



RECLAMATION PLAN

**MONUMENT QUARRY
CA MINE ID #91-12-0025**

(Humboldt County)

October 2010

Amended January 2011

Amended December 2025

Prepared by:

**Humboldt County Department of Public Works
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OPERATOR

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

OWNER/SURFACE RIGHTS

Humboldt Redwood Company (HRC)
125 Main St.
Scotia, CA 95565

GENERAL MINING OPERATION INFORMATION

Mined Mineral Commodity

Gravel

Estimated Total Production

The site was originally permitted in 1995 for the removal of 60,000 cubic yards (yd³). Records indicate that during this 15-year time period, approximately 25,000 yd³ was removed from the site. A permit renewal in 2010 proposed extractions as large as 25,000 yd³, or smaller extractions as frequently as annually, totaling 35,000 yd³ over 15 years, though no extractions took place in that 15 year period. Public Works is requesting another 15 year permit renewal with the same terms as the previous renewal.

Total Acres to be Disturbed

4.5 acres

Total Acres to be Reclaimed

4.5 acres

Maximum Anticipated Depth of Mining

57 feet (ft)

Date of Start Up

Ongoing. The site has been utilized as an aggregate resource by HCPW since 1955

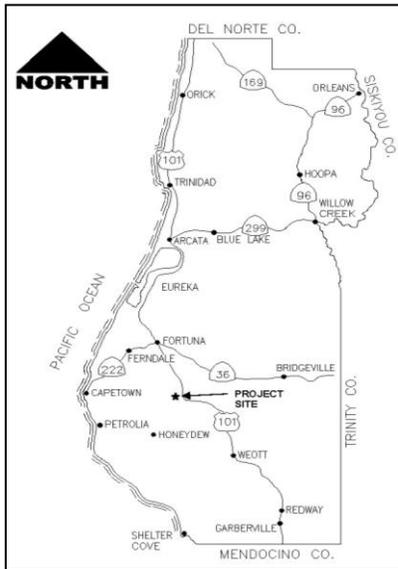
Estimated Proposed Date of Closure

December 31, 2040

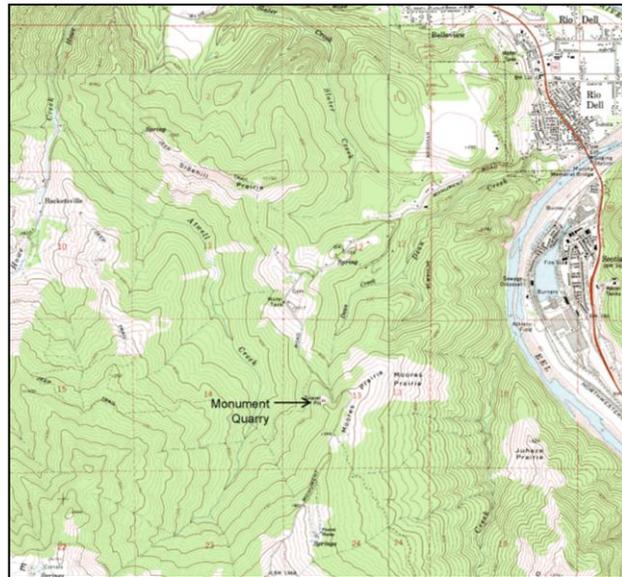
LOCATION

Monument Quarry is located 3.3 miles southwest of the intersection of Wildwood Avenue and Monument in Rio Dell, California. The exact location is described as Monument Road, Post Mile 3.29. It is located in Section 13, Township 1 North, Range 1 West, H.B. & M. and can be seen on the Taylor Peak 7.5' USGS quadrangle map. The quarry is located within Assessor Parcel #205-031-049. See attached maps.

Location Map



Vicinity Map



SITE DESCRIPTION

The Monument Quarry lies at an elevation of approximately 1,200 ft. near the top of a ridgeline within the Eel River watershed. The site faces the west in an area of moderately steep, rolling terrain with good drainage and a mix of open prairie and second growth redwood and fir forest. This is an upland site with no water resources associated with the quarry.

Looking Southwest from the Quarry Floor (2010)



The quarry was originally developed along an exposed shale ridgetop that separates Atwell Creek on the west from Dean Creek on the east, both tributaries to the main-stem, Eel River. The estimated volume of material available in 1995 was >100,000 yd³. Operations between 1955 and 1995 removed 25,000-30,000 yd³ from the site, resulting in the quarry floor and face that existed when the site was first permitted. Currently the quarry face is approximately 180 feet (ft) long x 22 ft high. There is an 18 ft wide ramp that serves as a catch bench at the top of the lower face. The upper face is set back from the lower face by the catch bench and is about 26 ft in height. The quarry floor is about 1.5 acres in area, and the combined area of gravel stockpiles is about 0.23 acre.

Looking Northwest towards Stockpile (2010)



DESCRIPTION OF ENVIRONMENTAL SETTING

Aesthetics

The quarry is located on the ridgeline is visible from Monument Road when traveling in either direction. There are no residences or other structures visible from the quarry floor or catch bench.

Entrance to Quarry from Monument Road (2010)



Air Quality & Naturally Occurring Asbestos

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 Monument 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 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, forest fires, and fires associated with forest management.

Biological Resources – Vegetation

There are no species of plants listed by the US Fish & Wildlife Service (USFWS) as threatened or endangered in the Taylor Peak 7.5’ quadrangle. The California Natural Diversity Database (CNDDDB) contains records for eight sensitive plant species (ranked 2.2, 1B.2, and 4.2) by the California Native Plant Society and one lichen species in the area covered by the Taylor Peak 7.5’ quadrangle.

**Rare/Sensitive Plant/Lichen Species
(Habitat in Project Area/Vicinity)**

SCIENTIFIC NAME	COMMON NAME	LISTING STATUS	CNPS RANK
<i>Erythronium oregonum</i>	giant fawn lily	Fed: None Cal: None	2.2
<i>Erythronium revolutum</i>	coast fawn lily	Fed: None Cal: None	2.2
<i>Gilia capitata ssp. pacifica</i>	Pacific gilia	Fed: None Cal: None	1B.2
<i>Hesperis matronalis ssp. brevifolia</i>	short-leaved evax	Fed: None Cal: None	1B.2
<i>Montia howellii</i>	Howell’s montia	Fed: None Cal: None	2.2
<i>Packera bolanderi</i> var. <i>bolanderi</i>	Seacoast ragwort	Fed: None Cal: None	2.2
<i>Polemonium carneum</i>	Oregon polemonium	Fed: None Cal: None	2.2
<i>Sidalcea malachroides</i>	Maple-leaved checkerbloom	Fed: None Cal: None	4.2
<i>Sidalcea Malviflora ssp. patula</i>	Siskiyou checkerbloom	Fed: None Cal: None	1B.2
<i>Usnea longissima</i>	long-beard lichen	Fed: None Cal: None	N/A

(1B.2 = Rare, Threatened or Endangered in California and Elsewhere)

(2.2 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere)

(4.2 = Plants of limited distribution - a watch list)

Giant fawn lily – Giant fawn lily can be found in north coast coniferous forest. This plant prefers somewhat shady conditions and rich, well-drained soil. Flowers bloom in early spring. They typically grow in colonies in wooded areas. Giant fawn lily has been documented 6.35 miles southwest of the quarry. The quarry does not contain habitat for giant fawn lily. However, there is habitat in the vicinity.

Coast Fawn Lily – Coast fawn lily can be found in bogs and fens, broadleaved upland forest, and north coast coniferous forest. Coast fawn lily has been documented 5.90 miles southwest of the quarry. The quarry does not contain habitat for coast fawn lily. However, there is habitat in the vicinity.

Pacific gilia – Pacific gilia can be found along coastal bluffs, coastal prairie, valley and foothill grassland. Thrives in well-drained soil and full sunlight. The quarry does not contain habitat for Pacific gilia although the species has been documented 4.81 miles southwest of the site.

Short-leaved evax – Short-leaved evax can be found along coastal bluffs and coastal dunes. The quarry does not contain habitat for short-leaved evax although the species has been documented 4.98 miles northwest of the site.

Howell's montia – Howell's montia can be found in north coast coniferous forests, meadows, seeps, vernal pools, and wetlands. The quarry does not contain habitat for Howell's montia, however there is habitat in the vicinity. The species has been documented 1.43 miles northwest of the site.

Seacoast ragwort – Seacoast ragwort can be found in north coast coniferous forests and coastal scrub. The quarry does not contain habitat for seacoast ragwort, however there is habitat in the vicinity. The species has been documented 5.85 miles southwest of the site.

Oregon polemonium – Oregon polemonium can be found in lower montane coniferous forests, coastal prairie, and coastal scrub. The quarry does not contain habitat for oregon polemonium, however there is habitat in the immediate vicinity. The species has been documented 0.38 miles west of the site.

Maple-leaved checkerbloom – Maple-leaved checkerbloom can be found in north coast coniferous forest, broadleaved upland forest, coastal prairie, and coastal scrub. The quarry does not contain habitat for maple-leaved checkerbloom, however there is habitat in the immediate vicinity. The species has been documented 0.47 miles southwest of the site.

Siskiyou Checkerbloom – Siskiyou checkerbloom can be found in coastal prairies and upland broadleaved forests, especially in disturbed areas. Siskiyou checkerbloom was documented 3.45 miles southwest of the quarry. Both the quarry and vicinity may habitat for Siskiyou checkerbloom.

Long-Beard Lichen – Long-beard lichen can be found in north coast coniferous forest and broadleafed upland forest, on a variety of trees including big leaf maple, oaks, ash, Douglas fir, and bay. There are no documented occurrences of long-beard lichen in the quarry but the species has been found to exist within 0.15 miles of the site.

It should be noted that HCPW has contracted with a certified botanist to perform a botanical survey of the quarry and surrounding area. The subsequent findings can be found in Attachment-1.

Biological Resources – Wildlife

The following species of wildlife are listed by USFWS as threatened or are candidates for listing for the Taylor Peak 7.5’ quadrangle.

USFWS Species List for Taylor Peak Quadrangle

SCIENTIFIC NAME	COMMON NAME	STATUS	CRITICAL HABITAT?
Fish			
<i>Acipenser medirostris</i>	green sturgeon	Threatened	Yes
<i>Eucyclogobius newberryi</i>	tidewater goby	Endangered	Yes
<i>Oncorhynchus kisutch</i>	S. OR/N. CA coho salmon	Threatened	Yes
<i>Oncorhynchus mykiss</i>	Northern California steelhead	Threatened	Yes
<i>Oncorhynchus tshawytscha</i>	CA coastal chinook salmon	Threatened	Yes
Birds			
<i>Brachyramphus marmoratus</i>	marbled murrelet	Threatened	Yes
<i>Coccyzus americanus</i>	western yellow-billed cuckoo	Candidate	No
<i>Strix occidentalis caurina</i>	northern spotted owl	Threatened	Yes

There is no habitat for the listed fish species within the quarry (upland location).

Marbled Murrelet – Marbled murrelet habitat does not exist in the immediate project vicinity. The California Department of Fish & Game Biogeographic Information System (BIOS, September, 2010) contains one recorded marbled murrelet occurrence within 1.0 mile of the project area. No occurrences have been reported in the immediate vicinity of the project.

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 – Northern spotted owl habitat exists in the project vicinity. The California Department of Fish & Game Biogeographic Information System (BIOS, September, 2010) contains four records of northern spotted owl occurrences within 1.0 mile of the project area. No occurrences have been reported in the immediate vicinity of the project.

Review of occurrences of rare and sensitive wildlife species recorded in CNDDDB (September 2010) for the Taylor Peak 7.5' quadrangle revealed two species of mammals.

**Rare/Sensitive Wildlife Species
(Habitat in Project Area/Vicinity)**

SCIENTIFIC NAME	COMMON NAME	LISTING STATUS
<i>Arborimus pomo</i>	Sonoma tree vole	Fed: None Cal: None
<i>Martes pennanti (pacific)</i>	Pacific fisher	Fed: Candidate Cal: None

Sonoma Tree Vole – There is no habitat for Sonoma tree vole in the quarry area. There is habitat in the quarry vicinity (old growth and large second growth forests of Douglas fir, redwood, and montane hardwood-conifer).

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

Cultural Resources

Archaeological site maps included in the Environmental Data Bank located at the Natural Resource Division of HCPW indicates that there are no known or recorded archaeological resources or historical sites at the quarry or in the vicinity.

Geology

The quarry lies within a region of Upper Miocene marine sedimentary rock known as the Pullen Formation, composed of mudstone, siltstone, and sandstone. These deposits occur predominantly as massive sandstone beds with thin siltstone interbeds which form moderate to steep, straight to convex slopes, sharp ridge crests and v-shaped canyons with a dense, coniferous timber cover. Slopes are generally stable, but prone to debris sliding along steep riverbanks and in steep headwater drainages. Although a potentially active fault is known to exist in the proximity to the site, operation of this quarry is not expected to have geologic impacts. The site has been subjected to numerous 6.5 magnitude or greater earthquakes in the past with no evidence of landsliding or slope failures.

Soils

Soils in the vicinity of the quarry are of the Irmulco Series. Irmulco soils drained well with surface runoff under bare soil conditions medium to very rapid with moderate permeability. This soil is well suited for timber production and wildlife and of medium to low suitability for range use. Natural vegetation consists of redwood, Douglas-fir, tanoak, California red huckleberry, California huckleberry, swordfern, oxalis, trillium and rhododendron.

Noise

Ambient noise levels in the quarry vicinity range from 30 to 65 dBA, and result from wind, birds, livestock, and vehicular traffic (Jake Brakes) on Monument Road. Noise contribution 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, dump truck tailgates, and the crusher.

GENERAL LEAD AGENCY INFORMATION

Lead Agency

Humboldt County Building and Planning Department

Staff Contact

Joshua Dorris, Senior Planner

Phone Number

(707) 445-7541

Address

3015 H Street
Eureka, CA 95501

Surface Mining/Conditional Use Permit Number

CUP-45-94/SMP-07-94

Date Issued

10/6/2010

Expiration Date

12/31/2040

DESCRIPTION OF MINING ACTIVITIES

HCPW will mine up to 25,000 yd³ or less at any one time over a period of 15 years. The total volume extracted will not exceed 35,000 yd³. Crushing and stockpiling are included in the mining activities.

Quarrying

The mining method proposed is identical in nature to operations conducted by HCPW over the past 30 years (1995 & 2010 permit period). Extraction will occur by ripping and breaking up the rock with a bulldozer or excavator. The material will then be pushed into temporary surge piles for processing. In the event localized hard rock is encountered, small-scale separation with charges may be performed. The quarry face will be maintained at a minimum of 1:1 slope, with ~15 ft. wide bench located ~22 ft. above the quarry floor. The proposed activity will include the retreat of the working face to the south approximately 60 ft. The alignment of the quarry face will remain consistent.

Mining and crushing will occur during daylight hours (sunrise to sunset), primarily on weekdays. The average time period from extraction to stockpiling will be about 4-6 weeks.

Aggregate Processing

A portable crusher assembly, consisting of jaw and cone crushers, conveyors, and a generator trailer will be temporarily located on the quarry floor. 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 area.

Crusher in Operation (Charles Bar 2008)



Dust Suppression

Wetting the quarry access road and quarry floor will occur during hours of operation to control fugitive dust and minimize wind erosion. Furthermore, a dust suppression system will be utilized during processing operations to further reduce fugitive dust. Offsite water is delivered to a large water storage tank via a water truck. Refilling is 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 volume of dust generated by the material being processed.

Traffic Control

Traffic control will consist of placing warning signs along Monument 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 slow down when they encounter trucks entering or exiting Monument Road from the quarry. Delays will be temporary, ending when extraction and processing activities are completed and trucks/equipment are removed from the area.

Fueling and Maintenance

All fueling, lubing, and equipment maintenance will be performed in a 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, or stockpiling operations, 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 in a timely manner and disposed of at an approved disposal facility.

Annual Winterization Activities

Each fall prior to the commencement of winter rains, the site is inspected for inefficiencies regarding stormwater management. The inspection includes examining the quarry floor to assure that it is graded to control stormwater and divert sheet-flow towards the center of the site. A saturation trench, constructed at the toe of the quarry face facilitates percolation and evaporation of onsite stormwater. Furthermore, a portion of the floor is ripped (decompacted) to break up hardpan associated with vehicle and equipment traffic. Ripping to decompact soil and facilitate percolation typically occurs to a depth of 0.5-1. If the existing stormwater containment berm around the exterior of the site has been damaged or breeched during extraction or end-haul activities, they are reconstructed as necessary to control stormwater runoff. Any rebuilt sections of the berm are straw mulched to eliminate offsite sediment transport of fines associated with the activity. Stormwater control measures are adequate to contain stormwater onsite during a 20-year/1 hour intensity/magnitude storm event. Stormwater discharging from the site would be to Dean Creek a tributary to the mainstem, Eel River, 2.8 miles downstream of the site.

Interim Management Plan

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

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 annually. Reporting consists of annual reports to the local lead agency and CA Division of Conservation as required by SMARA.

INTERIM AND FINAL RECLAMATION

As of summer, 2025, 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 will be 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. See Reclamation Activities, Revegetation, Pg. 16 for specifics regarding revegetation.

Further interim and final reclamation will take place as mining operations progress towards the conclusion of operations.

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.

Post Reclamation Land Use

Assessor Parcel # 205-031-049 is zoned Agriculture Exclusive, Timber Production Zone, with a Humboldt County General Plan land use designation of Timber/Agricultural grazing. HCPW's method of extraction will remove existing quarry rock in a manner that will not affect the opportunity to mine on adjacent parcels. Reclamation of the quarry site will not preclude reestablishing an active quarry if sufficient rock material surplus still remains at the quarry site.

When consulted, the land owner (HRC) indicated they prefer that the majority of the site be returned to forest land. They also indicated they intend to continue utilizing a portion of the site as a borrow pit if sufficient material remains following closure by HCPW. Where borrowing activity is a compatible use on land zoned agricultural grazing and timber production, the landowner may reinitiate quarrying activity only after an evaluation by the lead agency and concurrence by OMR.

The reclamation plan is written with the intention of reclaiming the site to simulate productivity (timber production) to the surrounding area to the furthest extent possible.

Reclamation Activities

Reclamation activities will consist of the following:

1. Finished Grading.
2. Resoiling.
3. Revegetation.
4. Monitoring and Maintenance.
5. Post-Reclamation Monitoring

1 – Finished Grading: The quarry face, which will be approximately 57 ft high at end-of-project, will be finish graded to a 1:1 slope or as determined appropriate by the engineer, with a 15-ft wide bench located 22 ft above the quarry floor. The quarry floor will be designed to slope ($\pm 1\%$) 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. See attached Proposed Final Reclamation Site Plan and Cross-Section drawing.

The existing access road (125 linear ft) will not be decommissioned or altered, as it is the intent of the landowner to utilize the site for forestry related activities. Continued use of the site as a borrow pit is a compatible use on land zoned for timber production and may be permissible activity, but only with lead agency approval and concurrence with OMR.

2 – *Resoiling*: Although the site will someday be reclaimed and utilized for timber production, little material suitable for resoiling and revegetation is being stored at the site for resoiling purposes. Due to the fact that little topsoil exists above the shale deposit, it has not been necessary to separate fine material suitable for topsoiling from the material for utilized for road maintenance. Due to the homogeneous nature of material previously quarried from the site, one can expected 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/processing activity will result in an insignificant accumulation of material suitable for this purpose. Expansion of the site will occur within 2-3 years as the site is again scheduled for quarrying and processing. Once that occurs, there will be a substantial increase in area available for stockpiling of resoiling material. At that time, County road crews performing local road maintenance will begin offloading material for reclamation. Offsite sources considered for resoiling/revegetation shall be clean topsoil, equal to or of better quality than native topsoil currently stockpiled at the site. Prior to resoiling, the nonnative material will be blended with native material and will result in suitable and sustaining growth medium necessary for successful reforestation of the site. It is estimated that resoiling the expected area of disturbance (4.5 acres) to a depth of 18 inches will require approximately 10,900 yd³ of material. Soil will be spread over the top of the face, catch bench, and quarry floor to promote revegetation. Care will be taken to minimize compaction during spreading. In the event portions of the quarry face or catch bench are resoiled and seeded, it will be track walked to produce a roughened surface prior to revegetation activities.

Weed management measures will include biannual site surveys by a qualified botanist or other qualified individuals to assess the soil stock piles for weed species establishment. May or early June are appropriate months to complete a weed inventory as most weedy species are in flower and are identifiable. Weed eradication should occur during or soon after weed inventorying is conducted as many weeds can be completely eradicated while in flower or fruit. Recommendations stipulated by the California Invasive Plant Council (CalIPC) for eradication of particular weed species will be followed

4 – *Revegetation*: Graded and resoiled areas will be reforested to facilitate the proposed end use of timber production.

Revegetation of Monument Quarry will be conduct with the end use goal of reestablishing a healthy stand of conifer similar in species composition to the surrounding coniferous forest. Revegetation of the site will be in keeping with these goals to the greatest extent possible.

The following is based on guidelines set forth by a qualified botanist, familiar with the area and retained by HCPW for the purpose of developing vegetation plans, monitoring, and assistance with the revegetaton element of the Reclamation Plan.

Reforestation/Revegetation:

- Revegetation will include planting bare root or containerized coniferous species.
- As-built conditions will dictate the quantity of seedlings to be planted. A dense replanting of the entire site (4.5 acres) with 10-ft on-center spacing is 2,264 trees.
- Appropriate species to be planted with landowner approval are redwood (*Sequoia sempervirens*) and Douglas fir (*Pseudotsuga menziesii*).

Erosion Control:

- The recommended seeding rate of 10 lbs/acre (Pure Live Seed) will be used for a native grass mix.

- The mix will include two native grass species and one nonnative variety. The mix is commonly used in Humboldt County as an erosion control ground cover because of its ability to establish quickly.
- Success criteria (forest industry standards) will be monitored by the botanist as well as HCPW staff.

Areas to be planted in conifer and/or seeded for erosion control include the top of the quarry face, catch bench, quarry floor, areas of the face capable of supporting plant growth, the perimeter containment berm, and any other areas that have been disturbed by the operation.

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. 17 for additional information regarding revegetation success.

5 – Monitoring and Maintenance:

Containment Berms & Discharge: The quarry floor is reformed to assist in directing sheet-flow towards the quarry face. Containment berms are constructed around the perimeter of the quarry to eliminate offsite discharge of stormwater and sediment. They are significant in size and designed to withstand a 20-year/1 hour intensity/magnitude storm event. A large retention basin and best management practices (BMP) in the form of (multiple) straw wattles have been installed and maintained at a single overflow point to minimize the release of sediment-laden stormwater in events exceeding a 20-year/1 hour intensity/magnitude storm. Furthermore, straw bales, spaced sufficiently to meter the release of stormwater from the site have been installed upstream of the wattles to minimize downstream erosion associated with high-flow velocity. 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 periodically through each winter for a minimum of three years. Any sections rebuilt or reconstructed during reclamation will be seeded with native grasses and straw mulch.

Slope Stabilization and Erosion Control: The final slope will be graded at minimum 1:1 with a bench mid-slope. The final grade will be designed to provide a stable slope for the geology of the site. Once the slope is resoiled, mulch and tackifying agents will be applied during hydroseeding. Erosion of the quarry face will be controlled by installing rice straw/coir wattles across the slope at 10 ft intervals (slope distance) and will be staked per manufacturer's recommendations. Wattles will be maintained and/or replaced as needed to ensure continued sediment control until revegetation is concluded.

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.

Time Schedule: Final grading and resoiling, and seedbed preparation will be completed during late summer or the fall, and will take two-three weeks to complete. Seeding and mulching will be done prior to the first rainfall event of the season. The site will be revisited in two-weeks 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 the disturbed area to grazing capabilities for livestock and habitat for use by local wildlife for cover and foraging.

Task: The site will be regraded to topography similar to the surrounding area. The site will be revegetated with native grass and conifer species consistent with the surrounding area.

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 57 ft high quarry face will be regraded to a 1:1 (horizontal: vertical) slope, with a 15 ft wide catch bench at a height of 22 ft. Prior to the commencement of reclamation, the engineer will reevaluate and approve the existing slope design or make subsequent recommendation regarding minimum slope inclination. HCPW will notify OMR and seek concurrence regarding any design changes prior to initiating reclamation activity. The quarry floor will be finish graded at a 1% slope toward the base of the quarry face, and scarified to a minimum depth of 0.5-1 ft.

Revegetation

Objective: Establish a vegetative cover suitable for the proposed end use of timber production, with consideration given to erosion control: 80% aerial coverage one year after treatment, 97% aerial coverage two years post-treatment.

Tasks: Disturbed areas not appropriate for reforestation will be hydroseeded with a mix of natives, fast-growing hybrids, and erosion control grasses. Seed will be applied at 10 lbs/acre and conditions. Seeded areas will be hydro-mulched with wood/fiber mulch and tackifier to ensure topsoil stability and encourage rapid plant growth. Revegetated areas will be monitored by a qualified botanist 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 saturation trench at the base of the face where runoff will collect onsite and percolate into the ground or evaporate. 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 onsite 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: Finished grading will result in slopes capable of holding adequate topsoil for reforestation or forage production. The soil utilized for resoiling/revegetation will be partially native with additional material imported from local sources, being of the same or similar soil type as the surrounding area. A botanical survey and consultation with the property owner has determined 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: Finished 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 site. 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: Soil suitable for topsoiling will be stockpiled onsite for future use in final reclamation. County Road maintenance in the area generate several hundred cubic yards of suitable material annually, which will be stockpiled onsite for final reclamation use. The imported topsoil 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 the accumulated resoiling material at end-of-project will be sufficient in volume to exceed the minimum depths required for successful production of the plant species to be planted (~6-10 inches). 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. Straw/coir wattles will be installed on the quarry face slope to minimize soil erosion until vegetation is established.

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 AND EROSION CONTROL PLAN

Erosion and Sediment Control Principles

This section provides basic information on the principles of erosion and sediment control that shall be applied at the Monument 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.

- Design the project to fit the natural topography, soils, and drainage patterns through such practices as limiting disturbance of steeper slopes, avoiding disturbance of natural drainage ways, and using soil during resoiling activities with a high infiltration rate, whereas, the characteristics of the site can be used to minimize 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. Examples of erosion control include covering disturbed soils and controlling surface runoff using measures such as earthen berms a retention pond, and percolation trench. Another example might be to place wattles at intervals across steep slopes to impede surface flow velocity and reduces erosion. The design of the catch bench is intended to redirect surface flow, impede flow velocity, and reduce rilling. Another illustration of the relative effectiveness of erosion control is straw mulch, which can reduce sediment concentrations in runoff over 90%.

Since it is nearly impossible to entirely prevent erosion, it will also be necessary to incorporate sediment control devices such as a retention pond, percolation trench, and earthen berm around the perimeter of the site to assure stormwater is contained onsite. Sediment controls vary in their effectiveness, but typically reduce sediment concentrations 50 to 75%.

However, sediment controls have little effect on the very fine sediment that causes turbidity, thus erosion control should be the first line of defense in managing and controlling sediment.

- Minimize the extent and duration of area exposed. Restricting disturbance to only those areas utilized for quarrying operations is probably the single most effective form of erosion control. Additionally, 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 straw mulched and/or seeded as soon as grading is completed.
- Minimize stormwater surface flow velocity. 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, which forms rills and gullies. Therefore, one of the most effective ways to minimize erosion is to reduce the possibility of concentrated runoff by intercepting and conveying it in a non-erosive manner. This includes the use of wattles and mulch, but also includes berms, benches, retention basins, and percolation trenches. Seasonal ditches may be used to intercept and control the flow of stormwater as well.
- Retain sediment on site. Sediment retention is less effective than erosion control measures, such as cover, but it is nevertheless 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 controlled 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, etc. Note that settling and filtration typically only remove sand-sized and coarse silt particles. Fine silts and clays cannot be removed in this manner, unless the runoff is released to vegetated areas or through chemical treatment, such as alum, or chitosan introduction, or electroflocculation.
- Thoroughly monitor the site and maintain all ESC measures 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 sediment and erosion control.
- 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, these events occurring only during the dry season are a very effective form of erosion control. If end-hauling or other activities do occur in the wet season, the need for regular maintenance is even more imperative.

Desired Goals From Implementing Erosion & Sediment Control Measures

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

- Effectively controlling the infiltration of polluted run-off into Dean Creek during quarrying, processing, or end-haul activities.

- Effectively controlling stormwater onsite during a 20-year/1 hour intensity/magnitude storm event.
- Effectively control sediment discharge from the project site, which could result in increased sedimentation into Dean Creek. Business

Erosion & Sediment 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 rice straw/coir wattles, straw bales, straw mulch, silt fence, and by ditching. Applies to the quarry face, access road, and any disturbed areas outside the perimeter containment berm only.
- ✓ 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 containment.

- ✓ Maintain a 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 a saturation trench at the base of the face (as necessary), whereas, stormwater will collect and percolate into the ground or evaporate.
- ✓ 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. 16-17 for a list of probable species determined to be appropriate for the site.

3. Tracking Control

- ✓ The access road leading to the quarry will be wetted during the hours of operation to enhance surface armoring and to minimize the accumulation of dust since fine particulate on gravel roads contributes to wind erosion and offsite sediment discharge during first of the season storm events.

4. Wind Erosion Control

- ✓ Wind erosion will be controlled with water. The access road, quarry face and floor, and stockpiles 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 discharge will be addressed immediately. Certain ESC elements or devices may need to be replaced or require indiscriminate maintenance over the course of winter to assure adequate protection and to minimize the chance for discharge from the site.

STATEMENT OF RESPONSIBILITY

STATEMENT OF RESPONSIBILITY

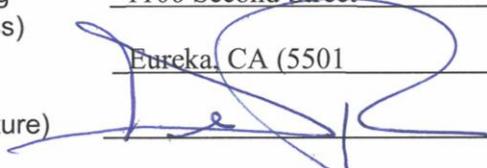
I, the undersigned, hereby agree to accept full responsibility for reclamation of all mined lands as described and submitted herein and in conformance with the applicable requirements of Article 1 and 9 (commencing with Sections 3500 *et seq.* and 3700 *et seq.*, respectively) of Chapter 8 of Division 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 25 day of, January 20 11

MINE OPERATOR OR OPERATOR'S AGENT

(Printed Name) Art Reeve

(Mailing Address) 1106 Second Street
Eureka, CA (5501)

(Signature) 

MINE NAME Monument Quarry

CA MINE ID # 91-12-0025

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 1 – Rare Plant Survey



Native Plant Nursery

HFAC Nursery Location: 1280 Hatchery Rd.
Blue Lake CA 95521

HFAC Nursery Phone: 825-746 or 498-2123
HFAC Office Phone: 822-3834

Prepared For: Doug Dinsmore
Humboldt County Public Works
1106 Second Street
Eureka, CA 95501

Prepared By: Suzanne Isaacs,
Humboldt Fish Action Council (HFAC)
Nursery Manager
and Revegetation Specialist
sli@reninet.com

Submitted: April 9, 2010

Introduction

Suzanne Isaacs, nursery manager and botanist for Humboldt Fish Action Council (HFAC) has prepared the following rare plant survey in response to a request by Humboldt County Public Works. Two quarry sites, both located in Humboldt County California, were surveyed for different listed species. The first quarry site is located off of highway 36 just past the county park behind the county refuse disposal site. The second quarry site surveyed is located along Monument Road west of Rio Dell. A survey was conducted April 6th, 2010 to determine the presence of federal, state, or California Native Plant Society (CNPS) listed plants including but not limited to Oregon polemonium (*Polemonium carneum*), long-beard lichen (*Usnea longissima*), maple-leafed checkerbloom (*Sidalcea malachroides*) and Howell's montia (*Montia howellii*). No listed plants were encountered.

1. Highway 36; PL-Van Duzen Processing Area

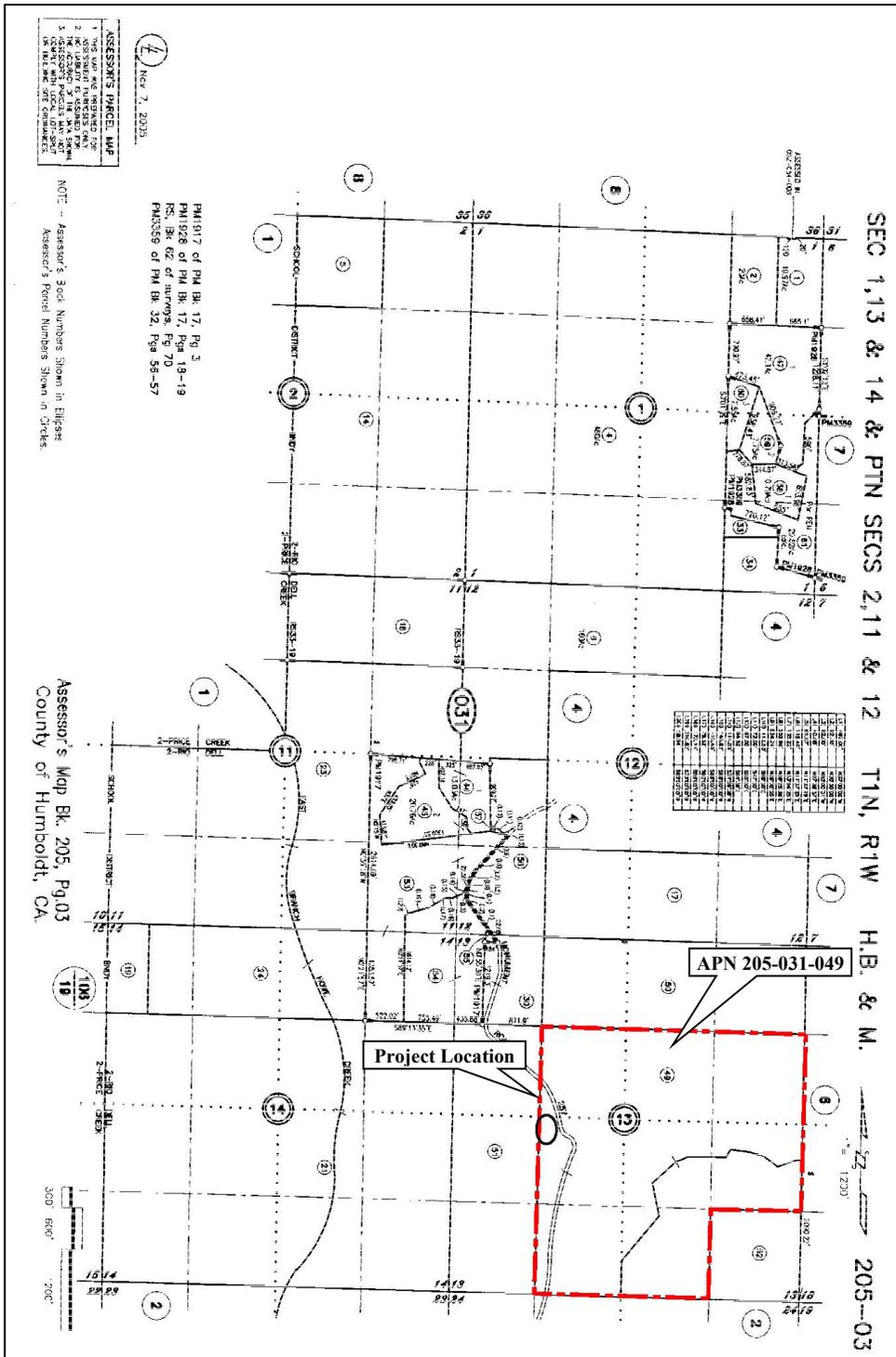
- **1.1: Area Description:** The area surveyed lies northwest of the solid waste disposal site. The gravel road accessing the site and the 1.6-acre processing and stockpiling area were surveyed via foot. Particular attention was given to the two ephemeral wet areas located on the northeast edge of the processing site.
- **1.2: Vegetation:** No special status species were found. The only hydrophyte found in the wet areas was the facultative wetland species, nutsedge (*Cyperus eragrostis*). The site was covered with the common non-native perennial and annual grasses such as sweet vernal grass (*Anthoxanthum odoratum*), Vulpia, tall fescue (*Festuca arundinacea*) in addition to shrub scotch broom (*Cytisus scoparius*). No recommendations are necessary as no species of concern were encountered.

2. Monument Quarry:

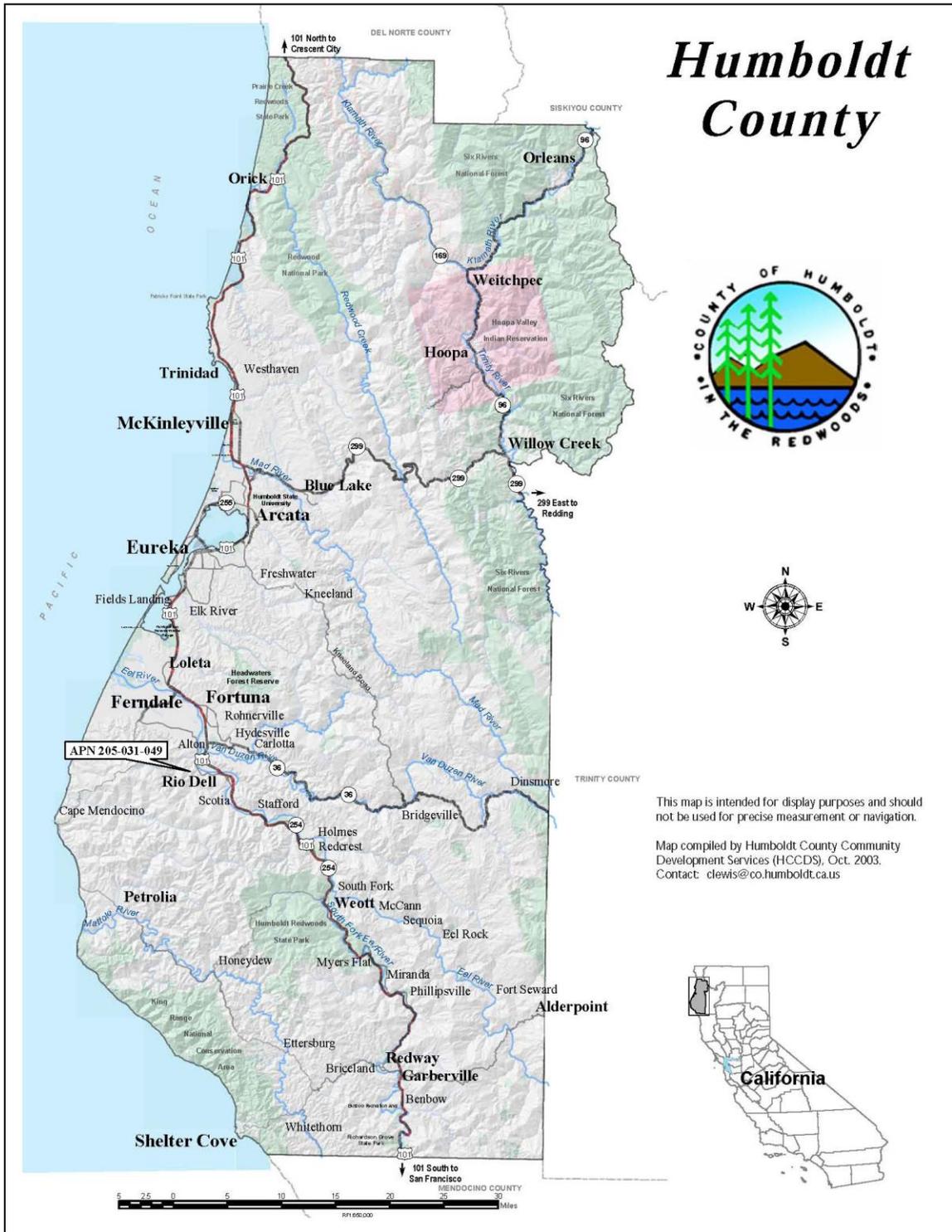
- **2.1: Area Description:** The area surveyed included the entire quarry site. As there was sparse vegetation in the center of the quarry, the survey was conducted in two loops that encompassed the entire perimeter of the quarry where the bare soil and rock extraction area abuts vegetation.
- **2.2: Vegetation:** No special status species were found though this site was botanically diverse. Remnant patches of herbaceous understory plant species included wild ginger (*Asarum caudatum*), bleeding heart, (*Dicentra formosa*), fringe cups (*Tellmia grandiflora*) and adders tongue (*Scoliopus bigelovii*). Red flowering currant (*Ribes sanguineum*) and canyon gooseberry (*Ribes menziesii*) were found growing together. It cannot be definitively determined that the fruticose lichen, *Usnea longissima* is not there. Generally, the listed lichen grows on large old growth trees of which this site has very few trees of that stature. An effort was made to find any wind-blown lichen material that may have fallen from the few tall trees growing around the perimeter of the surveyed site. No recommendations are necessary as no species of concern were encountered.

Suzanne Isaacs,
Humboldt Fish Action Council (HFAC)
Nursery Manager and
Revegetation Specialist

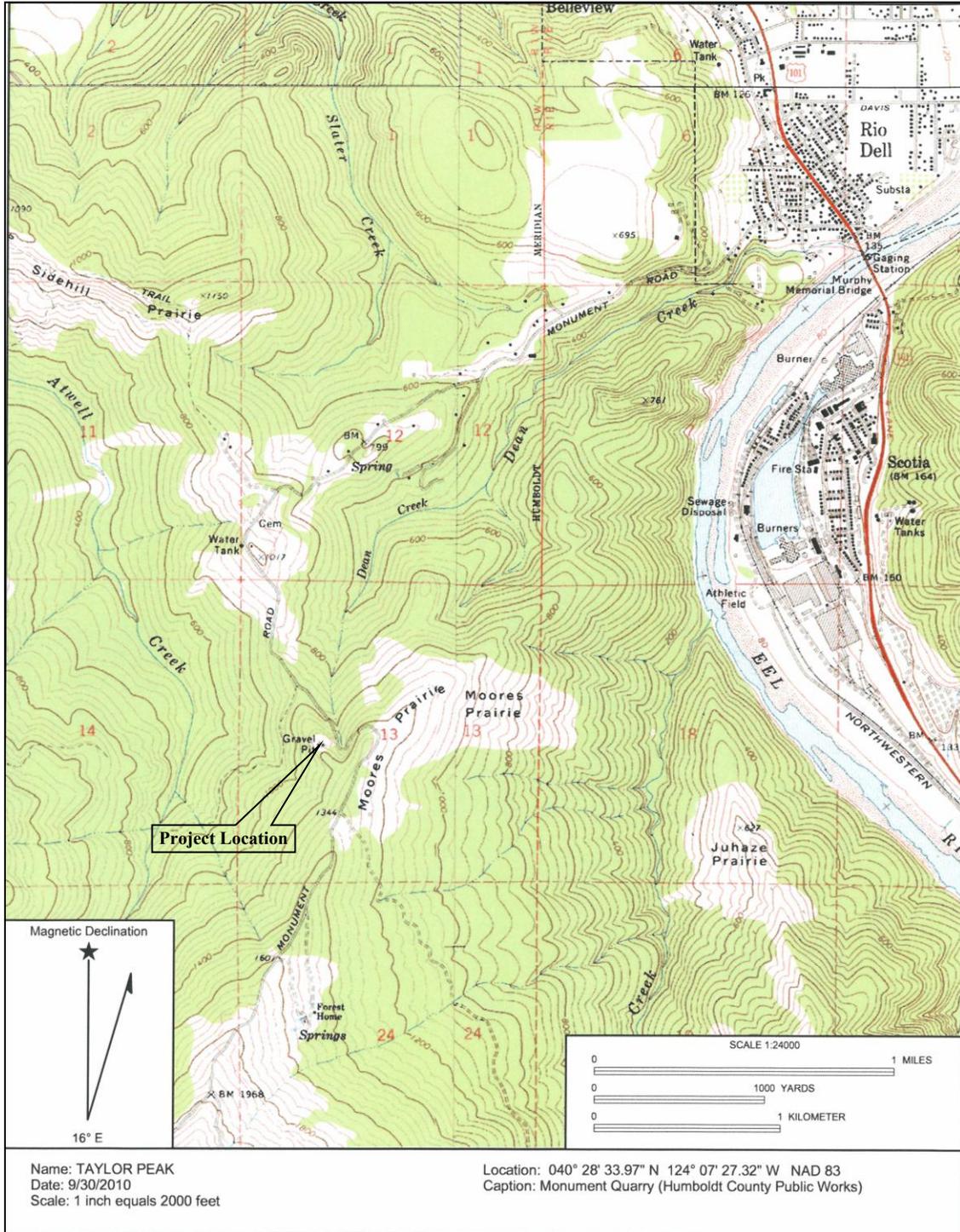
ATTACHMENT 2 – Assessors Parcel Map



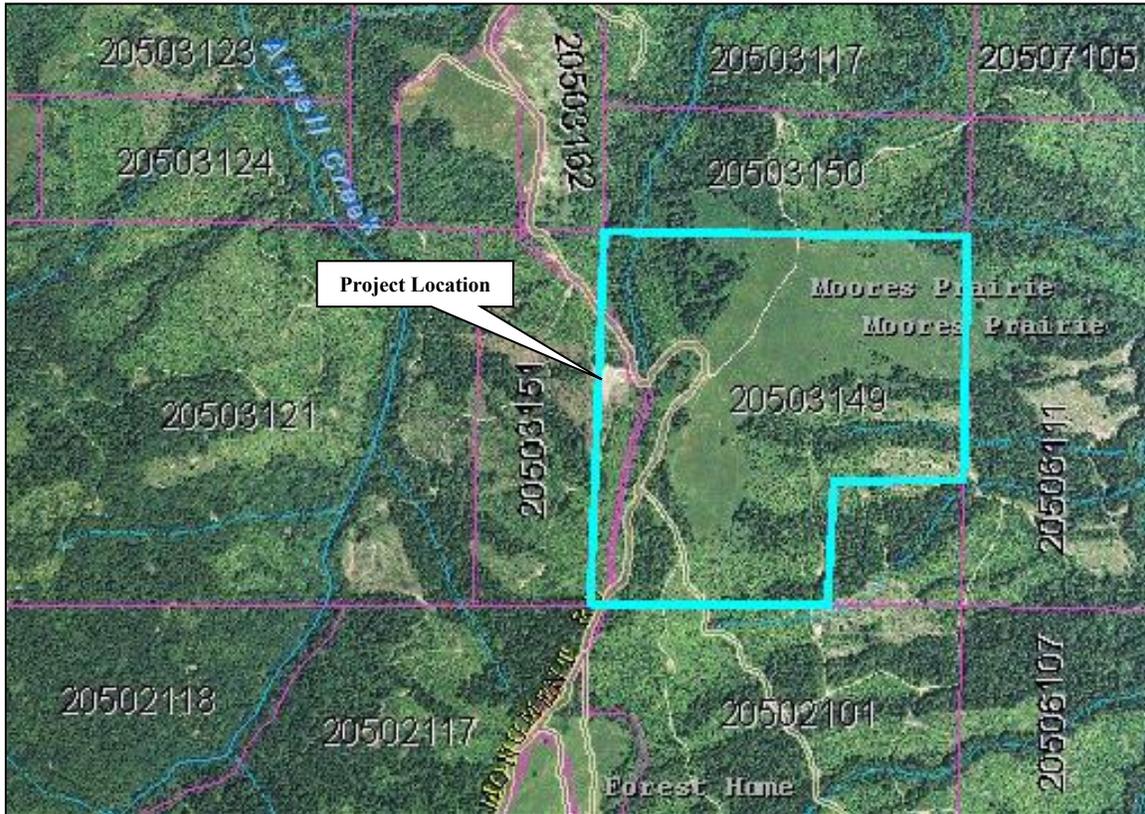
ATTACHMENT 3 – Location Map



ATTACHMENT 4 A – Vicinity Map



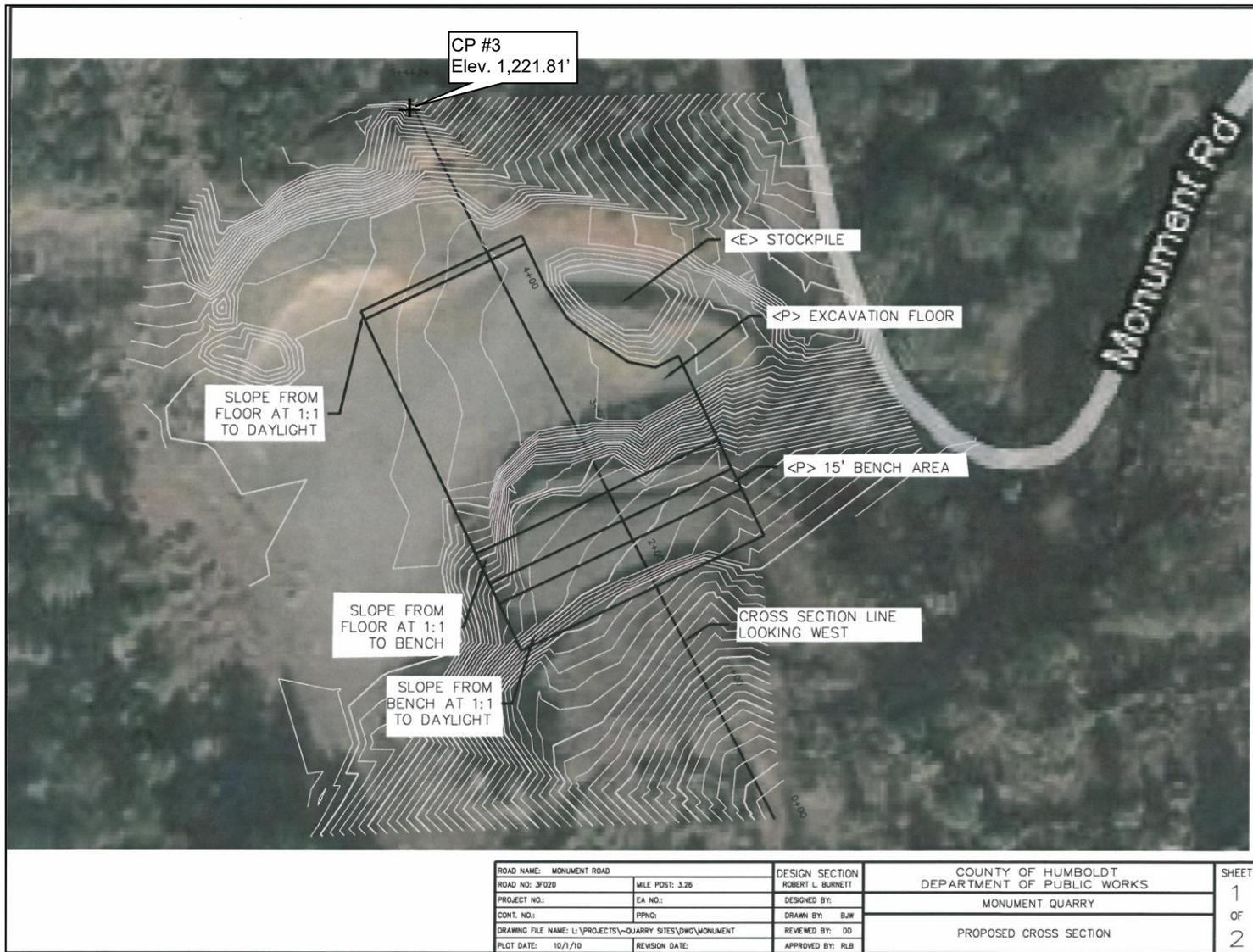
ATTACHMENT 4 B – Vicinity Map



ATTACHMENT 5 – Site Map



ATTACHMENT 6 – Proposed Final Reclamation Plan



ATTACHMENT 7 – Proposed Final Reclamation Cross Section

