

# **APPENDIX N MINERAL RESOURCES**

This appendix contains supporting documentation for the assessment of mineral resources for the Environmental Impact Statement and Environmental Impact Report.

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September 8, 2009  
Project: 92158-1910

Ms. Sara Hassert  
Landrum and Brown  
8755 W. Higgins Road, Suite 850  
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Mr. Rob Adams  
Landrum and Brown  
11279 Cornell Park Drive  
Cincinnati, Ohio 45242

**Subject: Mineral Resources Subsection  
Gross Field Airport EIS/EIR  
Novato, California**

Dear Ms. Hassert and Mr. Adams:

Kleinfelder is pleased to provide the enclosed Mineral Resources section for your review, comment, and use. We understand Alternative C has been deleted as an option and has been removed from consideration. Based on the tasking sequence, we understand this text may be used for the appropriate sections of both the EIS and EIR documents to be issued as separate stand-alone documents. This section was prepared entirely by Kleinfelder. Once finalized, all of the subsections from the various consultants will be folded together into the documents. To assist you with both the EIS and the EIR documents, we have provided our input in two formats. The first section of text below is in a NEPA EIS format and style of text. The second section below is formatted using the CEQA format and style, but formatted using the Marin County CEQA format used for a recent Marin County quarry project.

The text is being provided in both a PDF format and in an MS Word format to enable you to make your edits in track changes mode and copy sections of text directly into the appropriate locations in the EIS and EIR.

We trust that this submittal provides you with the information needed at this time. If you have any questions, or would like to discuss the submittal, please contact us at (707) 571-1883.

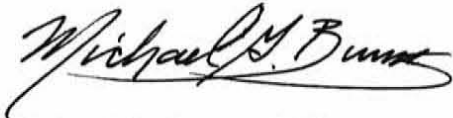
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Respectfully submitted,

**KLEINFELDER WEST, INC.**



Michael G. Burns, CEG  
Principal Geologist

Reviewed by:



Michael T. Johnson, JD  
Principal Environmental Scientist

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Enclosure: Draft Text – Mineral Resources Text

## [NEPA EIS Format]

### Subtask 19.10 Mineral Resources

#### SITE DESCRIPTION

The Gness Field Airport and proposed runway extension areas are located on the north side of Novato in Northern Marin County, California. Review of historical topographic maps and aerial photographs indicate the current northwest-southeast airport runway configuration has existed since at least 1968. Previously, the airport runway was oriented generally east-west from at least 1952 to 1965. The airport facility is surrounded by agricultural fields, currently used for livestock grazing. The Northwest Pacific rail line roughly parallels Highway 101 approximately 1,200 feet to the west of the existing airfield, but borders the airport property at the far northern end. The airfield and surrounding fields are located on tidal marshes reclaimed through levee and drainage channel construction. The topography at the airfield is essentially flat, aside from the levees and airfield improvements. Elevations range between 3 feet below to approximately 7 feet above mean sea level.

#### DATA SOURCES

The Mineral Resources element of the Marin Countywide Plan (MCP) was accessed through the Marin County website [www.co.marin.ca.us](http://www.co.marin.ca.us) to review the policies of Marin County regarding mineral resources. The locations of known mineral resources in the local vicinity were reviewed by accessing the Marin County GIS webpage at <http://gisprod.co.marin.ca.us> to evaluate whether the proposed project is located on or adjacent to known mineral resources. The locations of baserock, asphalt, and concrete were identified through our local experience. The assumed volume of needed materials was based on *Preliminary Design Report, Runway Extension, Gness Field, Marin County, California*, prepared by Cortright & Seibold, dated 20 December 2002.

#### DISCUSSION

##### Marin Countywide Plan Mineral Resources Element

The goals of the Mineral Resources Element of the MCP address the preservation, management, and reclamation of mineral resources and mineral resource sites within Marin County. The MCP states that although the volume of deposits of mineral resources remaining in local quarries has not been determined, it is expected that mined commodities will still need to be transported from outside the County. Fine sand and gravel suitable for producing Portland cement concrete is already in limited supply locally. Accordingly, construction plans should consider that the fill, aggregate, and asphaltic concrete discussed further below may need to be imported from outside the County.

##### Local Mineral Locations

The Marin County GIS webpage at <http://gisprod.co.marin.ca.us> was accessed to identify whether there any known mineral resource sites within or near the footprint of the Detailed Study

Area. No mineral resource sites are located within the Detailed Study Area. Three mineral resource sites include the Redwood Landfill quarry 2 miles to the north, the Novato Conglomerate-Black Point 1.5 miles to the southeast, and Sonoma Volcanics at Burdell Mountain 1.5 miles to the southwest. The Redwood Landfill quarry is known to still be active, although the material is currently used only as cover material for the landfill.

Baserock, Asphalt, and Concrete Sources

The proposed project would include a runway extension 1,100 feet long by 75 wide, along with a parallel extension of the taxiway and levees. The Preliminary Design Report (*Cortright & Seibold, 2002*) provided preliminary estimates of the volumes of asphaltic concrete, underlying aggregate, and fill for the extensions of the runway, taxiway, and protective levees, as summarized below.

<b>Location or Purpose</b>	<b>Material</b>	<b>Volume</b>
Runway and taxiway surface	Asphaltic concrete	1,800 tons
Base	Class 2 aggregate	2,900 cubic yards
Subbase	Class 3 aggregate	5,800 cubic yards
Import fill: net finished, compacted in place for runway and taxiway	Unspecified	45,000 cubic yards
Import fill: overfill to account for settlement and consolidation	Unspecified	11,250 to 22,500 cubic yards
Import fill for levees	Unspecified	50,000 cubic yards

As stated in the Preliminary Design report, the above-estimated imported fill volumes do not include an allowance for settlement and consolidation as the material is placed over existing bay mud. Past settlement studies by the County indicate that substantial fill settlement and consolidation of the bay mud should be expected. The Preliminary Design Report advised that the site should be overfilled and allowed to settle for several years prior to establishing the final top elevation by topping off the initial fill after settlement rates have decreased. From previous geotechnical studies, it is expected that fill settlement and bay mud consolidation could require 25% to 50% extra fill to be placed on top of the initial surcharge amounts at the end of the primary over-burden loading period.

As discussed above, the sources of aggregate, asphalt, and concrete are of limited volume within Marin County. Asphaltic concrete and the Class 2 and 3 aggregate materials could be acquired from a local Marin County supplier such as Dutra Materials at 1000 San Pedro Road, San Rafael, California. Import fill sources would need to be arranged for at the time of the project. Sources could include the local mineral locations identified above or local active construction projects looking to dispose of excess fill.

## [CEQA EIR Format (Marin County Format)]

### SETTING

The Gness Field Airport and proposed runway extension areas are located on the north side of Novato in Northern Marin County, California. Review of historical topographic maps and aerial photographs indicate the current northwest-southeast airport runway configuration has existed since at least 1968. Previously, the airport runway was oriented generally east-west from at least 1952 to 1965. The airport facility is surrounded by agricultural fields, currently used for livestock grazing. The Northwest Pacific rail line roughly parallels Highway 101 approximately 1,200 feet to the west of the existing airfield, but bordering the far northern extent of the airport property. The airfield and surrounding fields are located on tidal marshes reclaimed through levee and drainage channel construction. The topography at the airfield is essentially flat, aside from the levees and airfield improvements. Elevations range between 3 feet below to approximately 7 feet above mean sea level.

### REGULATORY FRAMEWORK AND DATA SOURCES

The State requires cities and counties to adopt policies that restrict designated mineral resource sites from premature development and protect surrounding communities from impacts associated with mineral extraction. The purposes of such State policies include encouraging extraction of necessary mineral and construction commodities in locations reasonably close to their markets, and ensuring that mined lands are reclaimed to minimize adverse effects on the environment and public health. Furthermore, local governments have a responsibility to protect the public health and safety of their residents by requiring that only legal mining and material transport and handling activities are conducted, and that the impacts of such operations are adequately mitigated using the best available management practices.

The State Mining and Geology Board maintains information on mineral deposits of statewide or regional significance. The North Bay region, comprising Sonoma, Marin, and Napa counties, places an ongoing demand on crushed stone and alluvial deposits for construction materials, including asphaltic concrete, aggregate, road base and sub-base, and Portland cement concrete.

Marin County has adopted goals and policies applicable to mineral resources in the Marin Countywide Plan, as the Mineral Resources section of the Built Environmental Element. The Mineral Resources section was accessed through the Marin County website [www.co.marin.ca.us](http://www.co.marin.ca.us) to review the policies of Marin County regarding mineral resources. The locations of known mineral resources in the local vicinity were reviewed by accessing the Marin County GIS webpage at <http://gisprod.co.marin.ca.us> to evaluate whether the proposed project is located on or adjacent to known mineral resources. Baserock, asphalt, and concrete sources were identified through our local experience. The assumed volume of needed materials was based on *Preliminary Design Report, Runway Extension, Gness Field, Marin County, California*, prepared by Cortright & Seibold, dated 20 December 2002.

## IMPACTS AND MITIGATION MEASURES

### Significance Criteria

Based on criteria from Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact if it would:

- 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

Appendix N of the Marin County Environmental Review Guidelines provides significance criteria for various CEQA elements but does not specifically cite natural resources that would include aggregate supplies. However, Appendix K provides Environmental Impact criteria that include mineral resources. Based on Appendix K of the Marin County Environmental Review Guidelines, the project may also have a significant impact related to mineral resources if the project would:

- a) Use non-renewable resources in a wasteful and inefficient manner
- b) Result in the loss of significant mineral resource sites designated in the Countywide Plan from premature development or other land uses which are incompatible with mineral extraction

### Impacts of Alternative A – No Action

Because Alternative A does not result in changes to existing conditions, there would be no impacts. Accordingly, this element is not applicable.

### Impacts of Alternatives B and D

#### **Would the proposed project 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?**

The locations of state- or county-designated Mineral Resource Preservation Sites within Marin County were identified by the Marin County Department of Public Works on Map 3-5, dated October 11, 2007, which can be accessed at:

[http://egovwebstg.marinpublic.com/depts/cd/main/fm/cwpcodes/Maps/Map3\\_5\\_Location\\_of\\_Mineral\\_Resources.pdf](http://egovwebstg.marinpublic.com/depts/cd/main/fm/cwpcodes/Maps/Map3_5_Location_of_Mineral_Resources.pdf)

No significant mineral resources are shown within the proposed Project area. Accordingly, this element is not applicable.

#### **Would the proposed project 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?**



As noted above, no state- or county-designated Mineral Resource Preservation Sites are shown within the proposed Project area. Accordingly, the proposed Project would not result in closing a locally-important mineral resource recovery site.

The proposed Project will use volumes of aggregate materials for fill, baserock, asphalt, and concrete, and those sources may be local (within Marin County). The proposed project would include a runway extension 1,100 feet long by 75 wide, along with a parallel extension of the taxiway and levees. The Preliminary Design Report (*Cortright & Seibold, 2002*) provided preliminary estimates of the volumes of asphaltic concrete, underlying aggregate, and fill for the extensions of the runway, taxiway, and protective levees, as summarized below.

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Import fill for levees	Unspecified	50,000 cubic yards

As stated in the Preliminary Design report, the above-estimated imported fill volumes do not include an allowance for settlement and consolidation as the material is placed over existing bay mud. Past settlement studies by the County indicate that substantial fill settlement and consolidation of the bay mud should be expected. The Preliminary Design Report advised that the site should be overfilled and allowed to settle for several years prior to establishing the final top elevation by topping off the initial fill after settlement rates have decreased. From previous geotechnical studies, it is expected that fill settlement and bay mud consolidation could require 25% to 50% extra fill to be placed on top of the initial surcharge amounts at the end of the primary over-burden loading period.

As discussed above, the sources of fill, aggregate, asphalt, and concrete are of limited volume within Marin County. Asphaltic concrete and the Class 2 and 3 aggregate materials could be acquired from local Marin County suppliers such as:

- San Rafael Rock Quarry - Dutra Materials  
Address: 1000 Point San Pedro Road  
San Rafael, CA 94901  
Phone: 415-459-7740
- Nicasio Rock Quarry - Lunny Grading & Paving  
Address: 7000 Nicasio Valley Road  
Nicasio, CA 94946  
Phone: 415-662-9800

The Marin County Department of Public Works identified 12 mineral resource sites on their Map 3-5, referenced above. However, not all of the sites contain suitable materials and not all are currently available for use. Based on the location of the Gness Field Airport near Sonoma County, material may also be economically acquired from sources outside of Marin County, such

as the Blue Rock Quarry in Forestville or Stony Point Quarry Company's Cotati or Sonoma locations. Sources could also include the local active construction projects looking to dispose of excess fill material.

Import fill sources would need to be evaluated and arranged for at the time of the project. Although the availability of aggregate and fill materials are limited, sources of materials are known to exist within Marin County. In addition, materials are also available from the adjacent Sonoma County and nearby Napa and Mendocino Counties. Between the local Marin County sources and the availability of materials from outside of the County, the materials are anticipated to be available. Accordingly, this element is considered to be less than significant.

**Would the proposed project use non-renewable resources in a wasteful and inefficient manner?**

The Project's purpose is the extension of an existing runway by 1,100 feet to achieve current FAA standards resulting in improved airport safety. Accordingly, the Project will result in less than significant impacts as it relates to the wasteful and inefficient use of non-renewable resources.

**Would the proposed project result in the loss of significant mineral resource sites designated in the Countywide Plan from premature development or other land uses which are incompatible with mineral extraction?**

The locations of state- or county-designated Mineral Resource Preservation Sites within Marin County were identified by the Marin County Department of Public Works on Map 3-5, dated October 11, 2007, which can be accessed at:

[http://egovwebstg.marinpublic.com/depts/cd/main/fm/cwpcodes/Maps/Map3\\_5\\_Location\\_of\\_Mineral\\_Resources.pdf](http://egovwebstg.marinpublic.com/depts/cd/main/fm/cwpcodes/Maps/Map3_5_Location_of_Mineral_Resources.pdf)

No significant mineral resources are shown within the proposed Project area. Accordingly, this element is not applicable.

Cumulative Impacts

**Would the proposed project in combination with other development projects result in cumulative impacts to mineral resources?**

The goals of the Mineral Resources Element of the Marin Countywide Plan (MCP) address the preservation, management, and reclamation of mineral resources and mineral resource sites within Marin County. The MCP states that although the volume of deposits of mineral resources remaining in local quarries has not been determined, it is expected that mined commodities will still need to be transported from outside the County. Fine sand and gravel suitable for producing Portland cement concrete is already in limited supply locally. Therefore, construction plans should consider that the fill, aggregate, and asphaltic concrete discussed further below may need to be imported from outside the County.

### *Local Mineral Locations*

The Marin County GIS webpage at <http://gisprod.co.marin.ca.us> was accessed to identify whether there are any known mineral resource sites within or near the footprint of the Detailed Study Area. No mineral resource sites are located within the Detailed Study Area. Three mineral resource sites include the Redwood Landfill quarry 2 miles to the north, the Novato Conglomerate-Black Point 1.5 miles to the southeast, and Sonoma Volcanics at Burdell Mountain 1.5 miles to the southwest. The Redwood Landfill quarry is known to still be active, although the material is currently used only for cover materials at the landfill.

### *Baseroack, Asphalt, and Concrete Sources*

The proposed project would include a runway extension 1,100 feet long by 75 wide, along with a parallel extension of the taxiway and levees. The Preliminary Design Report (*Cortright & Seibold, 2002*) provided preliminary estimates of the volumes of asphaltic concrete, underlying aggregate, and fill for the extensions of the runway, taxiway, and protective levees, as summarized below.

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Import fill sources would need to be arranged for at the time of the project. Sources could include the local mineral locations identified above or local active construction projects looking to dispose of excess fill. Although the availability of aggregate and fill materials are limited, sources of materials are known to exist within Marin County. In addition, materials are also available from the adjacent Sonoma County and nearby Napa and Mendocino Counties. Fill may also be acquired from local construction projects looking to dispose of surplus fill. Between the local Marin County sources and the

availability of materials from outside of the County, the materials are anticipated to be available. Accordingly, this element is considered to be less than significant.

## REFERENCES

### Publications

County of Marin, Community Development Agency. *Marin Countywide Plan*. November 6, 2007.

County of Marin, Community Development Agency. *Marin County Environmental Review Impact Guidelines (EIR Guidelines)*. Adopted May 17, 1994.

Cortright & Seibold. *Preliminary Design Report, Runway Extension, Gness Field, Marin County, California*, December 20, 2002

### Websites

Marin County GIS webpage, Known Local Mineral Resources, accessed at: <http://gisprod.co.marin.ca.us>

Marin County Department of Public Works, Mineral Resource Preservation Sites, Map 3-5, dated October 11, 2007, accessed at:

[http://egovwebstg.marinpublic.com/depts/cd/main/fm/cwpcodes/Maps/Map3\\_5\\_Location\\_of\\_Mineral\\_Resources.pdf](http://egovwebstg.marinpublic.com/depts/cd/main/fm/cwpcodes/Maps/Map3_5_Location_of_Mineral_Resources.pdf)