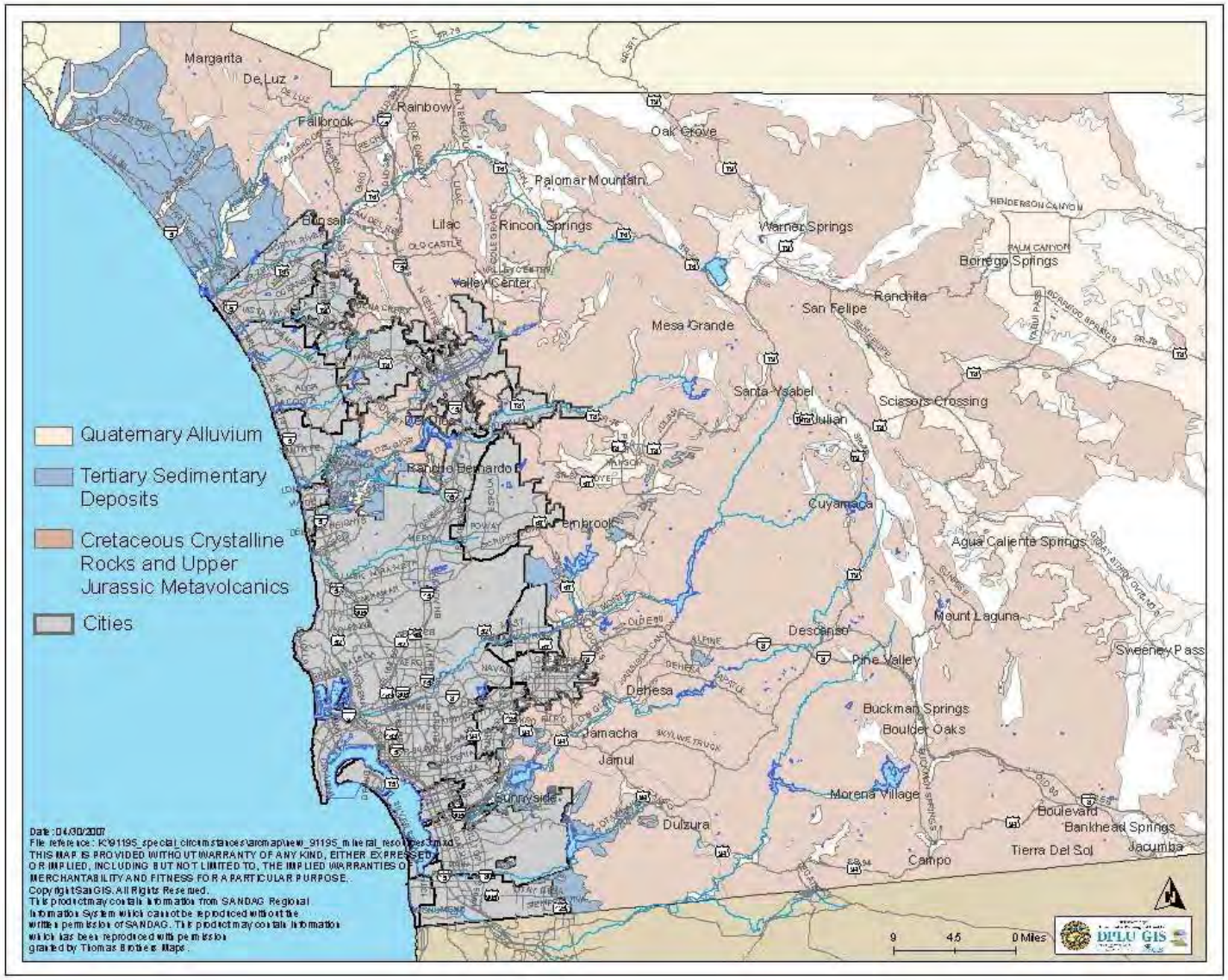


Figure 2 – Mineral Resource Zones

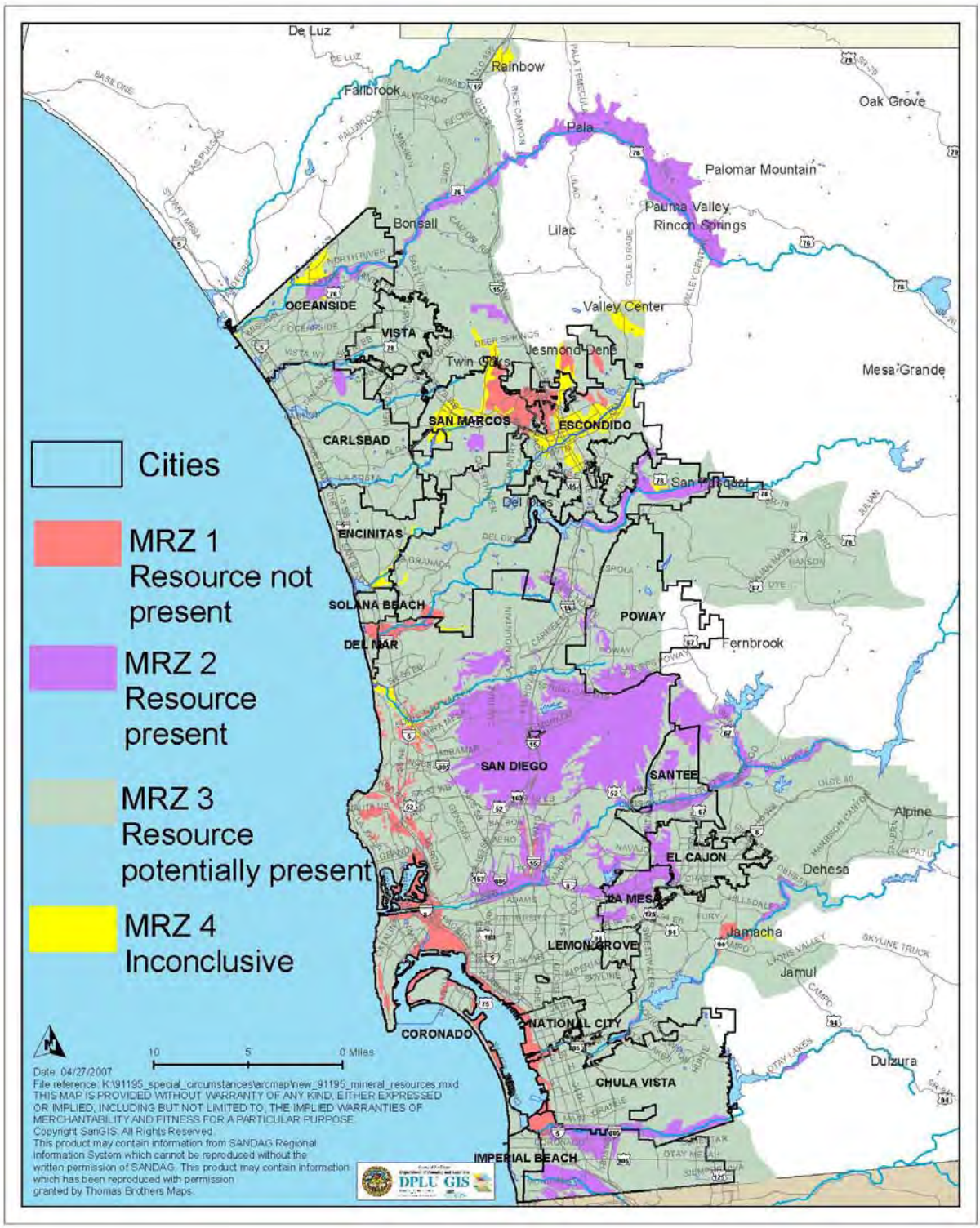
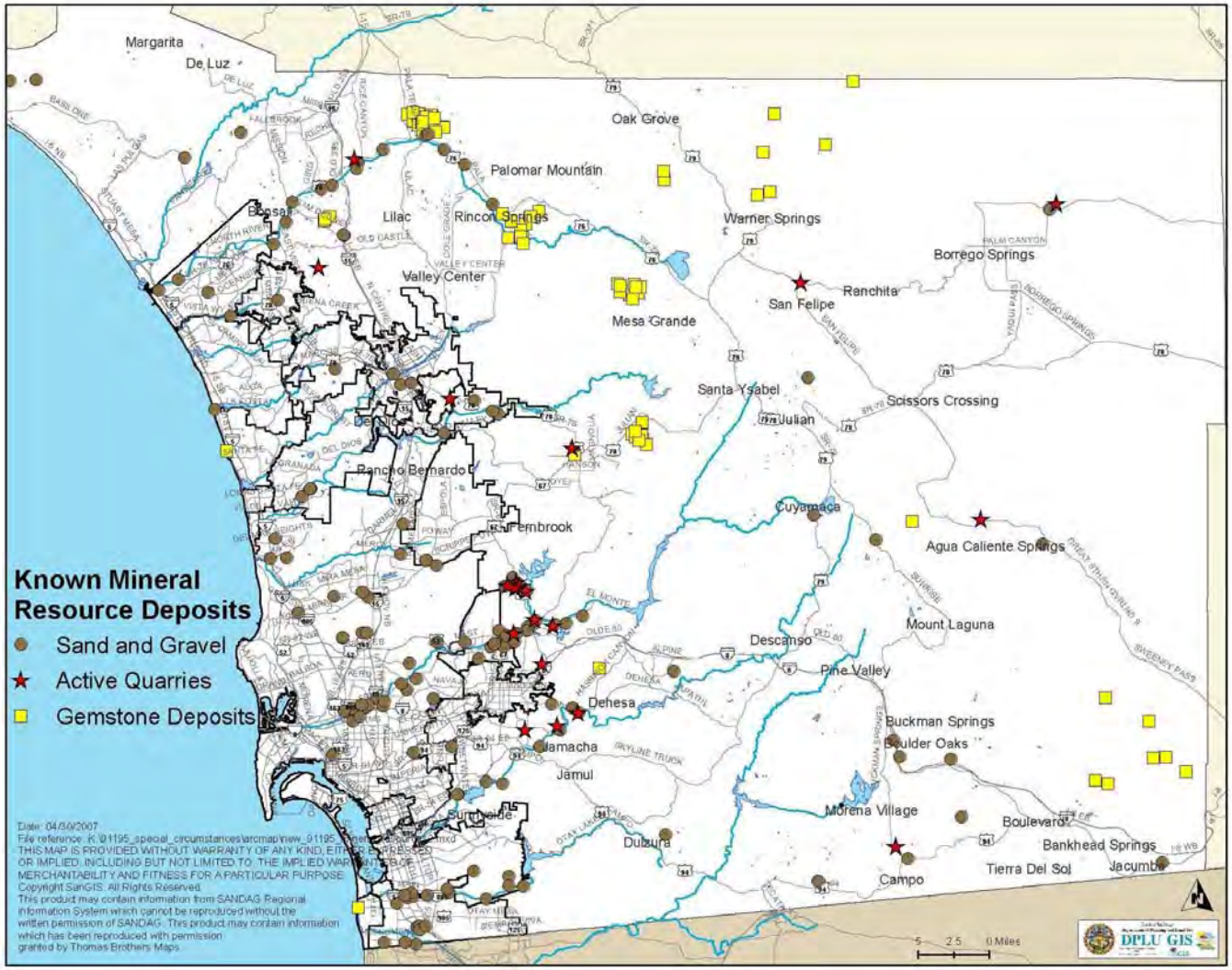


Figure 3 – Quarries, Mines, and Gemstone Deposits



[ATTACHMENT A]

Brief History of Gold and Gemstone Mining in San Diego County

Gold

This information about gold mining in San Diego County is from "Stranger than Fiction: Vignettes of San Diego History" (Crawford 1995). Gold was discovered in the Cuyamaca Mountains and began the Julian gold rush of 1870. Miners poured into the region and "Julian City" and Banner became sizeable towns. The mining boom lasted less than 5 years. Its decline began in 1873 when the plans for the long-anticipated Texas and Pacific Railroad collapsed and a severe recession gripped the region. Gold production began to decline and, by 1876, most of the mines had closed. Gold mining revived in the late 1800s, helped by the completion of railroad connections to the north but again declined and ceased by the early 1900s.

Gold was found in the Escondido area in the 1890s. The most important site from 1896 to 1911 was a 350-foot incline shaft that followed a vein of gold-bearing quartz. Activity at this site slowed from the 1920s to about 1932, when mining stopped. Citrus and avocado groves soon covered all traces of the Escondido mines.

Gemstones

Gem mining began in San Diego County during the late 1800s, and from about 1904 to 1909 large amounts of gem minerals were mined. During that time, the Tourmaline King Mine pegmatite, averaging 8 feet in thickness, produced nearly 8 tons of pink tourmaline and many exceptionally large and deeply colored crystals, most of which were purchased by the Imperial Chinese government. Gem mining waxed and waned through the 20th century, depending on economics and gem popularity. During that time the County's mines have become known for their many different types of gems, including many unusual types. Mindat, a mineralogy database, lists 185 minerals from 655 sites in San Diego County (Mindat 2006), many of which are gemstones. Though the mines have been much depleted (several tons of minerals, mostly tourmalines, have been extracted), fine gems are still mined in San Diego County on a much smaller scale. San Diego's primary gem areas are all in the unincorporated County: Pala, Mesa Grande, Ramona, and Jacumba. Some of the gemstone minerals from San Diego County are cut as gems, but most are sold as specimens for collectors and museums.

[Attachment B]

SUMMARY OF REVISIONS

Guidelines for Determining Significance and Report Format and Content Requirements for Mineral Resources were originally approved on July 30, 2007. The following is a summary of revisions made since original document approval.

First Revision, July 30, 2008

- Changes to clarify discussions of noise setbacks
- Added SMARA noticing requirements