

CHAPTER 2.0 SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT

2.1 Mineral Resources

A mineral resources investigation was prepared by David L. Schug with URS Corporation. The report, entitled “Mineral Resources Investigation Shadow Run Ranch” dated February 15, 2013, is included as Appendix T, Volume III of the technical appendices of the DEIR.

2.1.1 Existing Conditions

Topographic Setting

The project area is within the Pauma Valley above the San Luis Rey River (SLRR). The property encompasses broad alluvial fans emanating from the Agua Tibia Mountains to the east.

Portions of the project site are mapped as MRZ-2 (see Figure 2-1-1, “Mineral Resource Zones”). The California Division of Mines and Geology defines MRZ-2 as those areas where adequate information indicates that significant mineral resources are present or where it is judged that a high likelihood for their presence exist.

The land within the MRZ-2 portion of the project area consists of a broad, gently sloping terrace-like surface that slopes down to the south towards the SLRR. Ground surface elevations within this area range between about 1,130 feet and 730 feet MSL. The upper part of the site (not within an MRZ-2) is a relatively steep mountain front.

The Elsinore Fault extends across the upper portion of the MRZ-2 area onsite. Past movement along the fault has created the relatively steep hillside area, to the east and upslope of the proposed residential area. The ground surface west of the fault slopes down to the west at about a 10 percent gradient. The land surface flattens to a gradient of about 6 to 7 percent slope in the approximate mid-portion of the proposed residential area.

Mineral Resource Potential

The MRZ-2 designation encompasses alluvial fan deposits on the northern and eastern sides of Pauma Valley (Figure 2-1-1). According to the County of San Diego Guidelines, this area encompasses about 5,818 acres and would potentially be a source of construction materials including sand, gravel and crushed rock.

According to the United States Geologic Survey, several past private producers have mined Quaternary alluvium as a source of construction sand and gravel in the same MRZ-2 area. Most of these operations involve extracting recent alluvial deposits from the SLRR.

A former quarry in an alluvial fan deposit near Pala covers an area of about 0.25 square miles to a depth of at least 20 feet, and consists of crudely stratified lenses of cobbles and boulders. After being crushed, sized, and washed, the material was used as concrete aggregate (Bureau of Mines, 1982).

Another former quarry had operated by Vulcan Materials within alluvial fan deposits about 3 miles west of the project site. The former 200-acre quarry has been closed for some time and is presently operated as an off-road vehicle park. Our brief reconnaissance of the former quarry indicates alluvial fan deposits had been removed from within broad pits to depths up to about 20 feet. There apparently has been no reclamation of the former pits.

Geology

The MRZ-2 within the project area includes Younger and Older Fan Deposits. Alluvial fan deposits underlie the entire proposed development area.

Exploratory trenches were excavated onsite during previous fault investigation (URS, 2001, 2009). Ten fault trenches were excavated mostly in the older (alluvial) fan deposits. The trenches were excavated with a heavy-duty backhoe, typically to refusal depths.

The alluvial fan deposits were described in the trenches as very coarse grained, largely unstratified and very poorly sorted. The deposits were primarily sandy containing a large percentage of gravels, cobbles and boulders. The boulders are mostly granitic, with diorite and dark gabbro. The alluvial fan deposits extend to depths at least 17 feet below ground surface, the maximum depth of the trenches. The granitic gravels, cobbles and boulders within the depths of the trenches were weathered and decomposed to varying degrees. Topsoil and other soil overburden were relatively thin in the trenches.

The fan gravels were highly weathered and decomposed in trenches excavated at higher site elevations, located generally along and to the east of the Elsinore fault (URS, 2009). Beneath a thin layer of younger alluvium, highly weathered and decomposed boulders were estimated to comprise about 30 percent of the older alluvium.

Although the alluvial fan deposits extend to depths greater than the trenches, the materials appear to become more weathered with depth. Existing water supply wells drilled along Frey Creek penetrated young alluvium and continued into the underlying older alluvial fan deposits, terminating in granitic bedrock. At depths greater than several tens of feet, the available well logs typically describe the boulders as “decomposed with iron coatings”, with zones of “DG” and clay layers.

2.1.2 Analysis of Project Effects and Determination as to Significance

To evaluate whether or not the onsite deposits within the MRZ-2 would be considered significant for construction material, three things were considered: anticipated material

quality and extraction requirements, land use compatibility, and an assessment of marketability and minimum dollar value for the extractable resource volume.

The material waste percentage of the alluvial fan deposits in the Pauma Valley area had been estimated at about 20 percent (WCC, 1979). Waste materials would result primarily from the high fines content and variable composition and weathering of the gravels, cobble and boulders. The more highly weathered and decomposed materials (as observed in the trenches) would likely provide low quality coarse aggregate material. The bulk unit weight is estimated to be about 98 pounds/cubic foot (1.3 tons/cubic yard).

Based on the trenches, the older alluvial fan deposits could be excavated to depths up to about 15 to 20 feet using heavy-duty grading equipment, such as a track-mounted track hoe (e.g., Komatsu 400PC with pneumatic rock breaker). Other earth moving equipment, such as a large dozer with ripper shanks and front end loader would be required to manage materials. An onsite grizzly and crusher would be required.

The material would need to be crushed, sized, and washed, to be used as concrete aggregate. Considering land use, an onsite quarry would need to have appropriate setbacks from property lines, environmentally sensitive areas, the Elsinore Fault and existing residences.

Some acreage would also be required for onsite crushing, processing and operations facilities. These constraints would reduce the amount of material that could be extracted from the site.

The potentially mineable area would be within the gently sloping topography down slope (west) of the Elsinore fault. The older fan deposits within the higher site areas (to the east of the fault) are likely too highly weathered and decomposed to be suitable for aggregate.

Given the above constraints, it is assumed an approximate 50-acre quarry could be located on the project site. Alluvial fan deposits over this area would be excavated to an average depth of about 15 to 20 feet. This would avoid open pit mining and potentially encountering groundwater. At least some of the disturbed area could be restored in the future.

Approximately 20 percent of the material would be non-commercial waste material. The total volume of the alluvial fan deposits within a 50-acre quarry (extracted to an average depth of 20 feet) would be approximately 1.3 million cubic yards (about 1.7 million tons). However, the existing residential properties along Adams Drive would require 1,300-foot noise buffer zones, which would constrain the potentially extractable acreage onsite to about 30 acres, thus decreasing the amount of material that could be extracted. Thus, the total volume of the alluvial fan deposits (mined to an average depth of 20 feet) would be approximately 770,000 cubic yards (about 1.0 million tons) for a 30-acre quarry.

2.1.2.1 Guidelines for the Determination of Significance

The County of San Diego’s *Guidelines for Determining Significance and Report Format and Content Requirements Mineral Resources (July 2008)* states that 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:

Guideline 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, gravel, crushed rock)	\$12,500,000 ⁽¹⁾
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)	\$2,500,000
Metallic and rare minerals (precious metals [gold, silver, platinum], iron and other ferroalloy metals, copper, lead, zinc, uranium, rare earths, gemstones and semi-precious materials, and optical-grade calcite)	\$1,250,000

Note 1: For purposes of this analysis, a minimum value of \$15,000,000 is utilized, based on Consumer Price Index conversion from 1998 to 2005 (per County Report Format and Content Requirements).

The project site is partially on an area classified as MRZ-2 and also adjacent to areas classified as MRZ-2. 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.

Major issues exist relative to mineral resource availability at the project site, including land use incompatibility, noise restrictions and biological constraints and marketability, as described below.

Land use compatibility considers onsite impacts from proposed onsite land uses, offsite impacts from proposed onsite land uses, and onsite impacts from offsite land uses as it relates to mineral resources.

Land Use - Onsite Impacts from Proposed Onsite Land Use

The Proposed Project would likely preclude sand and gravel mining on the same property.

The analysis of minimum dollar value indicates an onsite quarry needs to be at least about 35 to 40 acres to meet the minimum dollar value. The potentially mineable area is approximately 110 acres and would exceed the minimum dollar value per County Guidelines. See Figure 2-1-2, "Onsite Quarry Resources".

Land Use - Offsite Impacts from Proposed Onsite Land Use

Existing residential properties are present along Adams Drive within 1,300 feet of the potential onsite mineable area. This offsite area would not support a mining operation. Similarly, the narrow 1,300-foot strip along and beyond Highway 76 to the south would not be practical to mine. The SLRR is too narrow to mine in the riverbed without flooding.

A portion of the MRZ-2 to the north of Frey Creek and within 1,300 feet of the proposed development could be mined for older alluvial fan deposits that underlie the project site. See Figure 2-1-3, "Offsite Quarry Resources". The offsite impacted area would be about 60 acres. Assuming all of the 60 acres could be mined to an average depth of 20 feet, the total volume of the alluvial fan deposits would be approximately 1.5 million cubic yards (about 2.1 million tons).

Land Use - Onsite Impacts from Offsite Land Uses

The existing residential properties along Adams Drive would require 1,300-foot noise buffer zones, which would constrain the potentially extractable acreage onsite to about 75 acres. The total volume of the alluvial fan deposits (mined to an average depth of 20 feet) would be approximately 1.9 million cubic yards (about 2.6 million tons). See Figure 2-1-4, "Onsite Impacts from Offsite Land Uses".

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 may be marketable between the short term and the next 50 years.

Minimum Dollar Value

Assuming a given deposit is marketable, the County significance criteria consider whether or not a deposit meets a minimum dollar value. This analysis utilizes a

minimum value of \$15 million as noted above. This amount is considered consistent with the current depressed status of the sand and gravel industry in San Diego (Jim Bennett, personal communication, February 2012).

The average cost of coarse aggregate in San Diego County was reported at about \$15/ton (EnviroMINE, 2007). However, the average cost of coarse aggregate sold at Rosemary's Mountain quarry is currently about \$12/ton (Gary Nolan, Granite Construction, personal communication, 2012).

- The value of the 110-acre mineable area of the site would be about \$46 million dollars. This amount would be less than the County's minimum dollar value criteria (for 2005).
- The value of the 75-acre noise impacted offsite area would be about \$31 million dollars, which is above the minimum dollar value criteria (for 2005).

Because the project is in an area classified as MRZ-2; 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 minimum values presented, Guideline 1 is exceeded, impacts are significant, and mitigation is required. **(MR-1)**

Guideline 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.

The project site is not listed on any local general plan, specific plan, or other land use plan as being a locally-important mineral resource recovery site. Guideline 2 is not exceeded, impacts are less than significant, and no mitigation is required.

2.1.3 Cumulative Impacts Analysis

The cumulative analysis considers all of the cumulative projects listed in Table 1-1 and Figure 1-6. Of the 27 cumulative projects considered, one, GPA 06-009, Warner Ranch, has impacts related to mineral resources. This impact occurs approximately eight miles west of the Proposed Project, in alluvium associated with the foothills of Palomar Mountain. Mitigation is not possible because the location of even a few residences near the alluvium would preclude mining due to issues of dust, noise, and required setbacks. This effect, considered in combination with the unmitigable impacts of the Proposed Project, does not create a significant cumulative impact because adequate resources remain in the region to provide needed gravel and sand. This includes extensive areas

within the cumulative study area along the San Luis Rey River. Thus, cumulative impacts are determined to be less than significant.

2.1.4 Significance of Impacts Prior to Mitigation

MR-1 The project is in an area classified as MRZ-2; 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 minimum values presented in the County’s guideline.

2.1.5 Mitigation

There is no feasible mitigation that can reasonably be proposed to mitigate for the loss of potentially-minable mineral resources because even a few residences on the site would preclude mining due to the required 1,300 foot setback.

2.1.6 Conclusion

A mineral resources analysis was prepared by URS. Alluvial fan deposits underlie the proposed development area within the MRZ-2. The analysis concluded that major issues exist relative to mineral resource availability at the project site, including noise restrictions and biological constraints. The onsite alluvial fan materials are variable in composition and quality, and would require processing to be suitable as construction materials. These deposits are only marginally suitable as sources of construction materials due to the high waste percentage, and the variable weathering of the granitic materials. Nevertheless, the loss of this MRZ-2 resource within the site area would be considered significant, pursuant to County guidelines. Impacts are significant. No feasible mitigation can be proposed. Cumulative impacts are not significant because adequate resources remain in the area that can provide gravel and sand.



URS

1" ~ 3200'

Topographic Base Map by U.S. Geological Survey
Reduced from 1:24,000

EXPLANATION

Drill Hole

OUTER BOUNDARY AREAS SUBJECT TO URBANIZATION

Boundaries established from data supplied by the Office of Planning and Research with modifications developed from information supplied by local government and other sources. Hachures lie within area undergoing urbanization.

EXISTING URBAN BOUNDARIES

Boundaries established by the Office of Planning and Research and by data supplied by local government agencies and other sources to reflect present conditions. Hachures lie within urban areas.

PRODUCTION-CONSUMPTION REGION BOUNDARY

(see text for discussion)

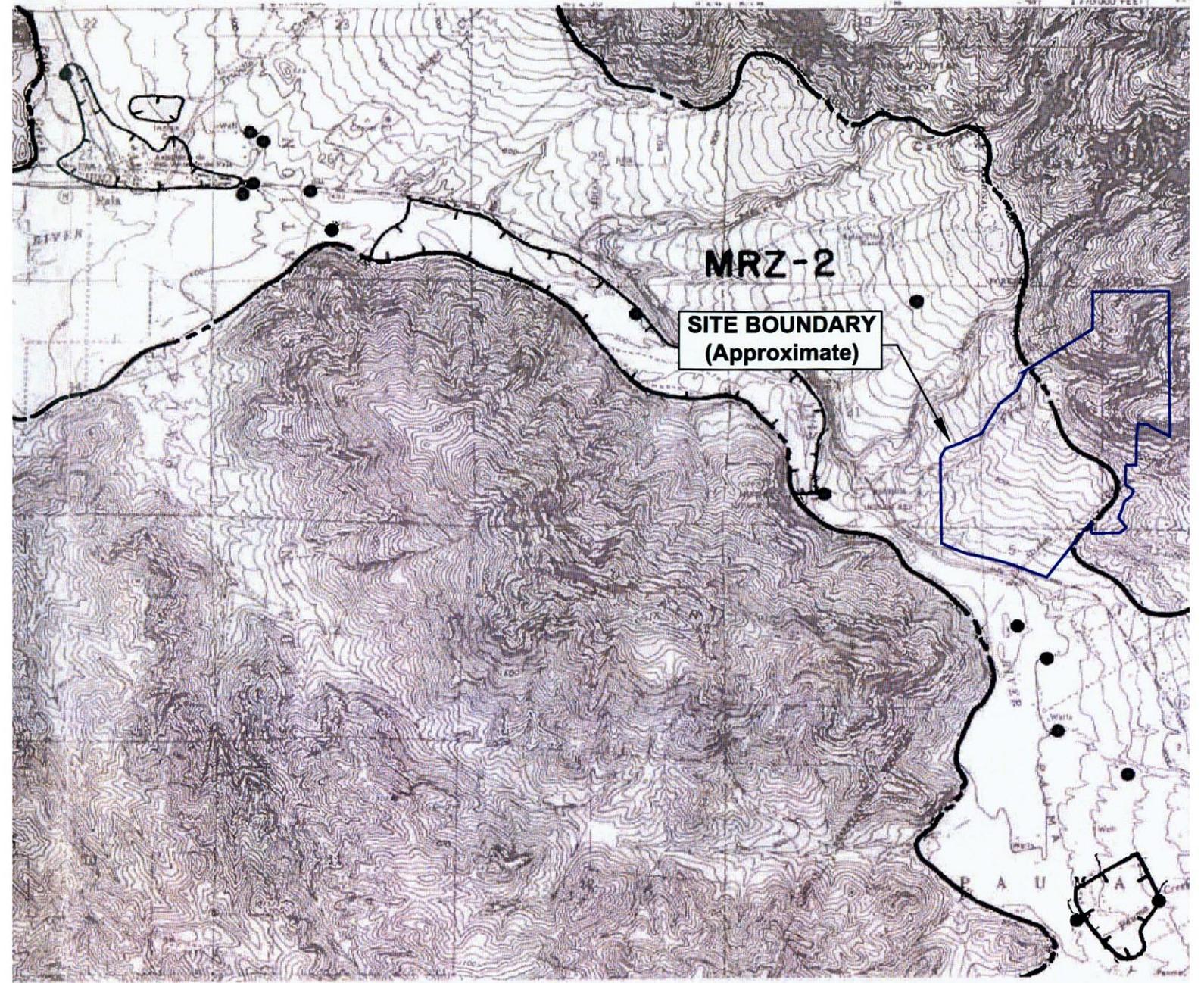
MRZ-1 Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists in their presence.

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

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.

See text for additional explanation of MRZ Symbols.



**MINERAL LAND CLASSIFICATION MAP
AGGREGATE RESOURCES ONLY**

PREPARED IN COMPLIANCE WITH THE SURFACE MINING
AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

James H. Moore
STATE GEOLOGIST FEBRUARY 15, 1993

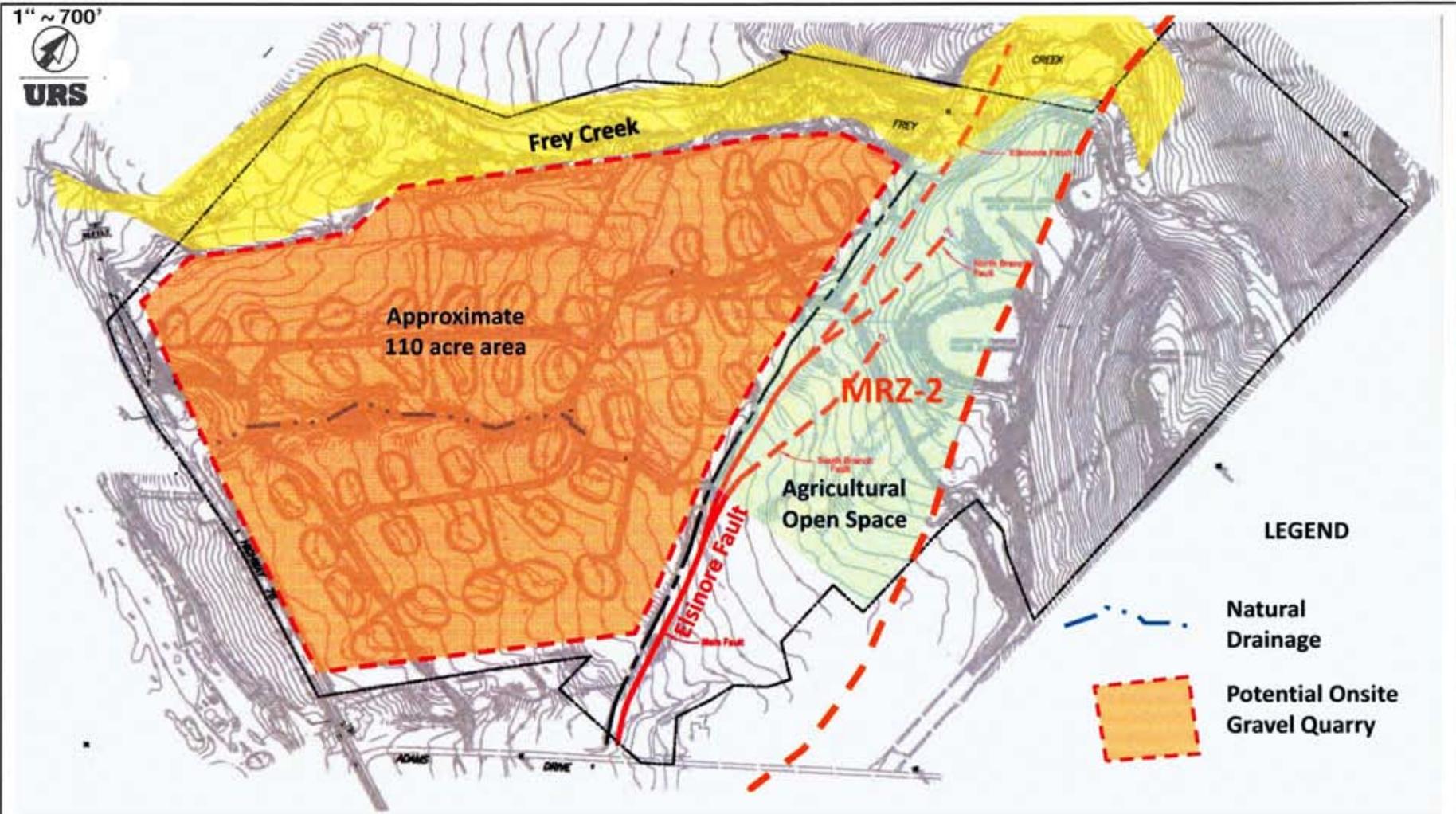


Figure 2-1-2

Conceptual Onsite Quarry

1" ~ 735'



URS

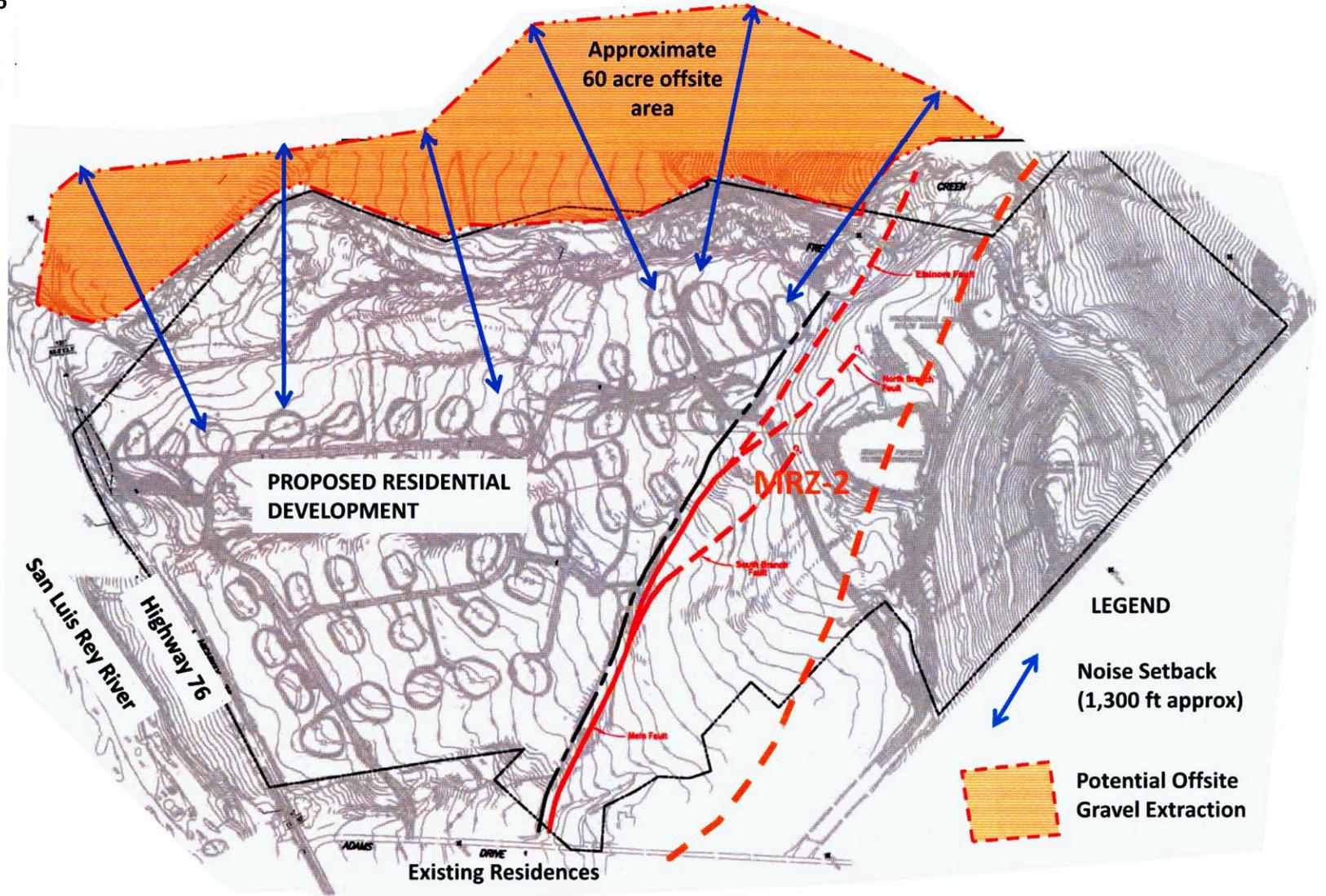


Figure
2-1-3

Offsite Quarry Resources

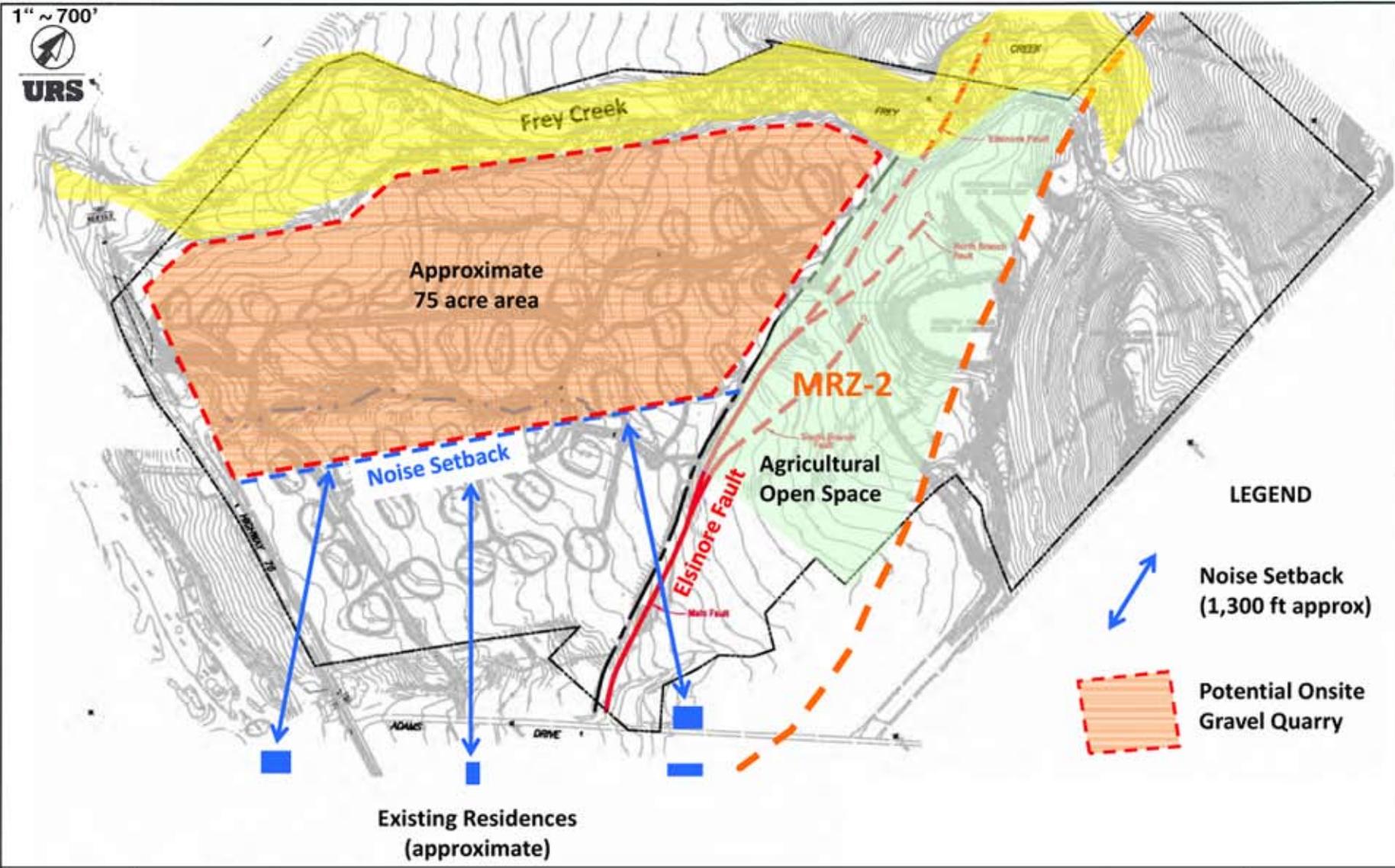


Figure 2-1-4

Onsite Impacts to Offsite Land Uses