

PLAN OF OPERATION

Fort Seward Quarry

California Mine ID #91-12-0027

(Updated 3/4/2025)

Introduction

The project is continued extraction of rock from the Fort Seward quarry for County road maintenance and repair projects in the area. This permit application proposes extraction of up to 5,000 cubic yards (cy) of rock as frequently as annually, over the next 15 years. The total volume of rock extracted will not exceed 15,000 cy.

Location

The Fort Seward quarry is located on Dyerville Loop Road post mile 23.0, 0.9 miles south of the junction of Dyerville Loop Road and Fort Seward Road (Attachment 5). It is in Section 23, Township 3 South, Range 4 East HB&M, and can be seen on the Fort Seward 7.5' USGS quadrangle map. The quarry is located on Assessor Parcel #216-184-01.

Past Mining Activities

The surface mining permit issued in 1994 (Permit #CUP-01-93/SMP-01-93) approved the mining of rock from a previously existing rock quarry from 1994-2009. The HCPW proposed to mine up to 1,000 cy of rock annually. The estimated volume of material to be removed under the permit was 11,000 cy. The actual volume extracted from 1994-2008 was 11,552 cy, with a maximum single year extraction of 3,000 cy (2008). The permit renewal in 2009 approved mining up to 1,500 cy of rock, as frequently as annually, for 15 years with total extraction not exceeding 15,000 cy. The annual extraction amount was increased to 5,000 cy in an amended Reclamation Plan approved in 2010.

No crushing was done at the site because the extracted rock typically breaks up into small gravel-size pieces. Excavated rock was transported directly to work sites or off-site stockpiles. No rock was stockpiled at the quarry. At this time, the total project area is about 3 acres. The quarry face is approximately 150 ft long x 30 ft high.

Proposed Mining Activities

HCPW proposes mining up to 1,500 cy of rock, as frequently as annually, over the next 15 years. The total extraction will not exceed 15,000 cy.

Rock Extraction

The mining method to be used will be consistent with how the HCPW has conducted mining activities over the past 30 years (1994 and 2009 permit periods). Extraction will be accomplished by ripping and breaking up the rock with a bulldozer and/or front-end

loader. The rock will be loaded into dump trucks and hauled to a construction site or off-site stockpile locations. Rock extraction will work into the hillside by up to 90 ft.

Mining will be done during daylight hours (sunrise to sunset), primarily on weekdays. The average time period of extraction will be about four weeks. Dust control measures will consist of watering the quarry entrance and floor as needed with a water truck using an offsite water source.

Traffic Control

Traffic control will consist of placing warning signs along Dyerville Loop Road in both directions on either side of the quarry. It will not be necessary to detour or otherwise restrict traffic. Minor traffic delays may occur as vehicles slow down when they encounter trucks entering or exiting Dyerville Loop Road from the quarry. Delays will be temporary, ending when extraction activities are completed and trucks/equipment leave the area.

General Extraction Details

Following each extraction, the quarry face will be left with a slope of varying steepness from 1:1 to greater than 1:1 (where rock is harder and more consolidated). The floor will be regraded flat as necessary, with a depression located in the center where rainfall runoff from the face and floor will accumulate and evaporate or percolate into the ground. Containment berms will be repaired or reconstructed as necessary to keep runoff from leaving the site. These berms will be vegetated as needed using fast-growing native grass seed and mulched.

Reclamation

Final Reclamation

No reclamation has been undertaken for the site. Final reclamation will be undertaken when mining is complete or the permit has expired. The existing Reclamation Plan calls for regrading the quarry face to a 2H:1V slope. Imported topsoil (similar to topsoil in the vicinity) will be spread over the excavated area. The area will then be seeded with native grasses and mulched. Final end use and reclamation activities will be coordinated with the property owner. There is the possibility that the site will be used for material stockpiling and equipment storage/staging after mining activities are complete. The Reclamation Plan may be modified and submitted for re-approval when the date of final mining activities is known.

Monitoring and Reporting Activities

Monitoring will consist of regular visual inspections of the quarry by HCPW personnel for slope stability, drainage, and berm integrity. The quarry will also be inspected annually by Humboldt County Planning Division staff. Reporting will consist of annual reports to the local lead agency and CA Department of Conservation as required by the Surface Mining and Reclamation Act.

Financial Assurances

The current financial assurance is included as an attachment to the permit renewal packet. No other changes to these amounts are proposed as no changes to the approved Reclamation Plan are proposed.



FINAL RECLAMATION PLAN

**FORT SEWARD QUARRY
(Humboldt County)
August 2009**

Amended April 2010

Prepared by:

**Humboldt County Department of Public Works
Natural Resources Division
1106 Second Street
Eureka, CA 95501
(707) 445-7741**

TABLE OF CONTENTS

OPERATOR	4
OWNER/SURFACE RIGHTS	4
GENERAL MINING OPERATION INFORMATION	4
Mined Mineral Commodity	4
Estimated Total Production	4
Total Acres to be Disturbed	4
Total Acres to be Reclaimed	4
Maximum Anticipated Depth of Mining	4
Date of Start Up	4
Estimated Proposed Date of Closure	4
LOCATION	4
SITE DESCRIPTION	5
DESCRIPTION OF ENVIRONMENTAL SETTING	6
Aesthetics	6
Air Quality	6
Biological Resources – Vegetation	7
Biological Resources – Wildlife	7
Cultural Resources	8
Geology	8
Soils	8
Noise	8
GENERAL LEAD AGENCY INFORMATION	8
Lead Agency	8
Staff Contact	8
Phone Number	9
Address	9
Surface Mining/Conditional Use Permit Number	9
Date Issued	9
Expiration Date	9
Financial Assurances	9
DESCRIPTION OF MINING ACTIVITIES	10
Quarrying	10
Aggregate Processing	10
Dust Suppression	10
Traffic Control	10
Fueling and Maintenance	11
Hazardous Material Management	11
Annual Winterization & Interim Activities	11
Monitoring and Reporting	12
Interim Management Plan	12
INTERIM AND FINAL RECLAMATION	12
Post Reclamation Land Use	12
Reclamation Activities	12
RECLAMATION PERFORMANCE STANDARDS	16
Wildlife Habitat	16
Backfilling, Regrading, Slope Stability, Recontouring	16
Revegetation	16
Drainage	16

Prime Agricultural Land	17
Other Agricultural Land.....	17
Building, Structure, and Equipment Removal	17
Surface and Groundwater Protection.....	17
Topsoil Salvage	17
Tailing and Mine Waste Management.....	18
Closure of Surface Openings	18
SEDIMENT, EROSION, AND POLLUTION CONTROL PLAN.....	19
Sediment, Erosion, & Pollution Control Principles	19
Desired Goals From Implementing Sediment, Erosion, and Pollution Control Measures	20
Sediment, Erosion, & Pollution Control Measures.....	20
STATEMENT OF RESPONSIBILITY	23
ATTACHMENT 1 – Assessors Parcel Map.....	24
ATTACHMENT 2 – Location Map	25
ATTACHMENT 3 A – Vicinity Map.....	26
ATTACHMENT 3 B – Vicinity Map.....	27
ATTACHMENT 4 – Site Map	28
ATTACHMENT 5 – Proposed Final Reclamation Plan.....	29
ATTACHMENT 6 – Proposed Final Reclamation Cross Section.....	30

OPERATOR

Humboldt County Department of Public Works (HCPW)
1106 Second Street
Eureka, CA 95501

OWNER/SURFACE RIGHTS

Norman G. Satterlee
2604 G Street
Eureka, CA 95501

GENERAL MINING OPERATION INFORMATION

Mined Mineral Commodity

Gravel

Estimated Total Production

Mining may consist of extractions as large as 5,000 cubic yards (yd³), or smaller extractions as frequently as annually, totaling 15,000 yd³ over 15 years.

Total Acres to be Disturbed

2.5 acres

Total Acres to be Reclaimed

2.5 acres

Maximum Anticipated Depth of Mining

50 feet

Date of Start Up

May 11, 1994

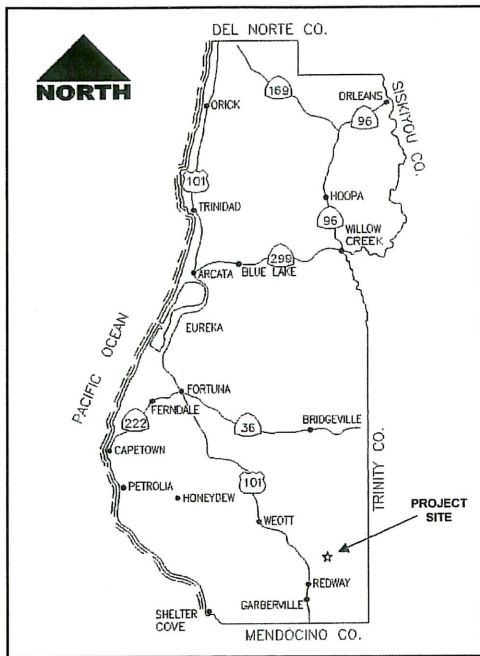
Estimated Proposed Date of Closure

2024

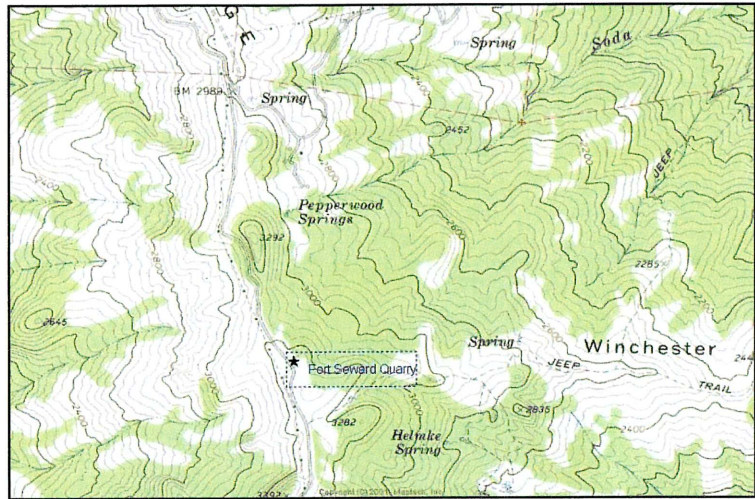
LOCATION

The Fort Seward Quarry is located on Dyerville Loop Road at post mile 23.0, 0.9 miles south of the junction of Dyerville Loop Road and Fort Seward Road. It is in Section 23, Township 3 South, Range 4 East, HB&M, and can be seen on the Fort Seward 7.5' USGS quadrangle map. The quarry is located on Assessor Parcel #216-184-01. See Attachments 1, 2, and 3A.

Location Map



Vicinity Map



SITE DESCRIPTION

The Fort Seward quarry is located just below the ridge top dividing the watersheds of the main-stem Eel River and the South Fork Eel River, at approximately 3,200 feet (ft) elevation. The surrounding area consists of rolling hills to steep mountains, with a mix of open prairie and oak-fir forest cover. The quarry is bowl-shaped, cut into the hillside, with a face about 150 ft long x 30 ft high. The quarry floor is approximately 0.9 acres in size, and the combined area of gravel stockpiles is less than 0.2 acre. The remaining hill slope above the top of face is pastureland. Dyerville Loop Road is immediately west of the quarry. The area immediately east is mixed oak and Douglas fir forest. This is an upland site with no water resources associated with the quarry. See Attachments 3A and 3B.

Looking South at Quarry Face (Spring 2009)

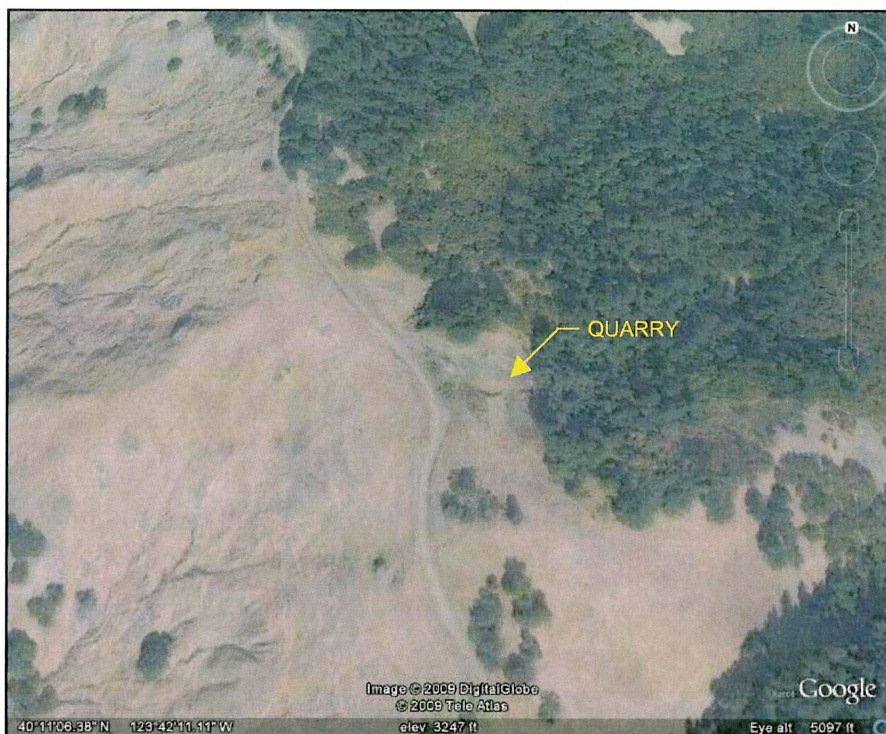


DESCRIPTION OF ENVIRONMENTAL SETTING

Aesthetics

The quarry is situated on the northeast side of the ridge top and faces north. It is partially visible from Dyerville Loop Road. There are no streams, railroads, or utilities within or adjacent to the project site. There are no residences or other structures visible from the quarry floor.

Setting at Fort Seward Quarry



Air Quality

In 2002 the California Air Resources Board approved an Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations (Final Regulation Order Section 93105). The Fort Seward quarry is not located in an ultramafic rock unit and does not appear to contain asbestos, serpentine, or ultramafic rock. If in the event naturally occurring asbestos (NOA) is discovered at the site, the North Coast Unified Air Quality Management District will be notified/consulted immediately. Stringent dust control measures will be applied during quarrying, processing, sorting, and stockpiling operations and during activities associated with final reclamation. If NOA is left exposed at end-of-project, it will be encapsulated by re-soiling during final reclamation.

The North Coast Unified Air Quality Management District is in non-attainment for Particulate Matter smaller than 10 microns in diameter (PM10) according to State of California Standards. Sources of PM10 in the project vicinity are from road and natural airborne dust, vehicle emissions, and occasionally forest fires.

Biological Resources – Vegetation

There are no species of plants listed by the US Fish & Wildlife Service (USFWS) as threatened or endangered for the Fort Seward 7.5' quadrangle. The California Natural Diversity Database contains records for two sensitive plant species (ranked 2.2 and 1B.2 by the California Native Plant Society) in the area covered by the Fort Seward quadrangle.

Howell's Montia (Montia howellii) – Howell's montia can be found in meadows, north coast coniferous forest, and vernal pools. It prefers vernal wet sites, often on compacted soil. Howell's montia has been found approximately 0.6 miles east of the quarry site. The quarry vicinity contains habitat, however the quarry site does not contain habitat for Howell's montia.

Beaked Tracyina (Tracyina rostrata) – Beaked tracyina prefers open grassy meadows within oak woodland and grassland habitats. Beaked tracyina has been documented 3.8 miles east of the quarry. The quarry site and vicinity contain habitat for beaked tracyina.

Biological Resources – Wildlife

USFWS lists three fish species, three bird species, and one mammal species as threatened or candidates for listing for the Fort Seward 7.5' USFS quadrangle.

USFWS Species List for Fort Seward Quadrangle

SCIENTIFIC NAME	COMMON NAME	STATUS	CRITICAL HABITAT?
Fish			
<i>Oncorhynchus kisutch</i>	S. OR/N. CA coho salmon	Threatened (1997)	Yes (1999)
<i>Oncorhynchus mykiss</i>	Northern California steelhead	Threatened (2000)	Yes (2005)
<i>Oncorhynchus tshawytscha</i>	CA coastal chinook salmon	Threatened (1999)	Yes (2005)
Birds			
<i>Brachyramphus marmoratus</i>	marbled murrelet	Threatened (1992)	Yes (1996) Revision Proposed (2006)
<i>Coccyzus americanus</i>	western yellow-billed cuckoo	Candidate	No
<i>Strix occidentalis caurina</i>	northern spotted owl	Threatened (1990)	Yes (1992)
Mammals			
<i>Martes pennanti</i>	fisher, West Coast DPS	Candidate	No

There is no habitat for the fish in the project area (upland location with no nearby water resources).

West Coast DPS Fisher – The quarry does not contain habitat for fishers, although there is fisher habitat in the vicinity of the quarry (undisturbed late-successional forest with rotting logs or tree cavities for nesting).

Western Yellow-Billed Cuckoo – There is no habitat for western yellow-billed cuckoos in the quarry or vicinity (dense willow and cottonwood stands on river floodplains).

Northern Spotted Owl – The quarry does not contain habitat for northern spotted owls, however there is habitat in the vicinity (old-growth or mixed-age stands of mature and old-growth trees).

Marbled Murrelet – The quarry and vicinity do not contain habitat for marbled murrelets (no old-growth forests with large trees and high canopy closure).

Cultural Resources

Numerous chips and flakes of light green chert can be seen at the top of the quarry face and on the hillside above the face, but no intact arrowheads. The property owner is aware of a number of recorded archaeological sites in the vicinity of the quarry. The Dyerville Loop Road was originally an Indian trail. It became part of the overland mail route in 1865 and was used as a main route of travel until the highway was constructed along the South Fork Eel River in 1917.

Geology

The quarry lies within a region of the Franciscan Formation of volcanic and meta volcanic rock. This is principally comprised of massive greywacke and contains minor amounts of shale, chert, greenstone and schist. This area is in Earthquake Ground Shaking Zone E, Bedrock. Characteristics of earthquake shaking are higher accelerations but of relatively short periods and shorter duration of shaking, and high slope instability. There are no known earthquake faults in the vicinity.

Soils

Soils in the vicinity of the quarry site are of the Laughlin series, characterized by having a depth of 2-3 ft with good permeability and drainage. There is minimal topsoil at the quarry site. The immediate quarry area is rated as unsuitable for timber production, with good to fair suitability for range production.

Noise

Ambient noise levels range from 30 to 65 dBA, resulting from wind, birds, livestock, and vehicular traffic (Jake Brakes) on Dyerville Loop Road. Noise contributions from quarry activities are in the low-80s dBA range, which is typical for this type of activity, with the loudest noise coming from equipment backup horns.

GENERAL LEAD AGENCY INFORMATION

Lead Agency

Humboldt County Community Development Services Department, Planning Division

Staff Contact

Anita Punla, Senior Planner

Phone Number

(707) 445-7541

Address

3015 H Street
Eureka, CA 95501

Surface Mining/Conditional Use Permit Number

CUP-01-93XM/SMP-01-93XM

Date Issued

Pending

Expiration Date

Pending

Financial Assurances

Current FACE included as an attachment to
the permit renewal application 3/4/2025

Financial Assurances 2009

ACTIVITY	COST (\$)
Direct Costs	
Primary Reclamation Activities (73.5%) (grading, topsoiling)	4,410.13
Revegetation (12.7%) (native grasses, mulch)	762.02
Monitoring Costs (3.8%) (revegetation, 3 years)	228.01
Indirect Costs	
Contingencies (10%)	600.02
Lead Agency Administration Cost	1,000.00
Total Estimated Cost	\$7,000.18

Approved June 2, 2009 (Humboldt County Board of Supervisors), updated annually.

DESCRIPTION OF MINING ACTIVITIES

HCPW will mine up to 5,000 yd³ of aggregate as frequently as annually, over a period of 15 years. The total extraction will not exceed 15,000 yd³. Quarrying, sorting, and stockpiling are included in the mining activities. See Attachment 4.

Quarrying

The proposed method of mining is identical to operations conducted by HCPW over the past 15 years (1994 permit period). Extraction will occur by ripping and breaking up the rock with a bulldozer, excavator, or front-end loader. In the event localized hard rock is encountered, small-scale separation with charges may be performed. The quarried aggregate will then be stockpiled onsite for future use. Quarrying will continue into the hillside by up to 90 ft over the life of the quarry. The face will be maintained at a minimum 1:1 slope during the life of the permit with regularly occurring inspections by a qualified engineer to assure slope stability and worker safety. Final reclamation will require the quarry face be graded to a minimum 2:1 slope or as deemed appropriate by the licensed engineer or geologist. The alignment of the quarry face will remain consistent throughout the life of the permit.

Mining will be conducted following the cessation of winter storm, typically between June 1 and October 15. Quarrying activities and routine maintenance is conducted during daylight hours (sunrise to sunset), primarily on weekdays. Occasionally, it may be necessary to perform emergency equipment repairs after hours and on weekends. The average time period from extraction to stockpiling is approximately 2-3 weeks.

Aggregate Processing

During the time that HCPW has operated the site, the quarried material has consisted primarily of shale. It is not expected to occur, but if in the event the consistency and/or hardness of material (metamorphic) changes, a portable crusher assembly, consisting of jaw and cone crushers, screen deck, conveyors, and a generator trailer will be temporarily located at the site for processing purposes. Quarried rock will be transported to the crusher via front-end loader. Processed rock will be sorted and placed onsite in stockpiles and will later be utilized for road maintenance and winter storm damage repair projects. Once crushing activities are completed, the crusher assembly will be dismantled and removed from the site.

Dust Suppression

Wetting the quarry access road, quarry face, and floor will occur during hours of operation to control fugitive dust and minimize wind erosion. Furthermore, a dust suppression system will be utilized if processing operations occur to further reduce fugitive dust. Offsite water will be delivered to a large water storage tank via a water truck. Refilling will be based on demand, typically every 2-3 days. An electric or portable gas-powered pump supplies water to strategically located misters, typically installed at the screen deck and conveyor head-pulleys. Misters may also be utilized on the cone and/or jaw, depending on the density of dust generated by the material being processed.

Traffic Control

Traffic control will consist of placing warning signs along Dyerville Loop Road in both directions from the quarry access road. It will not be necessary to detour or otherwise restrict traffic. Minor traffic delays may occur as vehicles encounter trucks entering or exiting the access road. Delays

will be temporary, ending when quarrying and/or processing activities are completed and trucks and equipment are removed from the area.

Fueling and Maintenance

All fueling, lubing, and equipment maintenance will be performed in an environmentally responsible manner. The designated staging/storage area for equipment, fuels, lubricants, and solvents related to quarrying activities will be restricted to a single location within the quarry site. Equipment will be inspected for leaks prior to starting each shift, following lunch breaks, and at end-of-shift each workday. Maintenance involving the removal/repair of hydraulic cylinders/hoses or of reservoirs containing hazardous products will be performed over impervious fabric resistant to Total Petroleum Hydrocarbons (TPH). A minimum of two sealed 5-gallon spill kits will be kept onsite at all times during extraction/processing operations. One sealed 5-gallon spill kit will be kept onsite during off-haul activities from the stockpile area. All activities related to fueling, lubing, and maintenance will be performed in the designated staging area unless equipment has been immobilized due to a mechanical failure. In these instances, every effort will be made to guard against and control spills. The functional condition of fuel transfer pumps, hose assemblies, and emergency shutoff switches will be evaluated prior to usage. Personnel tasked with fueling will remain near the emergency shutoff switch during fueling operations. Topping off of fuel tanks will not occur. Fuels and lubricants will not be stored onsite after-hours or on weekends.

Either an electric or gasoline powered water pump may be used to supply water to the crushing equipment, dust suppression system. When a gasoline powered water pump is utilized, it will be situated over a drip pan or impervious fabric resistant to TPH and will be securely stored or removed from the site at end of shift each workday.

Hazardous Material Management

If leaks or spills occur in the area of operation during any extraction, processing, sorting, or stockpiling activity, they will be controlled immediately. All contaminated soil will be recovered from the site and stored in DOT approved containment vessels. All stored contaminated/hazardous material will be removed from the site in a timely manner and disposed of at an approved hazardous waste disposal facility.

Annual Winterization & Interim Activities

Each fall prior to the commencement of winter rains, the quarry floor will be finish graded to control stormwater and divert it towards the center of the site. If necessary, a saturation trench will be constructed adjacent to the toe of the quarry face to facilitate percolation and/or evaporation of onsite stormwater. If saturation trenches are utilized, they will be designed whereas each end of the trench is finish graded to a 10:1 slope to create escape routes for animals that may become trapped. If the existing stormwater containment berm around the exterior of the site has been damaged or breeched during extraction or end-haul activities, it will be reconstructed as necessary to control stormwater runoff prior to the commencement of winter rains. Any rebuilt sections of the berm will be straw mulched to reduce offsite, sediment transport of fines associated with the reconstruction. Stormwater control measures will be adequate to contain stormwater onsite during a 20-year/1 hour intensity/magnitude storm event. Stormwater discharging from the site would be to an unknown tributary leading to Soda Creek ~0.9 mile downstream of the site and eventually into the main-stem Eel River.

Monitoring and Reporting

Monitoring consists of regular site inspections of the quarry by HCPW personnel for slope stability, stormwater management, berm integrity, and maintenance of the access road. Humboldt County Planning Division staff also inspects the quarry site annually. Reporting consists of annual reports to the local lead agency and CA Department of Conservation as required by SMARA.

Interim Management Plan

An Interim Management Plan will be filed if and when the site is in idle status.

INTERIM AND FINAL RECLAMATION

As of spring, 2010, no reclamation has been undertaken due to the diminutive size of the site and the frequency of excavation and end-haul events. Since quarrying activities have generated little topsoil, interim efforts are being made to import material to offset the need to locate and haul in soil from outlying areas following end-of-project and final reclamation. Final reclamation will be undertaken following termination of HCPW quarrying operations.

Post Reclamation Land Use

Project parcel (#216-184-001) is zoned Agriculture Exclusive, Timber Production Zone, with a Humboldt County General Plan land use designation of Agriculture, Grazing. The property owner, when consulted regarding post reclamation land use, indicated that he intends to continue utilization of the site as a "borrow pit" for logging and ranch related activities and will continue to store aggregate and equipment at the site once HCPW operations are complete. Continued use of the site as a borrow pit is a compatible use on land zoned for timber production and livestock grazing. Therefore, the anticipated post reclamation land use is capricious at best and may include any combination of mining, forestry/logging, and livestock grazing. The Reclamation Plan is written with the intention of reclaiming the site to simulate productivity of the surrounding area. Interim reclamation will take place following termination of HCPW operation of the site and will continue for a maximum of three years or until the landowner begins utilizing the site.

Public safety will not be compromised by interim reclamation of this site. The site is not located on public land and public access is blocked. Measures to protect water quality and ensure slope stability are included in the reclamation activities.

Reclamation Activities

Reclamation activities will consist of the following:

1. Development of Final Engineered Site Design/Plans.
2. Finished Grading.
3. Resoiling.
4. Revegetation.
5. Monitoring and Maintenance.
6. Post-Reclamation Monitoring

1 – Final Engineered Site Design/Plan: A licensed land surveyor will conduct a topographical survey of the site approximately 14-16 months prior to closure. The survey data will then be

provided to the engineer to assist in developing final site design criteria and plans. HCPW will provide OMR with final design plans for review and approval no less than one year prior to closure and commencement of reclamation activities. Furthermore, to assist in determining final slope design of the quarry face, a licensed geologist may be retained to conduct a geological survey of the site and provide a geotechnical report to the engineer if deemed necessary to achieve a stability factor of safety that is suitable for the proposed end use(s). Implementation of the plan will occur only upon approval by OMR. See Attachments 5 & 6, Proposed Final Reclamation Site Plan and Cross-Section drawing.

2 – Finished Grading: The quarry face, which will be a maximum of 50 ft high at end-of-project and will be finish graded to a 2:1 slope or as determined appropriate by the engineer's approved design plans. The quarry floor will be designed to slope gently ($\pm 1\%$) toward a centralized detention area at the center of the quarry floor or near the base of the quarry face, depending on which area has the most effectual rate of percolation. Furthermore, the floor will be ripped on the contour to a depth of 0.5-1 ft to decompact the ground and facilitate percolation of surface runoff.

The existing access road (210 linear ft) will not be decommissioned or altered, as it is the intent of the landowner to utilize the site as a "borrow pit" for logging and ranch related activities. Continued use of the site as a borrow pit is a compatible use on land zoned for grazing and timber production.

3 – Resoiling: Material suitable for resoiling and revegetation is being stored at the site for future use. A ± 325 yd³ stockpile is located to the east as one enters the quarry site (see Attachment 4), and includes overburden scalped from behind the face just prior to more recent quarrying operations. It is estimated that 5-8% of the material quarried from the site is inapt for road maintenance purposes, is scalped from the surface, and remains onsite for resoiling purposes. Based on the depth of topsoil previously removed as material was quarried from the site, one can expect the percentage or volume of material found suitable for resoiling during future operations to be consistent with that of the past. Therefore, it is anticipated that future quarrying will result in the accumulation of an additional 750-1,200 yd³ of material suitable for this purpose. County road crews performing ditch maintenance or slide removal projects in the area will begin offloading material for reclamation as well. Excluding imported material, calculations indicate that at end-of-project, approximately 1,300 yd³ of material for reclamation purposes will be stored at the site. Resoiling the estimated area of disturbance (2.5 acres) to a depth of 6-10" will require an additional $\pm 1,500$ yd³ of material being imported from local slide removal and ditch maintenance projects. This should be an attainable goal over the lifetime of the operation. The resoiling material will be spread over all areas of disturbance to promote revegetation. Care will be taken to minimize compaction during spreading. Material placed on slopes such as the quarry face and other inclines will be track walked to produce a roughened surface prior to seeding. At the owner's discretion, some areas of the site may not be reclaimed and may remain available for borrow operations.

4 – Revegetation: Graded and resoiled areas will be revegetated to facilitate the proposed end use as determined by the landowner.

Hillside Above Quarry Face (Spring 2009)



A certified botanist will determine specific species suitable for revegetation based on a botanical survey of the surrounding area and concurrence with the landowner. Fast growing sterile hybrids (annuals) may be used to facilitate initial vegetative cover and assist with erosion control. No noxious weed species will be included in the seed mix. All work will be performed under direct supervision of the botanist or other qualified individual(s). A typical seed mix for initial revegetation may include a number of (but is not limited to) the following species:

- ☐ California brome (*Bromus carinatus*)
- ☐ California oatgrass (*Danthonia californica*)
- ☐ Three weeks fescue (*Vulpia microstachys*)
- ☐ Tomcat clover (*Trifolium wildenovii*)
- ☐ California melicgrass (*Melica californica*)
- ☐ Barkworth purple needlegrass (*Nassella pulchra*)
- ☐ Idaho fescue (*Festuca idahoensis*)
- ☐ Blue wildrye (*Elymus glaucus*)
- ☐ Regreen wheatgrass x wheat hybrid (*Triticum X Elymus*), this is a sterile, temporary cover crop, ideal for aiding in the establishment of native plant communities.

Areas to be seeded include the disturbed area on and above the quarry face, quarry floor, perimeter berm, and other areas that have been disturbed by the operation where there is sufficient topsoil to root the above-mentioned species. Seed application density will be approximately 50 pounds per acre; however, specific rates will be determined when the seed mix

is finalized. Seed application will be by hydroseeding; mulch and tackifier may be included in the hydroseed mix. Specifications regarding the rate of application, type, depth of mulch, and type of tackifier used will be based on the manufacturer and applicator's recommendation.

In mid-winter, after the initial seed application has sprouted, conifers may be planted within certain areas of operation if deemed appropriate by the landowner. The location density will be determined in consultation with the property owner and botanist.

Revegetation success for grass cover will be based on aerial coverage of 80% one year after planting, and 97% two years after planting. Wherever these goals are not met, the area will be evaluated, and subsequent planting/mulching and soil amending will be performed. Revegetation success for conifer will be based on individual plant counts. See *Post-Reclamation Monitoring* on Pg. 15 for additional information regarding revegetation success.

5 – Monitoring and Maintenance:

Containment Berms: A containment berm has been constructed around the perimeter of the quarry to manage offsite discharge of stormwater and sediment and has been designed and sized to withstand a 20-year/1 hour intensity/magnitude storm event. Furthermore, best management practices (BMPs) in the form of gravel check dams (clean processed river run aggregate) have been integrated into the berm as well as being constructed inboard of the berm to filter sediment and impede flow velocity during extreme storm events. Furthermore, BMPs in the form of straw wattles have been installed and are maintained at the site to manage the discharge of sediment during extreme storm events. End-of-project, reclamation activities will include monitoring and maintenance of all erosion and sediment control devices (ESC) by HCPW. Inspections will occur each fall prior to the commencement of winter storms and subsequent monitoring will occur throughout the remainder of each winter period for a minimum of three years or until the landowner begins borrowing operations. Any sections rebuilt or reconstructed during reclamation will be seeded with native grasses and straw mulch to reduce offsite sediment transport of fines associated with the berm itself.

Slope Stabilization and Erosion Control: The final slope will be graded at 2:1 or as prescribed by final engineered plans and approved by OMR. Final grade is expected to provide a stable slope for the geology of the site. Once the slopes are resoiled, mulch and tackifying agents will be applied during hydroseeding. Because of the gentle slope associated with final engineered grading, it is expected that no erosion control structures (e.g. silt fence, straw wattles, etc.) will be required. Slopes will be monitored for stability and erosion until revegetation goals have been achieved.

6 – Post-Reclamation Monitoring: Post-reclamation monitoring will consist of three elements, revegetation success, slope stability, and erosion control.

Monitoring for revegetation success will be determined by assessing percent of aerial cover in sample plots located on the regraded quarry face and floor. A qualified botanist, who will also perform the cover assessments, will determine the number, size and location of the plots. In addition, photographs will be taken at established photo points to document revegetation status.

Monitoring for slope stability and erosion control will be accomplished by visual observation of the regraded quarry face, looking for evidence of rill wash, gullying, and soil movement down the slope.

If revegetation and slope stability objectives are not met after three years, monitoring and reactive retreatment activities will be extended until the objectives have been met for two consecutive years or until the landowner begins utilizing the site.

Time Schedule: Final grading, resoiling, and seedbed preparation will be completed during late summer or the fall, and will take one-two weeks to complete. Seeding and mulching will be performed prior to or following the first rainfall event of the season. The site will be revisited at two-week intervals during the first winter to monitor for vegetation growth and evidence of erosion.

Additional details for each of the reclamation activities outlined above are provided under the Performance Standards section of this Reclamation Plan.

RECLAMATION PERFORMANCE STANDARDS

Wildlife Habitat

Objective: Restore habitat for use by local wildlife for cover and foraging.

Task: The site will be regraded to simulate the topography of the surrounding area and will be revegetated with native plant species known to be good forage for local wildlife as well as livestock.

Backfilling, Regrading, Slope Stability, Recontouring

Objective: Final slopes to have slope stability factor of safety, suitable for proposed end use, and conforming to surrounding topography.

Task: The proposed 50 ft high quarry face will be finish graded to a 2:1 (horizontal: vertical) slope or as prescribed by the approved engineered plans. The quarry floor will be graded at an approximately 1% slope toward the base of the quarry face, and scarified to a depth of 0.5-1 ft.

Revegetation

Objective: Establish a vegetative cover suitable for the proposed end use (livestock grazing or forestry), wildlife use, and of adequate cover to control erosion and sediment transport: 80% aerial coverage one year after treatment, 97% aerial coverage two years post-treatment.

Tasks: Disturbed areas will be hydroseeded with a mix of native, fast-growing hybrids, and erosion control grasses. Seed will be applied at the recommended rate for the seed mix and conditions. Seeded areas will be hydro-mulched with weed-free rice straw, wood/fiber mulch and tackifier to ensure topsoil stability and encourage rapid plant growth. Revegetated areas will be monitored for planting success. Areas where adequate cover is not obtained will be reseeded and remulched. Monitoring will continue until revegetation goals have been achieved.

Drainage

Objective: Protect the beneficial uses of local waterways.

Tasks: Final grading of the quarry face and floor will direct stormwater runoff to a retention area or saturation trench at the base of the face where runoff will collect onsite and evaporate or percolate into the ground. Design, construct, and maintain an earthen berm capable of containing

stormwater in all but the largest storm events. The entire site will be revegetated, resulting in continued erosion control and containment of fine sediment.

Prime Agricultural Land

The quarry is not located on a parcel considered to be prime agricultural land.

Other Agricultural Land

Objective: Reclaim site to be capable of sustaining forestry and agricultural production similar to the surrounding area.

Task: Finish grading will result in slopes capable of holding adequate topsoil for reforestation or forage production. The soil utilized for resoiling/revegetation will be mostly native with some imported from nearby sources, and be of the same or similar soil type as the surrounding area. A botanical survey and consultation with the property owner will determine the species of plants with which to revegetate the site, and seeding will be done at the appropriate rate to establish grazing land of similar character and quality to the pastures in the surrounding area. Regrowth will be monitored and areas with survival below 80-97% will be replanted. Monitoring and follow-up will continue for three years, or until the site has achieved the 97% survival goal.

Building, Structure, and Equipment Removal

Objective: Removal of all buildings, equipment and supplies not required for the post-reclamation end use.

Task: There are no buildings or structures on the site and no permanent structures are needed for mining operations. All equipment and materials associated with the project will be removed when final reclamation is complete.

Surface and Groundwater Protection

Objective: Protect surface and groundwater from siltation and pollutants.

Tasks: Finish grading will confine stormwater to the site by retaining the perimeter berm and sloping the quarry floor and face so that runoff accumulates and percolates or evaporates within the quarry floor. No equipment, structures, or materials will be left on the site that would contaminant groundwater.

Topsoil Salvage

Objective: Apply topsoil in a manner that results in stable slopes and produces maximum revegetation success.

Tasks: The site was in use prior to the Surface Mining and Reclamation Act and none of the original topsoil was salvaged. More recent quarrying activities have resulted in the salvage of material for topsoiling and is being stockpiled onsite for future use in final reclamation. Suitable resoiling material associated with incidental roadside ditch maintenance and slide removal projects will be stockpiled onsite for final reclamation use as well. The imported material will be of a series and type similar to that of the surrounding area, and suitable for the proposed end use. It is estimated that accumulated resoiling material (both local and imported) at end-of-project will be sufficient in volume to cover all areas of disturbance to a depth of 6-10", the minimum

necessary to establish a vegetative cover and support self-generation without continued dependence on irrigation, soil amendments or fertilizer. Soil will be prepared for revegetation by tracking-in. The seed mix will include fast-growing grasses commonly used to stabilize soil and minimize sediment transport.

Tailing and Mine Waste Management

This operation will not result in the production of tailings or mine waste.

Closure of Surface Openings

This is a surface mining operation with no openings to underground workings.

SEDIMENT, EROSION, AND POLLUTION CONTROL PLAN

Sediment, Erosion, & Pollution Control Principles

This section provides basic information on the principles of erosion and sediment control (management) that shall be applied at the Fort Seward Quarry project site. This section is further intended to highlight certain principles that are particularly critical to achieving effective control and onsite containment of stormwater and sediment and whereas the intent is to:

- Design the project to fit the natural topography of the area, the drainage patterns, and soils through such practices as limiting disturbance to steeper slopes and areas outside the scope of the project, avoid disturbance of natural drainage ways, and utilize soils during resoiling activities capable of a moderate to high infiltration rate, thereby, minimizing stormwater runoff, erosion, and sediment transport.
- Emphasize erosion control rather than sediment control. Erosion control minimizes the entrainment of sediment while sediment control removes entrained sediment from runoff. Erosion control is more efficient and cost-effective because it is nearly impossible to entirely remove sediment from runoff once it is entrained.
- Manage stormwater runoff. While erosion of exposed soil begins with a single raindrop or the wind, the largest volumes of eroded materials are typically associated with concentrated runoff forming rills and gullies. One of the most effective ways to minimize erosion, therefore, is to reduce the possibility of concentrated runoff by interception or conveyance in a non-erosive manner. An illustration of the relative effectiveness of erosion control is straw mulch, which can reduce sediment concentrations in runoff by over 90%. Another example might be the placement of wattles at intervals across steep slopes to impede surface flow velocity as a means of reducing erosion. Furthermore, grading of slopes to minimize depression and indentations can create a weir effect, resulting in controlled sheet flow and ultimately minimizing concentrated flows and down-slope flow velocities. A well-designed and managed slope can result in a minimum of erosion and subsequently reduce elevated levels of sediment in stormwater. Other examples of controlling surface runoff, erosion, and reducing sediment in stormwater is the utilization of earthen berms, catch benches, silt fences, etc. Sediment controls vary in their effectiveness, but typically only reduce sediment concentrations by 50 to 75% and they have little effect on the very fine sediment that causes turbidity, thus the reason erosion control should be the first line of defense in managing and controlling sediment. As it is nearly impossible to entirely prevent erosion, it will be necessary to manage stormwater onsite to the greatest extent possible, by maintaining an earthen berm around the perimeter of the site and constructing a retention basin within the quarry. If percolation and evaporation rates are not sufficient to manage stormwater onsite, a saturation trench should be constructed near the toe of the quarry face to enhance percolation.
- Retain sediment on site. Treatment of sediment is less effective than erosion control but nevertheless, is a vital part of the project because it is impossible to completely prevent erosion and the entrainment of sediment created by runoff. Sediment can be managed to some degree by allowing stormwater to settle out in a retention basin and/or saturation trench or by filtering runoff from small areas through vegetation or by utilizing silt fences or other filtration devices. Note that settling and filtration typically only remove sand-sized and coarse silt particles. Fine silts and clays cannot be removed in these ways, unless the runoff is released to vegetated areas or through chemical treatment, such as alum, or chitosan introduction or electroflocculation.

- Minimize the extent and duration of exposure. Restricting disturbance to only those areas utilized for quarrying operations is probably the single most effective form of erosion control. Exposing areas only as long as necessary reduces the risk of erosion substantially. This can be accomplished by planning the project so that areas are disturbed only when activity is imminent, that disturbed areas are finish graded to contain stormwater onsite, and those areas disturbed outside the limits of containment are managed by straw mulching and/or seeding as soon as grading is completed.
- Schedule all quarrying and processing activities during the dry season. The climate in the North Coast region is unique in that there are generally well-defined wet and dry seasons. As a result, the practice of restricting operations to dry weather only, is a very effective form of erosion control. If end-hauling or other activities occur during the wet season, the need for regular monitoring and maintenance is essential.
- Thoroughly monitor the site and maintain all ESC devices prior to the onset of and throughout the wet season. Maintenance and vigilance are the most vital components of effective ESC management. Certain measures require regular maintenance, monitoring and inspection. The site also needs to be constantly examined to ensure that all areas are protected, that the measures are working together to provide maximum protection.
- Perform fueling, lubing, and equipment maintenance in an environmentally responsible manner.

Desired Goals From Implementing Sediment, Erosion, and Pollution Control Measures

To be proactive rather reactive by controlling potential sources of stormwater pollution before they come in contact with any watercourse and to control material pollution and manage waste and non-stormwater existing at the site by implementing effective handling, storage, use, and disposal practices by:

- Effectively controlling stormwater onsite during a 20-year/1 hour intensity/magnitude storm event.
- Effectively controlling sediment release from the project site and reducing sedimentation into the tributary leading to Soda Creek.
- Effectively controlling the release of polluted run-off into the tributary leading to Soda Creek during quarrying, processing, or end-haul activities.

Sediment, Erosion, & Pollution Control Measures

1. Soil Stabilization and Erosion Control

- ✓ Contour finished slopes per engineer's design and criteria to assure a stability factor of safety and slope stability.
- ✓ Preserve existing vegetation where appropriate and where feasible.
- ✓ Control erosion at concentrated flow paths by installing gravel check dams, rice straw/coir wattles, straw bales, straw mulch, silt fences, or by constructing diversion ditches.
- ✓ Control erosion of newly disturbed areas with minimal slopes by straw mulching and/or seeding. This applies to areas outside the perimeter containment berm only.

2. Sediment Control

The primary form of sediment control is onsite stormwater management.

- ✓ Maintain a downgrade perimeter berm capable of effectively controlling a 20-year/1 hour intensity/magnitude storm event.
- ✓ Maintain a ($\pm 1\%$) slope towards a detention area at the center of the quarry floor or near the base of the quarry face.
- ✓ Annually and prior to the wet season, install (optional) a saturation trench at the base of the face, whereas, stormwater will collect and percolate into the ground or evaporate.
- ✓ Maintain a series of small diversion ditches in the area of the access road outside the quarry. At several points, road surface stormwater will be diverted onto the vegetated shoulder of the road to allow for dissipation into adjacent grassland.
- ✓ Ensure that an appropriate seed mix containing native species shall be planted on disturbed areas outside the perimeter berm. No plant species listed as problematic and/or invasive by the California Native Plant Society and the California Invasive Plant Council, or as may be identified from time to time by the State of California, shall be used for erosion control. No plant species listed as a "noxious weed" by the governments of the State of California or the United States shall be utilized within the construction site. See Pg. 14 for a list of probable species determined to be appropriate for the site.

3. Tracking Control

- ✓ Trackout is not an issue owing to the fact that both the County Road and quarry access road are surfaced with gravel. Fine particulate on road surfaces contributes to the release of sediment during first of the season storm events but can be controlled in large part by wetting the access road during the hours of operation to enhance surface armoring and to minimize the accumulation of dust.

4. Wind Erosion Control

- ✓ Wind erosion is controlled with water. The access road, quarry face and floor will be wetted during quarrying and processing activities. The crushing equipment is fitted with dust suppression equipment to control fugitive dust as well.

5. Inspections and Maintenance

- ✓ Inspection of all ESC devices and structures will occur prior to the onset of and throughout the wet season and will occur intermittently throughout the remainder of the year. Inspections will require an evaluation of the site to ensure that all areas are protected and that all ESC elements are working together to provide maximum protection.
- ✓ Deficiencies requiring maintenance or repair will be evaluated and addressed in a timely manner. Deficiencies that may result in a release will be addressed immediately. Certain ESC elements or devices may need to be modified, replaced, or repositioned one or more times during the course of the winter to assure adequate protection and to minimize the chance for sediment release from the site.

6. Hazardous Material Management and Control

Fueling, lubing, and equipment maintenance will be performed in an environmentally responsible manner.

- ✓ The staging/storage area for equipment, fuels, lubricants, and solvents related to quarrying activities will be restricted to a controlled location within the quarry site.
- ✓ Maintenance involving the removal/repair of hydraulic cylinders/hoses or of reservoirs containing hazardous products will be performed over impervious fabric resistant to Total Petroleum Hydrocarbons (TPH).
- ✓ A minimum of two sealed 5-gallon spill kits will be kept onsite at all times during extraction/processing operations and one sealed 5-gallon spill kit will be kept onsite during off-haul activities for immediate cleanup of incidental spills.
- ✓ The functional condition of fuel transfer pumps, hose assemblies, and emergency shutoff switches will be evaluated prior to usage. Personnel tasked with fueling will remain near the emergency shutoff switch during fueling operations. Topping off of fuel tanks will not occur. Fuels and lubricants will not be stored onsite after-hours or on weekends.
- ✓ Portable gasoline powered equipment will be situated over drip pans or impervious fabric resistant to TPH and will be securely stored or removed from the site at end of shift each workday.
- ✓ Leaks or spills occurring in the area of operation will be controlled and contained immediately.
- ✓ Contaminated soil will be recovered from the site and stored in DOT approved containment vessels and will be removed from the site in a timely manner.

STATEMENT OF RESPONSIBILITY

I, the undersigned, hereby agree to accept full responsibility for reclamation of all mined lands as described and submitted herein and in conformance with the applicable requirements of Article 1 and 9 (commencing with Sections 3500 *et seq.* and 3700 *et seq.*, respectively) of Chapter 8 of Division 2 of Title 14 of the California Code of Regulations, the Surface Mining and Reclamation Act of 1975, as amended (Section 2710 *et seq.* of the Public Resources Code), and with any modifications requested by the administering agency as conditions of approval.

Signed this 15th day of, April 20 10

MINE OPERATOR OR OPERATOR'S AGENT

(Printed Name) Tom Mattson

(Mailing Address) 1106 Second Street

Eureka, CA (5501)

(Signature) 

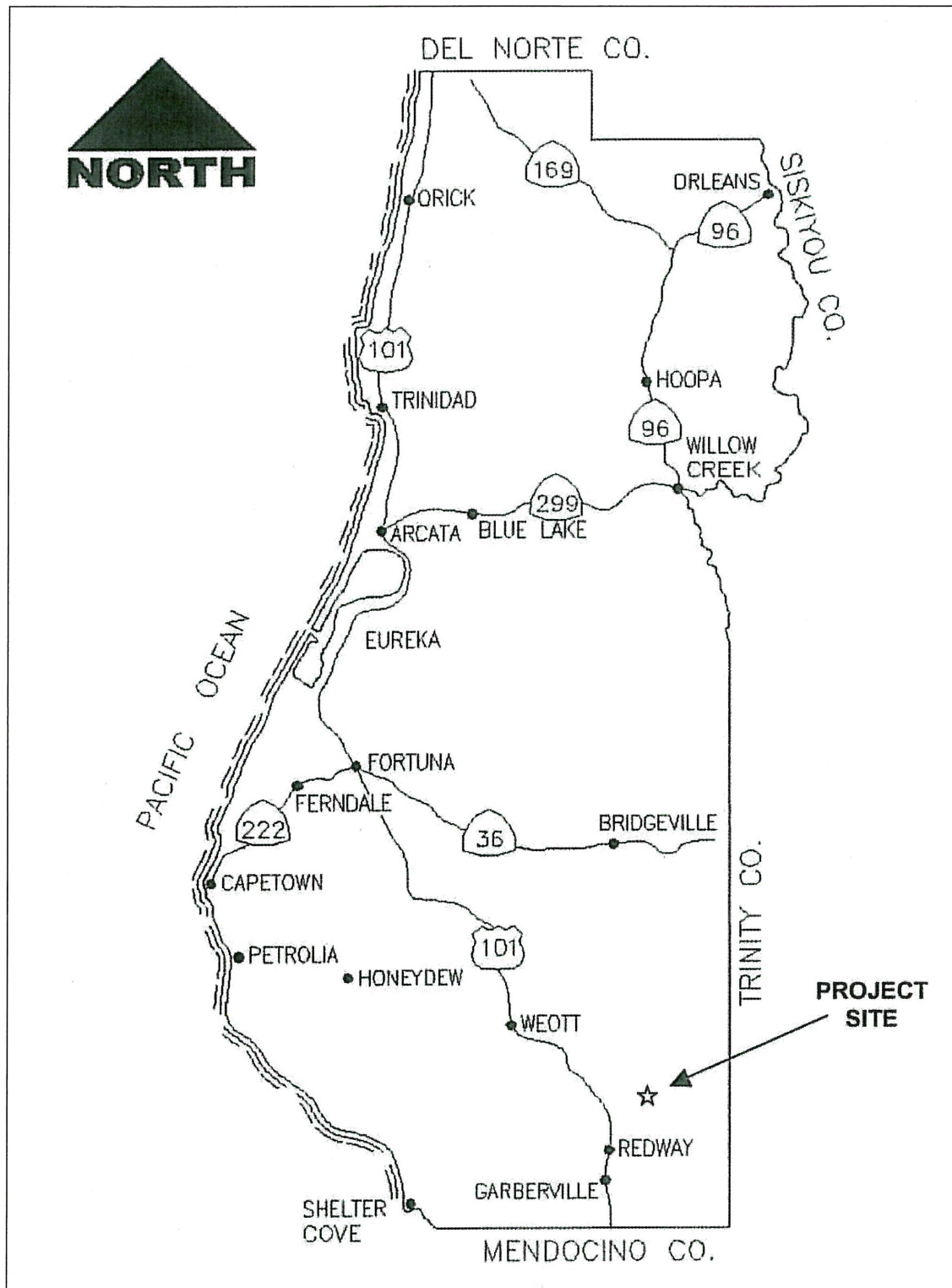
MINE NAME Fort Seward Quarry

CA MINE ID # 91-12-0027

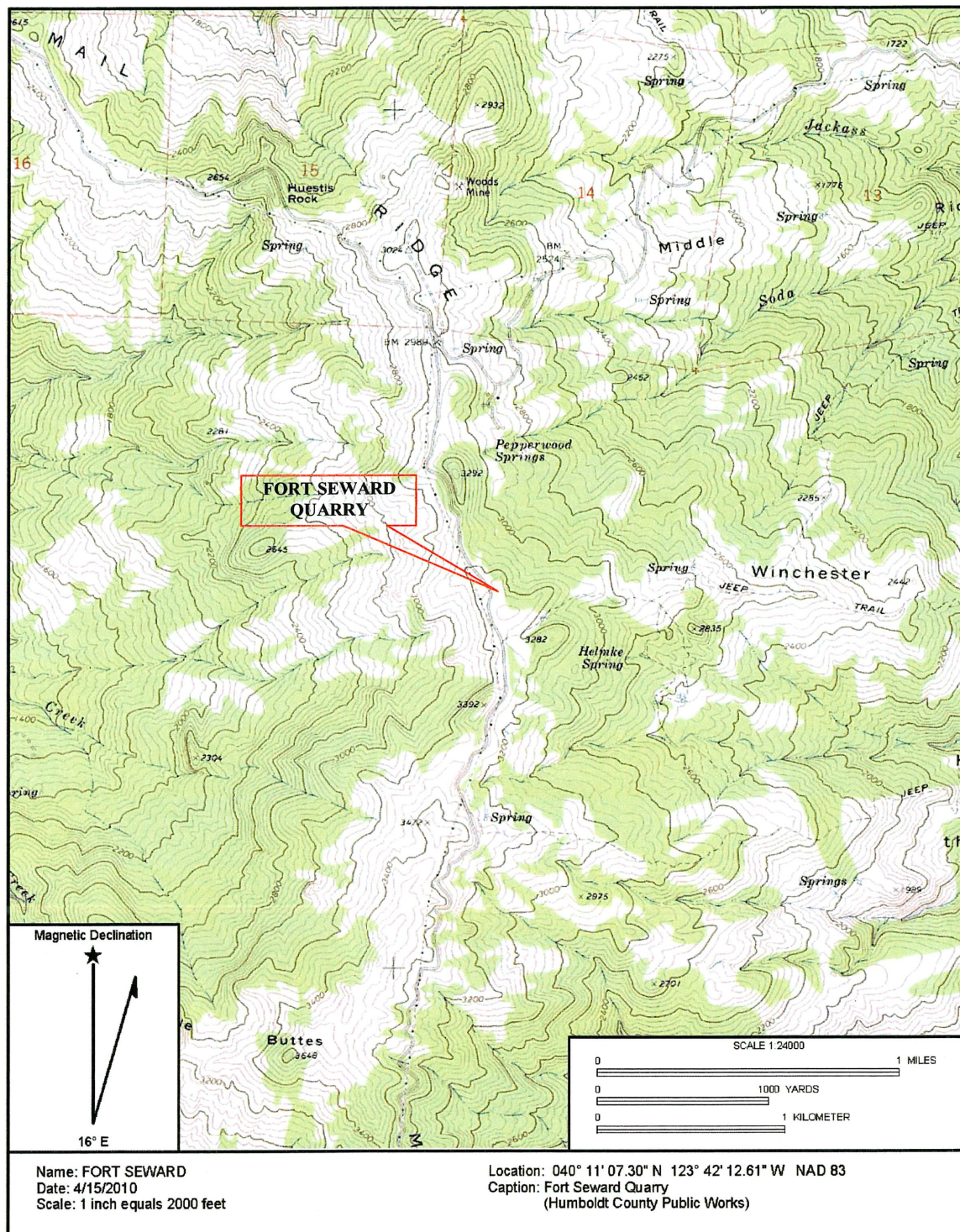
The original must be given to the lead agency and one copy to be forwarded by the lead agency to:

Department of Conservation
Office of Mine Reclamation
801 K Street, MS 09-06
Sacramento CA 95814-3529

ATTACHMENT 2 – LOCATION MAP



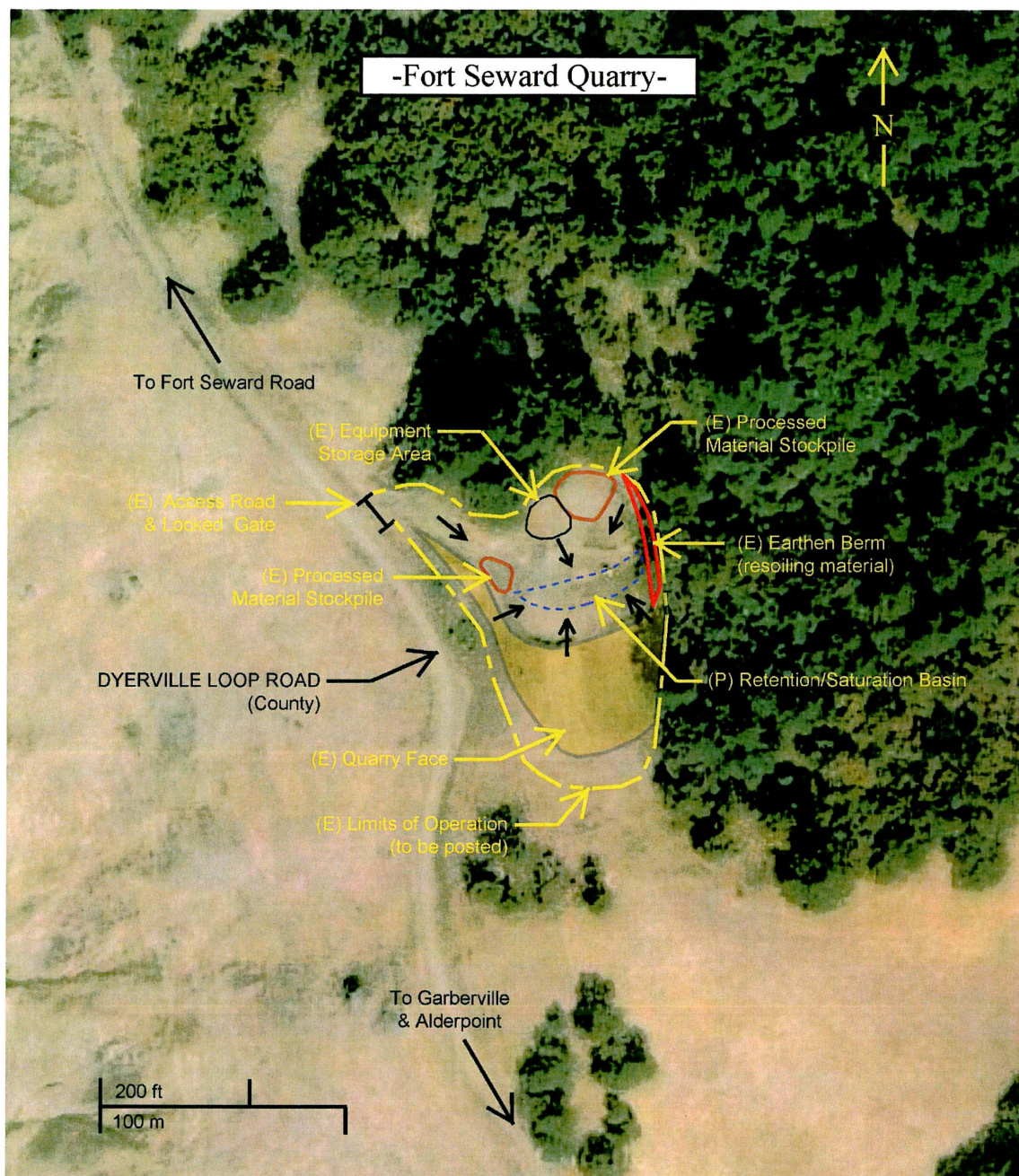
ATTACHMENT 3 A – VICINITY MAP



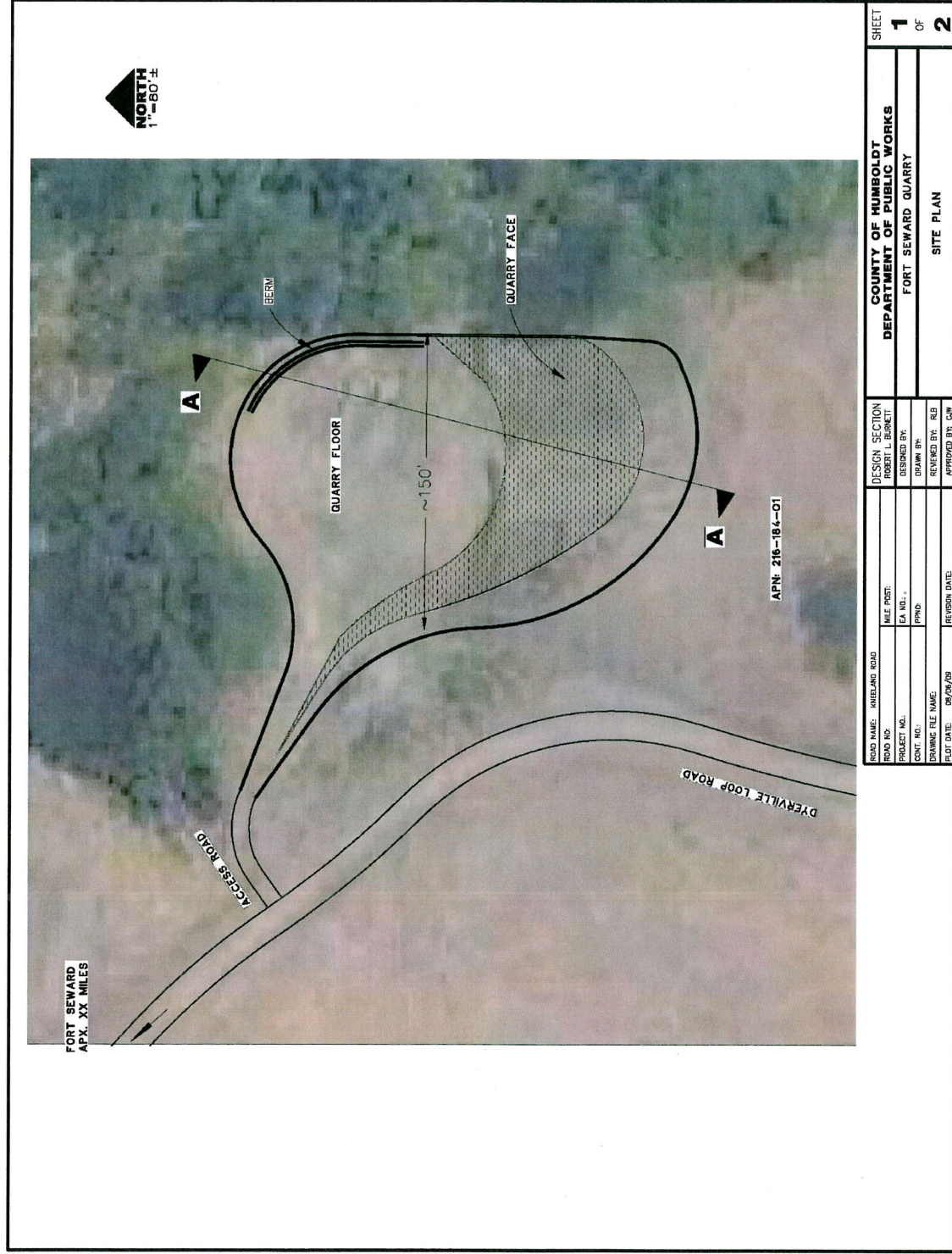
ATTACHMENT 3 B – VICINITY MAP



ATTACHMENT 4 – SITE MAP



ATTACHMENT 5 – PROPOSED FINAL RECLAMATION PLAN



ATTACHMENT 6 – PROPOSED FINAL RECLAMATION CROSS SECTION

