HARRIS QUARRY USE PERMIT AND RECLAMATION PLAN

2019 Revised Draft Environmental Impact Report
SCH #2006112087

Prepared for
Mendocino County Department of
Planning and Building Services

August 28, 2019

ESA

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Prepared for
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860 North Bush Street
Ukiah, CA 95482

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CHAPTER 1
Introduction

This 2019 Revised Draft Environmental Impact Report (RDEIR) is an informational document that supplements information that was previously disclosed in a Final EIR that was considered by the County of Mendocino on April 10, 2012 for the Harris Quarry Use Permit and Reclamation Plan. This 2019 RDEIR is intended as an informational document that, in itself, does not determine whether the project should be approved, but informs the public and local officials in the planning and decision-making process.

Mendocino County's Department of Planning and Building Services is accepting public comments on material included in this 2019 RDEIR until the close of business on October 15, 2019, as described later in this section. Substantive comments related to this 2019 RDEIR will be responded to and included in a new Final EIR, which will be considered for certification by the County Board of Supervisors later this year.

1.1 Summary Project Description and Background

1.1.1 Summary Project Description

This 2019 RDEIR concerns the proposed expansion of the existing Harris Quarry and construction of an asphalt processing facility at the quarry (hereafter called "the project"). The existing quarry is on the west site of U.S. Route 101 just south of the Ridgewood Grade and Black Bart Drive. Characteristics of the proposed project include the following:

- Amending the Mendocino County Zoning Code to create a Mineral Processing Combining District (MPCD).
- Rezoning 18 acres of Assessor's Parcel No. 147-140-07 to add the MPCD, allowing processing of aggregate for the length of the Use Permit. The applicant has volunteered to include a condition of approval requiring the applicant to submit an application to revert the 18 acres back to Rangeland zoning at the end of the Use Permit.
- Use Permit Renewal/Modification (UR 19-83/2005) to allow:
  - Extraction and processing of 200,000 cubic yards (CY) of aggregate on site per year for a 30-year period.
  - Production of up to 150,000 tons (58,280 CY) of asphalt per year.
  - Nighttime operations up to a maximum of 100 nights per year.

- A revised Reclamation Plan that directs how the site will be reclaimed at the end of the use permit.

The proposed project would allow the applicant to continue to mine the existing quarry and expand the quarry to the north and to the west. In all, the existing 11.5-acre quarry would be expanded to a final size of about 30.6 acres. An additional 9.2 acres would be developed for access and processing, and 5.1 acres would be disturbed to provide mitigation proposed to address project impacts. Quarrying would use the same techniques and equipment currently used at the site.

Project CEQA Timeline

Nov. 2006	Notice of Preparation (NOP)
Oct. 2007	Draft EIR
Aug. 2010	Revised NOP
May 2011	Revised Draft EIR
April 2012	Final EIR Certification
Nov. 2013	Trial Court Decision
Nov. 2018	Appeal Court Decision
Aug. 2019	2019 Revised Draft EIR
Dec. 2019 (tentative)	Rescind Certification of 2012 Final EIR & Consider Certification of a New Final EIR

A complete description of the proposed project, the project sponsor's objectives, and requested approvals can be found in Chapter 3, *Project Location and Description Chapter*, of the May 2011 Revised Draft EIR. The 2011 Revised Draft EIR, as well as other relevant documents, can be found at the following locations:

- At the County's website at https://www.mendocinocounty.org/government/planning-building-services/public-notices
- At the Mendocino County Department of Planning and Building Services, 860 North Bush Street, Ukiah, CA 95482 and 120 West Fir Street, Fort Bragg, CA 95437
- At the Mendocino County Ukiah Library, 105 N. Main Street, Ukiah, CA 95482 and Willits Library, 390 Commercial Street, Willits, CA 95490

1.1.2 Background

The project was the subject of a Draft EIR that was circulated in October, 2007. That EIR was revised and recirculated in May, 2011. Following responses to comments received on the recirculated Draft EIR, a Final EIR was certified by the Mendocino County Board of Supervisors on April 10, 2012 (Resolution No. 12-065). Subsequently, the certified EIR was the subject of a Petition for Writ of Mandate by plaintiffs seeking to invalidate the County's decisions. The plaintiffs alleged that the County had violated the California Environmental Quality Act (CEQA) on a number of points of fact. Upon review, the trial court found "that, for the most part, [the County] proceeded in the manner required by law and that its decision[s] [are] supported by substantial evidence in the record," with the exception of the Board's consideration of two project alternatives: Project Alternative 4 (permit for extended quarry and temporary asphalt processing facility) and Alternative 5 (redesign of the project relative to nighttime activities and construction of a partial highway interchange at the project's access driveway). Specifically, the trial court concluded that, "[g]iven the court's finding that Respondent's findings complied with CEQA in most respects, it seems appropriate to issue a writ of mandate pursuant to CCP 1094.5(f) which directs Respondent to reconsider its decision on project alternatives in light of the court's opinion." (*Keep the Code v. County of Mendocino* [Decision after Court Trial on Petition for Writ

of Mandate issued October 7, 2013, SC UK CVPT 1260196].) The court then entered a judgment directing the County to set aside and vacate the certification of the EIR, approval of the project, and approval of permits for the project. (*Keep the Code v. County of Mendocino* [Judgment Granting Petition for Writ of Mandate November 11, 2013, SC UK CVPT 1260196].)

The plaintiffs appealed the decision of the trial court. Upon review, the appellate court affirmed the trial court's decision, and found that "the EIR was sufficient for its required purposes, except to the extent noted as to the consideration of two alternatives [Alternatives 4 and 5] to the project." (*Keep the Code, Inc. v. Cty. of Mendocino* (Nov. 30, 2018, No. A140857) [nonpub. opn.].) "In sum, we conclude the trial court properly found the county failed to make findings regarding the feasibility of alternatives 4 and 5, as required by CEQA." (*Ibid*.)

When a court determines that part of an agency's decision lack evidentiary support in the administrative record, the court may, instead of requiring the agency to reconsider the entirety of its prior action *de novo* (in other words, from the beginning), remand to the agency for further proceedings. (PRC §21168.9.) Recent updates to the CEQA Guidelines define the scope of what a Lead Agency must consider in the event of a remand: "As to those portions of an environmental document that a court finds to comply with CEQA, additional environmental review shall only be required as required by the court consistent with principles of *res judicata*. In general, the agency need not expand the scope of analysis on remand beyond that specified by the court." (CEQA Guidelines Section 15234(d).)

Based on the court's decision, the County is now charged with reconsidering Alternatives 4 and 5. Per the direction contained in CEQA Guidelines Section 15234(d), all unrelated portions of the 2012 Final EIR, as affirmed by the court, remain valid, and the County's responsibility for subsequent review is restricted only to those portions of the CEQA analysis that are germane to consideration of Alternatives 4 and 5.

1.2 Environmental Review under the California Environmental Quality Act

This section describes the process by which the project and the 2019 RDEIR will be reviewed by the County.

1.2.1 Notice of Completion

The County has prepared this 2019 RDEIR in accordance with the directives established by the trial and appellate courts. Accordingly, the County has filed a Notice of Completion (NOC) for the 2019 RDEIR with the Governor's Office of Planning and Research to begin the public review period (Public Resources Code, Section 21161). In addition, the County has provided a Notice of Availability of this RDEIR via publication in the Willits News and Ukiah Daily Journal, via mailings and outreach to interested agencies and other parties, and by posting on the County's website at https://www.mendocinocounty.org/government/planning-building-services/public-notices.

1.2.2 2019 Revised Draft EIR

This document constitutes the 2019 Revised Draft EIR. Other environmental documents associated with the proposed project may be found at the website noted above, including the 2012 Final EIR and the 2011 Revised Draft EIR.

Public Notice and Public Review

This 2019 RDEIR is available for public review for a 45-calendar-day period, during which time written comments on the 2019 RDEIR may be submitted to the County of Mendocino's Department of Planning and Building Services at the address (or email address) provided below. A public meeting will also be held on the 2019 RDEIR, during which public comments may also be submitted orally. The date, time, and location of the public meeting will be as follows:

> Monday, October 7, 2019 from 5:00 PM to 7:00 PM in the Board of Supervisors chambers located at 501 Low Gap Road, Ukiah, California.

Responses to all substantive comments received on the 2019 RDEIR and submitted within the specified review period will be prepared and included in the Final EIR. Given the limited scope of the 2019 RDEIR, together with the directives contained in the Court's remand and the requirements of CEQA Guidelines Section 15234(d), comments that are not related to the specific issues under review (Alternatives 4 and 5) will not be responded to.

All comments or questions regarding the 2019 RDEIR should be addressed as follows:

By email to: pbs@mendocinocounty.org

By mail to: Mendocino County Department of Planning and Building Services
Attn: Harris Quarry Comments
860 North Bush Street, Ukiah, CA 95482

1.2.3 Final EIR and Certification

Following the public review period, a new Final EIR will be prepared. The Final EIR will include written responses to substantive written or emailed comments on the 2019 RDEIR received during the public review period and to oral comments made at the public hearing. The Final EIR will also include all of the materials included and incorporated by reference in the 2012 Final EIR.

Certification of the EIR and Project Consideration

The County will review and consider the new Final EIR at a noticed public hearing and if the County finds that the new Final EIR is adequate and complete, the County will certify the Final EIR. Upon review and consideration of the Final EIR, the Mendocino County Board of Supervisors may take action to approve, conditionally approve, revise, or reject the proposed project. A decision to approve the project must be accompanied by written findings in accordance with CEQA *Guidelines* Section 15091, and Section 15093, as applicable. A Mitigation Monitoring and Reporting Program, as described below, would also be adopted for project design features and

mitigation measures that have been incorporated into the proposed project or adopted as conditions of approval to reduce or avoid significant effects on the environment.

Mitigation Monitoring and Reporting Program

Throughout the EIR, mitigation measures have been clearly identified and presented in language that will facilitate establishment of a mitigation monitoring and reporting program. Public Resources Code Section 21081.6(a) requires lead agencies to adopt a mitigation monitoring and reporting program to describe measures that have been adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The Mitigation Monitoring and Reporting Program will be presented to the Board of Supervisors for adoption at the time of project approval. The Mitigation Monitoring and Reporting Program will be designed to ensure that all identified measures are carried out during project implementation.

1.3 Organization of the 2019 RDEIR

Per the court's directives, the County's responsibility for environmental review at this point is restricted to a description of Alternatives 4 and 5. Accordingly, the 2019 RDEIR is a relatively brief document, and is comprised of the following:

The ***Introduction*** (Chapter 1) includes a brief project description and an overview of the background to the 2019 RDEIR. The Introduction also describes the process that will be followed during public review of the 2019 RDEIR and the preparation and consideration of a new Final EIR.

Alternatives (Chapter 2) provides a description and analysis of Alternatives 4 and 5, as directed by the courts. Alternative 4 considers a permit for an extended quarry and temporary asphalt processing facility. Alternative 5 considers a redesign of the project relative to nighttime activities and construction of a partial highway interchange at the project's access driveway. Amendments to the text of the description and analysis provided in the prior environmental document are shown via tracked changes (i.e. additions are underlined and deletions are ~~crossed-out~~).

Report Preparation (Chapter 3) identifies the authors of the 2019 RDEIR, utilizing the same chapter from the prior environmental document with tracked changes (i.e. additions are underlined and deletions are ~~crossed-out~~).

Appendix E. An Economic Analysis of the proposed project prepared by EnviroMINE, Inc. under contract to the project sponsor is included as **Appendix E** and supplements Appendices A through D included in the 2011 Revised Draft EIR.

1.4 Intended Uses of the EIR

Once complete and certified, the Final EIR will provide the CEQA compliance documentation upon which the County of Mendocino's reconsideration of, and action on, all applicable land use permits and other approvals (collectively, "approvals") for the proposed project or an alternative may be based. These include all approvals listed in the 2012 Final EIR and Resolution No. 12-065,

as well as any additional approvals that may be necessary to implement the proposed project or alternative.

The Final EIR will also provide the CEQA compliance or the basis for NEPA compliance which would be relied upon by Responsible Agencies and Trustee Agencies in considering and acting upon other project approvals.

CHAPTER 2
Revised Analysis of Alternatives 4 and 5

NOTE TO READERS: As discussed in Chapter 1, the conditions of the Court's remand were specific to Alternatives 4 and 5. In its decision, the Court found that all other aspects of the 2012 Final EIR were sufficient. In such an instance, the CEQA Guidelines provide that Lead Agencies "need not expand the scope of analysis on remand beyond that specified by the Court" [CEQA Guidelines Section 15234(d)]. Accordingly, this Chapter is specific to Alternatives 4 and 5 only. In the pages that follow, relevant portions of Section 5.2, *Project Alternatives*, from the 2011 Revised Draft EIR have been reproduced as they appeared in the original document. Only those subsections containing relevant introductory text and text specific to Alternatives 4 and 5 have been included, and changes to the original text have been modified in underline for new text, and in ~~strikeout~~ for deleted text.[1] Persons wishing to view the complete text from the 2011 Revised Draft EIR *Project Alternatives* chapter may do so at these locations:

- On line at https://www.mendocinocounty.org/government/planning-building-services/public-notices
- In person at the Mendocino County Department of Planning and Building Services, 860 North Bush Street, Ukiah, CA 95482 and 120 West Fir Street, Fort Bragg, CA 95437, and at the Mendocino County Ukiah Library, 105 N. Main Street, Ukiah, CA 95482 and Willits Library, 390 E. Commercial Street, Willits, CA 95490

2.1 Introduction

CEQA requires that the EIR assess alternatives to the project if the project will have significant environmental impacts, even if these impacts can be mitigated to a level that is less than significant. As noted in Chapter 4.0 of this EIR, the project will have a number of significant impacts. This EIR therefore assesses alternatives to the project.

The *CEQA Guidelines* offer a number of requirements and recommendations regarding the alternatives analysis. The more pertinent issues are summarized as follows:

- A range of reasonable alternatives must be assessed. The range must be sufficient to permit a reasonable choice of alternatives so far as environmental aspects are concerned. The EIR need not assess multiple variations of alternatives. The range of alternatives to be assessed is governed by the rule of reason.

[1] Conforming changes to the descriptions of Alternatives 4 and 5 in the Summary section of the 2011 Revised Draft EIR (pp. 24-25) are not shown in this 2019 RDEIR, however these will be included in the Final EIR.

- Alternatives must be ones that could feasibly attain most of the basic objectives of the proposed project. While alternatives can impede the attainment of the objectives, they should not substantially impede those objectives. Alternatives that fundamentally change the nature of the project do not meet the basic objectives of the project.
- The alternatives must be feasible. Feasibility takes into account factors such as site suitability, economic viability, availability of infrastructure, consistency with the General Plan, other plans and regulatory limitations, jurisdictional boundaries, and ability to acquire, control, or gain access to alternative sites.
- The analysis of the alternative must determine whether the alternative reduces the significant impacts identified for the project. If the alternative would generate additional significant impacts, those must be identified and discussed.
- One of the alternatives to be assessed must be the "no project" alternative. (See discussion below under that heading.)
- The EIR must assess the identified alternatives and determine which among the alternatives (including the project as proposed) is the environmentally superior alternative. If the no project alternative is identified as the environmentally superior alternative, then another of the alternatives must be identified as the environmentally superior alternative among the remaining alternatives.

Given these mandates, this EIR assesses the following alternatives:

1. No Project – No Future Development
2. No Project – Future Development Consistent with Land Use Classification
3. Quarry Only
4. Quarry and Temporary Asphalt Plant
5. Project Redesign
6. Reduced Production
7. Alternate Location

The alternatives have been selected to reduce as many impacts as possible, with emphasis on reducing the remaining four significant and unavoidable visual impacts. The alternatives selected for analysis provide a wide range of alternatives, which can be used to test effects against the proposed project as well as one another. Undoubtedly other combinations of project components and phasing could be developed to create additional alternatives. However, CEQA does not require that every conceivable mix of uses and mitigations be analyzed, but that a range of alternatives be assessed. Seven alternatives is more alternatives than typically assessed in an EIR and should provide decision-makers and the public with sufficient information to understand how alternatives (or portions of alternatives) may reduce or eliminate impacts identified for the project as proposed. If it wishes, the County can select portions of these alternatives and approve a hybrid alternative.

2.2 Alternative 4: Quarry and Temporary Asphalt Plant

2.2.1 Description

This alternative includes all elements of the proposed project, including all EIR-recommended mitigation measures, except the asphalt processing facility would be issued a temporary use permit ~~that extends~~ for a ~~the~~ period of only five years. ~~that the Willits Bypass is being constructed.~~ The County Zoning Ordinance (Section 20.036.010) currently allows mineral processing "of a temporary nature and carried on in conjunction with, and only for the duration of a specific construction project... " The installation of such a temporary facility would require County approval of a use permit. ~~Based on discussions with Phil Dow of the Mendocino Council of Governments, the bypass, if funding is restored, is projected to take about 4 years to construct.[2][1][2][1]~~ This alternative would include a zoning variance to allow the asphalt silo to be 75 feet high. The alternative would modify the proposed Mineral Processing Combining District to allow ~~only~~ temporary asphalt production for ~~one discrete project not exceeding~~ one 5- year period during the 30-year permit process. ~~Alternatively, the new zoning district could be eliminated (since County zoning does allow this limited processing use), and the time limits described in the previous sentence could be included in the Use Permit.~~ The asphalt facility site would be reclaimed after 5 years consistent with the Reclamation Plan for the proposed project. The intent of including this alternative is to allow comparison of the project with an alternative that meets most of the project objectives but eliminates the long-term impacts from the asphalt facility.

2.2.2 Environmental Impacts

Geology and Soils

The alternative would require the same quarry expansion as the proposed project, and, therefore, have the same geologic and soil impacts as the proposed project.

Hydrology and Water Quality

The alternative would have the same construction-related impacts as the proposed project (unless the asphalt plant pad can be reduced in size). The increase in runoff would be the same as for the proposed project. Potential water quality impacts would be reduced because the petrochemicals and other materials used for asphalt processing would only be transported to, stored, and used on the site for 5 years (at the most) rather than throughout the life of the project.

Biological Resources

The alternative would result in the same loss of habitat as the proposed project. The only difference between the proposed project and this alternative would be the potential reduction

~~[2] Phil Dow, MCOG Director, personal communication, 7/10/07.~~

in water quality impacts (with corresponding reduction of impacts on salmonids and other aquatic species) due to the reduction in the amount of time that petrochemicals and other asphalt processing materials would be on the site.

Traffic

The project would generate the same amount of traffic as the proposed project for at most five years during the 30-year permit. Asphalt haul traffic would be eliminated for the other 25 years. The highway improvements would be required for this alternative. However, as was described for the previous alternatives (see Table 5.2-1 of the 2011 Revised Draft EIR), the reduction in project-generated asphalt haul traffic would be replaced by an increase in the miles traveled annually by haul trucks serving other asphalt facilities.

Air Quality

The alternative would result in elimination of asphalt-related emissions for 83 percent of the permit period. Residents in the area would be affected by asphalt emissions and odors for at most 5 years. Potential increases in truck traffic hauling asphalt from other area plants would increase truck-generated emissions of pollutants and greenhouse gases. Otherwise, the alternative would have about the same impacts as the proposed project.

Noise

The alternative would have the same noise effects as the proposed project except that residents to the west of the site would only be able to hear the asphalt facility for at the most five years.

Aesthetics

The alternative would have the same visual impacts as the proposed project except that views from Black Bart Drive would be somewhat reduced when the silos and other components of the asphalt facility are removed from the site. The lighting impact would also be reduced. These reductions in the scope of the project and the amount of lighting would reduce the two visual impacts to Black Bart Drive to a less-than-significant level.

Public Services

By removing the asphalt facility and the storage and use of petrochemicals needed for asphalt processing after 5 years at the most, the alternative would reduce the risk of a major fire occurring on the site and the need for fire response. It would also reduce impacts as regards police response, emergency medical response, solid waste disposal, and schools. Otherwise, the alternative would have the same demand for and impacts on public services as the proposed project.

Hazards and Hazardous Materials

The alternative reduces the risk of spillage of hazardous materials because the petrochemicals and other materials used in asphalt processing would only be on the site for five years at the most.

Land Use

This alternative would be consistent with the existing General Plan and the Zoning Ordinance. The alternative maintains the current possibility of asphalt processing facilities being developed on other quarry properties classified as Range Land, but only for a discrete project and for five years at the most. It is expected that the installation of an asphalt plant for a maximum five-year period would occur only if ~~a~~ one or more major roadway projects ~~(like the Willits Bypass)~~ were being proposed. The development of temporary asphalt facilities at other quarries would have the same potential effects as described for the proposed project, though, once again, the asphalt-related impacts would be reduced due to the restrictions requiring a discrete project and a maximum 5-year permitted use.

It is also speculative that asphalt plants would be developed at other quarries (see Section 4.10 of the 2011 Revised Draft EIR).

Energy

The alternative would reduce overall local energy usage since it would not be needed to make asphalt for 25 years. However, these materials would be made somewhere, so the overall impact would be approximately the same as for the proposed project. Also, there would be additional consumption of diesel fuel due to the increase in VMT.

Other Resources

Cultural resources would be affected the same as for the proposed project. The alternative would make beneficial use of known mineral reserves.

2.2.3 Conclusions

Alternative 4 (Quarry and Temporary Asphalt Plant) would reduce the impacts associated with the making of asphalt since the asphalt plant would only be allowed to operate for a maximum of five years of the 30-year permit. The main advantage of this alternative is that a major industrial use would not be a permanent facility in the rural environment. It would reduce the two significant visual impacts to Black Bart Drive to a less-than-significant level. It would substantively reduce noise and air quality impacts.

It is possible that a smaller pad would be needed for a temporary asphalt plant. If that were the case, there would be a reduction in a range of impacts, including soil erosion, slope stability, increased runoff, potential for water pollution, loss of native vegetation, and visual impacts.

The alternative would be environmentally superior to the project as proposed. The alternative meets two of the applicant's five objectives (maintain the quarry and expand the maximum rate of production), and partially meets three other objectives (develop an asphalt facility, locate processing facilities adjacent to the quarry, and locate the project in a central location between Willits and Ukiah).

It is possible that this alternative is economically infeasible due to the cost of developing the asphalt plant site and only using it ~~for 5 years~~ for a limited period of time, and then reclaiming the site.

The applicant has submitted an economic analysis which evaluates both this alternative and alternative 5. As noted, the County Zoning Ordinance (Section 20.036.010) currently allows for temporary mineral processing to be carried on in conjunction with a specific project. The economic analysis examines potential projects which could be served by the asphalt plant under this temporary use permit. The analysis claims that "there are no projects planned for construction in 2019 or 2020 that are within market reach of [the quarry]." It does identify future projects in Mendocino County, however the projects identified are either outside of the market reach of the applicant due to closer asphalt plants which have significant competitive advantages, or are not the type of projects which makes use of a significant volume of asphalt. The analysis concludes that "no projects planned in the near term… require asphalt for construction within the market reach of Harris Quarry."

The analysis goes on to calculate the profitability of this alternative, using Phase II of the Willits Bypass project. This is the largest project currently planned within the market reach of the quarry. This project is projected to occur in 20 or more years according to transportation planning documents, but the analysis assumes that it will be constructed within 5 years.

Under the analysis, asphalt paving for the project would occur over two years, with the asphalt plant producing a total of 71,300 tons for the project. By year three the plant will have fully supplied the project's asphalt needs. The applicant would then remove and sell the plant for salvage value, as the temporary use permit would no longer be valid.

Under the profitability projection in the analysis, this alternative would result in a net loss of money for the applicant. The revenue would exceed the operating costs for those two years but the capital costs involved in setting up the plant far exceed those profits, even combined with the salvage value of the plant after it ceases operations in year 3. Under the analysis the Internal Rate of Return (IRR), which represents the ratio of initial investment to profit, is negative 11%. That is, for every dollar of initial investment in the project, the analysis projects that the applicant will receive back 89 cents, a net loss. Additionally, the economic analysis concludes that a minimum 30% rate of return is necessary to justify investing capital in this alternative but, even if a 15% discount rate were assumed, the economic analysis provides that the alternative would operate at a loss of more than $2 million.

The applicant's economic analysis is provided in Appendix E of this 2019 RDEIR.

2.3 Alternative 5: Project Redesign

2.3.1 Description

This alternative includes the project as proposed including all EIR-recommended mitigation measures. In addition, it includes the following two elements:

- Nighttime activities will not be allowed more than 20 nights a year to serve one or more ~~a~~ major road construction projects; the County would need to authorize this nighttime use. The applicant has requested the ability to operate at night up to 100 nights a year. The rationale for such a request appears to have been the possibility ~~be~~ that Caltrans might request nighttime operations when constructing the Willits Bypass in order to minimize traffic congestion impacts. However, the bypass has been constructed and it is speculative that nighttime operations would be needed for ~~a new bypass around the City~~ other projects. ~~In fact, nighttime operations might be very unpopular with people living near the bypass route.~~ In any case, this alternative limits nighttime operations to 20 nights a year.

- The applicant will finance their fair share of construction of at least a partial interchange at the project access driveway intersection. At a minimum, this partial interchange would include northbound on and offramps with a highway overcrossing; these improvements would eliminate turns in or out of the quarry across oncoming traffic. Southbound turns into or out of the quarry could either be via the deceleration and acceleration lanes as recommended for the project in this EIR, or the interchange could be fully developed to also include southbound on and offramps. It is expected that Caltrans would require connection of Black Bart Drive to this interchange.

The intent of including this alternative is to allow comparison of the project with an alternative that meets most project objectives and further mitigates project traffic, air quality, and visual impacts.

2.3.2 Environmental Impacts

Geology and Soils

The alternative would have about the same potential geologic and soil impacts as the proposed project. It is likely that some additional grading would be required to develop the highway interchange. With implementation of recommended mitigation measures, all geologic and soil impacts can be reduced to a less-than-significant level.

Hydrology and Water Quality

The alternative would have approximately the same potential hydrologic and water quality impacts as the proposed project. With implementation of recommended mitigation measures, all these impacts can be reduced to a less-than-significant level.

Biological Resources

The alternative would have about the same biological impacts as the proposed project, though the interchange could affect more vegetation and wetlands adjacent to the highway. There would be a reduction in potential impacts to nocturnal wildlife, but this is not considered a significant impact for the proposed project. With implementation of recommended mitigation measures, all biological impacts can be reduced to a less-than-significant level.

Traffic

The alternative would generate the same amount of traffic. The interchange would basically eliminate existing as well as project-generated traffic hazard impacts. This would be a major benefit of this alternative. Otherwise, the alternative would have the same potential traffic impacts as the proposed project. With implementation of recommended mitigation measures, all these impacts can be reduced to a less-than- significant level.

Air Quality

The alternative would have the same potential air quality impacts as the proposed project. With implementation of recommended mitigation measures, all air quality impacts can be reduced to a less-than-significant level except for the impact of NOx emissions from haul trucks.

Noise

By eliminating most of the nighttime production, the alternative would reduce the noise impacts on residents in the Ridgewood Subdivision and in the area on Highway 101 just north of the site. Though the projected nighttime noise impacts on these residents would not be sufficiently substantial to be deemed significant, they would at times be audible to some residents. This reduction in nighttime operations would all but eliminate this impact. Otherwise, all noise impacts would be the same and are less-than-significant level.

Aesthetics

The alternative would have the same potential visual impacts as the proposed project except for the nighttime lighting impacts. The alternative would reduce the nighttime lighting impacts as operational lights at the processing facilities would only be on for 20 nights a year at the most. The security lighting would be shielded and otherwise mitigated. This alternative would reduce the significant and unavoidable lighting impact to a less-than-significant level. The other three significant and unavoidable visual impacts would remain for this alternative.

Public Services

The alternative would have the same potential public service impacts as the proposed project. With implementation of recommended mitigation measures, all public service impacts can be reduced to a less-than-significant level.

Hazards and Hazardous Materials

The alternative would have the same potential hazards impacts as the proposed project. With implementation of recommended mitigation measures, all hazards and hazardous materials impacts can be reduced to a less-than-significant level.

Land Use

This alternative would be consistent with the existing General Plan but inconsistent with the Zoning Ordinance. The Range Land General Plan classification does allow processing of natural resources. Currently, the Zoning Code does permit a permanent asphalt plant under the Mineral Processing Combining District. However, the Court has directed that the County rescind the resolution amending the Zoning Code to create this district. Following this rescission, the Zoning Code will only allow for a temporary asphalt plant in conjunction with a specified project. Therefore, a zoning amendment will be required for this alternative, which anticipates a permanent asphalt facility.

The alternative would cause land use conflicts with rangeland and rural residential uses to the west and north. The alternative would result in the possibility of processing facilities being developed on other quarry properties classified as Range Land, with the potential for the potential site- specific impacts that could result from development and operation of those other facilities, though it is speculative that processing facilities would be developed at other quarries (see Section 4.10 of the 2011 Revised Draft EIR).

Energy

The alternative would have the same potential energy demand and energy impacts as the proposed project (though there would be a very minor reduction due to the reduced need for lights for nighttime operations). With implementation of recommended mitigation measures, all energy impacts can be reduced to a less-than-significant level.

Other Resources

The alternative would have the same impacts on cultural resources and recreation as the proposed project. These impacts can be reduced to a less-than-significant level. It would have the same beneficial use of mineral resources.

2.3.3 Conclusions

Alternative 5 (Project Redesign) reduces the significant and unavoidable visual impacts of night lighting of the processing facilities to a less-than-significant level. It eliminates existing and future traffic safety impacts. It reduces nighttime noise impacts. It is environmentally superior to the project as proposed. The alternative meets all of the applicant's five objectives.

The applicant’s economic analysis also addresses this alternative. For the fair share portion, the analysis examines data from a number of sources and concludes that the applicant would be responsible for a fair share of 77% of the costs of the overpass, and that the interchange would

cost a total of $37.8 million. Therefore, as estimated by the analysis, the applicant would be responsible for a total of roughly $28.6 million in fair share contributions towards construction of the interchange.

The analysis considers that, due to the lower risk involved in this project compared to alternative 4, a break-even discount rate would be 15%. This 15% figure was developed, in part, to account for the prime rate for loans to finance the project, which has ranged from 5.5 to 11 percent. The analysis states that loan rate for equipment ranges from 8 to 30 percent depending on the riskiness of the project.

Using projections of the project's revenue over the next 30 years the analysis estimates the net return to the applicant over the 30 year period. Under these estimates the IRR would be 4%. Furthermore, at a minimum required discount rate of 15%, the alternative would have a negative net present value and result in losses of $23.4 million.

In addition to the economic impact to the applicant, the analysis also examines the impact to the County. The remaining 23% of the construction costs of the interchange, totaling roughly $8.5 million, would need to be paid by the County. The analysis estimates that this would constitute 85% of the County's roadway budget over the next ten years. It also notes that the County's actual costs may be higher due to the need to purchase or otherwise obtain a right of way or land for the interchange.

As for the reduction in nighttime activities proposed under this alternative, the economic analysis notes that most road construction projects occur at night, and that a reduction in nighttime operations would negatively impact their operations and produce a competitive disadvantage. The analysis also notes that the reduction in night operations could result in asphalt being purchased outside of Mendocino County, and hence, a reduction in sales tax revenue for the County.

The applicant's economic analysis is provided in Appendix E of this 2019 RDEIR.

2.4 Comparison of Alternatives

There are 8 alternatives under consideration: the 7 alternatives discussed within the 2011 Revised Draft EIR and above, and the project as proposed. Table 2-1 presented ~~earlier in this report~~ in the 2011 Revised Draft EIR compares the impact significance for the project and the alternatives.

Alternative 1 (No Project - No Further Development) is the environmentally superior alternative as it eliminates all site-specific impacts and allows immediate reclamation of the existing quarry, even though it would somewhat increase regional traffic, air quality, climate change, and energy use impacts.

CEQA requires that a second environmentally superior alternative be identified if the environmentally superior alternative is the no project alternative (i.e., Alternatives 1 or 2). Alternative 6 (Reduced Production) would be the environmentally superior alternative

among the remaining alternatives. Alternative 6 eliminates two of the five potentially significant impacts of the project. It substantially reduces many other impacts, though it would somewhat increase regional traffic, air quality, climate change, and energy use impacts. This alternative meets 1 of the 5 project objectives.

The following list ranks the alternatives. Alternative 1 is environmentally superior while the project as proposed is the least "superior:"

Alternative 1: No Project – No Future Development
Alternative 2: No Project – Future Development Consistent with Land Use Classification
Alternative 6: Reduced Production
Alternative 3: Quarry Only
Alternative 4: Quarry and Temporary Asphalt Plant
Alternative 5: Project Redesign
Project as Proposed

If the County determines that the Alternative Location alternative (Alternative 7) is superior, then it would select one of the other alternatives that eliminates the asphalt plant on the proposed site.

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CHAPTER 3
2019 Revised Draft EIR Preparation

NOTE TO READERS: A list of preparers of the 2011 Revised Draft EIR can be found in Chapter 6 of that document, *Report Preparers, Bibliography, and Persons Contacted*. The list below shows additional personnel who contributed to preparation of this 2019 RDEIR.

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Appendix E:

Economic Analysis of the Proposed Harris Quarry Expansion Project; An Evaluation of Alternatives 4 & 5 by EnviroMINE, March 2019

2019

Economic Analysis of the Proposed Harris Quarry ExpansionProject

An evaluation of Alternatives 4 & 5

Prepared by:

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Updated Document
3/18/2019

Table of Contents

1.0 Introduction

Northern Aggregates, Inc. ("NAI") retained EnviroMINE, Inc. ("EnviroMINE") to conduct an economic feasibility analysis of two project alternatives contained in the Environmental Impact Report (EIR) for the proposed Harris Quarry expansion. NAI owns Harris Quarry, which is approximately seven miles South of Willits, in the unincorporated area of Mendocino County, California. The Harris Quarry has been operating at various production levels since the 1920's. In January of 2010, NAI submitted a revised application to the County of Mendocino ("County") to, among other things, increase the quarry's maximum annual production to 200,000 cubic yards and for a permanent asphalt plant on the quarry site.[1] As part of the project's EIR, there were seven alternatives. The two alternatives analyzed in the report were identified in the EIR as: Quarry and Temporary Asphalt Plant ("Alternative 4") and Project Redesign ("Alternative 5"). This report provides economic and financial information for both alternatives.

1.1 Background

Construction aggregate and asphalt material market areas are dictated by transportation and population. Population drives the demand for these materials and the cost of transportation dictates market boundaries[2],[3],[4]. When the source of construction materials is close to the area of consumption, the cost of the material and associated environmental impacts from transportation are minimized.[5]

The quarries known to serve Mendocino County are illustrated in Figure 1.[6] The existing quarries are situated near population centers, which are primary sources of demand. Currently, there are only two asphalt plants within Mendocino County; the Geo Aggregates Plant near Fort Bragg and Granite Construction's asphalt plant located in Ukiah. All other asphalt sources are outside Mendocino County and are located in Sonoma, Humboldt and Lake Counties, as shown in Figure 1.

[1] NAI submitted the 2010 application revisions to modify approvals it had been pursuing since 2004. The January 2010 description was the final project description.

[2] Robinson, Gilpin R. & William M. Brown. "Sociocultural Dimensions of Supply and Demand for Natural Aggregate – Examples from the Mid-Atlantic Region, United States." U.S. Geological Survey Open-File Report 02-350. 2002.

[3] Jaeger, W. K. "The Hidden Costs of Relocating Sand and Gravel Mines." Resources Policy, 31 (2006). 146-164.

[4] Clinkenbeard, J. P. "Aggregate Sustainability in California." California Department of Conservation Division of California Geological Survey. Map Sheet 52, 2012 Update.

[5] Berck, Peter. "A Note on the Environmental Costs of Aggregates." Department of Agricultural and Resource Economics and Policy, University of California at Berkeley. Working Paper No. 994. January 2005.

[6] Mendocino County Mines: Operators and Status as of January 2019; received from Mendocino County Planning Department.


Figure 1
Mercer Fraser AC Plant
HUMBOLDT
TRINITY
TEHAMA
GLENN
Geo Aggregates
Fort Bragg
MENDOCINO
Willits
HARRIS QUARRY
Ukiah
Granite AC Plant
COLUSA
LAKE
Granite AC Lakeport Plant
YOLO
Quarries & Asphalt Plant Locations
Asphalt Plants
Quarries
N
12 0 12
Miles
1 in = 12 miles
Jan 2019
Santa Rosa
Syar Healdsburg Asphalt Plant
SONOMA
NAPA
BoDean Santa Rosa Asphalt Plant
Syar Santa Rosa Asphalt Plant
MARIN
Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

State Highways and 60 to 70 percent[7] of county roads are paved with asphalt in Mendocino County. As a result, asphalt is necessary for maintenance and new construction in all areas of the County. With limited local asphalt supplies near populated areas of Mendocino County, such as, Ukiah and Willits, NAI chose to include an asphalt plant with its proposed quarry expansion project to service the expected market demand in these areas.

The most common and widely used method for estimating construction aggregate demand is the "per capita consumption model" and it estimates the average consumption per person in tons per capita.[8] Calculating the consumption rate allows market areas to project demand to plan for future consumption needs. The California Department of Conservation (DOC) provided total Mendocino County construction aggregate production from 1990 to 2017. When compared to the total County population over the same time period, the average demand in tons per capita per year was 6.5 (Table 1).

[7] "Upper Russian River Aggregate Resources Management Plan Mendocino County." Prepared by Philip Williams & Associates, LTD. PWA Ref#1061. February 1997.

[8] Kohler, S. "Aggregate Availability in California." Department of Conservation, California Geological Survey. Map Sheet 52, 2006.

Table 1: Mendocino County Annual Construction Aggregate Production

Year	Production[9]	Population[10]	Tons/Capita
1990	846,927	80,574	10.5
1991	508,356	81,847	6.2
1992	485,538	82,372	5.9
1993	779,600	83,009	9.4
1994	813,965	83,354	9.8
1995	847,563	83,753	10.1
1996	686,351	84,291	8.1
1997	865,648	85,322	10.1
1998	883,357	85,223	10.4
1999	768,163	85,800	9.0
2000	605,824	86,506	7.0
2001	726,670	86,825	8.4
2002	815,649	87,326	9.3
2003	641,922	87,764	7.3
2004	603,408	88,130	6.8
2005	416,155	88,129	4.7
2006	530,112	87,802	6.0
2007	513,436	87,617	5.9
2008	407,804	87,715	4.6
2009	338,944	87,677	3.9
2010	216,934	87,924	2.5
2011	208,207	88,065	2.4
2012	212,731	88,568	2.4
2013	321,205	88,206	3.6
2014	450,115	88,194	5.1
2015	570,998	88,215	6.5
2016	82,960[11]	88,721	0.9[11]
2017	508,376	89,092	5.7
		Average Tons/Capita	**6.5**

A second report was published that also estimated construction aggregate demand, which included Mendocino County. This was the *Upper Russian River Aggregate Resources Management Plan Mendocino County* (Russian River) report in 1997, which

[9] California Department of Conservation, Office of Mine Reclamation

[10] State of California, Department of Finance, California County Population Estimates and Components of Change by Year, July 1, 1990-2018.

[11] The DOC was contacted to clarify and verify this number was accurate because of the significant difference in production from 2015 and 2017. However, the DOC stated that they double checked their records and confirmed the number was accurate.

estimated a demand for aggregate at 3.74 cubic yards per person.[12] Utilizing an industry average conversion factor of 2 tons per cubic yard, the Russian River report estimates construction aggregate demand at 7.5 tons per capita. The per capita consumption model is used because demand for construction materials, such as, construction aggregate and asphalt, are driven by population. As population increases, so does the demand for these materials. It is important to project demand for a market region to ensure sufficient supplies of construction materials are available to satisfy future consumption needs. While the two reports used the same method, they were evaluated over different time periods which can lead to different results.

According to the California Department of Finance (DOF), Mendocino County population is expected to increase by nearly 8 percent between 2020 and 2060. Table 2 illustrates projected population and construction aggregate demand in five-year increments from 2020 to 2060. These dates were chosen because the DOF provides population projections for these dates. Table 2 also shows construction aggregate demand projections using the per capita consumption rates from the Russian River report in cubic yards as well as tons using the 2 tons per cubic yard conversion factor. The projected demand from the Russian River report is then compared to the estimated tons per capita demand based on data provided by the DOC (Table 2). Comparing these two sources, there is a 1 ton per capita difference. The difference is attributed to the time periods that were evaluated and a decrease in projected population growth. The population estimates were corrected after the 2010 census showing that population was lower than what had been estimated previously. In addition, there was a significant recession between 2006-2012 and likely lowered the per capita consumption rate.

Table 2 illustrates projected demand using the per capita consumption rates from both methods. In 2025, demand in Mendocino County will be at least 607,000 tons of aggregate. This is expected to rise to approximately 625,000 tons by 2060. With the expected increase in demand for aggregates, it is also important to increase the permitted reserves within the County to ensure future demand is met.

Asphalt production is not publicly recorded or reported. However, it can be estimated using construction aggregate production as well as a per capita consumption model assumption. The demand for asphalt varies by region but averages 15 percent[13] of total aggregate production. The National Asphalt Pavement Association also uses the per capita consumption rate of 1 ton per capita to estimate the demand for asphalt over the long run. With no publicly available data to measure anticipated asphalt production volumes, the expected future demand for construction aggregate is used to calculate asphalt production needs.

Table 3 compares the projected asphalt demand using the assumption of 1 ton per capita and 15 percent of construction aggregate demand identified in the Russian River and DOC aggregate demand projections. These projections show the increasing

[12] "Upper Russian River Aggregate Resources Management Plan Mendocino County." Prepared by Philip Williams & Associates, LTD. PWA Ref#1061. February 1997.

[13] Information extracted from a variety of California Department of Conservation Mineral Classification Reports across the State.

demand for asphalt in Mendocino County as population continues to grow in the region.

Table 2: Projected Mendocino County Population and Construction Aggregate Demand

		Projected Construction Aggregate Demand				
		Russian River Report[1]			DOC	
Year	Population[2]	Cubic Yards	**CY x 2 = tons**	**tons/ capita [3]**	**Tons**	**tons/ capita**
2020	90,175	337,255	674,509	7.48	586,107	6.50
2025	91,940	343,856	687,711	7.48	597,610	6.50
2030	93,452	349,510	699,021	7.48	607,438	6.50
2035	94,577	353,718	707,436	7.48	614,751	6.50
2040	95,124	355,764	711,528	7.48	618,306	6.50
2045	95,295	356,403	712,807	7.48	619,418	6.50
2050	95,403	356,807	713,614	7.48	620,120	6.50
2055	95,642	357,701	715,402	7.48	621,673	6.50
2060	96,164	359,653	719,307	7.48	625,066	6.50

Table 3: Asphalt Demand Projections

Year	**1 ton per capita**	**15% of Projected Russian River Aggregate Projections**	**15% Using DOC Aggregate Projections**
2020	90,175	101,176.35	87,920.63
2025	91,940	103,156.68	89,641.50
2030	93,452	104,853.14	91,115.70
2035	94,577	106,115.39	92,212.58
2040	95,124	106,729.13	92,745.90
2045	95,295	106,920.99	92,912.63
2050	95,403	107,042.17	93,017.93
2055	95,642	107,310.32	93,250.95
2060	96,164	107,896.01	93,759.90

If local sources of construction materials, like construction aggregate and asphalt, do not exist near the area of consumption, transportation costs may exceed the value of the material. The DOC found that the price of aggregate throughout California varies

significantly depending on the location, quality, supply and demand of the material. Prices were found to vary from more than $20 per ton in areas with depleting or depleted aggregate supplies to $9 to $12 per ton in areas with abundant aggregate supplies. Since transportation costs are a significant component of aggregates costs, areas with higher priced aggregate reflect the lack of local sources. When there are no local sources, material must be shipped from available sources located at greater distances. The increase in miles traveled from delivering the product significantly drives up the final price. For example, the DOC estimates it costs 15-20 cents per ton for every mile aggregate is hauled from the plant. Therefore, increasing the haul distance by 30 miles will increase the total cost of aggregate by $4.50 to $6 per ton.[14] According to the County's records, 64 percent of the active quarry operations will expire in the 2030s.[15] With permitted supplies in the County expected to decrease in the future, the cost of construction materials can be expected to increase as materials are transported from greater distances to satisfy demand.

Responding to market demand for aggregate and asphalt within Mendocino County, NAI submitted its application for increased extraction and the addition of an asphalt plant at Harris Quarry. Locating the asphalt plant adjacent to the quarry is important to reduce the transportation costs and impacts that would result from delivering aggregate to the asphalt plant. Since the quarry is close to population centers, like Willits and Ukiah, its source of material could result in a reduction of transportation costs and environmental impacts.

2.0 Proposed Project & Alternatives

NAI's revised application was for, among other things, a conditional use permit and Reclamation Plan (UR 19-83/2005) to allow increased extraction of rock from a long existing hillside quarry to 200,000 cy/year and to construct a permanent asphalt processing facility that could produce up to 150,000 tons of asphalt per year. Current annual permitted extraction is 75,000 cy/year. This report refers to the revised application as the "Project." The Project included making physical improvements to Highway 101. The highway improvements included widening the highway and adding north and southbound acceleration and deceleration lanes, as well as a turn lane for northbound trucks turning left into the quarry and northbound trucks leaving the quarry turning left onto the highway. NAI volunteered and actually constructed the highway improvements at NAI's sole expense.

The EIR evaluated alternatives that had the potential to reduce the severity of or eliminate the significant environmental effects of the project. Two alternatives are evaluated in this report; Alternative 4 - operation of the rock quarry with a temporary asphalt to service a single job and Alternative 5 - a Project redesign, which would have required NAI to pay its "fair share" for an interchange at Black Bart Drive, over Highway 101. Alternative 5 also reduced nighttime operations from 100 nights per year to 20 nights per year. The Mendocino County Board of Supervisors ("Board") rejected Alternatives 4 and 5 for multiple reasons, including economic infeasibility. In

[14] Clinkenbeard, J.P., Gius, F.W. "Aggregate Sustainability in California." California Department of Conservation, California Geological Survey. Map Sheet 52. Updated 2018.
[15] List of active construction aggregate operations was obtained from County of Mendocino SMARA Manager, Dec. 2018.

its finding for rejecting Alternative 5, the Board noted that the Project would result in paid-for, physical improvements to the highway, while Alternative 5 would only result in a fair share payment and any physical improvements would be deferred to an unknown future time.[16]

2.1 Alternative 4: Quarry and Temporary Asphalt Plant

Alternative 4 would allow the quarry expansion with a temporary asphalt plant. The County Zoning Ordinance (Section 20.036.010) allows mineral processing *"of a temporary nature and carried on in conjunction with, and only for the duration of a specific construction project..."* Therefore, the asphalt plant would be permitted only if there was a specific project under construction and the asphalt produced would only be allowed to supply that same project. No additional asphalt could be produced to supply other customers for projects unrelated to the target project. The County ordinance also requires after the project is completed, the asphalt plant must be removed, and the plant site reclaimed consistent with the reclamation plan. This alternative was included in the EIR to allow a comparison of the Project with an alternative that meets some of the Project objectives but eliminates the long-term impacts from the asphalt plant.

For Alternative 4 to be feasible and economical, a specific construction project would need to be available within the market area of Harris Quarry, be under construction at the time the project is approved and require a volume of material large enough to justify the capital investment required to supply the asphalt. At the time that NAI's project was proposed and the EIR prepared in 2012, Phase I of the Willits Bypass[17] was in the planning stages and would be under construction after the project was approved. This project was the largest road construction project planned that required the most asphalt within the market area of the Harris Quarry. It is important to note that the Willits Bypass was planned as a 4-lane project but was broken up into two phases. Phase I included the environmental documentation and plans (CEQA), purchase of right-of-way and construction of 2 of the 4 lanes. Phase II of the Willits Bypass would be construction of the remaining two lanes. Phase II was planned to take place after 2020.

In 2012, an opposition group challenged the County's certification of the EIR and project approval on multiple grounds. In addition to many other challenges, the opposition group argued that the County improperly rejected Alternative 4 (quarry and temporary asphalt plant) and Alternative 5 (overpass and reduced night operations). Alternative 4, the temporary asphalt plant was tied to construction of the Willits Bypass because the Mendocino County Code requires a temporary asphalt plant to be

[16] Mendocino County Board of Supervisors Resolution No. 12-065

[17] The Willits Bypass is a California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) project that proposes to construct a new four-lane six-mile segment of Route 101 that will bypass the City of Willits, in Mendocino County, California. However, the project is to be built in two phases. Phase I has been completed and as mentioned previously, Phase II is planned for 20 or more years in the future. The intention of the bypass is to relieve congestion, reduce delays, and improve safety for interregional traffic. According to the Caltrans bid summary,[17] Phase I require 71,300 tons of asphalt, since both phases construct the same number of lanes, it is assumed Phase II will also require 71,300 tons of asphalt.

tied to one, specific job. In 2014, the Mendocino County Superior Court ruled the EIR was valid, but there was no substantial evidence supporting the County's rejection of two alternatives on multiple grounds, including economical infeasibility. The matter then proceeded to the Court of Appeal and the Court of Appeal affirmed the Superior Court's decision in December of 2018.

During the six years that the approvals languished in the court system, Phase I of Willits Bypass was constructed. As required by the Mendocino County Code, this was the project that the EIR contemplated associating with a temporary asphalt plant. The Willits Bypass opened to the public in November 2016 and has been in full operation since.

Because of the six-year litigation delay, the one job that Alternative 4 relied on, Phase I of the Willits Bypass, was completed. Therefore, another job large enough to support a temporary asphalt plant must be identified.

According to Caltrans, the Mendocino County Public Works Department[18] and the 2017 Mendocino County Regional Transportation Plan, there are no projects planned for construction in 2019 or 2020 that are within the market reach of NAI.

For example, Caltrans District 1 publishes a report of all the projects planned within the district over the next 12 months. This schedule lists the specific volume of construction materials, like asphalt, needed for the project. Caltrans District 1 covers the following counties: Del Norte, Humboldt, Lake and Mendocino. Over the next 12 months there are two projects in Mendocino County that will require a significant amount of asphalt. The volume of asphalt required for these projects are listed in Table 4.

Table 4: Caltrans District 1 Projects in Mendocino that Require Asphalt[19]

Project ID	Route	Location	Asphalt Needed in Tons	Distance from Harris Quarry
0116000024	101	Hopland	55,620	36 miles
0116000031	1	Fort Bragg	33,517	40 miles

Both of the projects listed in Table 4 are outside of the market reach for an asphalt plant located at Harris Quarry. The Hopland project is 15 miles south of Ukiah. Granite Construction has an asphalt plant in Ukiah. Therefore, Granite would have a significant economic advantage for supplying material to the project because their plant is located less than one half of the distance to the job than an asphalt plant located at the Harris Quarry. Additionally, the second project listed is located in Fort Bragg and Geo Aggregates currently has an asphalt plant in Fort Bragg. The Geo Aggregates plant would have a competitive advantage over NAI because it is significantly closer to the anticipated project. As a result, the second road construction project is outside of the Harris Quarry market reach.

[18] Personal communication with Caltrans District 1 Public Information Officer Cori Reed and Kent Standley, County of Mendocino Deputy Director of Department of Transportation. December 2018 and January 2019

[19] http://ppmoe.dot.ca.gov/hq/esc/oe/contractor_info/12_month_Advertising_Schedule.pdf

A further example of road construction projects planned for Mendocino County are listed on the Rebuilding California website[20], This resource identifies upcoming road construction projects that could utilize funding from Senate Bill 1, or the gas tax funds. These projects are either outside of the Harris Quarry's market reach or do not require the volume of asphalt necessary for achieving a return on the capital investment required to supply the material. The Mendocino County projects listed on the web site include bridge replacements, culvert construction to improve drainage, and traffic management. While a detailed list is not provided for the volume of asphalt needed, asphalt is not used for bridges and culverts. Therefore, it is reasonable to assume the projects would not require the volume of asphalt necessary for NAI to justify investing the capital to construct and operate a temporary asphalt plant.

With no projects planned in the near term that require asphalt for construction within the market reach of the Harris Quarry, this report selected a project planned in the future and assumes the funding will be available sooner to allow for construction to occur in the near term. According to the 2017 Mendocino County Regional Transportation Plan, Phase II of the Willits Bypass, is not planned for another 20 years because of the lack of funding. To be in compliance with the County ordinance, the asphalt plant can only be constructed if it is associated with a specific project; therefore, this economic analysis assumes funding will be available for Phase II of the Willits Bypass in the near term.[21] This is a risky assumption, but it is the only project on the horizon that would apply to this Alternative.

This report evaluates the economic viability of the temporary asphalt plant. The assumptions and aspects of the project evaluation include:

- Capital cost of purchasing a temporary asphalt plant
- Cost of installing the asphalt plant
- Cost of the asphalt plant site preparation
- Net revenue from supplying asphalt to Phase II of Willits Bypass
- Cost of reclaiming the asphalt site
- Cost of Financial Assurance Cost Estimate and Mechanism

The full analysis and detailed description of the assumptions and conclusions for this alternative is discussed in Section 4.0 of this report.

2.2 Alternative 5: Project Redesign

Project Redesign, or Alternative 5, requires the Applicant to finance its fair share of construction costs of at least a partial interchange at the Project access road and Highway 101 intersection instead of paying for and constructing acceleration and deceleration lanes. A partial interchange option, addressing only northbound movements on and off the freeway, was not feasible at this location[22]. Therefore, the costs of a full interchange were evaluated for this alternative. The intent of including this alternative was to allow comparison of the Project with an alternative that meets

[20] http://rebuildingca.ca.gov/map.html

[21] 2017 Mendocino County Regional Transportation Plan, Adopted Feb. 5, 2018. Mendocino County Council of Governments.

[22] Information provided by RAU Engineering and Association and provided in Appendix C

most of the Project's objectives and further mitigates Project traffic impacts. Alternative 5 also reduced night operations from 100 nights per year to 20 nights per year.

The Board found this alternative was infeasible primarily because the Highway 101 improvements would not be constructed immediately. Instead, NAI would finance its fair share of an interchange and actual construction would be delayed until environmental review and permitting was complete and the interchange was funded, which is expected to take a minimum of 10 years. The Board rejected this alternative because it will not produce the same level of improvements to Highway 101 as the Project, and because reducing NAI's ability to conduct night operations could result in asphalt being purchased outside of Mendocino County, thereby depriving the County of critical sales tax revenue. In addition, Alternative 5 was rejected because NAI's fair share payment of the interchange was believed to result in an economically unviable project. However, the Superior Court of Mendocino County (*Keep the Code, Inc vs. County of Mendocino*) ruled that there was no substantial evidence in the record supporting the Board's finding that Alternative 5 is economically infeasible.

This report evaluates the economic viability of the project redesign on NAI as well as the County of Mendocino. The assumptions and aspects of the project that will be evaluated include:

Impacts to NAI

- Cost of fair share payment for construction of a freeway interchange.
- Cost of reclamation
- Capital cost for a permanent asphalt plant.
- Assumed Net Revenue
- Costs of satisfying conditions of approval and mitigation requirements

Impacts to Mendocino County

- Cost of interchange after NAI Fair Share Payment
- Economic impact of aggregate and asphalt production to the County

The full analysis and detailed description of the assumptions and conclusions for this alternative are discussed in Section 5.0 of this report.

3.0 Economic Analysis Methods

This report uses the capital budgeting process to evaluate the economic feasibility of Alternatives 4 and 5. Capital budgeting (or investment appraisal) is the planning process used by many companies for evaluating and ranking potential expenditures or investments that are significant in amount.[23] Large expenditures could include the purchase of new equipment, rebuilding existing equipment, new plants, and or new products. The capital budgeting process analyzes these expenditures to determine if they will increase the value of the company, and therefore, are worth the investment. This analysis is based on the time value of money principle, which states that dollars today have a greater value than dollars in the future (because we would all prefer

[23] Blank, L & Tarquin, A. "Basics of Engineering Economy." McGraw-Hill Higher Education, 2008.

possessing dollars today to receiving the same amount of dollars in the future). This method provides the ability to compare cash flows over time in the same unit or in the same time period (i.e. today's dollars).

The two capital budgeting methods used in this report are Net Present Value ("NPV") and Internal Rate of Return ("IRR"). The Net Present Value method is widely used throughout economics, finance and accounting for evaluating proposed business decisions. NPV uses a minimum rate of return as the discount rate. This rate also includes the element of risk from potential errors made when estimating future cash flows and provides an efficient tool for conducting a test to see if the project is expected to earn the company's minimum desired rate of return.

The results of an NPV analysis will determine whether or not the company should proceed with the investment. Therefore, if the NPV is:

- **positive**, the benefits are sufficient to repay the company for (1) the asset's cost, (2) the cost of financing the project, and (3) a rate of return that adequately compensates the company for the risk found in the cash flow estimates.

- **zero**, the benefits are barely enough to cover all three, but it is assumed the project would breakeven - no profit and no loss. At a zero NPV, the company would be indifferent about accepting the project.

- **negative**, the benefits are not large enough to cover all three, and therefore the project should be rejected.

The other capital budgeting method used in this report is the IRR. IRR is the rate of return that a company can expect to earn on the investment or proposed project. Technically, it is the discount rate that causes NPV to equal zero. The IRR method is also widely used by companies for evaluating capital budgeting proposals. If the internal rate of return is greater than the project's minimum rate of return, the company would be inclined to proceed with the proposed project.

According to the California Environmental Quality Act (CEQA), the mere fact that an alternative might be less profitable does not itself render the alternative infeasible unless there is also evidence that the reduced profitability is sufficiently severe as to render it impractical to proceed with the project (*Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336 1357 and *Save the Round Valley Alliance v. County of Inyo* (2007) 157 Cal.App.4th 1437m 1461). The capital budgeting process used in this analysis determines that an alternative is economically infeasible if it does not meet the minimum rate of return to justify investing capital in the project. If the minimum rate of return is not met, then there is little or no profit and the financial impacts of the reduced profit (or no profit at all) are severe enough that the alternative is not viable relative to investing the money some other way or relative to the profit generated by the proposed project.

This analysis assumed that NAI's minimum acceptable rate of return is 30 percent for Alternative 4 and 15 percent for Alternative 5. Alternative 4 has a higher minimum rate of return at 30 percent because of the higher risk associated with the assumption. The higher risk is associated with the uncertainty of constructing Phase II of the

Willits Bypass sooner than published planning documents have indicated. Therefore, an alternative would only be economical for NAI if it provided a positive NPV at 30 percent or an Internal Rate of Return (IRR) of at least 30 percent. It is important to note that the Discount Rate and IRR are mutually exclusive and do not influence one another in the analysis. The minimum rate of return for a project is based on the cost of capital and the risk associated with the project. For this report, the cost of capital is the prime rate plus the anticipated risk associated with each alternative. Risk is defined as the probability or likelihood that the assumptions made in the model will occur in the time frame of the model.

The discounted cash flow model for each Alternative uses a discount rate which reflects the minimum acceptable rate of return for that Alternative. Discount rates are highly dependent on risk. If a project is riskier than average, the discount rate must be adjusted upward. As the risk of a project rises, so will its cost of capital. This is because if an investment poses greater risk, it must offer a greater return to make the risk worth it. The risk of the project will be reflected in the loan taken out to invest in the capital. The cost of capital will be equal to the prime rate for a large corporation with strong credit and they are financing a very low risk project and it is certain the loan will be paid off. Thus, the prime rate is the baseline rate where the discount rate reflects 0 risk and lenders will add to this rate to reflect the risk associated with the project.

Historically, the prime rate has been as high as 11 percent in 1983, dropping to around 6 percent in 2008, and most recently dropping to 5.5 percent in 2018. However, lenders have learned from the recent recession that there is inherent risk in the market and loan rates are generally higher than they were before the recession despite the fact that the prime rate is lower. For equipment loans, it has been reported that loan rates range from 8 to 30 percent. Where 8 percent reflects low risk and 30 percent as high risk.[24]

The risk associated with Alternative 4 will be discussed in Section 4.0 and the risk associated with Alternative 5 will be discussed in Section 5.0.

4.0 Analysis of Alternative 4

As mentioned earlier, Alternative 4 only allows a temporary asphalt plant to be located at the proposed Harris Quarry for a specific job. This updated report utilizes Phase II of the Willits Bypass as Phase I has already been constructed and no other large jobs are planned in the foreseeable future within the Harris Quarry's market reach. In addition, in compliance with the requirements of the County zoning ordinance Section 20.036.010, it is assumed that Phase II of the Willits Bypass will be constructed within 5 years, as opposed to the 20 or more as indicated in transportation planning documents.

[24] Source for prime rate: https://www.jpmorganchase.com/corporate/About-JPMC/historical-prime-rate.htm
Loans of high risk can be as high as 30%: https://www.fundera.com/business-loans/guides/business-loan-interest-rate

From a capital budgeting perspective, NAI would appraise this alternative by evaluating the NPV and IRR for the temporary asphalt plant only. The temporary asphalt plant is the proposed investment that would add to the existing business of the quarry. To be an economically viable business decision, the expected cash flows should provide a positive NPV and the IRR should at least meet the minimum required rate of return. With Phase II not planned for 20 years or more, assuming it will be constructed earlier is a high-risk assumption and to reflect this increased risk, the minimum rate of return for this alternative is 30 percent.

This analysis assumes Phase II of the Willits Bypass will begin construction within 5 years or 2024 and asphalt paving would occur over two years assuming that a lane in each direction would be constructed in consecutive years. Therefore, it is expected that the temporary asphalt plant would produce 35,650 tons annually for two years for a total of 71,300 tons. As such, the NPV and IRR analysis evaluates the before tax net cash flows from the production of asphalt supplied only for the Willits Bypass Phase II. These discounted future cash flows will also consider the cost of purchasing the temporary asphalt plant, cost of installing the asphalt plant, cost of constructing the asphalt facility and access road, resale of the used asphalt plant, and reclaiming the asphalt plant site at the end of three years in accordance with the Reclamation Plan.

The cost for purchasing an asphalt plant was obtained from quotes provided by an asphalt plant manufacturer that services California.[25] The cost of a new plant was estimated at nearly $4.3-million. This analysis also considered the cost of grading and site preparation of nearly $600,000, as well as the labor to install the plant of more than $100,000.

To calculate revenue and operating costs, other aggregate and asphalt producers were contacted to obtain the average price of asphalt in the Mendocino County market.[26] In addition, other asphalt producers were interviewed to determine the industry standard for the cost of producing asphalt.[27] Based on these interviews the average price of asphalt at the plant, F.O.B,[28] ranges between $80-$85 per ton depending on the volume ordered and mix design. For this analysis, the average price used to calculate revenue was $83 per ton. Operating costs for producing asphalt were found to range between $60 and $65 per ton. The value used for this analysis was approximately $63 per ton.

In year 0 (zero), it is assumed NAI would purchase the asphalt plant as well as grade the site and construct the plant. For years 1 and 2 the plant will supply an equal amount of asphalt per year to meet the requirements of the Phase II Willits Bypass.

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[25] The Asphalt plant price quote can be found in Appendix A. Prices were provided based on the variables that fit this project with regards to tons per hour and will meet all California air quality standards. Quotes were obtained in December/January of 2018/2019. Due to the proprietary nature of the quotes, both manufacturers requested they remain anonymous.

[26] Personal interviews with two major companies in the market were conducted in December 2018 and January 2019. Both industry representatives required that they remain anonymous. Due to the proprietary nature of the information, asking to remain anonymous is industry standard.

[27] Personal interviews with other asphalt producers were conducted in December of 2018.

[28] F.O.B is Freight on Board. In the mineral materials industry, all prices are evaluated based on their cost at the plant. Transportation costs are not included in this cost.

The operating costs and average price for asphalt are based on the values discussed earlier. At year three, it is assumed NAI will remove and sell the used asphalt plant for salvage value. Based on personal communication, salvage or resale value of a used asphalt plant is typically 60 percent of the new value.[29] The cost of tearing down the plant was assumed to be the same as for construction. In addition, NAI would incur the cost of reclaiming the site in compliance with its reclamation plan. The reclamation cost estimate provided for this project is attached in Appendix B. This analysis calculates the before tax net cash flows, which are illustrated in Table 5.

[29] Personal Phone Interview with Mike Butler, President of Butler-Justice, Inc.

Table 5: Analysis of Temporary Asphalt Plant (values in thousand $s)

Year	0	1-2	3
Revenue	-	$2,852	0
-Operating Costs	-	-$2,160	0
Net Income		**$692**	**0**
- Capital Costs	-$4,338		
-Site Prep & Plant Set up Costs	-$700		
- Financial Assurance Cost Estimate	-$2.9	-$1	-$1
- Financial Assurance Mechanism		-$2	-$2
+ Salvage Value			$2,503
- Cost of Reclamation			-$148
Before Tax Cash Flow	**-$5,039**	**$710**	**$2,352**
	Discount Rate		
Before Tax NPV	**15%**	**30%**	**IRR**
	-$2,399	**-$3,003**	**-11%**

The results of the capital budgeting analysis indicate more than a $3-million loss. The temporary asphalt plant does not meet the minimum 30 percent rate of return necessary for NAI to justify investing capital in this alternative. Even at a lower risk assumption, 15 percent discount rate, the project is estimated to have a loss of more than $2-million. Further, the IRR, which is independent of the discount rate, shows an 11 percent loss. In other words, the volume of asphalt needed for the project is not great enough to cover the capital investment in the plant and site development. This is evidence that the reduced profitability or substantial loss of income is sufficiently severe; making the alternative infeasible. This analysis confirms that the alternative is economically infeasible because NAI would be better served by investing the money some other way.

It should also be noted that Phase II of the Willits Bypass is the largest construction project planned within NAI's market area that would require the most asphalt during construction than other projects. The largest planned project does not result in an economically feasible project. This would indicate that even if a smaller project was planned with in the NAI market that was expected to occur in the near future, it would not require enough asphalt to cover the capital costs necessary to supply asphalt to the project. Therefore, Alternative 4 is economically infeasible because one construction project does not require enough asphalt to pay for the capital investment.

5.0 Analysis of Alternative 5

As mentioned earlier, Alternative 5 would require NAI to finance its fair share of construction of at least an interchange at the Project access road and Highway 101 intersection. The interchange would be in place of the acceleration and deceleration lanes that are part of the Project. Among other reasons, the Board rejected this alternative because it was not economically feasible. This analysis evaluates the

alternative as it would impact NAI and also provides a discussion for the impacts to the County.

5.1 Fair Share Payment of Interchange

Alternative 5 requires NAI to pay its fair share towards the cost of construction of a partial interchange. A partial interchange or overpass option, that addresses only northbound movements on and off the freeway was determined to be infeasible from an engineering standpoint.[30],[31] It was considered to be infeasible to locate the overpass to the south of the quarry due to steep embankments to west of the quarry; therefore, the overpass must be located north of the quarry. To obtain acceptable grades from the interchange to the quarry floor, the location of the overpass needed to be at or near Black Bart Drive, which would require a connection from Black Bart Drive to the overpass. Connecting Black Bart Drive to the overpass required addressing both southbound and northbound movements. The schematic design of the overpass and opinion of probable cost is included in Appendix C.

RAU and Associates, Inc. estimates the cost of the interchange would be $24.3-million in 2013. This updated analysis utilized the California Price Index for Highway Construction[32] to calculate the cost of the interchange in 2018 dollars. The 2018 cost of the interchange is estimated at: $37.8 million. The CalTrans methodology for calculating equitable mitigation measures was used in this report because the interchange would be constructed on a State highway (Highway 101).[33] The CalTrans methodology is used as a means for calculating the equitable share for mitigating traffic impacts using the Equitable Share Responsibility equation and is described below.

Equitable Share Responsibility Equation

$$P=T/(T_B-T_E)$$

Where:

P	=	The equitable share of the proposed project's traffic impact;
T	=	The vehicle trips generated by the proposed project during peak hour of adjacent State highway facility, in vehicles per hour (vph).
T_B	=	The forecasted (future with project) traffic volume on the impacted State highway facility at the time of general plan build-out (e.g., 20 year model or the furthest future model date feasible), vph.
T_E	=	Existing traffic volume plus approved projects that have not been constructed or occupied, vph.

[30] Opinion provided by RAU and Associates, Inc.

[31] According to Cathy McKeon, the RAU and Associates, Inc. project engineer. The partial interchange is also infeasible because the Caltrans design manual, Section 501.3, requires that interchanges be a minimum of 2 miles apart from another interchange or access point in rural areas. The easterly leg of the interchange (to service the properties to the east) was designed to allow for a commercial approach only. The CDF station is approximately 0.5 miles north. If Caltrans required that the CDF station to connect to the easterly leg of this overpass (closing their current access point).

[32] http://ppmoe.dot.ca.gov/hq/esc/oe/cost_index/historical_reports/CCI_3QTR_2018.pdf

[33] "Guide for the Preparation of Traffic Impact Studies." State of California, Department of Transportation, December 2002.

The peak volume of trucks from Harris Quarry was determined to occur in October and the peak volume of traffic on Highway 101 occurs in July.[34] To calculate the equitable share for NAI, the traffic volumes from October were used. It was also important to consider the passenger car equivalent for the Project. Based on the information provided in the Harris Quarry EIR, one truck would be equivalent to four passenger vehicles.[35] To calculate $T_{E,}$ the traffic generated from other approved projects that have not yet been constructed or occupied should be considered. According to the cumulative impacts analysis in the Harris Quarry EIR, no other proposed projects are planned in the area; therefore, the traffic volume from other approved projects was assumed to be zero. [36] For this update, Kent Standley, County of Mendocino Deputy Director of Department of Transportation,[37] confirmed that there are no new projects planned in the area. In addition, Tom Peters Deputy Director of County of Mendocino Transportation and Land Use was contacted to discuss NAI's fair share contribution based on other projects in the area. Mr. Peters expressed that because no other projects in this region are planned or anticipated, the remaining cost of the interchange would be borne by the County.[38] This update assumes that this condition remains the same since no new projects are planned for the area.

After considering the passenger car equivalent and the traffic from other projects, the equitable share calculation was estimated at 77 percent,[39] thus NAI would be responsible for $28.6-million towards construction of the interchange. Table 6 illustrates how 'T', 'T_B' and 'T_E' were calculated to estimate the equitable share.

[34] Harris Quarry Expansion Revised Draft EIR dated May 2011, Appendix C Table 2.
[35] Harris Quarry Expansion Revised Draft EIR dated May 2011 page 205, Section 5 Existing (Base Case) Intersection Operation.
[36] Harris Quarry Expansion Draft EIR, Cumulative Impacts, Page 98. "In the case of this project, there are no other proposed projects in the area."
[37] Personal Communication with Mr. Standley December 2018
[38] Personal communication County Public Works November 2013
[39] For full details of the equitable share calculation, please refer to Appendix D.

Table 6: Calculation of Proportionate Share Considering Traffic Volumes in October

Calculation of 'T'[40]	
Daily two-way truck trips from Harris Quarry	412
÷Hours in work day:	11[41]
=Hourly Trucks from Harris Quarry	37
×Passenger Car Equivalent (PCE)	4
T	**150**
Calculation of 'T_B'	
Projected Highway 101 Volume (daily) [42]	5390
÷Hours in a day	24
=Volume per Hour	225
Hourly Trucks from Harris Quarry (**T**)	150
T_B	**374**
Calculation of 'T_E'[43]	
Existing Highway 101 Volume (Daily)	4312
÷Hours in a day	24
=Volume per Hour	180
+Other Approved Projects	0
T_E	**180**
P	**77%**

Other costs that are considered in this analysis include the costs for obtaining entitlements for the asphalt plant and quarry expansion, mitigation and satisfying conditions of approval, reclamation, and the purchase and construction of the asphalt plant. A detailed list of these costs and the timing of each one is attached in Appendix E. A summary of the costs is provided in Table 7 below.

[40] Daily truck trip data taken from Chapter 4 pg. 212 of the Harris Quarry Expansion Draft EIR dated May 2011

[41] Taken from the Harris Quarry Expansion Draft EIR page 202 in Section 4.4 "Proposed hours of quarry and asphalt plant operation would be 6 a.m. to 5 pm, Monday through Saturday.

[42] Projected Traffic Volume was Calculated using Caltrans District 1 projection of a 50% increase over a 20-year period from 2006 to 2025 in the project vicinity area for U.S. 101 (Harris Quarry Draft EIR, Appendix C, May 2011). Traffic counts were taken from 2010 (Harris Quarry Draft EIR, Appendix C, Table 2, May 2011). The projected volume was calculated from 2010 to 2030. Since Caltrans projects a 50% increase over 20 years there is an expected 2.5% increase in volume per year (50/20 = 2.5). Since the Harris Quarry Draft EIR Table 2 represents traffic counts in 2010 we used the Caltrans projections to identify the 2018 and 2030 traffic counts.

[43] Existing daily traffic volume was taken from Appendix C Table 2 of the Harris Quarry Expansion Revised Draft EIR dated May 2011. Existing traffic volumes from the EIR was projected using the straight-line estimate of 2.5% a year to calculate 2018 volumes. This projected volume was based on assumptions provided in the EIR.

Table 7: Estimate of Initial Capital and Mitigation Costs

Description	Initial Investment	Timing Over Project
Entitlements	$3.06-million	
Asphalt Plant	$4.3-million	
Asphalt Plant Set Up	$116,540	
Asphalt Site Prep	$582,700	
Fair Share Payment (40%)	$17.7-million	
	Conditions of Approval[44],[45]	
65 Financial Assurance Cost Estimate	$2,914	$1,165 annually
Financial Assurance Mechanism	$7,036	$7,036 Every year[46]
6 Slope Stability		$4,044 Every 2 years
22 Plant Surveys	$2,331	$2,331 Every 3 years
23 Bio Surveys	$3,515	$3,515 Every 3 years
32 Aerial Survey	$3,671	$3,671 Every 3 years
13 Slope Stability for Road	$5,512	
27 Flagging	$1,398	
10 Asphalt Area Stability	$5,827	
11 Stability of Fill		$5,827 year 1
21 Bio Retention Basin	$34,962	
25 Forsythe Creek Plan	$122,790	$11,884 for first 5 years
28 Tree Planting	$224,759	$90,202 for first 5 years
Reclamation of Asphalt & Quarry Site		$473,766 end of project
Total	**$37.1-million**	**Varies by Year**

Revenue for NAI will consist of sales from construction aggregate products, rip rap and asphalt. Construction aggregate products include crushing and processing extracted materials to be used in various applications such as, concrete, asphalt and base materials. The price for these products ranges from $12 to $18 per ton. The range of prices was obtained from personal interviews with NAI and other industry representatives[47]. For this analysis, an average of $14 per ton was used for calculating revenue from all construction aggregate product sales (base, concrete aggregate, asphalt aggregate, etc.). However, the average price for asphalt aggregate products only, was found to be $18 per ton. Because the asphalt plant would be located adjacent to the Harris Quarry, this average price has been applied to the additional asphalt aggregate production expected from the site.

[44] Condition of Approval (COA) - the name will start with the COA# and be followed with the Description. i.e. "22 Plant Surveys" is Condition of Approval #22.
[45] All cost estimates for Conditions of Approval were provided by RAU Engineering and Associates.
[46] Financial Assurance Mechanisms can be bonds that are 2-5% of the total cost of reclamation. We assume in this report it is 2%. We also assume the cost is constant throughout the project.
[47] Personal interviews with industry representatives occurred in November 2013 and December 2018, however, they were asked to remain anonymous. A majority of construction aggregate is sold as base material or for concrete aggregate. Based on the weighted average of sales, $14 was determined to be the average sales price for processed aggregate materials.

The industry average for operating costs for producing construction aggregate products ranges between $8-$11 per ton. This range has been acquired from extensive market research throughout the state; the cost of producing hard rock aggregate products consistently falls within this range. For this analysis, a cost of $10-$11 per ton was used.

Rip rap is not produced using the aggregate processing plant and is instead manually formed by a rock breaker attached to an excavator. On average, rip rap sells for $23 per ton in the Mendocino County market and its estimated operating costs average $12.12 per ton.[48] Compared to the total production of all construction aggregate products in Mendocino County, rip rap production is about 10 percent of the total. As such, it is assumed that 10 percent of NAI's total production will be rip rap.

For this analysis, we evaluated the Harris Quarry's average annual production over 30 years (the life of the Project). NAI estimates its construction aggregate production will not exceed 200,000 tons[49] annually. With the permanent asphalt plant on-site, NAI estimates the quarry would produce an additional 100,000 tons of aggregate to feed the asphalt plant. Because Asphalt is 95 percent aggregate; the estimated asphalt plant production would average 105,000 tons annually[50]. Even though reducing the number of days allowed for nighttime operations is expected to impact NAI, the amount of production that would be reduced is difficult to measure. It is important to mention that the activity for most road construction projects occur at night to avoid disrupting the flow of traffic; therefore, it is assumed reducing the nighttime operations would negatively impact their operations and put NAI at a competitive disadvantage. As such, this analysis uses a conservative approach and maintains asphalt aggregate and asphalt production at the levels proposed by the Project.

The breakdown of production by product is illustrated in Table 8. Rip rap will consist of 10 percent of the total 200,000; therefore, rip rap production is estimated to be 20,000 tons annually, leaving the remaining 80,000 tons for all aggregate products. Asphalt production is expected to be 105,000 tons annually, and the quarry will subsequently supply 100,000 tons of asphalt aggregate to supply the plant. Table 8 also includes the average sales price (F.O.B) and operating costs for each product.

Table 8: Production Data for Model

Product	Average Annual Production (tons)	Average Sales Price ($/ton)	Average Operating Costs ($/ton)
Aggregate	80,000	$14	$10.10
Rip Rap	20,000	$23	$12.12
Asphalt Aggregate	100,000	$18	$11
Total	**200,000**		
Asphalt	105,000	$80	$60.60

[48] The average cost of producing rip rap was obtained from personal communication of operators in Northern California this cost was adjusted by CPI to estimate cost in 2018. Operator asked to remain anonymous.

[49] It is important to note that this is production value is in tons not cubic yards.

[50] If asphalt is 95% aggregate, then 100,000 tons of aggregate will produce 105,000 tons of asphalt (100,000*1.05).

The proposed Harris Quarry expansion project proposes to produce up to 200,000 cy and 150,000 tons of asphalt, which is higher than the annual averages used in this analysis. The proposed increase in production volumes were not used in this analysis because they are permitted upper limits.

The full analysis of Alternative 5 can be found in Appendix E. Table 9 illustrates a summary of the after-tax cash flows and the resulting after-tax IRR and NPV at minimum required discount rate of 15 percent. Using these assumptions, Alternative 5 has an IRR of 4 percent and a negative NPV value at the minimum required discount rate of 15 percent. As a result, Alternative 5 would result in losses of $23.4-million; clearly indicating that this is an economically infeasible investment decision for NAI. In other words, the estimated future cash flows would not cover the cost of investment and result in a negative cash outflow. Therefore, this alternative is economically infeasible.

Table 9: Results for Alternative 5 Analysis

	Year 0	**Year 1....**	**....Year 9...**	**...Year 18...**	**...Year 30**
Total Net Revenue		$3.3-mil	$3.3-mil	$3.3-mil	$3.3-mil
- Financial Assurance, Mitigation and Reclamation Costs		$119,044	$varies	$varies	$490,370
- Depreciation		$433,750	$433,750		
Income Before Taxes		$2.777-mil	~$2.8-mil	~$2.8-mil	~$2.8-mil
-Taxes @ 40%		$1.1-mil	$1.1-mil	$1.1-mil	$1.2-mil
Income After Taxes		$1.7-mil	$1.7-mil	$2.0-mil	$1.7-mil
+Depreciation		$433,750	$433,750		
-Initial Investment	-$37.1-mil				
After Tax Cash Flow	-$37.1-mil	$2.1-mil	$2.1-mil	$2.0-mil	$1.7-mil

		Discount Rate			
After Tax NPV			**15%**		**IRR**
			-$23.4-mil		**4%**

5.2 Impact to Mendocino County

Alternative 5 would also have an economic impact on Mendocino County. This section discusses the remaining fair share payment for the partial interchange as well as the economic value of revenue generated from Harris Quarry.

5.2.1 Fair Share Payment for Interchange

As shown in the above analysis, Alternative 5 is not economically feasible for NAI. Due to the lack of development potential surrounding the quarry, the County would likely be responsible for the remaining 23 percent of the cost. If the interchange were to be built, the County may be required to pay the remaining construction costs of $8.5-million. Over the past 10 years, Mendocino County has budgeted an average of $10.04-million annually for Public Roads & Ways.[51] As such, the County's share of the cost for construction of this interchange would be 85 percent or a majority of its total annual budget for roadways.

The County's actual cost of the interchange is expected to be greater than its share of the cost of constructing the interchange. This is because before anything can be built, the County must first purchase a right of way or land for the interchange. The land needed for the interchange may or may not have willing sellers. If the County is faced with an unwilling seller, it will have to condemn that land by first adopting a Resolution of Necessity and then initiating condemnation litigation. As such, the County's cost for the interchange could be more than the cost of construction.

5.2.2 Potential Economic Impacts

Production of construction aggregate and asphalt from the proposed Project will generate economic activity throughout Mendocino County. In order to measure the benefits of the economic activity, economic impact analysis is used. Economic impacts are measured by first considering the direct purchases made by the new business combined with the new jobs it creates. This is a direct impact to the economy and leads to a ripple effect resulting from inter-industry events that generate indirect and induced effects on an economy. Indirect impacts occur when production activities from the quarry require purchases of goods and services, such as equipment and supplies, from existing local or regional businesses. Economic impact analysis measures how an economic activity affects the entire region, both directly and indirectly. These impacts are measured by using multipliers from a regional input-output model. If the production from Harris Quarry were to cease for any reason, it is assumed its production would be replaced from sources outside the County. If this

[51] Mendocino County Budgets, Fiscal Years 2009 – 10 through 2018- 19 available electronically at: https://comendocinoca.opengov.com/transparency#/2737/accountType=expenses&embed=n&breakdown=889c60f9-370d-4073-b971-3d3d96ce7284&currentYearAmount=cumulative&currentYearPeriod=years&graph=stacked&legendSort=coa&proration=true&saved_view=null&selection=0BB145513C519C2E2D07DA1D599AB1E5&projections=null&projectionType=null&highlighting=null&highlightingVariance=null&year=NaN&selectedDataSetIndex=null&fiscal_start=earliest&fiscal_end=latest Summary budget for Public Road & Ways section.

were to occur, the county would lose the economic benefits generated for the activities at Harris Quarry.

The following analysis estimates the potential economic benefits that are generated from the proposed Harris Quarry expansion; without the project, the County would lose these benefits. The benefits to be measured are those that would result from the annual construction aggregate production of 200,000 tons and 105,000 tons of asphalt. The construction aggregate production is broken down as 180,000 tons of aggregate, 100,000 tons of asphalt aggregate and 20,000 tons of rip rap. Because the asphalt aggregate is utilized in the asphalt production, the economic benefits from the production of asphalt aggregate are measured from asphalt production only.

Economic impacts are measured using multipliers from an input-output model obtained from the U.S. Bureau of Economic Analysis's (BEA) Regional Industrial Multiplier System II (RIMS II) input-output model. RIMS II is well respected as an industry standard for projecting economic impacts. For example, in the public sector, the Department of Defense uses RIMS II to estimate the regional economic impacts of military base closures.[52] In the private sector, analysts use RIMS II to estimate the regional impacts of a variety of projects, such as the development of shopping malls or entertainment complexes.[53] The RIMS II multipliers are based on actual spending patterns between industries and theoretically remain applicable regardless of the dollar input. However, RIMS II contains a measure of inaccuracy like any input-output model.

The RIMS II multipliers contained in Table 10 are used to measure the economic impacts from the activities of the proposed Project. These multipliers indicate that, for every dollar of output generated from the sales of aggregate from the Harris Quarry, it will generate $1.33 dollars in economic activity. In addition, for every job provided at the Harris Quarry, it generates 6.4 jobs within the County.

[52] RIMS II: An Essential Tool for Regional Developers and Planners. Bureau of Economic Analysis; U.S. Department of Commerce. www.bea.gov. (2012 RIMSII USERS GUIDE).
[53] ibid.

Table 10: RIMSII Multipliers for Mendocino County[54]

Activity	Output Multiplier	Jobs Multiplier
Quarrying and Mining[55]	1.33	6.44

RIMS II data for Mendocino County did not include values for producing asphalt. However, based on information from other counties,[56] asphalt production has a 1.74 output multiplier and will be used for this analysis. Table 11 presents the estimated economic impacts for the expected average annual production from the Harris Quarry. The output from this model indicates that the Harris Quarry would provide upwards of $17.26-million in economic activity within the County. This benefit would be lost if the quarry is closed.

Table 11: Estimated Economic Impact from Harris Quarry

Products	Average Annual Production (tons)	Estimated Revenue (million$)	Output Multiplier	Estimated Total Economic Impact (million$)
Construction Aggregate	80,000	$1.12	1.33	$1.49
Rip Rap	20,000	$0.46	1.33	$0.61
Asphalt[57]	105,000	$8.72	1.74	$15.15
	Total	$10.30		$17.26

5.2.3 Sales Tax Impacts

Sales tax revenue was estimated for the same proposed average annual production from Harris Quarry as show in Table 9. It is assumed that sales tax would be levied off the production of all products produced at Harris Quarry. Sales taxes are levied on the sale of construction aggregate and asphalt. However, the aggregate used in the production of on-site asphalt is not subject to sales tax (it is accounted for as an element of the asphalt price). Therefore, out of the total potential revenue from the quarry, of $10.3-million annually, the amount subject to sales tax is estimated to be $10.30-million per year. Currently, the sales tax rate for Mendocino County is 7.875%.[58] California sales tax law requires that a certain portion of the total sales tax collected be allocated to various State and local uses. The distribution of sales tax is

[54] RIMS II Multipliers (2007/2016) Total Multipliers for Output, Earnings, Employment, and Value Added by Detailed Industry for Mendocino County. Multipliers were adjusted by CPI to reflect 2018$.
[55] The multipliers are based on NAICS items 2123AO "Other Nonmetallic mineral mining and quarrying"
[56] RIMSII Total Multipliers for Output, Earnings, Employment, and Value Added by Detailed Industry for Riverside and San Bernardino Counties. Multipliers were adjusted by CPI to reflect 2018$
[57] Asphalt aggregate production of 100,000 tons was not considered individually for economic impacts but was included in the overall output from asphalt production. This is to avoid double counting.
[58] "California City and County Sales and Use Tax Rates". California State Board of Equalization. October 1, 2018.

illustrated in Table 12. Harris Quarry is estimated to generate $193,083 in sales tax revenue annually for Mendocino County.

Table 12: Estimated Mendocino County Sales Tax Revenue

Total Harris Quarry Sales Taxable Revenue	$10,290,000		
Mendocino County Sales Tax Rate	7.875%		
	State Sales Tax Allocation	**Value**	**Purpose**
	6.0%	$617,649	State-General Fund
	1.25%	$128,688	Mendocino County
	0.125%	$12,869	Mendocino County Library & Use Tax
	0.501%	$51,526	Local District Taxes
Total Sales Tax Revenue for Mendocino County & Local District Taxes		$**193,083**	

Based on the assumptions used in this analysis, Alternative 5 was found to not be economically feasible for NAI. In addition, Alternative 5 could also be economically infeasible for the County of Mendocino. If the County were to be responsible for paying the remaining cost of the partial interchange, it would consist of 85 percent of its entire roadway budget.

6.0 Conclusion

NAI applied to increase extraction at Harris Quarry and locate a permanent asphalt plant next to the quarry. Two alternatives have been subjected to economic analysis. These two alternatives include limiting asphalt production to a single construction project (Alternative 4) and reducing the opportunities for nighttime operations of the asphalt plant and including a fair share payment for construction of a partial interchange (Alternative 5). This report evaluated the economic and financial aspects of each alternative to determine whether the alternatives were viable business decisions.

Using capital budgeting methods, this report concluded that the temporary asphalt plant associated with Alternative 4 would not contribute additional value for NAI and the estimated cash flows associated with Alternatives 4 and 5 were not sufficient to offset the cost of purchasing the asphalt plant. As a result, these alternatives were determined to be economically infeasible.

Alternative 5 is also economically infeasible to both NAI and the County. Alternative 5 required NAI to contribute a fair share payment towards construction of a partial interchange that was expected to cost $37.1-million. NAI's fair share payment was estimated to be in excess of $28.5-million. The analysis shows that NAI would be unable to meet their required minimum rate of return and it would instead result in a significant loss to the company. As such, it is not a viable business decision. In addition, the remaining cost of the partial interchange, $8.5-million, is a majority of what the County budgets for annual roadways. As a result, the cost of the interchange was determined to be economically infeasible for both NAI and the County.

As demonstrated by this analysis, both Alternatives 4 and 5 are confirmed to be economically infeasible.

6.1 Standards of Care

This data has been compared with information published by various public agencies and then verified by contacting agency and industry representatives. Because the construction aggregates industry tends to ebb and flow with economic cycles, the results from this type of study will vary from year-to-year. The assumptions used were developed using the best available data and the professional judgment of the authors. The projections, forecasts, and estimates included in this report constitute forward-looking information. This information, although considered reasonable and in accordance with standard construction aggregate market study practices, may prove to be incorrect. Actual results may vary, and the variations may cause the results to be different.

EnviroMINE specializes in a variety of services for the mining industry. Our staff includes specialists in mine engineering, environmental sciences and economics with a broad understanding of mineral resource development and compliance. Our services include a detailed understanding of permitting requirements associated with site development, operations, and closure. Other services extend to project management, resource evaluation, mine planning, permit acquisition, development of land use alternatives, land management, market studies, resource valuation, economic impact reports, financial assurance cost estimating, and environmental compliance and documentation. Our team of experienced project managers brings extensive experience in the construction aggregates materials industry. Please see Appendix F for resumes of staff that contributed to this report.

APPENDIX A

ASPHALT PLANT QUOTE

SALES PROPOSAL
PREPARED EXCLUSIVELY FOR

Mr. Pat Allen
Northern Aggregates
500 Cropley Ln
Willits, CA 95490

PROPOSAL NUMBER: 18CK1096.1 for RELOCATABLE 7' DOUBLE BARREL FACILITY

Presented By:

January 14, 2019

RELOCATABLE 7' DOUBLE BARREL FACILITY
as per the following specifications:

1 RCFS-1014-5 Relocatable 10' x 14' Five-Compartment Cold Feed System

1	SF.03	Support legs to grade with base plates
1	SF.04	Skid foundation for bins
1	SF.05	Steel bulkhead with wing walls
1	OF.01	30" belt feeders with troughing idlers i.l.o. 24"
1	OF.03	36" collecting conveyor to end of bins i.l.o. 30"
2	OF.08	Bin vibrator with dancing plate
1	OF.11	2' bin wall partitions/3 sides
1	OF.15	36" vertical curve extension to 1 deck screen (40')
1	EO.04A	PM Electrical in power center, cables
1	EO.07	No flow limit switches
1	EO.08	Low flow limit switches (CA requirement)
2	EO.09	Bin vibrator control
1	EO.10	Collecting conveyor safety switch
1	EO.13	Cable tray
1	EO.14	Cable tray covers
1	SP.01	Return Idler Guards to 8'

$361,160.00

1 RSS-412-1 Relocatable 4' x 12' Scalping Screen

1	SF.01	Inclined steel support frame
1	SF.02	Under screen hopper w/skirtboards
1	SF.03	Inlet feed box
1	SF.04	Screen cloth
1	EO.04A	PM Electrical in power center, cables
1	EO.05	Cable tray
1	EO.06	Cable tray covers

$47,190.00

1 RIC-3050 Relocatable 30" x 50' Inclined Conveyor

1	SF.01	Relocatable skid base (designed for use with screen)
1	OF.01	Gravity take-up
1	OF.02	Weigh idler and load cell
1	EO.04A	PM Electrical in power center, cables
1	EO.05	Cable tray
1	EO.05A	Cable tray covers
1	EO.07	PM electrical for belt scale, load cell, tach, cables
1	SP.01	Return Idler Guards to 8'
1	EO.09	Conveyor safety switch

$79,020.00

1 RDB-8438 Relocatable 7' x 38' Double Barrel® Drum Mixer

1	SF.01	Steel support legs to grade
1	SF.02	Gravity feed chute
1	SF.03	Infrared temperature sensor for aggregate
1	SF.04	Saddle chain drive
1	SF.05	Infrared temperature sensor for mix
1	SF.06	Self cleaning drum
1	SF.07	Tubular skid foundations
1	OF.01	Remote bypass chute at virgin inlet
1	OF.02	Remote bypass chute at RAP inlet
1	EO.04A	PM Electrical in power center, cables
1	EO.05	Cable tray
1	EO.05A	Cable tray covers
1	OF.04	Service platform 3'-6" x 22' at hydraulic door

$677,830.00

1 PT-75-O Phoenix Talon II 75 MBTU VP

1	OF.02	Gas injection section & gas train
1	OF.03	VP train
1	OF.04	Burner set-up for VP
1	OF.11	Combustion air blower silencer
1	OF.18	Combustion Air Mass Flow
1	OF.19	Natural Gas Mass Flow
1	EO.04A	PM Electrical in power center, cables

$140,590.00

Note: Customer to provide a Propane Gas vaporizer and Propane Tank.

1 BCIII Burner Control System (standalone) (Nexus for Canada)

1	SF.01	Automatic control of single or dual Air/Fuel servo motors
1	SF.02	Automatic control of combustion air VFD
1	SF.03	Automatic damper control or control of VFD drive on exhaust fan
1	SF.04	Flame safeguard system
1	SF.05	Graphic display of interlock circuits
1	SF.06	Graphic trending of temperatures
1	SF.07	On-screen diagnostics
1	SF.09	Stack limit control
1	SF.10	Controls single fuel or multi-fuel burners
1	SF.11	Full burner profile - multiple fuels
1	SF.12	Text and audible burner denunciator
1	SF.13	Burner stop factors to help troubleshoot
1	SF.14	Improved diagnostics to pin-point problems
1	SF.15	Remote log-in available
1	OF.02	Combustion air servo motor
1	OF.03	Natural gas/ Propane Servo motor

$53,320.00

1 RBH-55-13 Relocatable 55,407 CFM Pulse Jet Baghouse

1	SF.01A	BCS490 fan, 250 HP TEFC motor direct drive (use w/inertial sep)
1	SF.02	VFD compatible exhaust fan
1	SF.03	Minimum 14 oz. Aramid fiber bags (832) and cages
1	SF.04	Support legs to grade
1	SF.05	Plate found. (baghouse only), air comp. skid & dust shield
1	OF.04	Bags and cages factory installed (832)
1	OF.07	60HP air compressor (use with compressed air burner) w/Enclosure
1	OF.09	Inertial dust collector
1	OF.10	Duct - drum to primary collector
1	OF.14	12" rotary airlock
1	OF.15	12" x 24' dust transfer screw
1	OF.18	Hopper clean out doors (Qty of 3)
1	EO.04A	PM Electrical in power center, cables
1	EO.06A	PM Airlock electrical in power center, cables
1	EO.10A	PM Dust auger electrical in power center, cables
1	EO.11	Cable tray
1	EO.11A	Cable tray covers
1	EO.13	45" B.H. start-stop console for full plant except silos

$680,610.00

1 DC-2486-1 24" Drag Conveyor - 200T/14'D/60 HP

1	SF.01	Stairway on one side of drag
1	SF.02	Hot oil channels on drag bottom
1	SF.03	Drag drive access platform
1	OF.02	2nd drag stair
1	OF.03	Bottom drag drop out
1	EO.04A	PM Electrical in power center, cables

$262,380.00

2 NGW-200 200 Ton New Generation Storage Silo, 14' Diameter

2	SF.02	Electric blanket heat on cone
1	SF.03	Standard seismic design
2	SF.04	3 ton enclosed bin loading batcher
2	OF.01	Full 1/2" ceramic cone liners
2	OF.03	1/2" ceramic batcher liners
2	EO.04A	PM Electrical in power center, cables

$418,230.00

1 TC-2414 24" Traverse Conveyor

1	SF.01	Hot oil heat on traverse conveyor
1	OF.03	Walkway along one side
1	EO.04A	PM electrical mounted in power center, cables
1	EO.05	Cable tray

$80,550.00

1 STSFSP.01 1STSF-SS-2 Silo/Truck Scale Foundation for Two (2) Silos

$116,610.00

High Seismic Silos are not needed if Steel foundation is provided

1	SP.02	Drag Conveyor Base Support
1	SP.03	Truck Scale Load Cell Supports

Included

1 LPSII-10011 11' x 100' Low Profile Truck Scale

1	SF.01	Single Pipe Rails Schedule 40 Pipe, 1/2" Support Brackets

$84,110.00

1 OCH-12 Observer Control Center, 11'-6" x 11'-10"

1	SF.01	2-ton wall mounted heating/air conditioning unit
1	SF.02	Cable tray
1	OF.03	Prewiring and premounting of consoles
1	OF.05	Steel stairs/landing/rails 4' floor level
1	OF.05A	Skid Base for control center 4' high
1	OF.08	Red night lighting system
1	OF.10	Mini blinds on windows

$94,490.00

1 PH-1030 Power Center 10' x 30'

1	SF.01	(2) 5 ton wall-mounted air conditioning system
1	OF.01	Steel stairs 4'-0", landing with handrails for two entrances
1	OF.02	Steel base 4'-0" high

$149,050.00

1 ELIF-PM PM Electrical Interface (MCC Panels, Main Breaker, etc)

1	EO.04A	PM-Power Center

$46,400.00

1 SC-2 36" Silo Console - Set Up for Two Silos

$18,530.00

1 PMII-A Mix Blending Controls with 45"

10	OF.01	Tach and Shaft Adapters

$92,310.00

1 RFCRB-1014-2 Relocatable Dual 10' x 14' Recycle Feed Bins

1	SF.01	42" feeder on fines & Course Bin with troughing idlers and 5 HP motor
1	SF.03	Air cannon for each bin
1	SF.04	36" collecting conveyor to end of bins
1	SF.05	Steel support legs to grade with weld plates
1	SF.06	Skid foundation for bins
1	SF.07	Plate retaining wall with middle bulkhead and wing walls
2	OF.04	6" slotted grizzly (price per grizzly)
1	OF.11	Set of bin partitions, 3-sided, sloped
1	EO.04A	PM Electrical in power center, cables
1	EO.11	Cable tray
1	EO.12	Cable tray covers
1	EO.13	Collecting conveyor safety switch
1	SP.01	Return Idler Guards to 8'

$218,800.00

1 RSS-408-1 Relocatable 4' x 8' Scalping Screen

1	SF.01	Inclined steel support frame
1	SF.02	Under screen hopper w/skirtboards
1	SF.03	Inlet feed box
1	SF.04	Screen cloth
1	EO.04A	PM Electrical in power center, cables
1	EO.05	Cable tray
1	EO.06	Cable tray covers

$37,830.00

1 RIC-3050 Relocatable 30" x 50' Inclined Conveyor

1	SF.01	Relocatable skid base (designed for use with screen)
1	OF.01	Gravity take-up
1	OF.02	Weigh idler and load cell
1	EO.04A	PM Electrical in power center, cables
1	EO.05	Cable tray
1	EO.05A	Cable tray covers
1	EO.07	PM electrical for belt scale, load cell, tach, cables
1	EO.09	Conveyor safety switch
1	SP.01	Return Idler Guards to 8'

$79,020.00

1 HC-120AS 1,200,000 BTU/hr (output) Gas/Oil Hot Oil Heater w/Manifold

2	OF.02	HCPUMP Centrifugal Hot oil pump, 100 gpm, w/starter
1	OF.04	HC.OF11 Verbatim Dialer-4 contact channels up to 16 analog
1	OF.08	HC.OF05 Seven day time clock
1	OF.09	HCSOCKP Sock filter w/bypass piping and 3 valves

$96,810.00

1 ACAP-006 4" Asphalt Unloading Pump, (280 GPM)

1	OF.01A	Starter for motor
1	OF.04	Isolation valves includes 2 asphalt valves & 3 hot oil valves

$27,290.00

Note: Includes unloading pump piping to the first tank.

1 HACC-1432 4" Piping - AC Unloading Pump to 2nd Tank

$3,170.00

2 TAV-30DAS 30,000 Gallon Vertical Asphalt Tank with 6" Insulation

1	OF.09	TAV-30LAD OSHA approved caged ladder for 30,000 gallon tank
2	OF.08	TAV-30RMXR Mixer/Agitator 7-1/2 hp (5 hp for emulsion) motor
1	OF.11	TAV-CW16 Catwalk between two vertical tanks
2	OF.13	SAMPLEV 3/4" x 1/2" sampling valve (non-sticking)
2	OF.14	TAV-PLG Pressure sensitive level gauge
1	OF.15	VENTCON200 Tank vent condenser 200 gpm, 12 tubes, 6" flange
1	OF.15A	VENTCON200 Tank vent condenser Interconnect Piping
2	OF.31	TAV-SZ Tank will be equipped for seismic zone approval

$340,040.00

1 HACC-1420 4" Piping - Tank to Metering Package

$6,440.00

1 HACC-1426 4" Piping - 2nd Tank to Metering Package **$10,050.00**

1 MACC-2028 Micromotion Metering System, 3" Pump (High Temperature CEI) **$65,890.00**

1 HACC-1424 3" Piping - Metering Package Outlet to Drum

1 OF.02 Sampling nipple in AC line **$20,160.00**

1 CAL-1VE 1,000 Gallon Vertical Calibration Tank **$29,620.00**

Net Price, FCA Astec, Inc. Factory: $4,337,500.00

OPTIONS:

WM-2000 Weigh Mate 2000 Truck Loadout and Management System

1 OF.07 WM-2000 Remote Ticket Printer with Signature KIOSK

Net Price…ADD: $28,520.00

APPENDIX B

RECLAMATION COST ESTIMATES

Version: 8-31-18

BETA Excel Version of the FACE-1 Financial Assurance Cost Estimate Form.
Please contact DMR if errors are found in this document.

FINANCIAL ASSURANCE COST ESTIMATE

FOR

Harris Quarry

(Mine Name)

CA Mine ID # 91- 23-0015

Reclmation Plan #/Name REC 1-2014

Prepared by: *(Name & Affiliation)*	This financial assurance cost estimate prepared and submitted pursuant to *(choose one)* :
EnviroMINE, Inc (on behalf of Northern Aggregates)	☐ A new or amended reclamation plan approved on (Date):
3511 Camino del Rio South, Suite 403	☐ An annual mine inspection performed on (Date):
San Diego, CA 92108	☐ Other: Please Specify:
Date: March 8, 2019	

Most Recent Approved Financial Assurance Cost Estimate

Date: April 27, 2017

Amount: $ 181,916

Amount of existing Financial Assurance Mechansim(s)

Date: May 26, 2017

Amount: $ 181,916

I. SUPPORTING DOCUMENTS

This estimate represents the cost of conducting and completing reclamation in accordance with the Surface Mining and Reclamation Act (SMARA) and the following supporting documents:

Reclamation Plan Approval Date and Number

Reclamation Plan #REC 1-2014 approved on 5/20/2014

Permits and/or Environmental Documents Approved as, or Conditional upon, the Reclamation Plan

Use Permit and Reclamation Plan Renewal #UR 19-83/2005 and Negative Declaration approved on 5/20/2014

Other Agency Financial Assurances Securing Reclamation of Disturbed Lands

NA

Wage Rates used in Cost Estimate* *(cost estimates are required to use current 'General prevailing wage determinations made by the director of industrial relations' where applicable (http://www.dir.ca.gov/OPRL/PWD/index.htm) with employer labor surcharge added, or greater)*

Department of Industrial Relations Prevailing Wage Determinations, 2019-1

Equipment Rates used in Cost Estimates* *(use current 'Labor Surchage and Equipment Rental Rates (Cost of Equipment Ownership)' equipment rates published by Caltrans (http://www.dot.ca.gov/hq/construc/equipmnt.html) or other publicly available and verifiable local rates)*

Caltrans Labor Surcharge and Equipment Rental Rates manual (4/1/18 – 3/31/19)

Equipment Production Rates used in Cost Estimate *(Use of current Caterpillar Performance Handbook or equivalent published production rates is required)*

Caterpillar Performance Handbook, 2017

**Many mine sites are remote projects that require hours of travel (to and from) and sometimes require additional time to prepare for even the simplest of tasks. In accordance with labor Code Sections 1773.1 and 1773.9, contractors are required to make travel and/or subsistence (per diem) payments to each worker to execute the work. These arrangements can be quite variable and site specific.*

Attachments:

(add additional pages as needed)

II. Description of Current Site Conditions

(i.e., disturbed acres, slope conditions, excavation depths, topsoil and overburden stockpiles, equipment and facilities, reclamation in progress, erosion control status, required corrective actions, etc.)

An asphalt plant is proposed onsite. Asphalt plant area is 5.23 acres. An asphalt road will lead to the plant site.

III. Description of Anticipated Site Conditions (12 months from date of estimate)

(i.e., increase of disturbed acres, increase of depth, increases in amount of equipment and/or facilities, required corrective actions, etc.)

IV. Description/Justification of Cost Increase/Decrease

Equipment rates have decreased and labor rates have increased.

V. PLANT STRUCTURES AND EQUIPMENT REMOVAL *(use multiple sheets as needed)*

Provide documentation showing that rates, prices, and wages are available locally to all persons, including the lead agency and/or the Department.

Current Site Condition:

An asphalt plant is proposed onsite. Various pieces of mobile equipment are onsite.

The salvage value for the asphalt plant is $63,250. This salvage value for the asphalt plant exceeds the cost for removal of all plant equipment and structures. As a result, the total cost for Plant Strutures and Equipment Removal on the Summary Page is $0.

Reclamation Plan Performance Standard (End Use):

The end use is open space.

See page 45 of Reclamation Plan for specific performance standards.

Describe tasks:

Dismantle all equipment, load equipment onto trailers and haul to Ritchie Bros Auctioneers in Dunnigan, CA.

Excavators, crane, loader, and semi trucks will be used to remove the asphalt plant. All rubbish will be removed from the site. All mobile equipment will be removed from the site.

Equipment on site wholly owned by operator?: ☒ YES ☐ NO

(if no, please provide the name/s and contact information for any lien holder)

(add additional pages as needed)

Version: 8-31-18

Removal of Asphalt Plant

(↑ Describe Reclamation Activity Being Estimated)

V. PLANT STRUCTURES & EQUIPMENT REMOVAL

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT 330 Excavator with Steel Shear	Hours	$202.85	40.0	$8,114
CAT 330 Excavator with Grapple	Hours	$154.48	40.0	$6,179
Grove RT 625 25t Crane	Hours	$68.43	24.0	$1,642
Semi Truck with End Dump (5-axle) (2)	Hours	$76.23	48.0	$3,659
CAT 950 Wheel Loader	Hours	$98.93	40.0	$3,957
Welding Truck	Hours	$53.72	24.0	$1,289
Pick-up Truck	Hours	$22.02	40.0	$881

Total Equipment Cost for this Task = $25,722

B. Labor - List all labor categories to complete identified task

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Excavator Operator, Operating Engineer, Grp. 3	$76.79	$0.00	40.0	$3,072
Excavator Operator, Operating Engineer, Grp. 3	$76.79	$0.00	40.0	$3,072
Crane Operator, Operating Engineer, Grp. 3-A	$77.18	$0.00	24.0	$1,852
Semi Truck Driver, Teamster, Grp. 3 (2)	$60.47	$0.00	48.0	$2,903
Loader Operator, Operating Engineer, Grp. 3	$76.79	$0.00	40.0	$3,072
Welder, Laborer, Construction Specialist	$55.44	$0.00	24.0	$1,331
Foreman, Operating Engineer, Grp. 3	$76.79	$0.00	40.0	$3,072
Laborer, Grp. 3	$54.49	$0.00	40.0	$2,180

Total Labor Cost for this Task = $20,551

C. Demolition - List all structures and equipment to be dismantled or demolished and removed from site

Structure/Equipment to be removed	Type of Material	Volume/ Quantity	Unit Cost Basis	Disposal Cost	Cost ($)
		0.00	$0.00	$0.00	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost of Structure and Equipment Removal (Total A+B+C)

Equipment Cost + Labor Cost + Demolition Cost = $46,273

E. Net Salvage Value* (Supported by properly prepared third party estimate, bid, or cost calculation)

Net Salvage Value = $ **46,273.28**

F. Total Cost of Structure and Equipment Removal (Subtract Line D from Line E)

Total Cost of Structure and Equipment Removal = **$0**

NOTE: Above **Total Cost** will display $0.00 if net of entered removal costs and salvage value is negative.

*Note: Salvage value may only be used to offset the direct cost of removing the single item for which salvage value is being claimed. Salvage value shall not be used to offset any other demolition, general cleanup, or reclamation costs.

Version: 8-31-18

Rubbish Removal Associated with Asphalt Plant

(↑ Describe Reclamation Activity Being Estimated)

V. PLANT STRUCTURES & EQUIPMENT REMOVAL

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT 938F Wheel Loader	Hours	$72.79	8.0	$582
Pick-up Truck	Hours	$22.02	8.0	$176
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0

Total Equipment Cost for this Task = $758

B. Labor - List all labor categories to complete identified task

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Loader Operator, Operating Engineer, Grp. 4	$75.41	$0.00	8.0	$603
Foreman, Operating Engineer, Grp. 3	$76.79	$0.00	8.0	$614
Laborer, Grp. 3 (2)	$54.49	$0.00	16.0	$872
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Labor Cost for this Task = $2,089

C. Demolition - List all structures and equipment to be dismantled or demolished and removed from site

Structure/Equipment to be removed	Type of Material	Volume/ Quantity	Unit Cost Basis	Disposal Cost	Cost ($)
20 cubic yards roll-off bins	Bin	3.00	$710.00	$0.00	$2,130
Power poles	Poles	5.00	$366.00	$0.00	$1,830
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0

Total Materials Cost for this Task = $3,960

D. Total Direct Cost of Structure and Equipment Removal (Total A+B+C)

Equipment Cost + Labor Cost + Demolition Cost = $6,808

E. Net Salvage Value* (Supported by properly prepared third party estimate, bid, or cost calculation)

Net Salvage Value = $ **6,807.92**

F. Total Cost of Structure and Equipment Removal (Subtract Line D from Line E)

Total Cost of Structure and Equipment Removal = **$0**

NOTE: Above **Total Cost** will display $0.00 if net of entered removal costs and salvage value is negative.

*Note: Salvage value may only be used to offset the direct cost of removing the single item for which salvage value is being claimed. Salvage value shall not be used to offset any other demolition, general cleanup, or reclamation costs.

Version: 8-31-18

Mobile Equipment Removal Associated with Asphalt Plant

(↑ Describe Reclamation Activity Being Estimated)

V. PLANT STRUCTURES & EQUIPMENT REMOVAL

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
Semi Truck with 4-axle lowboy	Hours	$98.99	4.0	$396
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0

Total Equipment Cost for this Task = $396

B. Labor - List all labor categories to complete identified task

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Semi Truck Driver, Teamster, Grp. 4	$61.12	$0.00	4.0	$244
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Labor Cost for this Task = $244

C. Demolition - List all structures and equipment to be dismantled or demolished and removed from site

Structure/Equipment to be removed	Type of Material	Volume/ Quantity	Unit Cost Basis	Disposal Cost	Cost ($)
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost of Structure and Equipment Removal (Total A+B+C)

Equipment Cost + Labor Cost + Demolition Cost = $640.44

E. Net Salvage Value* (Supported by properly prepared third party estimate, bid, or cost calculation)

Net Salvage Value = $ **640.44**

F. Total Cost of Structure and Equipment Removal (Subtract Line D from Line E)

Total Cost of Structure and Equipment Removal = **$0**

NOTE: Above **Total Cost** will display $0.00 if net of entered removal costs and salvage value is negative.

*Note: Salvage value may only be used to offset the direct cost of removing the single item for which salvage value is being claimed. Salvage value shall not be used to offset any other demolition, general cleanup, or reclamation costs.

V. PLANT STRUCTURES & EQUIPMENT REMOVAL

(↑ Describe Reclamation Activity Being Estimated)

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0

Total Equipment Cost for this Task = $0

B. Labor - List all labor categories to complete identified task

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Labor Cost for this Task = $0

C. Demolition - List all structures and equipment to be dismantled or demolished and removed from site

Structure/Equipment to be removed	Type of Material	Volume/ Quantity	Unit Cost Basis	Disposal Cost	Cost ($)
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost of Structure and Equipment Removal (Total A+B+C)

Equipment Cost + Labor Cost + Demolition Cost = $0

E. Net Salvage Value* (Supported by properly prepared third party estimate, bid, or cost calculation)

Net Salvage Value = $ **0.00**

F. Total Cost of Structure and Equipment Removal (Subtract Line D from Line E)

Total Cost of Structure and Equipment Removal = **$0**

NOTE: Above **Total Cost** will display $0.00 if net of entered removal costs and salvage value is negative.

*Note: Salvage value may only be used to offset the direct cost of removing the single item for which salvage value is being claimed. Salvage value shall not be used to offset any other demolition, general cleanup, or reclamation costs.

VI. PRIMARY RECLAMATION ACTIVITY

Use multiple sheets as necessary to estimate the cost of each activity required. Provide documentation showing that rates, prices, and wages are available locally to the lead agency and/or the Department if necessary.

Current Site Conditions:

An asphalt plant is proposed onsite. Asphalt plant area is 5.23 acres. An asphalt road will lead to the plant site.

Reclamation Plan Performance Standard (End Use):

The end use is open space with a goal to establish native woody and herbaceous vegetation on re-soiled quarry benches, floor and processing area. Plants were selected to restore the site to pre-mining and adjacent floristic habitats, including tanoak, chamise-chaparral, canyon live oak, grassland and mixed oak woodland. Other goals include visual screening and erosion control.
See page 45 of Reclamation Plan for specific performance standards.

Describe tasks, methods, equipment, etc:
Decompaction, cut, fill, haul, slope reduction, compaction, grading, topsoil placement, drainage work, soil amendment, special requirements, etc. Separate sheets may be used for each task if necessary.

Using a excavator, dozer, grader, haul trucks and water truck:
-Remove asphalt and road base from road leading to asphalt plant.
-Rip and grade and asphalt plant area floor.
-Spread topsoil on asphalt plant area floor in preparation for revegetation.

Provide Quantities:
Overburden and topsoil, cut and fill, import or export (cubic yards), area (acres), haul distance (feet), equipment production rates (cubic yards/hour, or as applicable), etc.

70% of floor to be covered with 6" topsoil (grasslands); 30% of floor to be covered with 2-3 topsoil (woodland)
Total topsoil is approximately 12,000 cubic yards for the asphalt plant area.

(add additional pages as needed)

VI. PRIMARY RECLAMATION ACTIVITY

Use multiple sheets as necessary to estimate the cost of each activity required. Provide documentation showing that rates, prices, and wages are available locally to the lead agency and/or the Department if necessary.

Current Site Conditions:

Reclamation Plan Performance Standard (End Use):

Describe tasks, methods, equipment, etc:

Decompaction, cut, fill, haul, slope reduction, compaction, grading, topsoil placement, drainage work, soil amendment, special requirements, etc. Separate sheets may be used for each task if necessary.

Provide Quantities:

Overburden and topsoil, cut and fill, import or export (cubic yards), area (acres), haul distance (feet), equipment production rates (cubic yards/hour, or as applicable), etc.

Version: 8-31-18

Breaking and Removal of Asphalt Pavement and Road Base

(↑ Describe Reclamation Activity Being Estimated)

VI. PRIMARY RECLAMATION ACTIVITY

Volume:	1,556 cubic yards of asphalt; 6,015 cubic yards of road base		
Haul Distance (ft):		Topsoil (cy):	
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
Breaking and Removal of Asphalt				
315L Excavator w/ Rock Breaker attachment	Hours	$87.51	30.0	$2,625
CAT 988 G Loader	Hours	$140.77	8.0	$1,126
CAT 740 Haul Truck (2)	Hours	$107.75	8.0	$862
Removal of Road Base				
CAT D-9N Dozer	Hours	$183.99	8.0	$1,472
CAT 988 G Loader	Hours	$140.77	16.0	$2,252
CAT 740 Haul Truck (2)	Hours	$107.75	32.0	$3,448
Water Truck	Hours	$39.96	16.0	$639

Total Equipment Cost for this Task = $12,425

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Breaking and Removal of Asphalt				
Excavator Operator, Operating Engineer, Grp. 3	$76.79	$0.00	30.0	$2,304
Loader Operator, Operating Engineer, Grp. 3	$76.79	$0.00	8.0	$614
Haul Truck Driver, Teamster, Grp. 4 (2)	$61.12	$0.00	8.0	$489
Removal of Road Base				
Dozer Operator, Operating Engineer, Grp. 3	$76.79	$0.00	8.0	$614
Loader Operator, Operating Engineer, Grp. 3	$76.79	$0.00	16.0	$1,229
Haul Truck Driver, Teamster, Grp. 4 (2)	$61.12	$0.00	32.0	$1,956
Water Truck Driver, Teamster, Grp. 2	$60.47	$0.00	16.0	$968

Total Labor Cost for this Task = $8,173

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $20,598

Version: 8-31-18

Rip and Grade Asphalt Plant Floor

(↑ Describe Reclamation Activity Being Estimated)

VI. PRIMARY RECLAMATION ACTIVITY

Acres:	5.23	Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT D-9N with ripper attachment for ripping	Hours	$200.27	4.0	$801
CAT D-9N for grading	Hours	$183.99	4.0	$736
Water Truck	Hours	$39.96	8.0	$320
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0

Total Equipment Cost for this Task = $1,857

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Dozer Operator, Operating Engineer, Grp. 3 (for ripping)	$76.79	$0.00	4.0	$307
Dozer Operator, Operating Engineer, Grp. 3 (for grading)	$76.79	$0.00	4.0	$307
Water Truck Driver, Teamster, Grp. 2	$60.47	$0.00	8.0	$484
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Labor Cost for this Task = $1,098

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $2,955

Version: 8-31-18

Haul and Spread Topsoil Around Asphalt Plant Area

(↑ Describe Reclamation Activity Being Estimated)

VI. PRIMARY RECLAMATION ACTIVITY

Acres:		Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	12,000
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT 988 Loader	Hours	$140.77	16.0	$2,252
CAT 740 Haul Truck (3)	Hours	$107.75	48.0	$5,172
CAT D-9N Dozer	Hours	$183.99	16.0	$2,944
Water Truck	Hours	$39.96	16.0	$639
				$0
				$0
				$0

Total Equipment Cost for this Task = $11,008

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Loader Operator, Operating Engineer, Grp. 3	$76.79		16.0	$1,229
Haul Truck Driver, Teamster, Grp. 4 (3)	$61.12		48.0	$2,934
Dozer Operator, Operating Engineer, Grp. 3	$76.79		16.0	$1,229
Water Truck Driver, Teamster, Grp. 2	$60.47		16.0	$968
	$0.00		0.0	$0
	$0.00		0.0	$0
	$0.00		0.0	$0

Total Labor Cost for this Task = $6,359

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $17,366

VI. PRIMARY RECLAMATION ACTIVITY

(↑ Describe Reclamation Activity Being Estimated)

Acres:		Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		Total Equipment Cost for this Task =		$0

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Labor Cost for this Task =		$0

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Materials Cost for this Task =		$0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $0

VI. PRIMARY RECLAMATION ACTIVITY

(↑ Describe Reclamation Activity Being Estimated)

Acres:		Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		Total Equipment Cost for this Task =		$0

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Labor Cost for this Task =		$0

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Materials Cost for this Task =		$0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $0

VI. PRIMARY RECLAMATION ACTIVITY

(↑ Describe Reclamation Activity Being Estimated)

Acres:		Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		Total Equipment Cost for this Task =		$0

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Labor Cost for this Task =		$0

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Materials Cost for this Task =		$0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $0

VI. PRIMARY RECLAMATION ACTIVITY

(↑ Describe Reclamation Activity Being Estimated)

Acres:		Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		Total Equipment Cost for this Task =		$0

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Labor Cost for this Task =		$0

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Materials Cost for this Task =		$0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $0

VI. PRIMARY RECLAMATION ACTIVITY

(↑ Describe Reclamation Activity Being Estimated)

Acres:		Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		Total Equipment Cost for this Task =		$0

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Labor Cost for this Task =		$0

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Materials Cost for this Task =		$0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $0

VI. PRIMARY RECLAMATION ACTIVITY

(↑ Describe Reclamation Activity Being Estimated)

Acres:		Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		Total Equipment Cost for this Task =		$0

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Labor Cost for this Task =		$0

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Materials Cost for this Task =		$0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $0

VI. PRIMARY RECLAMATION ACTIVITY

(↑ Describe Reclamation Activity Being Estimated)

Acres:		Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		Total Equipment Cost for this Task =		$0

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Labor Cost for this Task =		$0

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Materials Cost for this Task =		$0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $0

VII. REVEGETATION *(use multiple sheets as needed)*

Provide documentation showing that rates, prices, and wages are available locally to the lead agency and/or the Department.

Current Site Condition:

Asphalt plant area= 5.23 acres

Reclamation Plan Performance Standard (End Use):

The end use is open space with a goal to establish native woody and herbaceous vegetation on re-soiled quarry slopes, benches, floor and processing area. Plants were selected to restore the site to pre-mining and adjacent floristic habitats, including tanoak, chamise-chaparral, canyon live oak, grassland and mixed oak woodland. Other goals include visual screening and erosion control.

Describe Tasks:

Revegetate quarry floor and asphalt plant floor- tanoak woodland (10%), canyon live oak scrub (20%), grasslands (70%)

Tasks include installation of plant materials and hydroseeding.

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VII. REVEGETATION *(use multiple sheets as needed)*

Revegetation for Asphalt Plant Area

(↑ Describe Revegetation Activity Being Estimated)

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation projects, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
Pick Up Truck (for container stock hand planting)	Hours	$22.02	20.0	$440
		$0.00	0.0	$0
			Total Equipment Cost for this Task =	$440

B. Labor - List all labor categories to complete identified task.

Labor Category	$/Hour (prevailing wage)	Labor Surcharge /HR (where applicable) (enter % of wage) 0.0%	# of Hours	Cost ($)
Laborers (6) (for container stock hand planting), Grp. 3	$54.49	$0.00	80.0	$4,359
Revegetation Specialist (for container stock hand planting)	$131.00	$0.00	20.0	$2,620
	$0.00	$0.00	0.0	$0
			Total Labor Cost for this Task =	$6,979

C. Materials - List all materials required to complete identified task

Item/Plant Species	Unit of measure	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
Hydroseeding (from RSMeans Site Work & Cost Data)	Lump sum	$1,677.00	$0.00	5.23	$8,771
Oak Woodland Species					
Tanoak	Super Cell/Tree Pot	$7.20	$0.00	35.0	$252
Oregon White Oak	Super Cell/Tree Pot	$7.20	$0.00	277.0	$1,994
Madrone	Super Cell/Tree Pot	$7.20	$0.00	35.0	$252
Canyon Live Oak	Super Cell/Tree Pot	$7.20	$0.00	138.0	$994
Interior Live Oak	Super Cell/Tree Pot	$7.20	$0.00	104.0	$749
Black Oak	Super Cell/Tree Pot	$7.20	$0.00	35.0	$252
Red Huckleberry	Super Cell/Tree Pot	$7.20	$0.00	83.0	$598
Chamise Revegetation					
Chamise	Super Cell/Tree Pot	$7.20	$0.00	154.0	$1,109
Mountain Mahogany	Super Cell/Tree Pot	$7.20	$0.00	13.0	$94
Manzanita	Super Cell/Tree Pot	$7.20	$0.00	38.0	$274
Deer Brush	Super Cell/Tree Pot	$7.20	$0.00	26.0	$187
Buck Brush	Super Cell/Tree Pot	$7.20	$0.00	26.0	$187
			Total Materials Cost for this Task =		$15,712

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $23,131

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VII. REVEGETATION *(use multiple sheets as needed)*

Revegetation for Asphalt Plant Area, continued

(↑ Describe Revegetation Activity Being Estimated)

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation projects, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
		$0.00	0.0	$0
		$0.00	0.0	$0
			Total Equipment Cost for this Task =	$0

B. Labor - List all labor categories to complete identified task.

Labor Category	$/Hour (prevailing wage)	Labor Surcharge /HR (where applicable) (enter % of wage) 0.0%	# of Hours	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
			Total Labor Cost for this Task =	$0

C. Materials - List all materials required to complete identified task

Item/Plant Species	Unit of measure	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
Grasslands Seed Mix for 5.23 Acres					
California Brome-Bromus carinatus	Pounds	$6.56	$0.00	13.2	$453
Blue Wildrye-Elymus glaucus	Pounds	$14.76	$0.00	9.7	$749
Purple Needlegrass-Nassella Pulchra	Pounds	$39.35	$0.00	2.4	$494
Slender Wheatgrass-Elymus trachycaulus	Pounds	$16.40	$0.00	5.6	$480
Three weeks fescue-Vulpia microstachys	Pounds	$19.68	$0.00	16.7	$1,719
Arroyo lupine-Lupinus succulentus	Pounds	$16.40	$0.00	12.0	$1,029
Purshings lotus-Lotus purshianus	Pounds	$71.05	$0.00	3.4	$1,263
Chamise-Adenostema fasciculatum	Pounds	$49.19	$0.00	8.5	$2,187
California Buckwheat-Eriogonum fasciculatum	Pounds	$8.74	$0.00	5.4	$247
Container Stock Planting Supplies					
Planting Collar	Collar	$0.93	$0.00	964.0	$897
Weed Cloth 600 Square Foot Roll	Roll	$87.45	$0.00	14.0	$1,224
Staples Bag of 40	Bag	$6.56	$0.00	100.0	$656
				Total Materials Cost for this Task =	$11,398

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $11,398

VII. REVEGETATION *(use multiple sheets as needed)*

(↑ Describe Revegetation Activity Being Estimated)

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation projects, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		Total Equipment Cost for this Task =		$0

B. Labor - List all labor categories to complete identified task.

Labor Category	$/Hour (prevailing wage)	Labor Surcharge /HR (where applicable) (enter % of wage) 0.0%	# of Hours	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Labor Cost for this Task =		$0

C. Materials - List all materials required to complete identified task

Item/Plant Species	Unit of measure	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
		$0.00	$0.00	0.00	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		Total Materials Cost for this Task =			$0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $0

State of California
DEPARTMENT OF CONSERVATION
DIVISION OF MINE RECLAMATION
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VII. REVEGETATION *(use multiple sheets as needed)*

(↑ Describe Revegetation Activity Being Estimated)

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation projects, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
			Total Equipment Cost for this Task =	$0

B. Labor - List all labor categories to complete identified task.

Labor Category	$/Hour (prevailing wage)	Labor Surcharge /HR (where applicable) (enter % of wage) 0.0%	# of Hours	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
			Total Labor Cost for this Task =	$0

C. Materials - List all materials required to complete identified task

Item/Plant Species	Unit of measure	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
		$0.00	$0.00	0.0	$0
			Total Materials Cost for this Task =		$0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $0

VIII. MISCELLANEOUS COSTS *(use multiple sheets as needed)*

Provide documentation showing that rates, prices, and wages are available locally to all persons, including the lead agency and/or the Department.

Examples of this type of cost may include temporary storage of equipment and materials off site, special one-time permits (i.e. transportation permits for extra wide overweight loads, etc.), decommissioning a process mill (i.e. decontamination of equipment), disposal of warehouse inventories, well abandonnment, remediation of fueling and waste oil storage sites, septic system removal, costs to prepare closure and monitoring reports, site security, preserving potable water and maintaining utilities, etc.

Item/Task	Quantity	$/Unit	Cost ($)
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0

Total Miscellaneous Costs = $0

IX. MONITORING COSTS

Monitoring Task	$/Visit	# of Visits/Year	# of Monitoring Years	Cost ($)
Annual Monitoring (16 hours at rate $100)	$1,600.00	1.0	5.0	$8,000
Annual Monitoring Report Preparation (8 hrs at rate $120)	$960.00	1.0	5.0	$4,800
Annual Weed Contol and General Maintenance	$3,000.00	1.0	5.0	$15,000

Total Monitoring Costs = $27,800

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X. SUMMARY OF COSTS

This section shall be used to summarize all the cost sheets in one place.

(V) Total of all Plant Structures & Equipment Removal Costs	$	0
(VI) Total of all Primary Reclamation Activities Costs	$	40,919
(VII) Total of all Revegetation Costs	$	34,529
(VII) Total of all Miscellaneous Costs	$	0
(IX) Total of all Monitoring Costs	$	27,800
Total of Direct Costs	$	**103,248**

XI. SUPERVISION / PROFIT & OVERHEAD / CONTINGENCIES / MOBILIZATION

(A) Supervision (5.9 %)		$	6,047
(B) Profit/Overhead (12.1 %)		$	12,477
(C) Contingencies (10.0 %)		$	10,325
(D) Mobilization (0.0 %)		$	0
Total of Indirect Costs		$	**28,848**
Total of Direct and Indirect Costs		$	**132,096**
(E) Lead Agency and/or Dept. of Conservation Administrative Costs	12%	$	15,852

Total Estimated Cost of Reclamation $ **147,948**

FINANCIAL ASSURANCE COST ESTIMATE FORM INSTRUCTIONS

This form is intended to comply with the requirements of California's Surface Mining and Reclamation Act (SMARA – Public Resource Code Sections 2710 et seq., and the associated California Code of Regulations found in Title 14, division 2, beginning at Section 3500, hereinafter respectively "PRC" or "CCR") and specifically PRC §2773.1(a)(4). This form, (FACE-1) shall be used to submit the calculated financial assurance amount to the lead agency for review.

The amount of a financial assurance mechanism required for reclamation of a surface mining operation must be approved and established prior to operations, and annually thereafter approved following lead agency review and, if necessary, adjusted each calendar year. PRC §2773.4(d)(1) requires that annual Financial Assurance Cost Estimates (FACE) shall be submitted to the lead agency for review within 30 days of an annual inspection or within 30 days of the inspection date requested on the operator's Annual Report, Form MRRC-2, if the inspection was not conducted by the lead agency. FACE's for new reclamation plans or reclamation plan amendments shall be approved by the lead agency, and the existing financial assurance mechanism adjusted, prior to the commencement of operations or substantial deviation, respectively. If the cost estimate is being submitted for reasons other than an amended reclamation plan or annual inspection please check "Other: Please Specify:" This may include, but is not limited to, cost estimates prepared in response to a lead agency enforcement action or interim updates due to site expansion or reclamation.

The amount of financial assurance required of a Surface Mining Operation (SMO) represents the cost for the lead agency or the Division of Mine Reclamation to complete reclamation of all disturbed lands in accordance with the approved reclamation plan utilizing third party contractors in the event the operator is unable to do so. Reclamation of SMO's by a lead agency or the Department is presumed to be a "public works project" as defined in California Labor Code (Division 2, Part 7, Chapter 1, Article 1, Section 1720) and subject to requirements of California's Prevailing Wage Law. Hourly labor costs used for calculation of the financial assurance shall be consistent with Department of Industrial Relations prevailing wage requirements for the chosen labor category and shall include employer laborsurcharge (payroll taxes, workers comp, etc., paid hourly by an employer), where applicable. The California Employment Development Department's (EDD) current published "Employment and Wages by Occupation" data may be useful in estimating the costs of scientists and professionals not subject to California prevailing wage law. Equipment costs shall be supported by the Caltrans Labor Surcharge and Equipment Rental Rates handbook or verifiable local third party rental rates that include delivery and pick-up and any other equipment surcharges. Equipment production rates shall be supported by lead agency accepted construction estimating handbooks such as Caterpillar Performance Handbook, Means Heavy Construction Handbook, etc.

Prior to preparing the cost estimate, review the approved reclamation plan, any amendments, and other reclamation requirements prepared as part of a permit application for the operation that were used to satisfy the requirements of PRC Sections 2772(c), 2773 and 2773.3 and Title 14 of California Code of Regulations Sections 3500 and 3700 and any approved modifications contained in permit conditions of approval or binding mitigation measures adopted or certified pursuant to the California Environmental Quality Act included by reference in the approved reclamation plan pursuant to PRC Sections 2772(d) and 2772.1(b)(7)(B), as well as the most recent lead agency inspection report. The cost estimate must include costs associated with the approved reclamation plan, any amendments, and other reclamation requirements included by reference in the approved reclamation plan pursuant to PRC Sections 2772(d) and 2772.1(b)(7)(B), that specifically relate to reclamation of the mine site.

Please read the following instructions carefully before preparing the cost estimate. If a section is not applicable, please indicate so with a brief statement. Sections may be duplicated as necessary to capture each activity required to complete reclamation in accordance with the approved reclamation plan. Following receipt and review of this FACE form, the lead agency may request additional information, revisions or amendments before final approval.

SECTION I – SUPPORTING DOCUMENTS

Reclamation Plan Approval date and Number: Provide the date of approval and document number for the reclamation plan and any subsequent amendments.

Permits and/or Environmental Documents Approved as, or Conditioned upon, the Reclamation Plan: Provide information regarding reclamation requirements contained in documents included by reference in the approved reclamation plan pursuant to PRC Sections 2772(d) and 2772.1(b)(7)(B), such as permits and/or environmental documents prepared for the project pursuant to the California Environmental Quality Act (Division 13 (commencing with Section 21000)) and any conditions of approval, that specifically relate to reclamation of the mine site.

Other Agency Financial Assurances Securing Reclamation of Disturbed Lands: Provide information regarding current bonds, held with other agencies that exercise jurisdiction over the SMO, that cover the costs of achieving the approved reclamation plan performance standards and end use. Please include the amount of those costs, whether financial assurance mechanisms have been established to cover those costs, the names of the public agencies, the names of the beneficiaries, and the expiration date, if any, of those financial assurance mechanisms.

Wage Rates used in Cost Estimate: Provide citations to appropriate labor handbooks used to calculate labor costs. Reclamation of SMO's by a lead agency or the Department is presumed to be a "public works project" as defined in California Labor Code (Division 2, Part 7, Chapter 1, Article 1, Section 1720) and subject to the requirements of California Prevailing Wage Law. Hourly labor costs used for calculation of the financial assurance shall be consistent with the Department of Industrial Relations prevailing wage requirements for the chosen labor category

and shall include the employer labor surcharge (payroll taxes, workers comp, etc., paid hourly by an employer), where applicable. Third party estimates relied upon by the preparer to determine the amount of financial assurances shall be prepared utilizing California Prevailing Wage requirements.

Equipment Rates Used in Cost Estimate: Provide citations to lead agency accepted equipment cost handbooks, such as the Caltrans Labor Surcharge and Equipment Rental Rates that include delivery and pick-up and any other equipment surcharges or verifiable third party rental rates relied upon to calculate financial assurance.

Equipment Production Rates used in Cost Estimate: Provide citations to lead agency accepted equipment production rates, such as the Caterpillar Performance Handbook or Means Heavy Construction Handbook, to calculate financial assurance.

Attachments: Subcontractor and/or supplier quotes, and/or third party estimates, and any relevant references relied upon to calculate the cost estimate (such as recent surveyed site topography, consultant's reports, stipulated orders to comply, etc.) shall be attached to the FACE-1 form and listed in "Attachments." Previous inspection reports, cost calculation worksheets, or other documents may be attached to the completed FACE-1 form as necessary to support the estimated financial assurance amount.

SECTION II – DESCRIPTION OF CURRENT SITE CONDITIONS

Provide a brief description of current site conditions with a focus on details that relate to the cost of reclamation activities required to meet the performance standards of the approved reclamation plan; such as: plant structures, foundations, equipment, stockpiles (processed material, waste, and import), total disturbed area, highwall/slope angles, pit depth, ponds, erosion control, streams and wetlands, sensitive species, revegetation, etc.

SECTION III – DESCRIPTION OF ANTICIPATED SITE CONDITIONS

Provide a brief description of the anticipated condition of the mine site in one year, with a focus on anticipated changes that will affect the cost to complete reclamation in accordance with the performance standards of the approved reclamation plan, such as: plant structures, foundations, equipment, stockpiles (material, waste, and import), total disturbed area, highwall/slope angles, pit depth, ponds, erosion control, streams and wetlands, sensitive species, revegetation, etc.

SECTION IV – DESCRIPTION/JUSTIFICATION OF COST INCREASE/DECREASE

Provide a brief description/justification for the proposed increase or decrease to existing financial assurance amount.

Current Site Condition: Provide a description of the current plant site conditions and structures present.

Reclamation Plan Performance Standard (End Use): Describe the performance standards for reclamation and the end use of the plant area required by the approved reclamation plan.

Describe Tasks: Describe the anticipated tasks to achieve the required performance standards and end use described by the approved reclamation plan.

Equipment on site wholly owned by operator? YES/NO: The operator shall state whether or not equipment is wholly owned by the operator. If no, provide the name/s and contact information for any lien holder. This information will assist the lead agency's assessment of the administrative costs to remove equipment and apprise them of ownership.

Methods to be Used: Estimate the equipment and labor costs of dismantling and/or demolition and removal of structures, equipment (mobile and fixed), debris, and final cleanup of the mine site. Specific equipment, structural materials, and/or debris may have salvage value. Salvage value may only be used to offset the cost of removal of the specific item being appraised, excess salvage value may not be used to offset any other cost of reclamation. If salvage value is being claimed, documentation must be provided to the lead agency for review. Third party estimates, bids, cost calculations, verifying salvage values shall be attached to the form and listed in "Attachments," Section 1. The value of overburden, process fines, stockpiled pit run or processed material may not be used to offset the cost of removal or reclamation of such materials. Third party estimates, bids, or cost calculations for reclamation and/or surplus/salvage value shall include the following information:

- Name and location of company or contractor
- Statement of qualification and experience
- Location of mine site and California Mine ID#
- Description of such work
- Dates that third party estimates, bid, or cost calculations are in effect
- Signature of responsible party, and seal/stamp of licensed professional as required by law

SECTION VI – PRIMARY RECLAMATION ACTIVITY

Section VI shall be used to calculate the cost of primary reclamation activities required to meet the performance standards of the approved reclamation plan and the site end use. Primary reclamation activities may include:

- Grading – cuts/fills, import/exoort, compaction/decompaction, etc.
- Erosion Control (BMP's, Structures)
- Ponds/Detention Basins

- Stream and Wetland Protection
- Sensitive Wildlife and Plant Protection
- Soil/Overburden Stockpile Management
- Closure of Adits

It is recommended that Section VI be duplicated as necessary to calculate the primary cost of each activity required to meet the end use and reclamation plan performance standards. List the activity being estimated at the top of first page of Section VI.

Current Site Conditions: Provide a brief narrative describing the current condition of the site as it relates to the reclamation activity being estimated, such as the current/anticipated slope angle of the highwall, etc.

Reclamation Plan Performance Standard (End Use): Provide a description of the performance standards/reclamation requirements of the approved reclamation plan, as detailed in the Supporting Documents, cited in Section I, that pertain to the primary reclamation activity being estimated.

Describe Tasks, Methods, Equipment, etc.: Provide a description of the tasks required to complete the activities being estimated. Include a description of the equipment and materials needed to complete reclamation of the activity being estimated.

Provide Quantities: Provide estimates of the volumes of overburden, topsoil, cut and fill, import, and export, etc., that will need to be handled to accomplish reclamation. Describe anticipated acres of disturbance, haul distances, and equipment production rates.

Methods to be Used: Estimate the cost of equipment, labor, and materials required to meet end use and performance standards described by the approved reclamation plan. Equipment and materials included in this section shall be from lead agency accepted sources such as Caltrans Labor Surcharge and Equipment Rental Rates, Caterpillar Performance Handbook, Means Heavy Construction Handbook, etc., or third party estimate. Labor rates shall be calculated on the sum of the Department of Industrial Relations prevailing wage requirements for the chosen labor category and shall include the employer labor surcharge (payroll taxes, workers comp, etc., paid hourly by an employer), where applicable.

SECTION VII - REVEGETATION

Section VII shall be used to calculate costs associated with revegetation of disturbed areas. Revegetation activities may include, but are not limited to: soil preparation/amendment, mulching, installation of irrigation systems, watering, custom seed/plant collection, nursery services, seed mixes (pure live seed) and containerized plants, hydroseeding, seed/plant installation, plant protection, and remediation. Refer to the approved reclamation plan or revegetation program to determine the various tasks and materials required to revegetate

Current Site Condition: Provide a brief description of the current conditions at the site as it relates to revegetation, such as the amount of topsoil stored or needed for import and acres requiring revegetation, etc.

Reclamation Plan Performance Standard (End Use): Provide a description of the performance standards/reclamation requirements of the approved reclamation plan, as detailed in the Supporting Documents, cited in Section I, that pertain to revegetation of the site.

Describe Tasks: Describe the required tasks anticipated to complete reclamation in accordance with the approved reclamation plan. Tasks may include decompaction, placement of growth medium, seeding, planting, construction of irrigation systems, fencing, etc.

Methods to be used: Estimate the cost of equipment, labor, and materials required to meet end use and performance standards described by the approved reclamation plan. Equipment costs shall be supported by the Caltrans Labor Surcharge and Equipment Rental Rates handbook or verifiable local third party rental rates that include delivery and pick-up and any other equipment surcharges. Equipment production rates shall be supported by lead agency accepted construction estimating handbooks such as Caterpillar Performance Handbook, Means Heavy Construction Handbook, etc. Labor rates shall be consistent with the Department of Industrial Relations prevailing wage requirements for the chosen labor category and shall include the employer labor surcharge (payroll taxes, workers' comp., etc., paid hourly by an employer), where applicable.

Provide the unit of measure (i.e. pallet, pound, ton) in the materials table for the type of material to be used.

SECTION VIII- MISCELLANEOUS COSTS

Section VIII shall be used to list any miscellaneous costs for materials, any applicable taxes and employer labor surcharge (payroll taxes, workers comp, etc., paid hourly by an employer) when not included elsewhere, and labor, or services required to complete final reclamation and closure of the site (i.e. plant decommissioning, lead agency final inspections, reclamation mitigation measures, etc.). Using the table provided, list the items or services required, the quantity, unit costs (if applicable) and total costs.

SECTION IX – MONITORING COSTS

Section IX shall be used to list costs of required monitoring of the site once initial reclamation has been completed. The costs may include monitoring for successful revegetation and habitat establishment, slope stability, erosion control, access controls, or site remediation (i.e. process reagents/hydrocarbons). Monitoring required by other agencies (i.e. California Regional Water Quality Control Board) that are covered under a separate financial assurance mechanism

should be listed for reference. Using the table provided, list the monitoring task, the cost per site visit/monitoring event (include all costs associated with planning and completing the site visit/monitoring events), the number of site visits/monitoring events per year, the number of monitoring years and total cost. If a consultant will be conducting the monitoring, provide a copy of the estimate or contract. The California Employment Development Department's (EDD) current published "Employment and Wages by Occupation" data may be useful in estimating the costs of scientists and professionals not subject to California prevailing wage law. Remember, the costs of a site visit start well before arriving at a site and continue after leaving a site in the form of pre-visit preparations and post-visit record keeping and report preparation.

SECTION X – SUMMARY OF COSTS

Summarize the costs calculated in Sections IV through VIII.

SECTION XI – SUPERVISION/PROFIT & OVERHEAD/CONTIGENCIES/MOBILIZATION

Section XI includes costs for supervision of reclamation activities, profit and overhead, contingencies (unforeseen costs) and mobilization (the cost of moving equipment to and from the site). These costs are based on a percentage of the total direct costs which typically decline as project size increases. Refer to Graph 1 and Graph 2 on page 9 to determine the percentage rate to be used.

A. Supervision - Supervision or reclamation management includes project inspection and supervision. These activities are usually performed by a consultant or staff member with experience in reclamation of disturbed lands. Reclamation management may include recommending change orders, verifying completed work, verifying compliance with project specifications, and other reclamation management oversight activities. Please refer to Graph No. 1 to determine the supervision cost factor.

B. Profit and Overhead - Where it becomes necessary for the Lead Agency or the Department of Conservation to complete reclamation of the mining site, a third party will be retained to do the actual reclamation work. Because profit and overhead costs are not included in the reclamation cost sheets, these costs must be added to the total reclamation estimate. Please refer to Graph No. 2 to determine the profit and overhead cost factor.

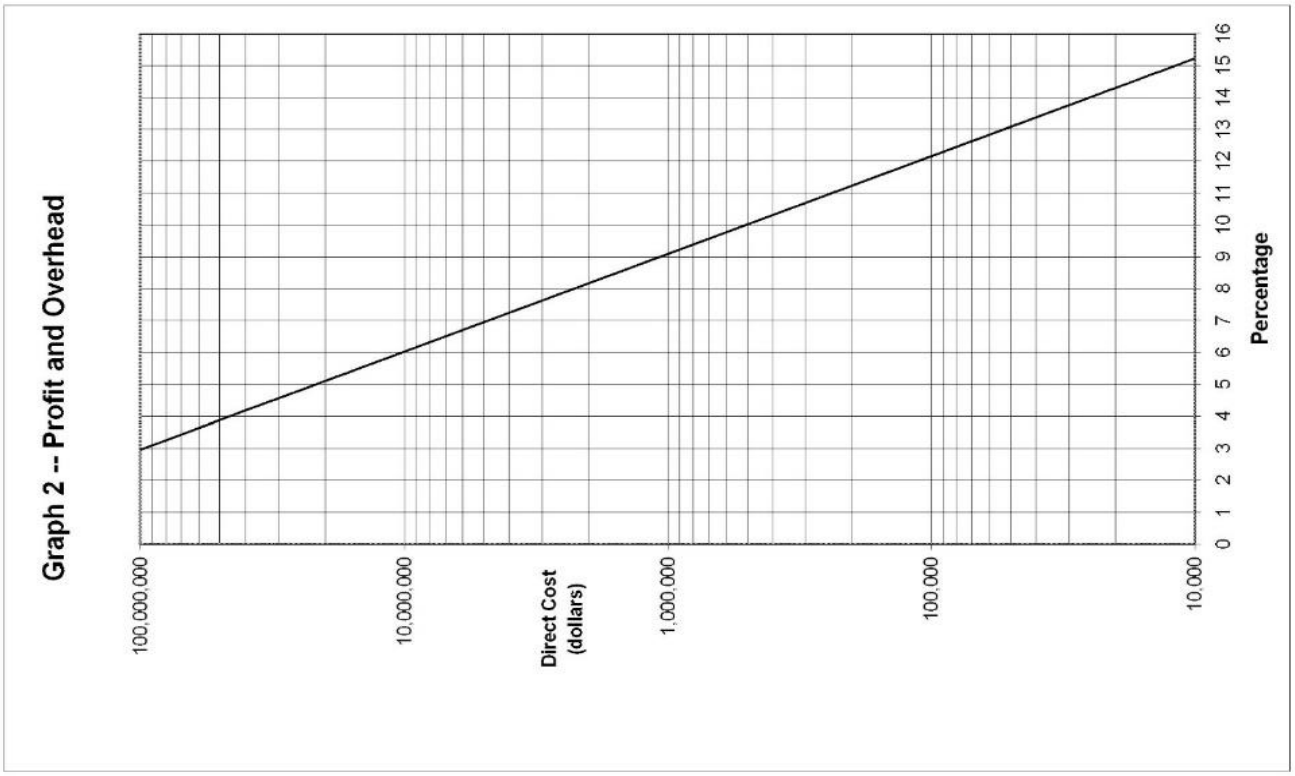
C. Contingencies - A contingency cost shall be included in the financial assurance estimate to provide for project uncertainties and unexpected natural events. This cost shall be added to the reclamation costs using the schedule below:

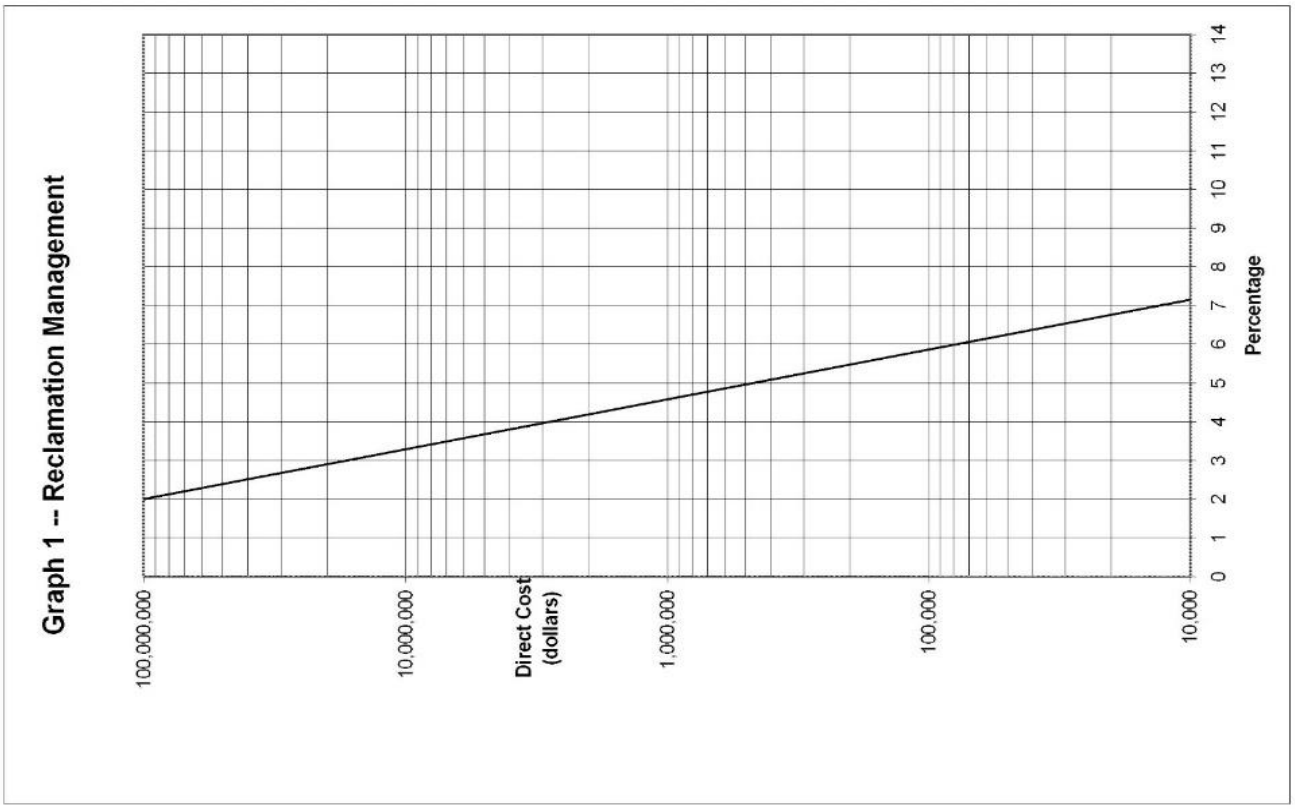
Total Direct Cost ($)	Contingency (%)
0-$499,999	10
$500,000 – $4,999,999	7
$5 million - $50 million	4
Greater than $50 million	2

D. Mobilization - Mobilization costs are attributed to moving equipment to the project site for reclamation purposes. These costs normally range between one and five percent of the total direct cost of the reclamation operations. These costs will vary depending upon the site location and the total value of the reclamation operations to be performed and may exceed five percent. Please insert the percentage used to estimate mobilization costs under Section XI – Supervision/Profit & Overhead/Contingencies/Mobilization.

E. Lead agencies shall include an administrative cost to draw on the financial assurance and implement the reclamation plan, should it become necessary. This cost shall, at a minimum, be added to the reclamation costs using the schedule below:

Total Direct + Indirect Costs ($)	Lead Agency Administrative Cost (%)
0 – 99,999	15
100,000 – 499,999	12
500,000 – 999,999	10
1 million – 10 million	8
Greater than 10 million	5


Graph 2 -- Profit and Overhead
100,000,000
10,000,000
Direct Cost (dollars)
1,000,000
100,000
10,000
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Percentage


Graph 1 -- Reclamation Management
100,000,000
10,000,000
Direct Cost (dollars)
1,000,000
100,000
10,000
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
Percentage

Version: 8-31-18

BETA Excel Version of the FACE-1 Financial Assurance Cost Estimate Form.
Please contact DMR if errors are found in this document.

FINANCIAL ASSURANCE COST ESTIMATE

FOR

Harris Quarry

(Mine Name)

CA Mine ID # 91- 23-0015

Reclmation Plan #/Name REC 1-2014

Prepared by: *(Name & Affiliation)*	This financial assurance cost estimate prepared and submitted pursuant to *(choose one)* :
EnviroMINE, Inc (on behalf of Northern Aggregates)	☐ A new or amended reclamation plan approved on (Date):
3511 Camino del Rio South, Suite 403	☐ An annual mine inspection performed on (Date):
San Diego, CA 92108	☐ Other: Please Specify:
Date: March 8, 2019	

Most Recent Approved Financial Assurance Cost Estimate

Date: April 27, 2017

Amount: $ 181,916

Amount of existing Financial Assurance Mechansim(s)

Date: May 26, 2017

Amount: $ 181,916

I. SUPPORTING DOCUMENTS

This estimate represents the cost of conducting and completing reclamation in accordance with the Surface Mining and Reclamation Act (SMARA) and the following supporting documents:

Reclamation Plan Approval Date and Number

Reclamation Plan #REC 1-2014 approved on 5/20/2014

Permits and/or Environmental Documents Approved as, or Conditional upon, the Reclamation Plan

Use Permit and Reclamation Plan Renewal #UR 19-83/2005 and Negative Declaration approved on 5/20/2014

Other Agency Financial Assurances Securing Reclamation of Disturbed Lands

NA

Wage Rates used in Cost Estimate* *(cost estimates are required to use current 'General prevailing wage determinations made by the director of industrial relations' where applicable (http://www.dir.ca.gov/OPRL/PWD/index.htm) with employer labor surcharge added, or greater)*

Department of Industrial Relations Prevailing Wage Determinations, 2019-1

Equipment Rates used in Cost Estimates* *(use current 'Labor Surchage and Equipment Rental Rates (Cost of Equipment Ownership)' equipment rates published by Caltrans (http://www.dot.ca.gov/hq/construc/equipmnt.html) or other publicly available and verifiable local rates)*

Caltrans Labor Surcharge and Equipment Rental Rates manual (4/1/18 – 3/31/19)

Equipment Production Rates used in Cost Estimate *(Use of current Caterpillar Performance Handbook or equivalent published production rates is required)*

Caterpillar Performance Handbook, 2017

**Many mine sites are remote projects that require hours of travel (to and from) and sometimes require additional time to prepare for even the simplest of tasks. In accordance with labor Code Sections 1773.1 and 1773.9, contractors are required to make travel and/or subsistence (per diem) payments to each worker to execute the work. These arrangements can be quite variable and site specific.*

Attachments:

(add additional pages as needed)

II. Description of Current Site Conditions

(i.e., disturbed acres, slope conditions, excavation depths, topsoil and overburden stockpiles, equipment and facilities, reclamation in progress, erosion control status, required corrective actions, etc.)

The area of disturbance includes the quarry slopes, benches, quarry floor, and asphalt plant area for a total of 26.43 acres.

Quarry area: 21.2 acres
Asphalt Plant area: 5.23

Equipment includes: jaw crusher (1), cone crushers (2), screens (3), conveyors (13), belt press (1), pumps (4), feeder (1), stacker (1), wash plant including water tank (1), CAT generator (1), control tower (1), tool van (1), parts storage containers (1), fuel tank (2), water tank (2)

An asphalt plant is proposed onsite.

Product stockpiles= approximately 19,000 cubic yards
Working faces= approximately 0.75:1
A natural pond adjacent to the scale house will remain following reclamation. A sediment pond is located at the south edge of the quarry floor and will be reclaimed (filled, compacted, hydroseeded).

Structures include: a scale house and truck scale

The quarry is graded to drain internatlly through the quarry floor. An earthen berm surrounds the perimeter of the quarry floor. Stormwater within the quarry does not discharge from the site. The haul road from the entrance to the scales and quarry is paved. No corective actions are required.

III. Description of Anticipated Site Conditions (12 months from date of estimate)

(i.e., increase of disturbed acres, increase of depth, increases in amount of equipment and/or facilities, required corrective actions, etc.)

IV. Description/Justification of Cost Increase/Decrease

Equipment rates have decreased and labor rates have increased.

V. PLANT STRUCTURES AND EQUIPMENT REMOVAL *(use multiple sheets as needed)*

Provide documentation showing that rates, prices, and wages are available locally to all persons, including the lead agency and/or the Department.

Current Site Condition:

Equipment includes: jaw crusher (1), cone crushers (2), screens (3), conveyors (13), belt press (1), pumps (4), feeder (1), stacker (1), wash plant including water tank (1), CAT generator (1), control tower (1), tool van (1), parts storage containers (1), fuel tank (2), water tank (2)

Structures include a scale house and truck scale. Various pieces of mobile equipment are onsite.

An asphalt plant is proposed onsite.

The salvage value for the processing plant is $75,625 and the asphalt plant is $63,250. This total salvage value for the processing plant and asphalt plant exceeds the cost for removal of all plant equipment and structures. As a result, the total cost for Plant Strutures and Equipment Removal on the Summary Page is $0.

Reclamation Plan Performance Standard (End Use):

The end use is open space.

See page 45 of Reclamation Plan for specific performance standards.

Describe tasks:

Dismantle all equipment, load equipment onto trailers and haul to Ritchie Bros Auctioneers in Dunnigan, CA.

Excavators, crane, loader, and semi trucks will be used to remove the quarry processing plant and asphalt plant. All rubbish will be removed from the site. The concrete footings in the processing plant area will be broken and removed from the site. All mobile equipment will be removed from the site.

Equipment on site wholly owned by operator?: ☒ YES ☐ NO

(if no, please provide the name/s and contact information for any lien holder)

(add additional pages as needed)

Version: 8-31-18

Removal of Processing Plant

(↑ Describe Reclamation Activity Being Estimated)

V. PLANT STRUCTURES & EQUIPMENT REMOVAL

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT 330 Excavator with Steel Shear	Hours	$202.85	24.0	$4,868
CAT 330 Excavator with Grapple	Hours	$154.48	24.0	$3,708
Grove RT 625 25t Crane	Hours	$68.43	8.0	$547
Semi Truck with End Dump (5-axle) (2)	Hours	$76.23	40.0	$3,049
CAT 950 Wheel Loader	Hours	$98.93	24.0	$2,374
Welding Truck	Hours	$53.72	24.0	$1,289
Pick-up Truck	Hours	$22.02	24.0	$528

Total Equipment Cost for this Task = $16,365

B. Labor - List all labor categories to complete identified task

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Excavator Operator, Operating Engineer, Grp. 3	$76.79	$0.00	24.0	$1,843
Excavator Operator, Operating Engineer, Grp. 3	$76.79	$0.00	24.0	$1,843
Crane Operator, Operating Engineer, Grp. 3-A	$77.18	$0.00	8.0	$617
Semi Truck Driver, Teamster, Grp. 3 (2)	$60.47	$0.00	40.0	$2,419
Loader Operator, Operating Engineer, Grp. 3	$76.79	$0.00	24.0	$1,843
Welder, Laborer, Construction Specialist	$55.44	$0.00	24.0	$1,331
Foreman, Operating Engineer, Grp. 3	$76.79	$0.00	24.0	$1,843
Laborer, Grp. 3	$54.49	$0.00	48.0	$2,616

Total Labor Cost for this Task = $14,354

C. Demolition - List all structures and equipment to be dismantled or demolished and removed from site

Structure/Equipment to be removed	Type of Material	Volume/ Quantity	Unit Cost Basis	Disposal Cost	Cost ($)
		0.00	$0.00	$0.00	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost of Structure and Equipment Removal (Total A+B+C)

Equipment Cost + Labor Cost + Demolition Cost = $30,719

E. Net Salvage Value* (Supported by properly prepared third party estimate, bid, or cost calculation)

Net Salvage Value = $ **30,719**

F. Total Cost of Structure and Equipment Removal (Subtract Line D from Line E)

Total Cost of Structure and Equipment Removal = **$0**

NOTE: Above **Total Cost** will display $0.00 if net of entered removal costs and salvage value is negative.

*Note: Salvage value may only be used to offset the direct cost of removing the single item for which salvage value is being claimed. Salvage value shall not be used to offset any other demolition, general cleanup, or reclamation costs.

Version: 8-31-18

Rubbish Removal Associated with Processing Plant

(↑ Describe Reclamation Activity Being Estimated)

V. PLANT STRUCTURES & EQUIPMENT REMOVAL

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT 938F Wheel Loader	Hours	$72.79	12.0	$873
Pick-up Truck	Hours	$22.02	12.0	$264
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0

Total Equipment Cost for this Task = $1,138

B. Labor - List all labor categories to complete identified task

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Loader Operator, Operating Engineer, Grp. 4	$75.41	$0.00	12.0	$905
Foreman, Operating Engineer, Grp. 3	$76.79	$0.00	12.0	$921
Laborer, Grp. 3 (2)	$54.49	$0.00	24.0	$1,308
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Labor Cost for this Task = $3,134

C. Demolition - List all structures and equipment to be dismantled or demolished and removed from site

Structure/Equipment to be removed	Type of Material	Volume/ Quantity	Unit Cost Basis	Disposal Cost	Cost ($)
20 cubic yards roll-off bins	Bin	3.00	$710.00	$0.00	$2,130
Power poles	Poles	5.00	$366.00	$0.00	$1,830
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0

Total Materials Cost for this Task = $3,960

D. Total Direct Cost of Structure and Equipment Removal (Total A+B+C)

Equipment Cost + Labor Cost + Demolition Cost = $8,232

E. Net Salvage Value* (Supported by properly prepared third party estimate, bid, or cost calculation)

Net Salvage Value = $ **8,232**

F. Total Cost of Structure and Equipment Removal (Subtract Line D from Line E)

Total Cost of Structure and Equipment Removal = **$0**

NOTE: Above **Total Cost** will display $0.00 if net of entered removal costs and salvage value is negative.

*Note: Salvage value may only be used to offset the direct cost of removing the single item for which salvage value is being claimed. Salvage value shall not be used to offset any other demolition, general cleanup, or reclamation costs.

Version: 8-31-18

Concrete Footing Breaking and Removal Associated with Processing Plant

(↑ Describe Reclamation Activity Being Estimated)

V. PLANT STRUCTURES & EQUIPMENT REMOVAL

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT 315L Excavator with NPK H-12X Rock Breaker attachment	Hours	$87.51	11.0	$963
CAT 315L Excavator with Bucket	Hours	$74.58	6.0	$447
End Dump Haul Truck (8)	Hours	$107.75	40.0	$4,310
		$0.00	0.0	$0
		$0.00	0.0	$0

Total Equipment Cost for this Task = $5,720

B. Labor - List all labor categories to complete identified task

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Excavator Operator, Operating Engineer, Grp. 3	$76.79	$0.00	11.0	$845
Excavator Operator, Operating Engineer, Grp. 3	$76.79	$0.00	6.0	$461
Haul Truck Driver, Teamster, Grp. 4 (8)	$61.12	$0.00	40.0	$2,445
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Labor Cost for this Task = $3,750

C. Demolition - List all structures and equipment to be dismantled or demolished and removed from site

Structure/Equipment to be removed	Type of Material	Volume/ Quantity	Unit Cost Basis	Disposal Cost	Cost ($)
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost of Structure and Equipment Removal (Total A+B+C)

Equipment Cost + Labor Cost + Demolition Cost = $9,470

E. Net Salvage Value* (Supported by properly prepared third party estimate, bid, or cost calculation)

Net Salvage Value = $ **9,470**

F. Total Cost of Structure and Equipment Removal (Subtract Line D from Line E)

Total Cost of Structure and Equipment Removal = **$0**

NOTE: Above **Total Cost** will display $0.00 if net of entered removal costs and salvage value is negative.

*Note: Salvage value may only be used to offset the direct cost of removing the single item for which salvage value is being claimed. Salvage value shall not be used to offset any other demolition, general cleanup, or reclamation costs.

Version: 8-31-18

Mobile Equipment Removal Associated with Processing Plant

(↑ Describe Reclamation Activity Being Estimated)

V. PLANT STRUCTURES & EQUIPMENT REMOVAL

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
Semi Truck with 3-axle lowboy	Hours	$89.61	8.0	$717
Trucking with Tractor, 5-axle lowboy trailer, 2 pilot vehicles, including operators (2)	Lump sum	$2,732.67	2.0	$5,465
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0

Total Equipment Cost for this Task = $6,182

B. Labor - List all labor categories to complete identified task

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Semi Truck driver, Teamster, Grp. 4	$61.12	$0.00	8.0	$489
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Labor Cost for this Task = $489

C. Demolition - List all structures and equipment to be dismantled or demolished and removed from site

Structure/Equipment to be removed	Type of Material	Volume/ Quantity	Unit Cost Basis	Disposal Cost	Cost ($)
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost of Structure and Equipment Removal (Total A+B+C)

Equipment Cost + Labor Cost + Demolition Cost = $6,671

E. Net Salvage Value* (Supported by properly prepared third party estimate, bid, or cost calculation)

Net Salvage Value = $ **6,671**

F. Total Cost of Structure and Equipment Removal (Subtract Line D from Line E)

Total Cost of Structure and Equipment Removal = **$0**

NOTE: Above **Total Cost** will display $0.00 if net of entered removal costs and salvage value is negative.

*Note: Salvage value may only be used to offset the direct cost of removing the single item for which salvage value is being claimed. Salvage value shall not be used to offset any other demolition, general cleanup, or reclamation costs.

Version: 8-31-18

Removal of Asphalt Plant

(↑ Describe Reclamation Activity Being Estimated)

V. PLANT STRUCTURES & EQUIPMENT REMOVAL

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT 330 Excavator with Steel Shear	Hours	$202.85	40.0	$8,114
CAT 330 Excavator with Grapple	Hours	$154.48	40.0	$6,179
Grove RT 625 25t Crane	Hours	$68.43	24.0	$1,642
Semi Truck with End Dump (5-axle) (2)	Hours	$76.23	48.0	$3,659
CAT 950 Wheel Loader	Hours	$98.93	40.0	$3,957
Welding Truck	Hours	$53.72	24.0	$1,289
Pick-up Truck	Hours	$22.02	40.0	$881

Total Equipment Cost for this Task = $25,722

B. Labor - List all labor categories to complete identified task

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Excavator Operator, Operating Engineer, Grp. 3	$76.79	$0.00	40.0	$3,072
Excavator Operator, Operating Engineer, Grp. 3	$76.79	$0.00	40.0	$3,072
Crane Operator, Operating Engineer, Grp. 3-A	$77.18	$0.00	24.0	$1,852
Semi Truck Driver, Teamster, Grp. 3 (2)	$60.47	$0.00	48.0	$2,903
Loader Operator, Operating Engineer, Grp. 3	$76.79	$0.00	40.0	$3,072
Welder, Laborer, Construction Specialist	$55.44	$0.00	24.0	$1,331
Foreman, Operating Engineer, Grp. 3	$76.79	$0.00	40.0	$3,072
Laborer, Grp. 3	$54.49	$0.00	40.0	$2,180

Total Labor Cost for this Task = $20,551

C. Demolition - List all structures and equipment to be dismantled or demolished and removed from site

Structure/Equipment to be removed	Type of Material	Volume/ Quantity	Unit Cost Basis	Disposal Cost	Cost ($)
		0.00	$0.00	$0.00	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost of Structure and Equipment Removal (Total A+B+C)

Equipment Cost + Labor Cost + Demolition Cost = $46,273

E. Net Salvage Value* (Supported by properly prepared third party estimate, bid, or cost calculation)

Net Salvage Value = $ **46,273**

F. Total Cost of Structure and Equipment Removal (Subtract Line D from Line E)

Total Cost of Structure and Equipment Removal = **$0**

NOTE: Above **Total Cost** will display $0.00 if net of entered removal costs and salvage value is negative.

*Note: Salvage value may only be used to offset the direct cost of removing the single item for which salvage value is being claimed. Salvage value shall not be used to offset any other demolition, general cleanup, or reclamation costs.

Version: 8-31-18

Rubbish Removal Associated with Asphalt Plant

(↑ Describe Reclamation Activity Being Estimated)

V. PLANT STRUCTURES & EQUIPMENT REMOVAL

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT 938F Wheel Loader	Hours	$72.79	8.0	$582
Pick-up Truck	Hours	$22.02	8.0	$176
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0

Total Equipment Cost for this Task = $758

B. Labor - List all labor categories to complete identified task

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Loader Operator, Operating Engineer, Grp. 4	$75.41	$0.00	8.0	$603
Foreman, Operating Engineer, Grp. 3	$76.79	$0.00	8.0	$614
Laborer, Grp. 3 (2)	$54.49	$0.00	16.0	$872
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Labor Cost for this Task = $2,089

C. Demolition - List all structures and equipment to be dismantled or demolished and removed from site

Structure/Equipment to be removed	Type of Material	Volume/ Quantity	Unit Cost Basis	Disposal Cost	Cost ($)
20 cubic yard Roll-off Bins	Bins	2.00	$710.00	$0.00	$1,420
Powerpoles	Poles	5.00	$366.00	$0.00	$1,830
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0

Total Materials Cost for this Task = $3,250

D. Total Direct Cost of Structure and Equipment Removal (Total A+B+C)

Equipment Cost + Labor Cost + Demolition Cost = $6,098

E. Net Salvage Value* (Supported by properly prepared third party estimate, bid, or cost calculation)

Net Salvage Value = $ **6,098**

F. Total Cost of Structure and Equipment Removal (Subtract Line D from Line E)

Total Cost of Structure and Equipment Removal = **$0**

NOTE: Above **Total Cost** will display $0.00 if net of entered removal costs and salvage value is negative.

*Note: Salvage value may only be used to offset the direct cost of removing the single item for which salvage value is being claimed. Salvage value shall not be used to offset any other demolition, general cleanup, or reclamation costs.

Version: 8-31-18

Mobile Equipment Removal Associated with Asphalt Plant

(↑ Describe Reclamation Activity Being Estimated)

V. PLANT STRUCTURES & EQUIPMENT REMOVAL

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
Semi Truck with 4-axle lowboy	Hours	$98.99	4.0	$396
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0

Total Equipment Cost for this Task = $396

B. Labor - List all labor categories to complete identified task

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Semi Truck Driver, Teamster, Grp. 4	$61.12	$0.00	4.0	$244
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Labor Cost for this Task = $244

C. Demolition - List all structures and equipment to be dismantled or demolished and removed from site

Structure/Equipment to be removed	Type of Material	Volume/ Quantity	Unit Cost Basis	Disposal Cost	Cost ($)
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0
		0.00	$0.00	$0.00	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost of Structure and Equipment Removal (Total A+B+C)

Equipment Cost + Labor Cost + Demolition Cost = $640

E. Net Salvage Value* (Supported by properly prepared third party estimate, bid, or cost calculation)

Net Salvage Value = $ **640**

F. Total Cost of Structure and Equipment Removal (Subtract Line D from Line E)

Total Cost of Structure and Equipment Removal = **$0**

NOTE: Above **Total Cost** will display $0.00 if net of entered removal costs and salvage value is negative.

*Note: Salvage value may only be used to offset the direct cost of removing the single item for which salvage value is being claimed. Salvage value shall not be used to offset any other demolition, general cleanup, or reclamation costs.

VI. PRIMARY RECLAMATION ACTIVITY

Use multiple sheets as necessary to estimate the cost of each activity required. Provide documentation showing that rates, prices, and wages are available locally to the lead agency and/or the Department if necessary.

Current Site Conditions:

The area of disturbance includes the quarry slopes, benches, quarry floor, and asphalt plant area for a total of 26.43 acres.

Quarry area: 21.2 acres
Asphalt Plant area: 5.23

Reclamation Plan Performance Standard (End Use):

The end use is open space with a goal to establish native woody and herbaceous vegetation on re-soiled quarry benches, floor and processing area. Plants were selected to restore the site to pre-mining and adjacent floristic habitats, including tanoak, chamise-chaparral, canyon live oak, grassland and mixed oak woodland. Other goals include visual screening and erosion control.
See page 45 of Reclamation Plan for specific performance standards.

Describe tasks, methods, equipment, etc:
Decompaction, cut, fill, haul, slope reduction, compaction, grading, topsoil placement, drainage work, soil amendment, special requirements, etc. Separate sheets may be used for each task if necessary.

Using a dozer, grader and water truck:
-Remove asphalt and road base from road leading to asphalt plant.
-Re-rade benches to conform to final slopes and proper drainage (rock slopes to remain at 0.75:1).
-Rip and shape quarry floor and asphalt plant area floor.
-Spread topsoil on benches, quarry floor, and asphalt plant area floor in preparation for revegetation.

Provide Quantities:
Overburden and topsoil, cut and fill, import or export (cubic yards), area (acres), haul distance (feet), equipment production rates (cubic yards/hour, or as applicable), etc.

Benches to be partially covered with 2-3 feet topsoil; 70% of floor to be covered with 6" topsoil (grasslands); 30% of floor to be covered with 2-3 topsoil (woodland)
Total topsoil is approximately 73,000 cubic yards for the quarry floor 12,000 cubic yards for the asphalt plant area.

Version: 8-31-18

Rip and Grade Quarry Floor

(↑ Describe Reclamation Activity Being Estimated)

VI. PRIMARY RECLAMATION ACTIVITY

Acres:		Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT D-9N with ripper attachment for ripping	Hours	$200.27	14.0	$2,804
CAT D-9N for grading	Hours	$183.99	23.0	$4,232
Water Truck	Hours	$39.96	23.0	$919
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0

Total Equipment Cost for this Task = $7,955

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Dozer Operator, Operating Engineer, Grp. 3 (for ripping)	$76.79	$0.00	14.0	$1,075
Dozer Operator, Operating Engineer, Grp. 3 (for grading)	$76.79	$0.00	23.0	$1,766
Water Truck Driver, Teamster, Grp. 2	$60.47	$0.00	23.0	$1,391
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Labor Cost for this Task = $4,232

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $12,187

Version: 8-31-18

Haul and Spread Topsoil Around Quarry

(↑ Describe Reclamation Activity Being Estimated)

VI. PRIMARY RECLAMATION ACTIVITY

Acres:		Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	73000
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT 988 Loader	Hours	$140.77	25.0	$3,519
CAT 740 Haul Truck (2)	Hours	$107.75	50.0	$5,388
CAT D-9N Dozer (2)	Hours	$183.99	200.0	$36,798
Water Truck	Hours	$39.96	100.0	$3,996
		$0.00	0.0	$0
		$0.00	0.0	$0
			Total Equipment Cost for this Task =	$49,701

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Loader Operator, Operating Engineer, Grp. 3	$76.79	$0.00	25.0	$1,920
Haul Truck Driver, Teamster, Grp. 4 (2)	$61.12	$0.00	50.0	$3,056
Dozer Operator, Operating Engineer, Grp. 3 (2)	$76.79	$0.00	200.0	$15,358
Water Truck Driver, Teamster, Grp. 2	$60.47	$0.00	100.0	$6,047
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
			Total Labor Cost for this Task =	$26,381

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
			Total Materials Cost for this Task =	$0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $76,082

Version: 8-31-18

Breaking and Removal of Asphalt Pavement and Road Base

(↑ Describe Reclamation Activity Being Estimated)

VI. PRIMARY RECLAMATION ACTIVITY

Volume:	1,556 cubic yards of asphalt; 6,015 cubic yards of road base		
Haul Distance (ft):		Topsoil (cy):	
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
Breaking and Removal of Asphalt				
315L Excavator w/ Rock Breaker attachment	Hours	$87.51	30.0	$2,625
CAT 988 G Loader	Hours	$140.77	8.0	$1,126
CAT 740 Haul Truck (2)	Hours	$107.75	8.0	$862
Removal of Road Base				
CAT D-9N Dozer	Hours	$183.99	8.0	$1,472
CAT 988 G Loader	Hours	$140.77	16.0	$2,252
CAT 740 Haul Truck (2)	Hours	$107.75	32.0	$3,448
Water Truck	Hours	$39.96	16.0	$639

Total Equipment Cost for this Task = $12,425

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Breaking and Removal of Asphalt				
Excavator Operator, Operating Engineer, Grp. 3	$76.79	$0.00	30.0	$2,304
Loader Operator, Operating Engineer, Grp. 3	$76.79	$0.00	8.0	$614
Haul Truck Driver, Teamster, Grp. 4 (2)	$61.12	$0.00	8.0	$489
Removal of Road Base				
Dozer Operator, Operating Engineer, Grp. 3	$76.79	$0.00	8.0	$614
Loader Operator, Operating Engineer, Grp. 3	$76.79	$0.00	16.0	$1,229
Haul Truck Driver, Teamster, Grp. 4 (2)	$61.12	$0.00	32.0	$1,956
Water Truck Driver, Teamster, Grp. 2	$60.47	$0.00	16.0	$968

Total Labor Cost for this Task = $8,173

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $20,598

Version: 8-31-18

Rip and Grade Asphalt Plant Floor

(↑ Describe Reclamation Activity Being Estimated)

VI. PRIMARY RECLAMATION ACTIVITY

Acres:	5.23	Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT D-9N with ripper attachment for ripping	Hours	$200.27	4.0	$801
CAT D-9N for grading	Hours	$183.99	4.0	$736
Water Truck	Hours	$39.96	8.0	$320
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0

Total Equipment Cost for this Task = $1,857

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Dozer Operator, Operating Engineer, Grp. 3 (for ripping)	$76.79	$0.00	4.0	$307
Dozer Operator, Operating Engineer, Grp. 3 (for grading)	$76.79	$0.00	4.0	$307
Water Truck Driver, Teamster, Grp. 2	$60.47	$0.00	8.0	$484
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	16.0	$0

Total Labor Cost for this Task = $1,098

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0

Total Materials Cost for this Task = $0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $2,955

Version: 8-31-18

Haul and Spread Topsoil Around Asphalt Plant Area

(↑ Describe Reclamation Activity Being Estimated)

VI. PRIMARY RECLAMATION ACTIVITY

Acres:		Overburden (cy):	
Haul Distance (ft):		Topsoil (cy):	12,000
Production Rate (cy/hr):		*(NOTE: no automatic calculations occur to data in this upper table)*	

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation jobs, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
CAT 988 Loader	Hours	$140.77	16.0	$2,252
CAT 740 Haul Truck (3)	Hours	$107.75	48.0	$5,172
CAT D9 Dozer	Hours	$183.99	16.0	$2,944
Water Truck	Hours	$39.96	16.0	$639
		$0.00	0.0	$0
		$0.00	0.0	$0
		Total Equipment Cost for this Task =		$11,008

B. Labor - List all labor categories to complete identified tasks

Labor Category	$/Hour (prevailing wage)	Labor Surcharge/Hr *(where applicable)* (enter % of wage) 0.0%	# of Hours	Cost ($)
Loader Operator, Operating Engineer, Grp. 3	$76.79	$0.00	16.0	$1,229
Haul Truck Driver, Teamster, Grp. 4 (3)	$61.12	$0.00	48.0	$2,934
Dozer Operator, Operating Engineer, Grp. 3	$76.79	$0.00	16.0	$1,229
Water Truck Driver, Teamster, Grp. 2	$60.47	$0.00	16.0	$968
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Labor Cost for this Task =		$6,359

C. Materials - List all materials required to complete identified task

Item	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Materials Cost for this Task =		$0

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $17,366

VII. REVEGETATION *(use multiple sheets as needed)*

Provide documentation showing that rates, prices, and wages are available locally to the lead agency and/or the Department.

Current Site Condition:

Total disturbed acreage= 26.43 acres
Quarry area= 21.2 acres
Asphalt plant area= 5.23 acres

Current slopes are rock faces at 0.75:1 and would not be reclaimed.
Area to be revegetated includes floor and benches.

Reclamation Plan Performance Standard (End Use):

The end use is open space with a goal to establish native woody and herbaceous vegetation on re-soiled quarry slopes, benches, floor and processing area. Plants were selected to restore the site to pre-mining and adjacent floristic habitats, including tanoak, chamise-chaparral, canyon live oak, grassland and mixed oak woodland. Other goals include visual screening and erosion control.

Describe Tasks:

Revegetate benches- tanoak woodland (40%), canyon live oak scrub (60%)
Revegetate quarry floor and asphalt plant floor- tanoak woodland (10%), canyon live oak scrub (20%), grasslands (70%)

Tasks include installation of plant materials, hydroseeding (quarry and asphalt plant floor) and hand application of seed and straw mulch (benches).

VII. REVEGETATION *(use multiple sheets as needed)*

Revegetation for Quarry Area

(↑ Describe Revegetation Activity Being Estimated)

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation projects, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
Pick Up Truck (for container stock hand planting)	Hours	$22.02	36.0	$793
Pick Up Truck (for broadcast seeding)	Hours	$22.02	6.0	$132
			Total Equipment Cost for this Task =	$925

B. Labor - List all labor categories to complete identified task.

Labor Category	$/Hour (prevailing wage)	Labor Surcharge /HR (where applicable) (enter % of wage) 0.0%	# of Hours	Cost ($)
Laborers (6) (for container stock hand planting), Grp. 3	$54.49	$0.00	216.0	$11,770
Revegetation Specialist (for container stock hand planting)	$131.00	$0.00	36.0	$4,716
Laborers (2) (for broadcast seeding), Grp. 3	$54.49	$0.00	6.0	$327
			Total Labor Cost for this Task =	$16,813

C. Materials - List all materials required to complete identified task

Item/Plant Species	Unit of measure	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
Hydroseeding (from RSMeans Site Work & Cost Data)	Lump sum	$1,677.00	$0.00	18.5	$31,025
Tanoak Woodland Species					
Tanoak	Super Cell/Tree Pot	$7.20	$0.00	161.0	$1,159
Douglas Fir	Super Cell/Tree Pot	$7.20	$0.00	161.0	$1,159
Madrone	Super Cell/Tree Pot	$7.20	$0.00	129.0	$929
Interior Live Oak	Super Cell/Tree Pot	$7.20	$0.00	32.0	$230
Black Oak	Super Cell/Tree Pot	$7.20	$0.00	32.0	$230
Coyote Brush	Super Cell/Tree Pot	$7.20	$0.00	209.0	$1,505
Canyonoak Woodland Species					
California Bay	Super Cell/Tree Pot	$7.20	$0.00	245.0	$1,764
Canyon Live Oak	Super Cell/Tree Pot	$7.20	$0.00	245.0	$1,764
Oregon White Oak	Super Cell/Tree Pot	$7.20	$0.00	183.0	$1,318
Buckeye	Super Cell/Tree Pot	$7.20	$0.00	123.0	$886
Toyon	Super Cell/Tree Pot	$7.20	$0.00	123.0	$886
Deer Brush	Super Cell/Tree Pot	$7.20	$0.00	183.0	$1,318
Coyote Brush	Super Cell/Tree Pot	$7.20	$0.00	123.0	$886
				Total Materials Cost for this Task =	$45,057

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $62,795

Version: 8-31-18

VII. REVEGETATION *(use multiple sheets as needed)*

Revegetation for Quarry Area, continued

(↑ Describe Revegetation Activity Being Estimated)

Methods to be used:

C. Materials - List all materials required to complete identified task

Item/Plant Species	Unit of measure	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
Woodland Species					
Tanoak	Super Cell/Tree Pot	$7.20	$0.00	12.0	$86
Oregon White Oak	Super Cell/Tree Pot	$7.20	$0.00	96.0	$691
Madrone	Super Cell/Tree Pot	$7.20	$0.00	12.0	$86
Canyon Live Oak	Super Cell/Tree Pot	$7.20	$0.00	48.0	$346
Interior Live Oak	Super Cell/Tree Pot	$7.20	$0.00	36.0	$259
Black Oak	Super Cell/Tree Pot	$7.20	$0.00	12.0	$86
Red Huckleberry	Super Cell/Tree Pot	$7.20	$0.00	39.0	$281
Chamise Revegetation					
Chamise	Super Cell/Tree Pot	$7.20	$0.00	78.0	$562
Mountain Mahogany	Super Cell/Tree Pot	$7.20	$0.00	6.0	$43
Manzanita	Super Cell/Tree Pot	$7.20	$0.00	19.0	$137
Deer Brush	Super Cell/Tree Pot	$7.20	$0.00	13.0	$94
Buck Brush	Super Cell/Tree Pot	$7.20	$0.00	13.0	$94
Grasslands Seed Mix for 21.2 Acres					
California Brome-Bromus carinatus	Pounds	$6.56	$0.00	13.2	$1,836
Blue Wildrye-Elymus glaucus	Pounds	$14.76	$0.00	9.7	$3,035
Purple Needlegrass-Nassella Pulchra	Pounds	$39.35	$0.00	2.4	$2,002
Slender Wheatgrass-Elymus trachycaulus	Pounds	$16.40	$0.00	5.6	$1,947
Three weeks fescue-Vulpia microstachys	Pounds	$19.68	$0.00	16.7	$6,968
Arroyo lupine-Lupinus succulentus	Pounds	$16.40	$0.00	12.0	$4,172
Purshings lotus-Lotus purshianus	Pounds	$71.05	$0.00	3.4	$5,121
Chamise-Adenostema fasciculatum	Pounds	$49.19	$0.00	8.5	$8,864
California Buckwheat-Eriogonum fasciculatum	Pounds	$8.74	$0.00	5.4	$1,001
Container Stock Planting Supplies					
Planting Collar	Collar	$0.93	$0.00	2,333.0	$2,170
Weed Cloth 600 Square Foot Roll	Roll	$87.45	$0.00	34.0	$2,973
Staples Bag of 40	Bag	$6.56	$0.00	230.0	$1,509

Total Materials Cost for this Task = $44,362

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $44,362

VII. REVEGETATION *(use multiple sheets as needed)*

Revegetation for Asphalt Plant Area

(↑ Describe Revegetation Activity Being Estimated)

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation projects, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
Pick-up Truck (for container stock hand planting)	Hours	$22.02	20.0	$440
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		Total Equipment Cost for this Task =		$440

B. Labor - List all labor categories to complete identified task.

Labor Category	$/Hour (prevailing wage)	Labor Surcharge /HR (where applicable) (enter % of wage) 0.0%	# or Hours	Cost ($)
Laborers (4) (for container stock hand planting), Grp. 3	$54.49	$0.00	80.0	$4,359
Revegetation Specialist (for container stock hand planting)	$131.00	$0.00	20.0	$2,620
		Total Labor Cost for this Task =		$6,979

C. Materials - List all materials required to complete identified task

Item/Plant Species	Unit of measure	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
Hydroseeding (from RSMeans Site Work & Cost Data)	Lump sum	$1,677.00	$0.00	5.23	$8,771
Oak Woodland Species					
Tanoak	Super Cell/Tree Pot	$7.20	$0.00	35.0	$252
Oregon White Oak	Super Cell/Tree Pot	$7.20	$0.00	277.0	$1,994
Madrone	Super Cell/Tree Pot	$7.20	$0.00	35.0	$252
Canyon Live Oak	Super Cell/Tree Pot	$7.20	$0.00	138.0	$994
Interior Live Oak	Super Cell/Tree Pot	$7.20	$0.00	104.0	$749
Black Oak	Super Cell/Tree Pot	$7.20	$0.00	35.0	$252
Red Huckleberry	Super Cell/Tree Pot	$7.20	$0.00	83.0	$598
Chamise Revegetation					
Chamise	Super Cell/Tree Pot	$7.20	$0.00	154.0	$1,109
Mountain Mahogany	Super Cell/Tree Pot	$7.20	$0.00	13.0	$94
Manzanita	Super Cell/Tree Pot	$7.20	$0.00	38.0	$274
Deer Brush	Super Cell/Tree Pot	$7.20	$0.00	26.0	$187
Buck Brush	Super Cell/Tree Pot	$7.20	$0.00	26.0	$187
			Total Materials Cost for this Task =		$15,712

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $23,131

VII. REVEGETATION *(use multiple sheets as needed)*

Revegetation for Asphalt Plant Area, cont.

(↑ Describe Revegetation Activity Being Estimated)

Methods to be used:

A. Equipment - List equipment to complete identified task. For large reclamation projects, separate mine areas.

Equipment	Unit of Measure	$/Unit	# of Units	Cost ($)
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		$0.00	0.0	$0
		Total Equipment Cost for this Task =		$0

B. Labor - List all labor categories to complete identified task.

Labor Category	$/Hour (prevailing wage)	Labor Surcharge /HR (where applicable) (enter % of wage) 0.0%	# of Hours	Cost ($)
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
	$0.00	$0.00	0.0	$0
		Total Labor Cost for this Task =		$0

C. Materials - List all materials required to complete identified task

Item/Plant Species	Unit of measure	$/Unit	Sales tax (enter local rate in %) 0.0%	Quantity	Cost ($)
Grasslands Seed Mix for 5.23 Acres					
California Brome-Bromus carinatus	Pounds	$6.56	$0.00	13.2	$453
Blue Wildrye-Elymus glaucus	Pounds	$14.76	$0.00	9.7	$749
Purple Needlegrass-Nassella Pulchra	Pounds	$39.35	$0.00	2.4	$494
Slender Wheatgrass-Elymus trachycaulus	Pounds	$16.40	$0.00	5.6	$480
Three weeks fescue-Vulpia microstachys	Pounds	$19.68	$0.00	16.7	$1,719
Arroyo lupine-Lupinus succulentus	Pounds	$16.40	$0.00	12.0	$1,029
Purshings lotus-Lotus purshianus	Pounds	$71.05	$0.00	3.4	$1,263
Chamise-Adenostema fasciculatum	Pounds	$49.19	$0.00	8.5	$2,187
California Buckwheat-Eriogonum fasciculatum	Pounds	$8.74	$0.00	5.4	$247
Container Stock Planting Supplies					
Planting Collar	Collar	$0.93	$0.00	964.0	$897
Weed Cloth 600 Square Foot Roll	Roll	$87.45	$0.00	14.0	$1,224
Staples Bag of 40	Bag	$6.56	$0.00	100.0	$656
			Total Materials Cost for this Task =		$11,398

D. Total Direct Cost for this task

Equipment Cost + Labor Cost + Materials Cost = $11,398

VIII. MISCELLANEOUS COSTS *(use multiple sheets as needed)*

Provide documentation showing that rates, prices, and wages are available locally to all persons, including the lead agency and/or the Department.

Examples of this type of cost may include temporary storage of equipment and materials off site, special one-time permits (i.e. transportation permits for extra wide overweight loads, etc.), decommissioning a process mill (i.e. decontamination of equipment), disposal of warehouse inventories, well abandonnment, remediation of fueling and waste oil storage sites, septic system removal, costs to prepare closure and monitoring reports, site security, preserving potable water and maintaining utilities, etc.

Item/Task	Quantity	$/Unit	Cost ($)
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0
	0.0	$0.00	$0

Total Miscellaneous Costs = $0

IX. MONITORING COSTS

Monitoring Task	$/Visit	# of Visits/Year	# of Monitoring Years	Cost ($)
Quarry Monitoring				
Annual Monitoring (16 hours at rate $100)	$1,600.00	1.0	5.0	$8,000
Annual Monitoring Report Preparation (8 hrs at rate $120)	$960.00	1.0	5.0	$4,800
Annual Weed Contol and General Maintenance	$5,000.00	1.0	5.0	$25,000
Asphalt Plant Monitoring				
Annual Monitoring (16 hours at rate $100)	$1,600.00	1.0	5.0	$8,000
Annual Monitoring Report Preparation (8 hrs at rate $120)	$960.00	1.0	5.0	$4,800
Annual Weed Contol and General Maintenance	$3,000.00	1.0	5.0	$15,000

Total Monitoring Costs = $65,600

Version: 8-31-18

X. SUMMARY OF COSTS

This section shall be used to summarize all the cost sheets in one place.

(V) Total of all Plant Structures & Equipment Removal Costs	$	0
(VI) Total of all Primary Reclamation Activities Costs	$	129,187
(VII) Total of all Revegetation Costs	$	141,686
(VII) Total of all Miscellaneous Costs	$	0
(IX) Total of all Monitoring Costs	$	65,600
Total of Direct Costs	$	**336,474**

XI. SUPERVISION / PROFIT & OVERHEAD / CONTINGENCIES / MOBILIZATION

(A) Supervision (5.2 %)		$	17,483
(B) Profit/Overhead (10.5 %)		$	35,401
(C) Contingencies (10.0 %)		$	33,647
(D) Mobilization (0.0 %)		$	0
Total of Indirect Costs		$	**86,531**
Total of Direct and Indirect Costs		$	**423,005**
(E) Lead Agency and/or Dept. of Conservation Administrative Costs	12%	$	50,761

Total Estimated Cost of Reclamation $ **473,766**

APPENDIX C

COST ESTIMATE AND SCHEMATIC OF INTERCHANGE

RAU AND ASSOCIATES INC.
CIVIL ENGINEERS · LAND SURVEYORS
100 NORTH PINE STREET · (707) 462-6536 · UKIAH, CA 95482

ROUGH OPINION OF PROBABLE COSTS
FOR HIGHWAY 101 OVERPASS AND OFFRAMPS
AT BLACK BART ROAD, WILLITS, CA

Date: November 12, 2013

I. DESCRIPTION: HIGHWAY 101 OVERCROSSING AND ON/OFFRAMPS

II. ESTIMATE OF CONSTRUCTION COST

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST
1	Mobilization/DeMobilization	LS	1	$546,954.25	$546,954
2	Construction Site Management	LS	1	$15,000.00	$15,000
3	Traffic Control System	LS	1	$25,000.00	$25,000
4	Construction Area Signs	LS	1	$2,500.00	$2,500
5	Clearing and Grubbing	Acre	17.5	$15,000.00	$262,500
6	Demolish Structures	SF	10,100	$2.00	$20,200
7	Remove existing culvert	LF	870	$35.00	$30,450
8	Remove existing Inlets	EA	3	$1,500.00	$4,500
9	Remove headwall	EA	3	$1,600.00	$4,800
10	Remove fence	LF	2,000	$1.50	$3,000
11	Remove Yellow Thermoplastic Stripe	LF	3,600	$4.00	$14,400
12	Remove Thermoplastic Stripe	LF	1,800	$2.00	$3,600
13	Remove Thermoplastic Delineation	SF	200	$3.00	$600
14	Remove Roadway Shoulder	LF	1,100	$5.00	$5,500
15	Remove MBGR	SF	1,100	$5.00	$5,500
16	Excavation	CY	170,000	$30.00	$5,100,000
17	Finish Roadway	LS	1	$25,000.00	$25,000
18	Off Haul Excess Dirt	CY	11,000	$7.00	$77,000
19	HMA Leveling	Tons	10	$9.00	$90
20	HMA Type A	Tons	7,400	$110.00	$814,000
21	Class 2 AB	CY	6,200	$60.00	$372,000
22	Pavement Reinforcing Fabric	SY	10,000	$1.00	$10,000
23	Install Type A Dike	LF	300	$3.00	$900
24	Place Guardrail	LF	1,740	$38.00	$66,120
25	Install Rock Lined Ditch	LF	3,270	$25.00	$81,750
26	Install Grass Lined Ditch	LF	1,800	$5.00	$9,000
27	Install Small Drop Inlet	EA	6	$3,000.00	$18,000
28	Install Large Drop Inlet	EA	6	$5,000.00	$30,000
29	Install 18" HDPE	LF	350	$65.00	$22,750
30	Install 24" HDPE	LF	1,030	$85.00	$87,550
31	Install 30" HDPE	LF	320	$95.00	$30,400
32	Install 36" HDPE	LF	670	$110.00	$73,700
33	Install 48" HDPE	LF	130	$225.00	$29,250
34	Install 54" HDPE	LF	100	$300.00	$30,000
35	Rock Slope Protection (outlets)	CY	50	$85.00	$4,250
36	PMP Blanket Sub-drain Systems	EA	5	$45,000.00	$225,000
37	Temporary Traffic Stripe	LF	5,000	$0.30	$1,500
38	Relocate flashing beacon system	LS	1	$50,000.00	$50,000
39	Laneline (Detail 12) thermoplastic	LF	1,800	$2.00	$3,600
40	Right Edgeline (Detail 27B) Painted	LF	12,300	$0.75	$9,225
41	Median Island (Detail 29)Thermoplastic	LF	3,200	$8.00	$25,600
42	Recessed Markers	EA	210	$10.00	$2,100
43	Pavement Markings	SF	925	$6.00	$5,550
44	Reset Signs	EA	10	$150.00	$1,500
45	New Signs	SF	20	$250.00	$5,000

46	Overhead Sign Structures	EA	2	$45,000.00	$90,000
47	Misc Markers, delineators, etc	LS	1	$5,000.00	$5,000
48	Fencing	SF	3,000	$10.00	$30,000
49	Midwest Gaurdrail System w/ end anchor systems	LF	1,740	$130.00	$226,200
50	Prepare Water Pollution Control Plan	LS	1	$5,000.00	$5,000
51	Interim BMP/Sediment Control	ACRE	17.5	$10,000.00	$175,000
52	Final Planting/Erosion Control	ACRE	12.5	$15,000.00	$187,500
53	Utility Relocation	LS	1	$50,000.00	$50,000
54	Overpass Structure	SF	9,520	$225.00	$2,142,000
55	Street Lights	LS	12	$35,000.00	$420,000

SUB-TOTAL CONSTRUCTION COSTS:	$11,486,039
20% CONTINGENCY:	*$2,297,208*
ESTIMATED CONSTRUCTION COST:	**$13,783,000**

II. ESTIMATE OF OTHER COSTS ASSOCIATED WITH CONSTRUCTION OF UNDERCROSSING					
ITEM	**DESCRIPTION**	**UNIT**	**QUANTITY**	**UNIT PRICE**	**COST**
CALTRANS R/W & SUPPORT COSTS					
	CALTRANS R/W PURCHASE (Undeveloped)	ACRE	4.7	50,000	235,000
	CALTRANS R/W PURCHASE (Commercial)	ACRE	0.8	1,600,000	1,280,000
	ENCUMBERED (Commercial)	ACRE	0.6	800,000	480,000
	DESIGN, PERMITTING, COORD + ENV (25%)	%	1	3,445,750	3,445,750
	CONSTRUCTION STAKE, OVERSIGHT (15%)	%	1	2,067,450	2,067,450
	RELOCATE RESTRICTED ACCESS, CTC PROC.	LS	1	60,000	60,000
	MONUNTATION AND RECORD OF SURVEY	LS	1	50,000	50,000
				SUBTOTAL CT SUPPORT	**7,568,200**
WETLAND MITIGATION COSTS (1.0 ACRE LOSS, ASSUME 3X REPLACEMENT)					
	MITIGATION FOR 1 ACRE WETLANDS	ACRE	3	$150,000.00	450,000
	WETLAND REPLACEMENT LAND AREA	ACRE	3	$50,000.00	150,000
				SUBTOTAL WETLAND MITIGATION	**600,000**
OAK MITIGATION COSTS (1.5 ACRE LOSS, ASSUME 5X REPLACEMENT)					
	OAK MITIGATION & MONITORING	ACRE	7.5	30,000	225,000
	OAK MITIGATION REPLACEMENT AREA	ACRE	7.5	50,000	375,000
				SUBTOTAL OAK REPLACEMENT	**600,000**
				SUB-TOTAL OTHER COSTS:	8,768,200
				20% CONTINGENCY:	*1,753,640*
				ESTIMATED OTHER COSTS:	**10,521,840**
				ESTIMATED TOTAL COST OF OVERCROSSING	**$24,300,000**

Notes

1 This estimate is based on best available information and is not intended for construction.
2 Costs do not include addressing any environmental mitigation other than what is noted in the above table.
3 Overpass costs are based on Caltrans "Construction Statistics 2012", Department of Transportation, Division of Engineering Services and includes "Bridge Only Items" as defined by FHWA.
4 Design assumes overpass will allow ultimate widening to Expressway standards for Highway 101.
5 Costs do no include any utility relocations
6 Mitigation Costs for wetlands based on Environmental Law Institute Study, October 2007, "Mitigation of Impacts to Fish and Wildlife Habitat: Estimating Costs and Identifying Opportunities.
7 Mitigation costs for oak woodlands are based on Restoration Guidelines for Proposed Mitgation and Monitoring Plan for the Puente Hills Landfill Native Habitat Preservation Authority and Article by John P. Weber, Value of Trees.
8 Areas of impacts to wetlands are estimates only, based on wetland review of east side of highway.
9 Channel mitigation is not included and would increase costs.
10 Purchase of commercial R/W includes purchase of structures prior to demolition.

APN 147-170-02
LANDS OF JORGE L. LUNA

APN 147-170-07
LANDS OF GOLDEN RULE
CHURCH ASSOCIATION

7-140-06
OF DUTRA

APN 147-180-14
LANDS OF JORGE L. LUNA

NB ON RAMP

SB OFF RAMP

10' WIDE SHOULDER WIDENING
(TYPICAL BOTH SIDES)

PRIVATE ACCESS RD.

APPROXIMATE PROPERTY LINE

REMOVE BUILDINGS

COMMERCIAL ACCESS ROAD

BLACK BART ROAD

HIGHWAY 101

APN 147-180-13
LANDS OF FRANK DUTRA

NB OFF RAMP

SB ON RAMP

QUARRY ACCESS ROAD

APN 147-180-10
LANDS OF GOLDEN RULE
CHURCH ASSOCIATION

QUARRY EXPANSION

10' WIDE SHOULDER WIDENING
(TYPICAL BOTH SIDES)

40-07
NK DUTRA

APN 147-180-008-01
LANDS OF KENNEDY

APN 147-180-11
LANDS OF GOLDEN RULE
CHURCH ASSOCIATION

LEGEND

- EXISTING ROW
- EXISTING INTERMEDIATE CONTOUR
- EXISTING INDEX CONTOUR
- PROPOSED REVISED ROW
- CENTERLINE OF ROAD
- NEW EDGE OF PAVEMENT
- NEW OVERPASS STRUCTURE
- LIMITS OF CUT/FILL

NOTES:

1. ASSUMED 1.5:1 CUT SLOPES AND 2:1 FILL SLOPES ALONG HIGHWAY RAMPS. 1.5:1 CUT AND FILL SLOPES ALONG PRIVATE ROADS.
2. ROADWAY WIDTHS: STRUCTURE = 68'
   BLACK BART RD. = 60'
   ON/OFF RAMPS = 24'
   PRIVATE RDS = 28'

0 20 100 80 120
SCALE 1" = 100'-0"

EXHIBIT A
HARRIS QUARRY – CONCEPTUAL DESIGN WILLITS, CA – HWY 101 OVERPASS AT BLACK BART RD
FOR ENVIRONMENTAL IMPACT REPORT USE ONLY

RAU AND ASSOCIATES INC.
CIVIL ENGINEERS · LAND SURVEYORS
100 NORTH PINE STREET (707) 462-6536 UKIAH, CA 95482

Xrefs: R04056_TOPO_EX.dwg; R04056_BNDY.DWG; R04056_HWY101_Base.dwg; R04056_USGSQUAD_CLIPPED.dwg; R04056_PRO-TOPO_1850 PHASE 1A.dwg
Path: Z:\R04056\drawing\CONFIDENTIAL, ATTORNEY WORK PRODUCT\R04056 OVERPASS.dwg Plot Date: Nov 14, 2013 at 10:42am

APPENDIX D

FAIR SHARE PAYMENT CALCULATION

Northern Aggregates Proportionate Share for October

P	The equitable share of the project's traffic impact.
T	The project trips generated during the peak hour of the adjacent roadway.
TB	The forcasted (future with project) traffic volume on the impacted roadway facility, vph.
TE	Existing traffic volume on the impacted State Highway facility plus other approved projects that will

$$P=T/(TB - TE)$$

Summary of Monthly Traffic Volumes at Count Station 109*		
Month	**Average ADT**	**% of Average Annual ADT**
January	2826	78.60%
February	2888	80.30%
March	3133	87.10%
April	3458	96.00%
May	3957	110.10%
June	4255	118.30%
July	4678	130.11%
August	4514	125.55%
September	4078	113.42%
October	**3593**	**99.93%**
November	3139	87.31%
December	2626	73.04%

Note: ADT = Average Daily Traffic

Projected Traffic Volume in 2025***		
Month	**Average ADT**	**% of Average Annual ADT**
January	3886	78.60%
February	3971	80.32%
March	4308	87.14%
April	4755	96.18%
May	5441	110.06%
June	5851	118.35%
July	6432	130.11%
August	6207	125.55%
September	5607	113.42%
October	**4940**	**99.93%**
November	4316	87.31%
December	3611	73.04%

Note: ADT = Average Daily Traffic

Current Traffic Count Estimate

Updated Numbers for 2018 using the same parameters in the original traffic study

8	years from original traffic study
2.50%	increase in traffic a year as projected by Caltrans and stated in the EIR
20%	Traffic is projected to be 20% greater in 2018 than what was in 2010
3593	2010 traffic count in October
4311.6	Estimated 2018 using an increase of 2.5% a year

Estimated 2030 Traffic Counts

20	Years from original traffic study to 2030
2.50%	increase in traffic a year as projected by Caltrans and stated in the EIR
50%	As projected by Caltrans and stated that the traffic would increase by 50% by 2030
5389.5	2030 traffic count in October

Daily two-way truck trips from Harris Quarry:	412
Hours in work day:	11
Hourly Trucks from Harris:	37
Passenger Car Equivalent (PCE)^:	4
Hourly Trucks from Harris based on PCE:	**150**

Projected Volume (daily):	5389.5	**Existing Volume (daily):**	4311.6
Hours in a day:	24	**Hours in a day:**	24
Volume Per Hour:	225	**Volume Per Hour:**	180
Hourly Trucks from Harris:	150	**Other Approved Projects:**	0
TB	**374**	**TE:**	**180**

T:	**150**	**TE:**	**180**	
TB:	**374**	**P:**	**77%**	**P = 77%**

Equitable Share Responsibility Formula was taken from the Caltrans *Guide for the preperation of Traffic Impact*

* Table taken from Appendix C Table 2 of the Harris Quarry Expansion Revised Draft EIR dated May 2011

** Daily truck trip data taken from Chapter 4 pg. 212 of the Harris Quarry Expansion Draft EIR dated May 2011

*** Projected Traffic Volume was Calculated using Caltrans District 1 projection of a 50% increase over a 20-year period from 2006 to 2025 in the project vicinity area for U.S. 101 (Harris Quarry Draft EIR, Appendix C, May 2011). Traffic counts were taken from 2010 (Harris Quarry Draft EIR, Appendix C, Table 2, May 2011). The projected volume was calculated from 2010 to 2030. Since Caltrans projects a 50% increase over 20 years there is an expected 2.5% increase in volume per year (50/20 = 2.5). Since the Harris Quarry Draft EIR Table 2 represents traffic counts in 2010 we used the Caltrans projections to identify the 2018 and 2030 traffic counts.

****The Month of October was chosen because the site produces the highest truck volume during this time.

^ (PCE) Passenger Car Equivalentcy of four passenger vehicles being equivalent to one truck was taken from Section 4.4 of the Harris Quarry Expansion Revised Draft EIR dated May 2011.

APPENDIX E

MITIGATION COSTS AND CAPITAL BUDGETING ANALSYSIS

Mitigation, Conditions of Approval, etc. Costs for Alt. 5

Item	Year (CPI Adjusted for 2018$) 0	1	2	3	4	5	6	7	8	9	10	11	12
EIR PREPARATION	$1,718,150.40												
USE AND ZONING PERMITS (INLCUDES CO COSTS)	$713,341.83												
SWPPP (INDUSTRIAL)	$23,308.02												
RECLAMATION/MINING PLAN PREPARATION	$264,079.82												
VESTED RIGHTS	$220,388.95												
SUPPLEMENTAL EIR	$116,540.08												
Cost of Asphalt Plant	$ 4,337,500.00												
Asphalt Plant Instalation	$116,540.08												
Asphalt Site Prep	$582,700.40												
77% Fair Share Payment ($37,138,208)	$28,596,420.19												
COA Mitigation													
65 FACE	$ 2,914	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165
Bond @ 1.25%	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922
6 Slope Stability		$ 4,044		$ 4,044		$ 4,044		$ 4,044		$ 4,044		$ 4,044	
22 Plant Surveys	$ 2,331			$ 2,331			$ 2,331			$ 2,331			$ 2,331
23 Bio Surveys	$ 3,515			$ 3,515			$ 3,515			$ 3,515			$ 3,515
32 Aerial Surveys	$ 3,671			$ 3,671			$ 3,671			$ 3,671			$ 3,671
13 Slope Stability for Road	$ 5,512												
27 Flagging	$ 1,398												
10 Asphalt Area Stability	$ 5,827												
11 Stability of Fill		$ 5,827											
21 Bio Retention Basin	$ 34,962												
25 Forsythe Creek	$ 122,790	$ 11,884	$ 11,884	$ 11,884	$ 11,884	$ 11,884							
28 Tree Planting	$ 224,759	$ 90,202	$ 90,202	$ 90,202	$ 90,202	$ 90,202							
29 Wetlands	$ -												
Reclamation	$ -												
Total	**$ 37,102,571**	**$ 119,044**	**$ 109,173**	**$ 122,734**	**$ 109,173**	**$ 113,217**	**$ 16,604**	**$ 11,131**	**$ 7,087**	**$ 20,648**	**$ 7,087**	**$ 11,131**	**$ 16,604**

Mitigation, Conditions of Approval, etc. Costs for Alt. 5

Item	13	14	15	16	17	18	19	20	21	22	23	24	25	26
EIR PREPARATION														
USE AND ZONING PERMITS (INLCUDES CO COSTS)														
SWPPP (INDUSTRIAL)														
RECLAMATION/MINING PLAN PREPARATION														
VESTED RIGHTS														
SUPPLEMENTAL EIR														
Cost of Asphalt Plant														
Asphalt Plant Instalation														
Asphalt Site Prep														
77% Fair Share Payment ($37,138,208)														
COA **Mitigation**														
65 FACE	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165	$ 1,165
Bond @ 1.25%	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922	$ 5,922
6 Slope Stability	$ 4,044		$ 4,044		$ 4,044		$ 4,044		$ 4,044		$ 4,044		$ 4,044	
22 Plant Surveys			$ 2,331			$ 2,331			$ 2,331			$ 2,331		
23 Bio Surveys			$ 3,515			$ 3,515			$ 3,515			$ 3,515		
32 Aerial Surveys			$ 3,671			$ 3,671			$ 3,671			$ 3,671		
13 Slope Stability for Road														
27 Flagging														
10 Asphalt Area Stability														
11 Stability of Fill														
21 Bio Retention Basin														
25 Forsythe Creek														
28 Tree Planting														
29 Wetlands														
Reclamation														
Total	**$ 11,131**	**$ 7,087**	**$ 20,648**	**$ 7,087**	**$ 11,131**	**$ 16,604**	**$ 11,131**	**$ 7,087**	**$ 20,648**	**$ 7,087**	**$ 11,131**	**$ 16,604**	**$ 11,131**	**$ 7,087**

Mitigation, Conditions of Approval, etc. Costs for Alt. 5

Item	27	28	29	30
EIR PREPARATION				
USE AND ZONING PERMITS (INLCUDES CO COSTS)				
SWPPP (INDUSTRIAL)				
RECLAMATION/MINING PLAN PREPARATION				
VESTED RIGHTS				
SUPPLEMENTAL EIR				
Cost of Asphalt Plant				
Asphalt Plant Instalation				
Asphalt Site Prep				
77% Fair Share Payment ($37,138,208)				
COA **Mitigation**				
65 FACE	$ 1,165	$ 1,165	$ 1,165	$ 1,165
Bond @ 1.25%	$ 5,922	$ 5,922	$ 5,922	$ 5,922
6 Slope Stability	$ 4,044		$ 4,044	
22 Plant Surveys	$ 2,331			$ 2,331
23 Bio Surveys	$ 3,515			$ 3,515
32 Aerial Surveys	$ 3,671			$ 3,671
13 Slope Stability for Road				
27 Flagging				
10 Asphalt Area Stability				
11 Stability of Fill				
21 Bio Retention Basin				
25 Forsythe Creek				
28 Tree Planting				
29 Wetlands				
Reclamation				$ 473,766
Total	**$ 20,648**	**$ 7,087**	**$ 11,131**	**$ 490,370**

Alternative 4 Analysis

			Year 0	1	2	3
Total Avg. Annual Asphalt Production			0	35,650	35,650	-
Project	***Total****	***Avg. Price/ton***				
Phase II Willits Bypass	71,300	$ 83.00	$ -	$ 2,958,950.00	$ 2,958,950.00	$ -
Total Asphalt Revenue			$ -	$ 2,958,950.00	$ 2,958,950.00	$ -
		Avg. Cost/ton				
Asphalt Production Costs		($63)	$0	($2,245,950)	($2,245,950)	$0
Net Asphalt Revenue			$0	$713,000	$713,000	$0
Total Net Revenue			$0.00	$713,000.00	$713,000.00	$0.00
Cost of Capital			($4,337,500)			
Bond				$ (1,849.35)	$ (1,849.35)	$ (1,849.35)
FACE			$ (2,913.50)	($1,165)	($1,165)	($1,165)
Reclamation						($147,948)
Site Prep and Instalation costs			$ (699,240.48)	$0		
Total Other Costs			($5,039,654)	$ (3,014.75)	$ (3,014.75)	$ (150,962.75)
Salvage Value						$2,502,500
Net Operating Income			($5,039,653.98)	$709,985.25	$709,985.25	$2,351,537.25

NPV @ 15%	NPV @ 30%	IRR
($2,339,250.74)	($3,003,061.74)	-11%

Capital Budgeting Analysis for Alternative 5

Item		Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Production	Rate ($/ton)			80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000
Aggregate																	
Avg. Price	$ 14.00			$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00
Aggregate Revenue				$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00
Avg. Cost	$10.10			$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10
Operating Costs				$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000
Net Aggregate Revenue				**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**
Rip Rap				20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000
Avg. Price	$ 23.00			$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00
Rip Rap Revenue				$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00
Avg. Cost	$ 12.12			$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12
Operating Costs				$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00
Net Rip Rap Revenue				**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**
Asphalt Aggregate				100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000
Avg. Price	$ 18.00			$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00
Asph Agg Rev				$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00
Avg Cost	$ 11.00			$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00
Operating Costs				$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00
Net Asphalt Rev				**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**
Asphalt				105000	105000	105000	105000	105000	105000	105000	105000	105000	105000	105000	105000	105000	105000
Avg. Price	$ 83.00			$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00
Asphalt Revenue				$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00
Avg. Cost	$ 63.00			$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00
Operating Costs				$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00
Net Asphalt Rev				**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**
Total Net Revenue				**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**
Other Costs																	
Mitigation & Reclamation Costs				$ 119,044.03	$ 109,173.09	$ 122,733.69	$ 109,173.09	$ 113,217.03	$ 16,604.14	$ 11,131.42	$ 7,087.48	$ 20,648.08	$ 7,087.48	$ 11,131.42	$ 16,604.14	$ 11,131.42	$ 7,087.48
Depreciation 10 years	$ 433,750.00			$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00				
Total Additional Costs				**$ 552,794.03**	**$ 542,923.09**	**$ 556,483.69**	**$ 542,923.09**	**$ 546,967.03**	**$ 450,354.14**	**$ 444,881.42**	**$ 440,837.48**	**$ 454,398.08**	**$ 440,837.48**	**$ 11,131.42**	**$ 16,604.14**	**$ 11,131.42**	**$ 7,087.48**
Income Before Taxes				**$ 2,776,805.97**	**$ 2,786,676.91**	**$ 2,773,116.31**	**$ 2,786,676.91**	**$ 2,782,632.97**	**$ 2,879,245.86**	**$ 2,884,718.58**	**$ 2,888,762.52**	**$ 2,875,201.92**	**$ 2,888,762.52**	**$ 3,318,468.58**	**$ 3,312,995.86**	**$ 3,318,468.58**	**$ 3,322,512.52**
Taxes																	
Tax Rate	40%			**$ 1,110,722.39**	**$ 1,114,670.76**	**$ 1,109,246.52**	**$ 1,114,670.76**	**$ 1,113,053.19**	**$ 1,151,698.34**	**$ 1,153,887.43**	**$ 1,155,505.01**	**$ 1,150,080.77**	**$ 1,155,505.01**	**$ 1,327,387.43**	**$ 1,325,198.34**	**$ 1,327,387.43**	**$ 1,329,005.01**
Income After Taxes				$ 1,666,083.58	$ 1,672,006.15	$ 1,663,869.78	$ 1,672,006.15	$ 1,669,579.78	$ 1,727,547.52	$ 1,730,831.15	$ 1,733,257.51	$ 1,725,121.15	$ 1,733,257.51	$ 1,991,081.15	$ 1,987,797.52	$ 1,991,081.15	$ 1,993,507.51
Add Depreciation				$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ 433,750.00	$ -	$ -	$ -	$ -
Minus Initial Investment		$ 37,102,571.17															
After Tax Cash Flow		**$ (37,102,571.17)**		**$ 2,099,833.58**	**$ 2,105,756.15**	**$ 2,097,619.78**	**$ 2,105,756.15**	**$ 2,103,329.78**	**$ 2,161,297.52**	**$ 2,164,581.15**	**$ 2,167,007.51**	**$ 2,158,871.15**	**$ 2,167,007.51**	**$ 1,991,081.15**	**$ 1,987,797.52**	**$ 1,991,081.15**	**$ 1,993,507.51**

	NPV
12%	($20,321,551)
15%	($23,374,461)
IRR	4%

Capital Budgeting Analysis for Alternative 5

Item		Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Production	Rate ($/ton)																
Aggregate			80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000
Avg. Price	$ 14.00		$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00
Aggregate Revenue			$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00	$ 1,120,000.00
Avg. Cost	$10.10		$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10
Operating Costs			$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000	$808,000
Net Aggregate Revenue			**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**	**$ 312,000.00**
Rip Rap			20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000
Avg. Price	$ 23.00		$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00	$ 23.00
Rip Rap Revenue			$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00	$ 460,000.00
Avg. Cost	$ 12.12		$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12	$ 12.12
Operating Costs			$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00	$ 242,400.00
Net Rip Rap Revenue			**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**	**$ 217,600.00**
Asphalt Aggregate			100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000
Avg. Price	$ 18.00		$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00	$ 18.00
Asph Agg Rev			$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00
Avg Cost	$ 11.00		$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00	$ 11.00
Operating Costs			$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00	$ 1,100,000.00
Net Asphalt Rev			**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**	**$ 700,000.00**
Asphalt			105000	105000	105000	105000	105000	105000	105000	105000	105000	105000	105000	105000	105000	105000	105000
Avg. Price	$ 83.00		$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00	$ 83.00
Asphalt Revenue			$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00	$ 8,715,000.00
Avg. Cost	$ 63.00		$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00	$ 63.00
Operating Costs			$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00	$ 6,615,000.00
Net Asphalt Rev			**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**	**$ 2,100,000.00**
Total Net Revenue			**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**	**$ 3,329,600.00**
Other Costs																	
Mitigation & Reclamation Costs			$ 20,648.08	$ 7,087.48	$ 11,131.42	$ 16,604.14	$ 11,131.42	$ 7,087.48	$ 20,648.08	$ 7,087.48	$ 11,131.42	$ 16,604.14	$ 11,131.42	$ 7,087.48	$ 20,648.08	$ 7,087.48	$ 11,131.42
Depreciation 10 years	$ 433,750.00																
Total Additional Costs			**$ 20,648.08**	**$ 7,087.48**	**$ 11,131.42**	**$ 16,604.14**	**$ 11,131.42**	**$ 7,087.48**	**$ 20,648.08**	**$ 7,087.48**	**$ 11,131.42**	**$ 16,604.14**	**$ 11,131.42**	**$ 7,087.48**	**$ 20,648.08**	**$ 7,087.48**	**$ 11,131.42**
Income Before Taxes			**$ 3,308,951.92**	**$ 3,322,512.52**	**$ 3,318,468.58**	**$ 3,312,995.86**	**$ 3,318,468.58**	**$ 3,322,512.52**	**$ 3,308,951.92**	**$ 3,322,512.52**	**$ 3,318,468.58**	**$ 3,312,995.86**	**$ 3,318,468.58**	**$ 3,322,512.52**	**$ 3,308,951.92**	**$ 3,322,512.52**	**$ 3,318,468.58**
Taxes																	
Tax Rate	**40%**		**$ 1,323,580.77**	**$ 1,329,005.01**	**$ 1,327,387.43**	**$ 1,325,198.34**	**$ 1,327,387.43**	**$ 1,329,005.01**	**$ 1,323,580.77**	**$ 1,329,005.01**	**$ 1,327,387.43**	**$ 1,325,198.34**	**$ 1,327,387.43**	**$ 1,329,005.01**	**$ 1,323,580.77**	**$ 1,329,005.01**	**$ 1,327,387.43**
Income After Taxes			$ 1,985,371.15	$ 1,993,507.51	$ 1,991,081.15	$ 1,987,797.52	$ 1,991,081.15	$ 1,993,507.51	$ 1,985,371.15	$ 1,993,507.51	$ 1,991,081.15	$ 1,987,797.52	$ 1,991,081.15	$ 1,993,507.51	$ 1,985,371.15	$ 1,993,507.51	$ 1,991,081.15
Add Depreciation			$ -	$ -	$ -	$ -	$ -	$ -									
Minus Initial Investment																	
After Tax Cash Flow			**$ 1,985,371.15**	**$ 1,993,507.51**	**$ 1,991,081.15**	**$ 1,987,797.52**	**$ 1,991,081.15**	**$ 1,993,507.51**	**$ 1,985,371.15**	**$ 1,993,507.51**	**$ 1,991,081.15**	**$ 1,987,797.52**	**$ 1,991,081.15**	**$ 1,993,507.51**	**$ 1,985,371.15**	**$ 1,993,507.51**	**$ 1,991,081.15**

	NPV
12%	($20,321,551)
15%	($23,374,461)
IRR	4%

Capital Budgeting Analysis for Alternative 5 **Year** **30**

Item

Production	Rate ($/ton)		
Aggregate			80,000
Avg. Price	$ 14.00		$ 14.00
Aggregate Revenue			$ 1,120,000.00
Avg. Cost	$10.10		$10
Operating Costs			$808,000
Net Aggregate Revenue			**$ 312,000.00**

Rip Rap			20000
Avg. Price	$ 23.00		$ 23.00
Rip Rap Revenue			$ 460,000.00
Avg. Cost	$ 12.12		$ 12.12
Operating Costs			$ 242,400.00
Net Rip Rap Revenue			**$ 217,600.00**

Asphalt Aggregate			100000
Avg. Price	$ 18.00		$ 18.00
Asph Agg Rev			$ 1,800,000.00
Avg Cost	$ 11.00		$ 11.00
Operating Costs			$ 1,100,000.00
Net Asphalt Rev			**$ 700,000.00**

Asphalt			105000
Avg. Price	$ 83.00		$ 83.00
Asphalt Revenue			$ 8,715,000.00
Avg. Cost	$ 63.00		$ 63.00
Operating Costs			$ 6,615,000.00
Net Asphalt Rev			**$ 2,100,000.00**

Total Net Revenue	**$ 3,329,600.00**

Other Costs

Mitigation & Reclamation Costs		$ 490,370.14
Depreciation 10 years	$ 433,750.00	
Total Additional Costs		**$ 490,370.14**

Income Before Taxes	**$ 2,839,229.86**

Taxes

Tax Rate	**40%**	**$ 1,135,691.94**

Income After Taxes	$ 1,703,537.92

Add Depreciation
Minus Initial Investment

After Tax Cash Flow	**$ 1,703,537.92**

	NPV
12%	($20,321,551)
15%	($23,374,461)
IRR	4%

APPENDIX F

ENVIROMINE STAFF RESUMES

EnviroMINE Inc.
email: crystal@enviromineinc.com
Phone (619) 284-8515

Crystal D. Howard

Economist & Market Analyst

Crystal Howard has over 8 years experience as an Economist specializing in the construction aggregates industry. Utilizing her economics background, Ms. Howard has completed numerous market studies, economic impact reports and developed asset valuation models applied to the construction aggregates industry. Her expertise is in identifying an issue and developing an analytical strategy for reaching an economical solution. Ms. Howard also has substantial experience working with GIS. This skill significantly enhances her ability to create comprehensive studies and reports for the industry.

Examples of her experience include:

- Preparation of construction aggregate market studies for a variety of mining operations.
- Expert witness in mineral valuation cases.
- Developed mineral asset valuation models for evaluating construction aggregate reserve properties for a variety of confidential clients.
- Economic impact reports for construction aggregate projects.
- Conducts mineral resource royalty studies.
- Manages and conducts construction aggregate industry meetings.
- Educates public policy makers and community groups about the construction aggregates industry.
- Created a coalition of related associations in San Diego to focus on the availability of construction aggregates in the County.
- Identifies potential locations for a rock quarry using GIS by incorporating various parameters which include: geology, population density, access, availability of critical public utilities, zoning, biological constraints and economics.
- Managed mining claims on BLM properties for various clients. Tasks have included establishment, staking, annual fees, preparation of exploration Notices, and Plans of Operations.
- Supported numerous projects involving permit processing for Site Plans, Major Use Permits, Conditional Use Permits, Financial Assurances, and Contract Negotiations.

Work history includes:

- **EnviroMINE, Inc. –** Economist & Market Analyst, 2006-Present
- **Project Cornerstone** - Executive Director, 2014 - Present
- **POWER Engineers,** GIS Technician II**,** 2005-2006
- **Environmental Management Research Group,** Environmental Engineering Assistant and GIS Technician**,** 2002-2005
- **Cirrus Ecological Solutions,** Project Assistant, 2000-2002

Education:

M.S., Agricultural Economics, Purdue University, December 1999.
B.S., Managerial Economics, Utah State University, December 1996

Training:

Economic Evaluation & Investment Decision Methods, Investment Evaluations Corporation at the Colorado School of Mines, 2014 & 2015.

Memberships:

- Vice Chair of the Transportation and Land Use Committee at the San Diego Regional Chamber of Commerce
- Public Policy Committee, San Diego Regional Chamber of Commerce
- California Construction and Industrial Materials Association - CalCIMA
- California Asphalt Pavement Association - CalAPA
- Women in Mining

Publications: (Yap is Ms. Howard's former married name)

Yap, Crystal; Ken Foster; Paul Preckel; Otto Doering; and Brian Richert. "Mitigating the Compliance Cost of a Phosphorus-Based Swine Manure Management Policy." Journal of Agricultural and Applied Economics, 36, 1 (April 2004): 23-34.

Co-author of "Hypoxia in the Gulf of Mexico: Topic 6. Evaluation of Economic Costs and Benefits of Methods for Reducing Nutrient Loads to the Gulf of Mexico." A National Centers for Coastal Ocean Science Gulf of Mexico Hypoxia Assessment publication.

Graber, Brian; Crystal Yap; and Sara Johnson. "Small Dam Removal: A Review of Potential Economic Benefits." Trout Unlimited, Oct. 2001.

Representative Project Experience

Confidential Client, Riverside County

Supported client through the acquisition process of mineral properties. Support included conducting valuation on leasing vs. buying property. Valuation models were completed for a variety of scenarios to provide the client with the best information possible. EnviroMINE's royalty studies and knowledge of the industry were extremely valuable in conducting the analysis.

Confidential Client, Northern California

Supported client with a mineral valuation analysis for property that was being considered for purchase. This information was invaluable to the client in order to provide confidence that the property was not being overvalued. Mineral valuation was based on existing market conditions and royalty rate research for the area.

Granite Construction, Riverside County

Completed a comprehensive analysis of the construction aggregates market in Southern California. The report analyzed all major producers in the region and projected future demand. Through Network Analyst, an ArcGIS extension, the market study could be evaluated through in depth and detailed market areas. This information is critical when companies consider entering a new market.

First Industrial, Riverside County

Completed an Economic Impact Report for a proposed construction aggregate quarry. The report estimated the economic value to Riverside County from the quarry. It also estimated the total number of jobs and taxes that would be gained in the region as a result of the quarry. This analysis is helpful in supporting public relation efforts during the permitting process of a quarry.

National Quarries, San Diego County

Managed the process for staking mining claims on Bureau of Land Management (BLM)property. This project also included developing the reports to receive approval for testing the available minerals (Notice) and developing a plan to conduct resource extraction (Plan of Operations).

Warren R. Coalson

President, *EnviroMINE, Inc.*

Warren Coalson has over 30 years of experience with the mining industry. This experience has been established from a combination of hands-on application of permitting and operations assignments. Gaining experience from a variety of industry and agency permitting efforts, Mr. Coalson is a recognized expert in the implementation of the California Surface Mining and Reclamation Act of 1975 (SMARA). He has prepared numerous environmental impact assessment documents covering a wide range of impact issues. He also has detailed knowledge of the construction aggregates industry including issues addressing mineral royalties, market dynamics, operations, and site reclamation.

Highlights of Mr. Coalson's experiences:

EnviroMINE, Inc.
1992 - Present

Established *EnviroMINE* in August of 1992. As President of *EnviroMINE*, Mr. Coalson is personally involved with all facets of work. Mr. Coalson has extensive professional work experience in a variety of land use and environmental projects ranging from the development of environmental baseline studies for mine permitting efforts, and management of mining crews, to current planning and architectural design review in a city planning department.

Industry planning efforts range from identification of potential mining properties, to the development of mining and reclamation plans, to completion of annual compliance audits and financial assurance estimates. Mr. Coalson has extensive lead agency experience where he has worked as an extension of staff in the review of mining applications, including the preparation of staff reports and conditions of approval. His experience with operations has allowed for the development of verifiable approval conditions that require limited field interpretation.

Building from his experience with industry and lead agency planning efforts, Mr. Coalson has become known throughout California for his efforts with mining policy development. Through his guidance, EnviroMINE has developed a highly regarded public information program that calls attention to the growing shortage of aggregate resources in California. This has lead to local agency policy development in support of aggregate resource protection. Mr. Coalson currently serves as Chair for the San Diego County Chapter of CalCIMA. In this role he works with industry members on issues ranging from regulatory affairs to community relations.

Mr. Coalson also has substantial experience in the evaluation of market conditions relating to the construction aggregates industry. Through his leadership, EnviroMINE has prepared market studies for all most of the urban areas in California, including: San Diego, LA basin, Inland Empire, Ventura County, Sacramento/Stockton, and the San Francisco Bay area . Market studies have focused on resource availability within target market areas, and competitive influences between various mine operations and concrete and asphalt producers.

Zucker Systems, *Manager of Environmental Services*
San Diego, California
1989 - 1992

Highlights of this experience include:

- Preparation of EIRs and negative declarations for general plan amendments, Subdivisions, water development, and mining projects.
- Manager of Planning Services for the City of Imperial Beach.
- Assistance in Planning Department Management Studies.

Black Butte Coal Company, *Environmental / Reclamation Supervisor*
Point of Rocks, Wyoming
1980 - 1988

Mr. Coalson was responsible for the preparation and maintenance of all mining permit documents for a 40,000-acre mine permit area. Supervised an on-site staff of nine full-time staff specialists. Responsible for legislation review and negotiating mine permit conditions with state and federal agencies. Other duties included evaluation and oversight of mineral lease acquisitions. He also served as Project Manager for a number of Environmental Impact Statements for mineral leasing and mining related land acquisitions. In this effort, he coordinated the work of a number of competing mining interests and Department of Interior personnel. In other areas, Mr. Coalson was charged with the development and application of reclamation programs sufficient to reclaim an average of 300+ acres per year. This effort included: development of operating budgets, reclamation bonding, reclamation design, monitoring, scheduling, equipment evaluations, reclamation supervision, development of water resources for mine-wide distribution and irrigation design.

Mr. Coalson was later transferred to field operations where he served as Foreman for reclamation, blasting, coal and overburden production, and processing plant. In these assignments, Mr. Coalson gained hands-on experience with reclamation practices, heavy equipment operations, blasting, and heavy equipment maintenance. In the completion of these assignments Mr. Coalson was required to hold certification as a Mine Foreman and Blaster.

Peter Kiewit Sons' Company, ***Soil Scientist/Reclamation Specialist***
Omaha, Nebraska
1979-1980

Serving as Soil Scientist/Reclamation Specialist, assisted with the acquisition and maintenance of mining permits for company mining projects. Responsibilities included:

- Preparation of soil and overburden studies for company coal mining permit applications for active and proposed mining operations in Montana, Wyoming and New Mexico.
- Environmental evaluations of potential mining sites throughout the western U.S.
- Vegetation surveys for pre-mining base line studies.
- Development of company-wide soil erosion monitoring program.

- Preparation of reclamation plans for mining permit applications.
- Assisted with the preparation of environmental documents for six coal mine development projects.

California Department of Forestry, *Research Assistant*
1978

Serving as a Research Assistant, Mr. Coalson gathered information on factors affecting soil erosion rates on over 250 timber-harvested lands in northern California. Efforts included soil mapping, preparing soil profiles, inventory of plant species, and establishing soil erosion measurement transacts.

Plumas County Planning & Engineering Department, *Engineering Aide*
1975 - 1976

Mr. Coalson assisted with engineering evaluations of all land development projects under consideration with the Planning Department. This included field check and review of survey calculations, inspection of road improvements, and water systems. Other areas of responsibility involved designing and processing of grant applications for the expansion of three county airports.

Education

California State University Chico, 1979
BA Double Major, Geography and Environmental Reclamation

Professional Affiliations

California Construction and Industrial Minerals Association (CalCIMA)
San Diego Regional Chamber of Commerce
Central Sierra Mining Association
California Asphalt Pavement Association