APPENDIX D
BIOLOGICAL STUDIES

RESULTS OF SPECIAL-STATUS WILDLIFE SURVEYS AT THE PROPOSED EASTSIDE AGGREGATES PROJECT SITE

Prepared for:

Hat Creek Construction, Inc.
24339 Highway 89 North
Burney, CA 96013
Telephone (530) 335-5510

By:

Miriam Green Associates
1321 42nd Street
Sacramento, CA 95819
Telephone (916) 452-2072

July 20, 1999

INTRODUCTION

Hat Creek Construction, Inc. is requesting approval of a use permit for a rock quarry, crushing and screening operation, concrete batch plant, and an asphalt plant along Highway 89 North in Shasta County, California. The use permit would be for a period of 30 years and the amount of usable material extracted annually would be 30,000 cubic yards. A total of 900,000 cubic yards of usable material is expected to be produced during the 30-year life of the operation.

The proposed project also includes the rezoning of approximately 24 acres of the 343-acre project site from the General Industrial (M) District to the Commercial Light Industrial (C-M) District and an application for a 7,000-square-foot truck repair shop, and a 10,000-square-foot outdoor area for retail sales of landscaping materials and rentals of trailers used for hauling 1¼ cubic yards of mixed concrete.

Miriam Green Associates was retained by the project proponent to conduct an investigation of special-status species that may occur on the project site. Field surveys were conducted to determine whether such species were present and whether the project site supports suitable habitat for any of these species.

PROJECT LOCATION

The project site encompasses approximately 343 acres and is located on the east side of State Route 89 North, approximately 3.5 miles north of State Route 299, in Shasta County, California (Figure 1). The closest community is Johnson Park, located approximately 5 miles to the southwest. The proposed operations are located in Section 10, Township 36 North, Range 3 East on the U.S. Geological Survey (USGS) Cassel 7.5-minute topographic quadrangle (Figure 2).

PROJECT DESCRIPTION

The quarry, crushing and screening operation, concrete batch plant, asphalt plant, stockpile areas, and truck staging area would be located in the southeastern corner of the property and would occupy approximately 85.48 acres.

Quarry

The quarry would be located along a volcanic basalt escarpment that rises above the valley floor about 70 feet. The ledge would be excavated down to the level of the valley floor. A highwall would be created along the eastern face of this excavation at a 1:1 slope.

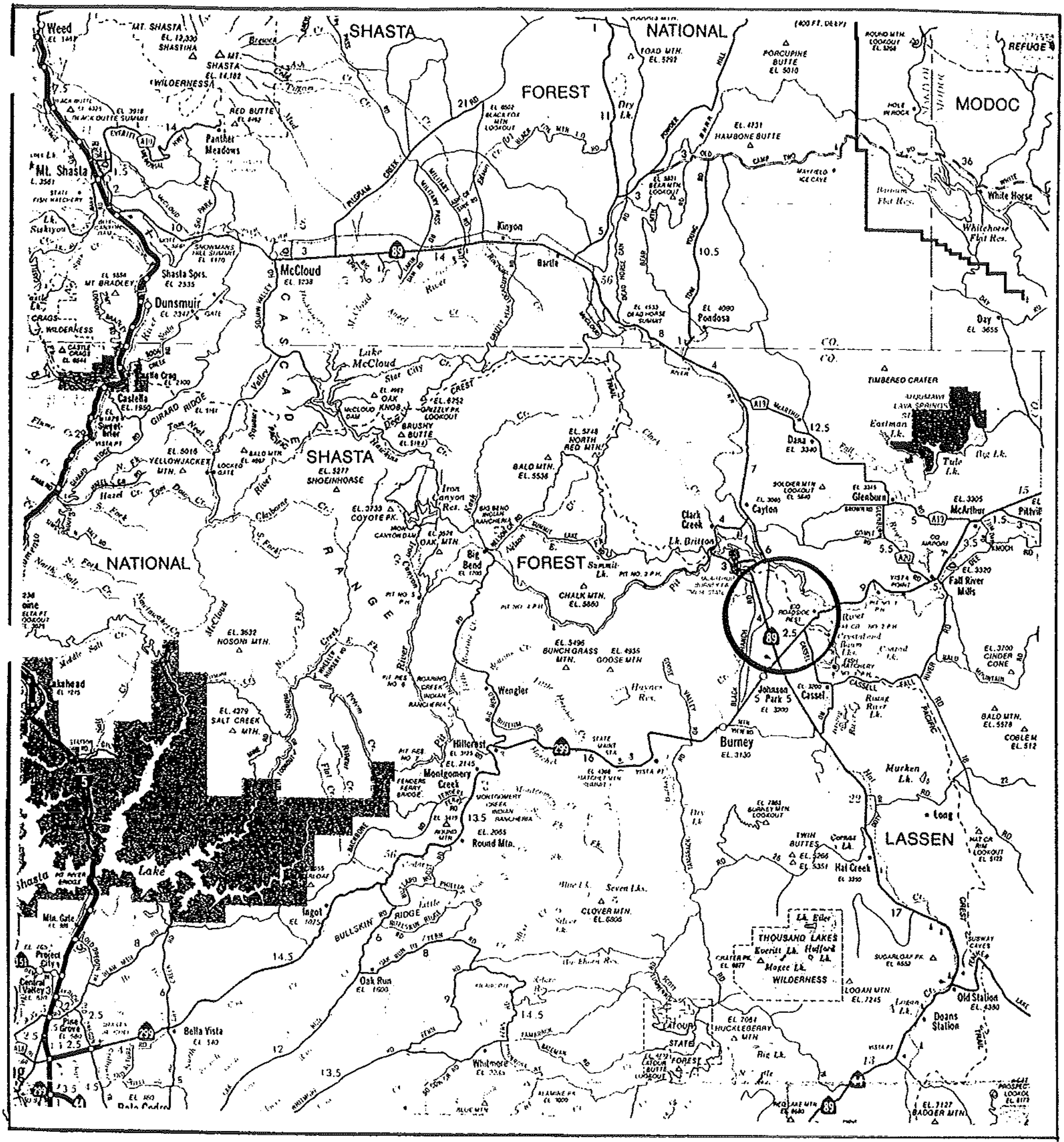

Figure 1. Project Area Vicinity Map (Source: AAA Northeastern California, 1994)

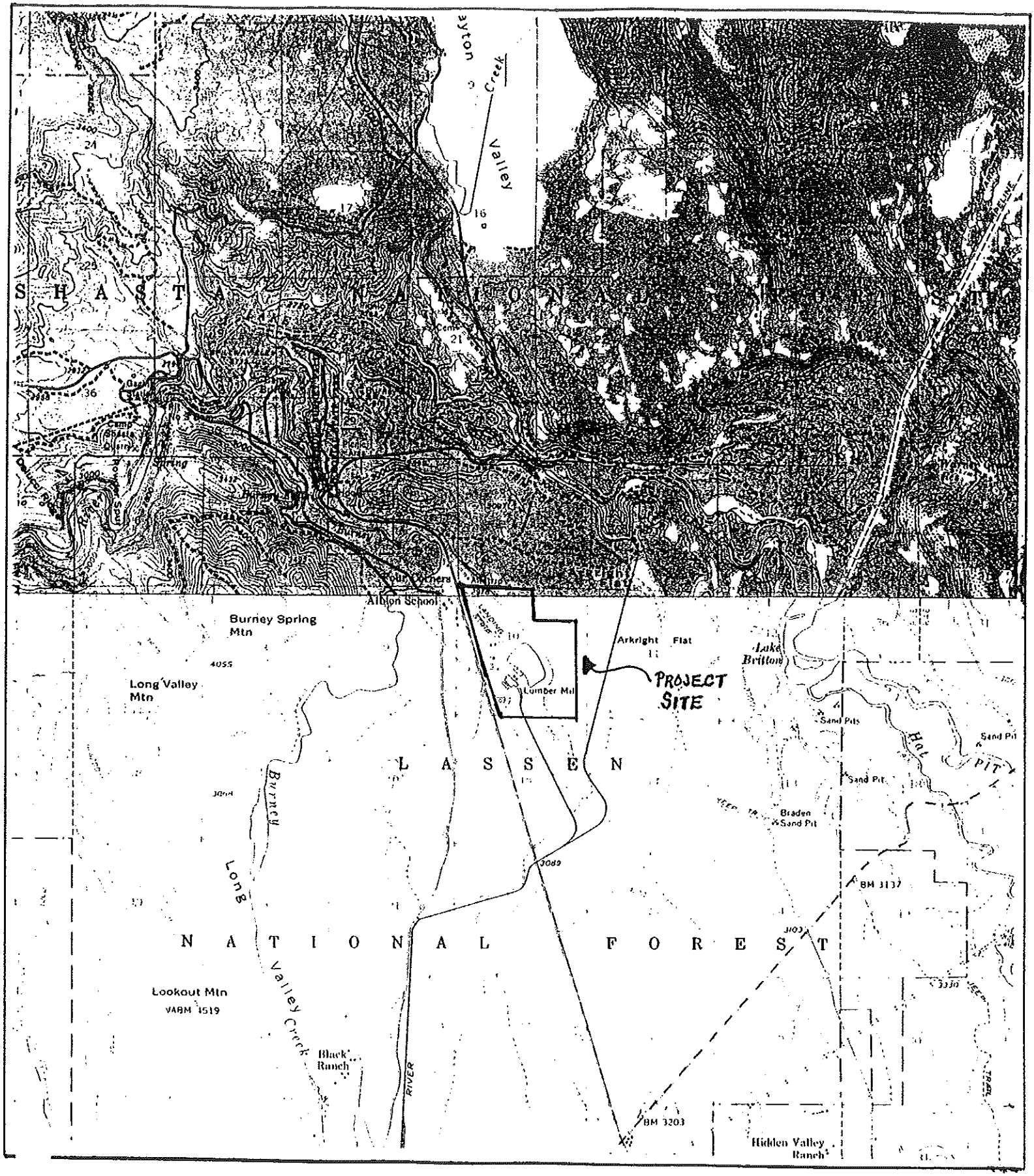

Figure 2. Project Site

The quarry is proposed in three phases of 10 years each. Phase I would be at the southeasternmost corner of the ledge. Phase II would be at the adjacent rock to the north and Phase III would be immediately north of Phase II. The first phase of the quarry would start on the western side of the ledge and proceed toward the eastern property line. The second phase would work the northern face of Phase I. The final phase would work in a west to east direction.

The method of extraction would be the removal of loose rock by caterpillar, loader, and excavator. Blasting would loosen the remaining rock, which would then be pushed by a caterpillar to processing areas. Excavated material would be transported to one of three locations depending upon its size. Large rock would be stockpiled for use as riprap. A surge pile would be created for crushing and screening. Fine material would be stored as topsoil/overburden.

Crushing and Screening Operation

A portable crushing and screening operation is proposed to reduce the material to the desired size. A loader would take the material from the surge pile to the portable crushing and screening plant. After washing, conveyors would transport the processed material to various stockpiles based on size. A loader would move material from these stockpiles to the concrete and asphalt plants, as needed. Processed material would be used for a variety of purposes, including base rock, leach rock, aggregate for concrete and asphalt, and shoulder backing.

Concrete Batch Plant and Asphalt Plant

The ready mix concrete plant would be a permanent structure with an output of 8,000 cubic yards per year. The batch plant would consist of silos for cement, sand, and aggregate, a gathering hopper, and a mixer. A pug mill type asphalt plant is proposed with an estimated annual production of 10,000 cubic yards. The facility would also include a bag house to reduce plant emissions and a control building to run the operation.

Repair Shop, Rentals, and Retail Sales

The truck repair shop, trailer rental, and retail sales area would be located on approximately 24 acres along the east side of Highway 89. This area is already highly disturbed and currently supports a small one-story office building, trailers, and outbuildings.

METHODOLOGY

A computer search of the Department of Fish and Game's Natural Diversity Data Base (NDDB) was conducted for the USGS Cassel, Burney, Burney Falls, and Dana 7.5-minute topographic quadrangles. All special-status wildlife species that were documented from these

four quadrangles were noted and habitats occupied were reviewed prior to conducting field surveys.

A reconnaissance level survey of the project site was conducted on February 15, 1999. More detailed field investigations were conducted by biologists in March, April, and June, 1999. Walking surveys were undertaken to cover the entire project site; however, the southeastern corner included focused surveys to determine whether any special-status species were present that may pose constraints to the proposed operation.

RESULTS

Habitat Types and Wildlife Usage

Most of the 343-acre project site has been altered from the previous production of lumber products by milling operations that occurred between 1957 and 1988. Almost the entire lower portion of the project site now consists of a disturbed grassland where lumber was stored and processed. The grassland has been altered by a network of berms, ponds, and old roads. The disturbed nature of the site is visible in Figure 3, which is a recent aerial photograph of the project site taken on June 11, 1999.

Four habitat types are present within the project site boundaries; these include ruderal, grassland, mixed woodland, and open water (pond). The ruderal, grassland, and open water (pond) habitats are bordered on the west, south, and east by mixed woodland. On the eastern border of the project site, a volcanic basalt fracture, oriented in a north/south direction, rises roughly 70 feet above the main portion of the project site. Little vegetation is present on this fracture; however, mixed woodland dominates the habitat on the rim. The mixed woodland on the rim and in other parts of the project site has been selectively logged. The mixed woodland in the eastern portion of the project site was logged within the last two years, while the mixed woodland in the western and southern portions of the project site was logged approximately 10 years ago.

Because most of the project site functioned as a lumber yard into the late 1980s, the natural topography has been highly altered to create the mill ponds and flat areas used to hold logs and store lumber. These alterations have created large expanses of ruderal habitat. Dominant plant species growing among the remaining slash, graveled areas, former mill ponds, and cement pads include medusa-head (*Taeniatherum caput-medusae*), prickly lettuce (*Lactuca serriola*), turkey mullein (*Eremocarpus setigerus*), yellow star-thistle (*Centaurea solstitialis*), horseweed (*Conyza canadensis*), gumplant (*Grindelia* sp.), and slender wild oat (*Avena barbata*).

Few wildlife species occur in the ruderal habitat. Western fence lizards (*Sceloporus occidentalis*) use remnant slash for basking and cover and small mammals (*Peromyscus* sp. and *Microtus* sp.) likely occur in areas that have suitable plant cover. Birds, including Brewer's blackbird (*Euphagus cyanocephalus*), horned lark (*Eremophila alpestris*), American goldfinch (*Carduelis tristis*), and sparrows, forage in this often low-growing habitat.

Figure 3 - Aerial Photograph of Project Site (taken June 11, 1999)

Grassland habitat occurs in small patches among the matrix of ruderal areas on the valley floor. Dominant plants include panic grass (*Panicum capillare*) and meadow barley (*Hordeum jubatum*). Medusa-head is also present, often at the transition of grassland to ruderal habitat. Wildlife use of the grassland habitat is similar to that found in the ruderal habitat. Additional species include Botta's pocket gopher (*Thomomys bottae*), killdeer (*Charadrius vociferus*), American robin (*Turdus migratorius*), western kingbird (*Tyrannus verticalis*), and European starling (*Sturnus vulgaris*).

The forested areas on the project site consist of a mixed woodland, dominated by Ponderosa pine (*Pinus ponderosa*) and Oregon oak (*Quercus garryana*) in the tree canopy. California black oaks (*Quercus kelloggii*) are interspersed in the woodland, mostly at the southern end of the project site. Tree canopy cover varies in the mixed woodland, but most of the site is open, with 50 percent or less canopy cover. Understory shrub cover is more prevalent where tree cover is lower, and dominant species include antelope brush (*Purshia glandulosa*), rabbit brush (*Chrysothamnus nauseosus*), gooseberry (*Ribes* sp.), squaw carpet (*Ceanothus prostratus*), and manzanita (*Arctostaphylos* sp.). Sage brush (*Artemesia tridentata*) is also present as a subdominant species. The herbaceous layer is sparse and dominated by grasses including *Poa* and *Festuca* spp.

Several wildlife species occur in the mixed woodland habitat. Acorns from the oak trees provide important food for Steller's jays (*Cyanocitta stelleri*), acorn woodpeckers (*Melanerpes formicivorus*), western gray squirrels (*Sciurus griseus*), and mule deer (*Odocoileus hemionus*). Ponderosa pines in the woodlands provide important food and cover for yellow pine chipmunk (*Eutamias amoenus*), hairy woodpeckers (*Picoides villosus*), northern flickers (*Colaptes auratus*), dark-eyed juncos (*Junco hyemalis*), and common ravens (*Corvus corax*). The mixture of shrubs and herbaceous cover is used by valley and mountain quail (*Callipepla californica, Oreotyx pictus*), as well as a variety of small mammals. Other common avian species in the mixed woodland include white-breasted nuthatch (*Sitta carolinensis*), western wood-pewee (*Contopus sordidulus*), and western bluebird (*Sialia mexicana*). Mountain lions (*Felis concolor*) and gray fox (*Urocyon cinereoargenteus*) are occasionally observed on the project site (Thompson pers. comm.).

A small pond, less than 1/3 acre in size, is located in the southeastern corner of the project site. According to Hat Creek Construction personnel (Thompson pers. comm.), this pond contains water year round. During spring field visits, several pockets of standing water were present on the project site in the old logging ponds and along the base of the escarpment. By mid-May, most of the standing water had dried up and by the June 28, 1999 site visit only the pond and two small pockets at the base of the escarpment contained standing water. According to Thompson (pers. comm.) these small pockets of water dry up completely as the summer progresses. Most of the areas with standing water are highly disturbed, have slash wood present in them, and support few wetland plants typical of ponds or seasonal wetlands in the region. Little or no vegetation occurs in the former log ponds.

Wildlife use of the pond and pockets of standing water appears to be minimal. Fish are not believed to be present. A pair of mallards (*Anas platyrhynchos*) and wood ducks (*Aix sponsa*) were observed around the permanent pond during the April site visit. The mallards

were observed on every site visit and may have nested at the pond, although no young were ever observed. Pacific chorus frogs (*Pseudacris regilla*) were heard calling from the edges of the pond during the spring and numerous tadpoles were observed in the pond during the June site visit.

Deer and Elk

Portions of the project site, especially the mixed woodland above the escarpment, probably receive moderate use by deer. Although key browse species (e.g., bitterbrush, wedge-leaved ceanothus), are not dominant components of the vegetation, young Oregon oaks provide good browse and mature oaks provide acorns. The project area would be considered part of the winter range, with an influx of animals possibly occurring during the fall months (Smith pers. comm.). The project area is not in a migratory corridor for deer. The bluff, or rim on the east side of the project boundary is steep, with little access for deer to traverse. Two "skid" trails on the southeast end of the project site would allow deer to easily move from the bluff to the grassland area, but this would be unnecessary because the bluff naturally grades into the landscape approximately 0.5 mile south of the project site, making the area south of the project site more likely for deer movements. Deer, or their signs, such as tracks or scat, have been observed in both the mixed woodland and open grasslands on the project site.

Elk (*Cervus elaphus*) may occasionally be observed in the project area. A small herd of Roosevelt elk (*C. e. roosevelti*, native) or Rocky Mountain elk (*C. e. nelsoni*, introduced) frequents a private ranch west of Highway 89, a few miles from the project site (Smith pers. comm.). Elk typically require seclusion from human interference and mature stands of deciduous and coniferous forest habitats, but individuals may occasionally venture onto the project site.

Special-Status Species

The project site lacks suitable habitat for most special-status wildlife species known to occur in the region. Only one special-status species, the osprey (*Pandion haliaetus*), is known to occur in the immediate project area. One nest structure, likely an osprey's, was observed atop a snag approximately 0.25 to 0.5 mile southeast of the proposed quarry. It is not known whether this nest has been active in recent years. By the mid-April surveys (April 18 and 19), most of the nest had been blown down, although a single osprey was observed on both days perched in the nest tree. No osprey were observed during the June site visit.

Other special-status wildlife species that may occur occasionally on the project site include the bald eagle (*Haliaeetus leucocephalus*) and northern harrier (*Circus cyaneus*). No suitable foraging habitat for eagles is available on-site because the permanent pond and pockets of standing water do not support fish. Bald eagles are known to nest along the shore of Lake Britton, the Pit River, Hat Creek, Canyon Creek, and Rising River Lake, and may occasionally be observed flying over the project site.

Although northern harriers may occur on-site from time to time, the habitat is marginal because of the isolated nature of the grassland. No harriers were observed during any of the field surveys.

A list of special-status species that are known to occur in the region is provided in Table 1; the potential for occurrence of each on the project site is discussed.

Other wildlife resources that could potentially pose constraints to the proposed project include nesting raptors, such as red-tailed hawks and great horned owls, nesting swallows, and bat roosts. One great horned owl was observed on the western boundary near the entrance to the property during the March survey. The owl was flushed by the observer and flew across Highway 89 to the west. Red-tailed hawks were observed flying over the site during the June site visit; it is likely that red-tails use the site as foraging habitat.

Structures that could support nesting swallows already receive heavy human activity, and no project activities are proposed that would affect these structures. No suitable buildings or caves exist on the project site that would provide suitable roosting sites for bats. All the old lumber yard buildings have been demolished. Additionally, there are few large, decadent trees with cavities that could support bats.

CONCLUSIONS

The proposed quarry and associated operations may affect one osprey nest if it is rebuilt in the same location. As of June 28, 1999, the nest had not been reconstructed after blowing down during the spring. Because of the large number of osprey in the general area, and the availability of other suitable nest sites, abandonment of this nest is not considered a significant impact.

No other special-status species would be impacted by the proposed project. The project site is highly disturbed and has been extensively altered by past logging and mill operations.

The proposed project may have minor, indirect impacts on deer inhabiting the shrublands on top of the escarpment by causing the displacement of individuals due to noise and increased human activity.

PERSONAL COMMUNICATIONS

Smith, Dave. Biologist. June 9, 1999. Department of Fish and Game, Redding, California. Telephone conversation.

Thompson, Perry. Operations Manager. April and May, 1999. Hat Creek Construction, Inc., Burney, California. Meeting and telephone conversations.

Table 1. Special-Status Wildlife Known to Occur in the Region

Species	Status[a] Federal/State	California Distribution	Habitats	Potential for Occurrence
Shasta (=placid) crayfish *Pacifastacus fortis*	E/E	Pit River drainage in Shasta County, including tributaries of the Hat Creek and Fall River subdrainages	Cool, clear, spring-fed headwater streams	None; no suitable habitat
Shasta salamander *Hydromantes shastae*	SC/T	Restricted to several tributaries of the McCloud River, Pit River, and Squaw Creek, Shasta County	Limestone caves at elevations from 1,000 to 3,000 feet	None; no suitable habitat
Cascades frog *Rana cascadae*	SC/SSC	Occurs in northern California in Shasta, Lassen, Plumas, and Siskiyou counties around Mt. Lassen and Mt. Shasta	Streams, meadow potholes, ponds, and lakes in open coniferous forests	Low; pond habitat in project area is degraded
Osprey *Pandion haliaetus*	--/SSC	Nests along the north coast from Marin County to Del Norte County, east through the Klamath and Cascade Ranges, and the upper Sacramento Valley; important inland breeding populations at Shasta Lake, Eagle Lake, and Lake Almanor and small numbers elsewhere south through the Sierra Nevada; winters along the coast from San Mateo County to San Diego County	Nests in snags or cliffs or other high, protected sites near the ocean, large lakes, or rivers with abundant fish populations	High; probable historic nest site within 0.5 mile of project boundary
Bald eagle *Haliaeetus leucocephalus*	T/E	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino counties and in the Lake Tahoe Basin; reintroduced into central coast; winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierras, and east of the Sierra Nevada south of Mono County; range expanding	In western North America, nests and roosts in coniferous forests within 1 mile of a lake, a reservoir, a stream, or the ocean	Moderate; no suitable foraging habitat; potential nest trees in surrounding area are outside of project boundary
Northern harrier *Circus cyaneus*	--/SSC	Throughout lowland California; has been recorded in fall at high elevations	Grasslands, meadows, marshes, and seasonal and agricultural wetlands providing tall cover	Moderate; nesting and foraging habitat present in project area but habitat is small (ca. 100 acres) and surrounded by coniferous forest
Sharp-shinned hawk *Accipiter striatus*	--/SSC	Permanent resident in the Sierra Nevada, Cascade, Klamath, and north Coast Ranges at mid-elevations and along the coast in Marin, San Francisco, San Mateo, Santa Cruz, and Monterey counties; winters over the rest of the state except at very high elevations	Dense canopy ponderosa pine or mixed-conifer forest and riparian habitats	High during migration; low during breeding because site is fairly dry due to open canopy from selective logging in forested areas and flat topography

Table 1. Continued

Species	Status[a] Federal/State	California Distribution	Habitats	Potential for Occurrence
Cooper's hawk *Accipiter cooperii*	--/SSC	Throughout California except high altitudes in the Sierra Nevada; winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range; permanent residents occupy the rest of the state	Nests primarily in riparian forests dominated by deciduous species; also nests in densely canopied forests from foothill pine-oak woodland up to ponderosa pine; forages in open woodlands	High during migration; low during breeding because site is fairly dry due to open canopy from selective logging in forested areas and flat topography
Northern goshawk (North American pop.) *Accipiter gentilis*	SC/SSC	Permanent resident on the Klamath and Cascade Ranges, on the north Coast Ranges from Del Norte County to Mendocino County, and in the Sierra Nevada south to Kern County; winters in Modoc, Lassen, Mono, and northern Inyo counties; rare in southern California	Nests and roosts in older stands of red fir, Jeffrey pine, and lodgepole pine forests; hunts in forests and in forest clearings and meadows	Low; project area is lower elevation (ca. 3,000 feet) and forested area occurs as an open canopy of second growth Ponderosa pine that has been selectively logged
Ferruginous hawk *Buteo regalis*	SC/SSC	Does not nest in California; winter visitor along the coast from Sonoma County to San Diego County, eastward to the Sierra Nevada foothills and southeastern deserts, the Inyo-White Mountains, the plains east of the Cascade Range, and Siskiyou County	Open terrain in plains and foothills where ground squirrels and other prey are available	Low; grassland may provide suitable foraging habitat during winter but use is probably limited because of the small size of the habitat and extensive forested area surrounding the project site
Golden eagle *Aquila chrysaetos*	--/SSC, FP	Foothills and mountains throughout California; uncommon nonbreeding visitor to lowlands such as the Central Valley	Cliffs and escarpments or tall trees for nesting; annual grasslands, chaparral, and oak woodlands with plentiful medium- and large-sized mammals for prey	Low; lack of suitable foraging areas because most of the landscape is coniferous forest or mixed woodland
Merlin *Falco columbarius*	--/SSC	Does not nest in California; rare but widespread winter visitor to the Central Valley and coastal areas	Forages along coastlines, open grasslands, savannas, and woodlands; often forages near lakes and other wetlands	Low
Northern spotted owl *Strix occidentalis caurina*	T/SSC	A permanent resident throughout its range; found in the north Coast, Klamath, and western Cascade Range from Del Norte County to Marin County	Dense old-growth or mature forests dominated by conifers with topped trees or oaks available for nesting	Low; timber on site is second growth Ponderosa pine that has been selectively harvested and canopy is open

Species	Status[a] Federal/State	California Distribution	Habitats	Potential for Occurrence
Long-eared owl *Asio otus*	--/SSC	Permanent resident east of the Cascade Range from Placer County north to the Oregon border, east of the Sierra Nevada from Alpine County to Inyo County, along the coast from Sonoma County to San Luis Obispo County, and eastward over the north Coast Ranges to Colusa County; winters in the Central Valley, Mojave and Sonora Deserts, and the Inyo-White Mountains; summers along the eastern rim of the Central Valley and Sierra foothills from Tehama County to Kern County	Dense riparian stands of willows, cottonwoods, live oaks, or conifers; uses adjacent open lands for foraging; nests in abandoned crow, hawk, or magpie nests	Low; lack of densely forested areas on-site
Short-eared owl *Asio flammeus*	--/SSC	Permanent resident along the coast from Del Norte County to Monterey County although very rare in summer north of San Francisco Bay, in the Sierra Nevada north of Nevada County, in the plains east of the Cascades, and in Mono County; small, isolated populations also nest in the Central Valley; winters on the coast from San Luis Obispo County to San Diego County, in the Central Valley from Tehama County to Kern County, in the eastern Sierra Nevada from Sierra County to Alpine County, on the Channel Islands, and in Imperial County	Freshwater and salt marshes, lowland meadows, and irrigated alfalfa fields; needs dense tules or tall grass for nesting and daytime roosts	Low; nesting and foraging habitat present on project site but habitat is small (ca. 100 acres) and surrounded by forested landscape
Little willow flycatcher *Empidonax traillii brewsteri*	SC/E	Summer range includes a narrow strip along the eastern Sierra Nevada from Shasta County to Kern County, another strip along the western Sierra Nevada from El Dorado County to Madera County; widespread in migration	Riparian areas and large, wet meadows with abundant willows for breeding; usually found in riparian habitats during migration	Low; no suitable nesting habitat; possible for brief periods during migration
Bank swallow *Riparia riparia*	--/T	The state's largest remaining breeding populations are along the Sacramento River from Tehama County to Sacramento County and along the Feather and lower American rivers, also in the Owens Valley; nesting areas also include the plains east of the Cascade Range south through Lassen County, northern Siskiyou County, and small populations near the coast from San Francisco County to Monterey County	Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam to allow digging	None; no suitable habitat

Species	Status[a] Federal/State	California Distribution	Habitats	Potential for Occurrence
Loggerhead shrike *Lanius ludovicianus*	--/SSC	Resident and winter visitor in lowlands and foothills throughout California; rare on coastal slope north to Mendocino County, occurring only in winter	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches	Low
California yellow warbler *Dendroica petechia brewsteri*	–/SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes in the Sierra Nevada; winters along the Colorado River and in parts of Imperial and Riverside counties; two small permanent populations in San Diego and Santa Barbara counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	High during migration; low for breeding; only a few isolated willows on project site
Yuma myotis *Myotis yumanensis*	SC/--	Considered common and widespread in northern California; colonies known from Marin and San Francisco counties	Roosts colonially in a variety of natural and human-made sites, including caves, mines, buildings, bridges, and trees; in northern California, maternity colonies are usually in fire-scarred redwoods, pines, or oaks; forages for insects over water	Low; no suitable roosting or hibernacula sites on project site
Pale Townsend's (=western) big-eared bat *Plecotus townsendii pallescens*	SC/SSC	Klamath Mountains, Cascades, Sierra Nevada, Central Valley, Transverse and Peninsular Ranges, Great Basin, and the Mojave and Sonora Deserts	Mesic habitats; gleans insects from brush or trees and feeds along habitat edges	Low; no suitable roosting or hibernacula sites on project site
Ringtail *Basariscus astutas*	--/FP	Sierra Nevada, Coast Ranges, and the Central Valley; upper and middle portions of the Sacramento River, Feather River, and Bobelaine Sanctuary; potentially occurs in riparian woodlands in Chico area	Riparian forests, chaparral, brushlands, oak woodlands, and rocky hillsides	Moderate; suitable foraging habitat on project site
Pacific fisher *Martes pennanti pacifica*	SC/SSC	Coastal mountains from Del Norte County to Sonoma County, through Cascades to Lassen County; south in Sierra Nevada to Kern County	Mixed conifer habitats with high overstory cover; preference for riparian areas and other ecotonal habitats	Low; lack of high overstory cover in project area
American badger *Taxidae taxus*	--/SSC	Occurs statewide except for the northwestern corner in Del Norte County and parts of Humboldt and Siskiyou counties	Uses open areas with scattered shrubs and trees for cover and loose soil for digging	Low; grassland habitat exists as small (ca. 100 acres) area surrounding by coniferous forest or mixed woodland

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.

– = No status definition.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

FP = fully protected under the California Fish and Game Code.

SSC = species of special concern in California.

– = No status definition.

WETLAND DELINEATION
FOR THE
343± ACRE EASTSIDE AGGREGATES PROJECT

SHASTA COUNTY, CALIFORNIA

Prepared For:

U.S. Army Corps of Engineers
Sacramento District, Regulatory Branch
1325 J Street, 14th floor, Room 1480
Sacramento, California 95814-2922

On Behalf Of:

Hat Creek Construction
24339 Highway 89 N.
Burney, CA 96013
(530) 335-5501

and

Miriam Green Associates
1321 42nd Street
Sacramento, CA 95819
(916) 452-2072

Prepared By:

Glazner Environmental Consulting
701 High Street, Ste. 203
Auburn, California 95603
(530) 887-8500

July 12, 1999

GEC

GLAZNER ENVIRONMENTAL CONSULTING
701 High Street, Suite 203, Auburn, CA 95603
Ph (530) 887-8500, Fax (530) 887-1250

July 12, 1999

Mr. Dave Tedrick
U.S. Army Corps of Engineers, Regulatory Branch
1325 J Street, 14th Floor, Room 1480
Sacramento, California 95814-2922

Re: Hat Creek Construction/Eastside Aggregates Wetland Delineation, 343 ± Acre Project Site, Near Burney, Shasta County

Dear Mr. Tedrick:

On behalf of Hat Creek Construction and Miriam Green Associates, GEC conducted a wetland delineation of a 343± acre site located northeast of the Town of Burney, Shasta County, California. The project site is located on Hat Creek Way approximately four miles north of Highway 299, along the east side of Highway 89, (Figure 1), in Section 10, Township 36N, Range 3E of the Cassel, California, USGS topographic 7.5 minute quadrangle (Figure 2). Hat Creek Construction is applying for a use permit for a rock quarry on a portion of its 343± acre site.

A preliminary site investigation was conducted on March 21 and 22, 1999. The wetland delineation was conducted on June 28, 1999. Supporting information used in the delineation included color aerial photography taken June 11, 1999, Soil & Vegetation Survey for the Burney Area, Shasta County (CDF, USDA, UCD 1992) and other standard wetland delineation materials (U.S. Army Corps of Engineers 1987 wetlands delineation manual, the Munsell soil color charts, and the National List of Plants That Occur in Wetlands).

Potential waters of the U.S. were determined by interpreting the aerial photography and from site specific topography. From these interpretations, shallow topographic depressions on the eastern and southern edges of the former log pond required the most attention. However, the entire project site was surveyed for waters of the U.S. by walking meandering traverses.

Vegetation

Three upland vegetation units are identified on the project site: mixed oak woodland; annual grassland, and ruderal. The mixed oak woodland consists primarily of ponderosa pine (*Pinus ponderosa*); Oregon oak (*Quercus garryana*), and scattered western juniper (*Juniperus occidentalis*). Common shrubby understory species include greenleaf manzanita (*Arctostaphylos patula*); squaw carpet (*Ceanothus prostratus*); buckbrush (*Ceanothus cuneatus*); birchleaf mountain-mahogany (*Cercocarpus betuloides*), and rabbitbrush (*Chrysothamnus nauseosus*).

Common species throughout the annual grassland include various pasture grasses (*Poa* spp. *Festuca* spp.); wild oat (*Avena barbata*); medusae-head (*Taeniatherum caput-medusae*); turkey mullein (*Eremocarpus setigerus*), and other weedy annuals.

Other ruderal areas support primarily sparse weedy vegetation.

Soils

The project site supports two mapped soil units:

- Malinda extremely gravelly sandy loam (15-30% slopes) is a well-drained soil derived from slope alluvium from extrusive igneous rock. Permeability is moderately slow and surface runoff is rapid. The hazard of erosion in bare areas is low or moderate (244).

- Rickette-Orhood complex (2-15% slopes) is well drained with moderately slow permeability. Surface runoff is slow or medium and the hazard of erosion is low or moderate (292)

Waters of the U.S.

Winter ponding occurs in shallow depressions in the southern portion of the project site, generally in the area of the former log pond and lumber storage area. However, most of these areas dry up prior to the growing season.

Three shallow depressions east and south of the former log pond have been mapped as wetlands. These features may have resulted from log pond construction or barrow activities associated with former mill operations. The three wetlands are identified on the wetland delineation map as Ponds 1, 2 and 3. Ponds 2 and 3, at the base of a volcanic escarpment, still contained standing water during the wetland

delineation on June 28, 1999. Pond 1 is a 0.21 acre pond with wetland vegetation along its banks near the waterline. The bottom of Pond 1 contains minor amounts of decaying debris. Unlike Pond 1, Ponds 2 and 3 contain thick layers of decaying logs and bark, debris from former logging and log stockpile activities.

The wetland delineation map depicts the location of three ponds and corresponding acreage. Total waters of the U.S. occupy 0.71 acre. The remaining areas of the project site are dry by summer and do not meet criteria for wetlands. (Figure 3).

Enclosed with this letter report are the following items for your review:

- General location map (Figure 1)
- USGS site and vicinity map (Figure 2)
- Ground photos (Figure 3)
- Wetland data sheets (9)
- Wetland delineation map (scale: 1"=100')

Please contact me if you need further information, or wish to schedule a field verification.

Sincerely,

Jeff Glazner
Professional Wetland Scientist #000961

cc: Miriam Green, Miriam Green Associates
Perry Thompson, Hat Creek Construction

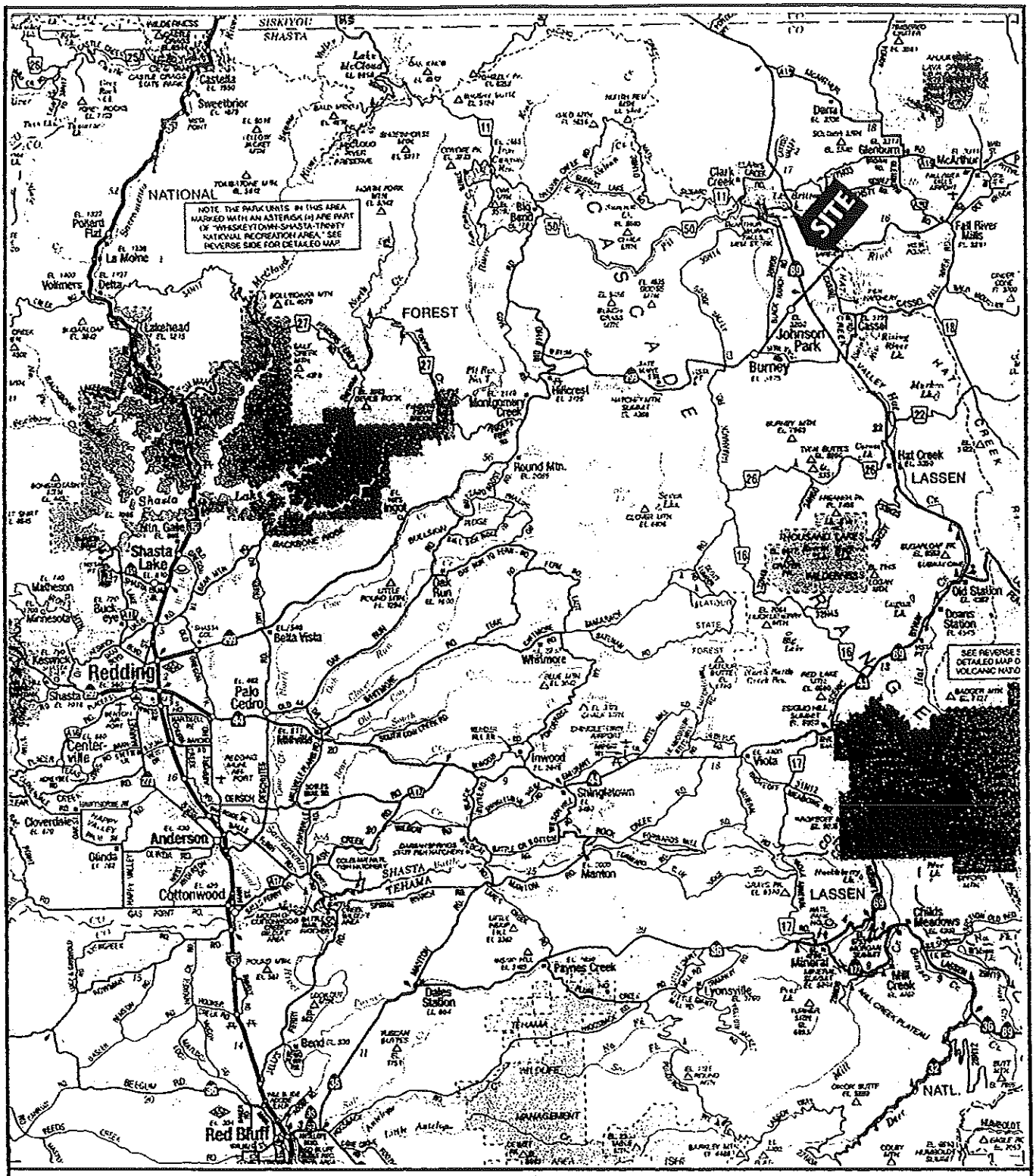

Figure 1. General Location Map

Eastside Aggregates

Shasta County, California

Map provided by California State Automobile Association: Northern California Section

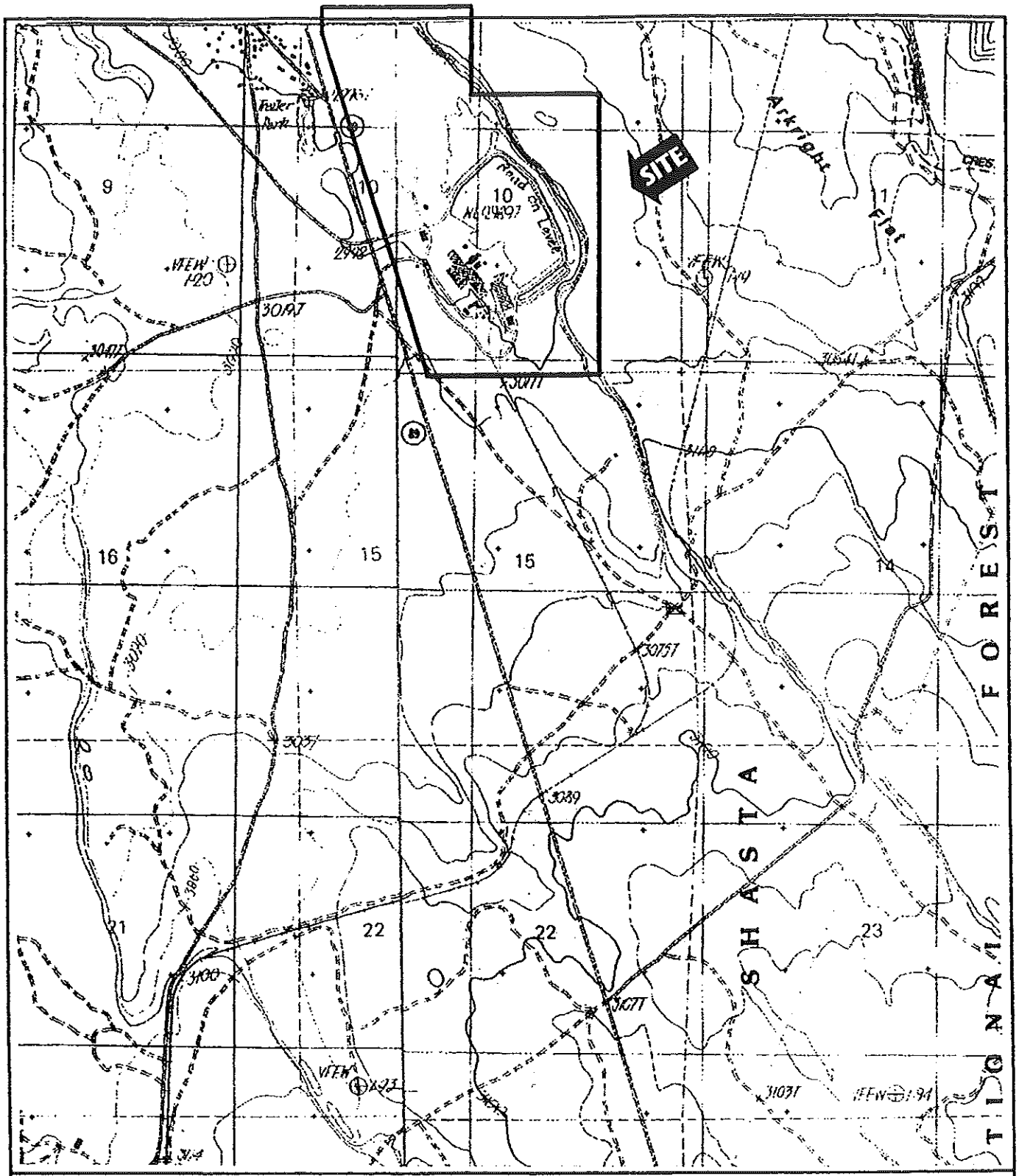

Figure 2. Project Site and Vicinity

Eastside Aggregates

Shasta County, California

Burney & Cassel USGS 7.5 minute topographic quadrangles; scale 1:24,000

Photo #1. View of pond #1.

Photo #2. Log pond debris field along base of escarpment.

Figure 3. Ground Photos
Eastside Aggregates
Shasta County, California
Photos taken June 28, 1999

ROUTINE WETLAND DETERMINATION FORM

Project/Site: **Eastside Aggregates** Date: 6-28-99
Applicant: **Hat Creek Construction** Sample Point: 01
Investigators: **Jeff Glazner** County: **Shasta** State: **CA**
Quad(s): **Cassel** Section **10** Township **36N** Range **3E**
Atypical Situation? Yes (No) Potential Problem Area? Yes (No)

VEGETATION

Dominant Plant Species	Status	% Cover	Non-Dominant Plant Species	Status	% Cover

Percentage of dominant species that are OBL, FACW, or FAC: %
Remarks: Open water pond. Patchy vegetated fringe consisting primarily of Eleocharis macrostachya.

SOILS

Map Unit Name (Series/Phase): Malinda Extremely Gravelly Sandy Loam, 15-30% slopes
Mottled? Yes / (No) Gleyed? Yes / (No) Matrix Color: 10YR 2/1 Mottle Color:
Redoxiimorphic Features:

- X Gleyed or Low Chroma Colors
- _____ Low Chroma w/ Mottles
- _____ Aquic Moisture Regime
- _____ Listed on Local Hydric Soil List
- _____ Reducing Conditions
- _____ Sulfidic Odor
- _____ Concretions
- _____ Other

Remarks: Highly organic. Source of debris is bark.

HYDROLOGY

Inundated? Yes X No_____ Saturated? Yes X No_____ Depth of/to Free Water: 3'
Primary Indicators:

- X Inundated
- _____ Saturated in Upper 12"
- _____ Water Marks/Drift Lines
- _____ Sediment Deposit
- _____ Algal Matting
- _____ Drainage Patterns in Wetlands

Secondary Indicators

- _____ Oxidized Root Channels in Upper 12"
- _____ Water-Stained Leaves
- _____ Local Soil Survey Data
- _____ Other

Remarks: Depth of pond is 3-4'. Numerous tadpoles.

WETLAND/WATERS DETERMINATION

Hydrophytic Vegetation Present? Yes_____ No_____
Hydric Soils Present? Yes_____ No_____ Waters of the U.S.: Yes X No_____
Wetland Hydrology Present? Yes_____ No_____ Wetland: Yes_____ No X
Remarks:
Unvegetated pond. Formerly used in logging operation.

ROUTINE WETLAND DETERMINATION FORM

Project/Site: **Eastside Aggregates** Date: 6-28-99
Applicant: **Hat Creek Construction** Sample Point: 02N
Investigators: **Jeff Glazner** County: **Shasta** State: **CA**
Quad(s): **Cassel** Section 10 Township 36N Range 3E
Atypical Situation? Yes (No) Potential Problem Area? Yes (No)

VEGETATION

Dominant Plant Species	Status	% Cover	Non-Dominant Plant Species	Status	% Cover
Chenopodium album		70	Brassica sp.	UPL	5
Elymus elymoides	UPL	20	Cyperus sp	FACW	5

Percentage of dominant species that are OBL, FACW, or FAC: %
Remarks:

SOILS

Map Unit Name (Series/Phase): Malinda extremely gravelly sandy loam, 15-30% slopes
Mottled? Yes (No) Gleyed? Yes (No) Matrix Color: 10YR 3/2 Mottle Color:
Redoxymorphic Features:

_____Gleyed or Low Chroma Colors
_____Low Chroma w/ Mottles
_____Aquic Moisture Regime
_____Listed on Local Hydric Soil List
_____Reducing Conditions
_____Sulfidic Odor
_____Concretions
_____Other

Remarks: organic / loamy. Just above high water line

HYDROLOGY

Inundated? Yes____No_X_ Saturated? Yes____No_X_ Depth of/to Free Water:

Primary Indicators:
_____Inundated
_____Saturated in Upper 12"
_____Water Marks/Drift Lines
_____Sediment Deposit
_____Algal Matting
_____Drainage Patterns in Wetlands

Secondary Indicators
_____Oxidized Root Channels in Upper 12"
_____Water-Stained Leaves
_____Local Soil Survey Data
_____Other

Remarks:

WETLAND/WATERS DETERMINATION

Hydrophytic Vegetation Present? Yes____No_X_
Hydric Soils Present? Yes____No_X_ Waters of the U.S.: Yes____No_X_
Wetland Hydrology Present? Yes____No_X_ Wetland: Yes____No_X_
Remarks:

Upland Comparison to 01. Just above high water line of pond.

ROUTINE WETLAND DETERMINATION FORM

Project/Site: **Eastside Aggregates** Date: 6-28-99
Applicant: **Hat Creek Construction** Sample Point: 03N
Investigators: **Jeff Glazner** County: **Shasta** State: **CA**
Quad(s): **Cassel** Section **10** Township **36N** Range **3E**
Atypical Situation? Yes (No) Potential Problem Area? Yes (No)

VEGETATION

Dominant Plant Species	Status	% Cover	Non-Dominant Plant Species	Status	% Cover
Gnaphalium sp.	MPL	40			
Chenopodium album		30			
Elymus elymoides		30			

Percentage of dominant species that are OBL, FACW, or FAC: %
Remarks:

SOILS

Map Unit Name (Series/Phase): Malinda extremely gravelly sandy loam, 15-30% slopes
Mottled? Yes / (No) Gleyed? Yes / (No) Matrix Color: 10YR 3/3 Mottle Color:
Redoximorphic Features:

_____Gleyed or Low Chroma Colors
_____Low Chroma w/ Mottles
_____Aquic Moisture Regime
_____Listed on Local Hydric Soil List
_____Reducing Conditions
_____Sulfidic Odor
_____Concretions
_____Other

Remarks: Organic/loamy. Lacks redoximorphic features

HYDROLOGY

Inundated? Yes____No_X_ Saturated? Yes____No_X_ Depth of/to Free Water:

Primary Indicators:
_____Inundated
_____Saturated in Upper 12"
_____Water Marks/Drift Lines
_____Sediment Deposit
_____Algal Matting
_____Drainage Patterns in Wetlands

Secondary Indicators
_____Oxidized Root Channels in Upper 12"
_____Water-Stained Leaves
_____Local Soil Survey Data
_____Other

Remarks: Dry

WETLAND/WATERS DETERMINATION

Hydrophytic Vegetation Present? Yes____No_X_
Hydric Soils Present? Yes____No_X_ Waters of the U.S.: Yes____No_X_
Wetland Hydrology Present? Yes____No_X_ Wetland: Yes____No_X_
Remarks:

Localized depression. Shallow winter ponding. Lacks wetland hydrology.

ROUTINE WETLAND DETERMINATION FORM

Project/Site: **Eastside Aggregates** Date: 8-28-99
Applicant: **Hat Creek Construction** Sample Point: 04
Investigators: **Jeff Glazner** County: **Shasta** State: **CA**
Quad(s): **Cassel** Section **10** Township **36N** Range **3E**
Atypical Situation? Yes (No) Potential Problem Area? Yes (No)

VEGETATION

Dominant Plant Species	Status	% Cover	Non-Dominant Plant Species	Status	% Cover

Percentage of dominant species that are OBL, FACW, or FAC: %
Remarks: Sparse Polygonum sp. & Epilobium ciliatum. Both wetland species

SOILS

Map Unit Name (Series/Phase): Malinda extremely gravelly sandy loam, 15-30% slopes
Mottled? Yes / (No) Gleyed? Yes / (No) Matrix Color: 10yr 3/2 Mottle Color:
Redoximorphic Features:

___ Gleyed or Low Chroma Colors	___ Reducing Conditions
___ Low Chroma w/ Mottles	___ Sulfidic Odor
X Aquic Moisture Regime	___ Concretions
___ Listed on Local Hydric Soil List	___ Other

Remarks: Loamy (coarse texture). Thick layer of bark & cut logs. Soil begins ± 12" below debris layer.

HYDROLOGY

Inundated? Yes X No___ Saturated? Yes X No___ Depth of/to Free Water: 8"

Primary Indicators:	Secondary Indicators
X Inundated	___ Oxidized Root Channels in Upper 12"
___ Saturated in Upper 12"	___ Water-Stained Leaves
___ Water Marks/Drift Lines	___ Local Soil Survey Data
___ Sediment Deposit	___ Other
___ Algal Matting	
___ Drainage Patterns in Wetlands	

Remarks: Ponded area

WETLAND/WATERS DETERMINATION

Hydrophytic Vegetation Present? Yes___ No___
Hydric Soils Present? Yes___ No___ Waters of the U.S.: Yes X No___
Wetland Hydrology Present? Yes___ No___ Wetland: Yes___ No X
Remarks:
Farm log pond. Thick layer of bark debris (10" floating)
Algae filling gaps in surface.

ROUTINE WETLAND DETERMINATION FORM

Project/Site: **Eastside Aggregates** Date: 6-28-99
Applicant: **Hat Creek Construction** Sample Point: 05
Investigators: **Jeff Glazner** County: **Shasta** State: **CA**
Quad(s): **Cassel** Section 10 Township 36N Range 3E
Atypical Situation? Yes (No) Potential Problem Area? Yes (No)

VEGETATION

Dominant Plant Species	Status	% Cover	Non-Dominant Plant Species	Status	% Cover

Percentage of dominant species that are OBL, FACW, or FAC: %
Remarks: Sparse Polygonum sp. & Epilobium ciliatum near edge. Both wetland species.

SOILS

Map Unit Name (Series/Phase): Malinda extremely gravelly sandy loam, 15-30% slopes
Mottled? Yes / (No) Gleyed? Yes / (No) Matrix Color: 10YR 3/2 Mottle Color:
Redoximorphic Features:

____ Gleyed or Low Chroma Colors	____ Reducing Conditions
____ Low Chroma w/ Mottles	____ Sulfidic Odor
X Aquic Moisture Regime	____ Concretions
____ Listed on Local Hydric Soil List	____ Other

Remarks: Loamy below bark debris.

HYDROLOGY

Inundated? Yes X No____ Saturated? Yes X No____ Depth of/to Free Water: 6"

Primary Indicators:	Secondary Indicators
X Inundated	____ Oxidized Root Channels in Upper 12"
____ Saturated in Upper 12"	____ Water-Stained Leaves
____ Water Marks/Drift Lines	____ Local Soil Survey Data
____ Sediment Deposit	____ Other
____ Algal Matting	
____ Drainage Patterns in Wetlands	

Remarks: Ponded area.

WETLAND/WATERS DETERMINATION

Hydrophytic Vegetation Present? Yes____ No____
Hydric Soils Present? Yes____ No____ Waters of the U.S.: Yes X No____
Wetland Hydrology Present? Yes____ No____ Wetland: Yes____ No X
Remarks:

Former log pond. Thick layer of bark debris. Little veg.

ROUTINE WETLAND DETERMINATION FORM

Project/Site: **Eastside Aggregates** Date: 6-28-99
Applicant: **Hat Creek Construction** Sample Point: 06N
Investigators: **Jeff Glazner** County: **Shasta** State: **CA**
Quad(s): **Cassel** Section 10 Township 36N Range 3E
Atypical Situation? Yes No Potential Problem Area? Yes No

VEGETATION

Dominant Plant Species	Status	% Cover	Non-Dominant Plant Species	Status	% Cover

Percentage of dominant species that are OBL, FACW, or FAC: %
Remarks: No vegetation. Thick bark/wood layer.

SOILS

Map Unit Name (Series/Phase): Malinda extremely gravelly sandy loam, 15-30% slopes
Mottled? Yes / (No) Gleyed? Yes / (No) Matrix Color: 10YR 3/3 Mottle Color:
Redoximorphic Features:

_____Gleyed or Low Chroma Colors	_____Reducing Conditions
_____Low Chroma w/ Mottles	_____Sulfidic Odor
_____Aquic Moisture Regime	_____Concretions
_____Listed on Local Hydric Soil List	_____Other

Remarks: Soil well below debris layer.

HYDROLOGY

Inundated? Yes____ No_X_ Saturated? Yes____ No_X_ Depth of/to Free Water:

Primary Indicators:	Secondary Indicators
_____Inundated	_____Oxidized Root Channels in Upper 12"
_____Saturated in Upper 12"	_____Water-Stained Leaves
_____Water Marks/Drift Lines	_____Local Soil Survey Data
_____Sediment Deposit	_____Other
_____Algal Matting	
_____Drainage Patterns in Wetlands	

Remarks:

WETLAND/WATERS DETERMINATION

Hydrophytic Vegetation Present? Yes____ No____
Hydric Soils Present? Yes____ No____ Waters of the U.S.: Yes____ No_X_
Wetland Hydrology Present? Yes____ No____ Wetland: Yes____ No_X_
Remarks:
Depressional area. Winter ponding forms log pond

ROUTINE WETLAND DETERMINATION FORM

Project/Site: **Eastside Aggregates** Date: 6-28-99
Applicant: **Hat Creek Construction** Sample Point: 07N
Investigators: **Jeff Glazner** County: **Shasta** State: **CA**
Quad(s): **Cassel** Section **10** Township **36N** Range **3E**
Atypical Situation? Yes (No) Potential Problem Area? Yes (No)

VEGETATION

Dominant Plant Species	Status	% Cover	Non-Dominant Plant Species	Status	% Cover
Elymus elymoides	UPL	50			
Unknown species	FAC	50			

Percentage of dominant species that are OBL, FACW, or FAC: %
Remarks: Unknown species in seedling phase w/no flowers.

SOILS

Map Unit Name (Series/Phase): Malinda extremely gravelly sandy loam, 15-30% slopes
Mottled? Yes / (No) Gleyed? Yes / (No) Matrix Color: 7.5YR3/1 Mottle Color:
Redoximorphic Features:

_____Gleyed or Low Chroma Colors
_____Low Chroma w/ Mottles
_____Aquic Moisture Regime
_____Listed on Local Hydric Soil List
_____Reducing Conditions
_____Sulfidic Odor
_____Concretions
_____Other

Remarks: Organic/loamy. Debris in this soil profile more degraded than in former ponds to the east.

HYDROLOGY

Inundated? Yes_____No_X_ Saturated? Yes_____No_X_ Depth of/to Free Water:

Primary Indicators:
_____Inundated
_____Saturated in Upper 12"
_____Water Marks/Drift Lines
_____Sediment Deposit
_____Algal Matting
_____Drainage Patterns in Wetlands

Secondary Indicators
_____Oxidized Root Channels in Upper 12"
_____Water-Stained Leaves
_____Local Soil Survey Data
_____Other

Remarks: Dry.

WETLAND/WATERS DETERMINATION

Hydrophytic Vegetation Present? Yes_____No_____
Hydric Soils Present? Yes_____No_____ Waters of the U.S.: Yes_____No_X_
Wetland Hydrology Present? Yes_____No_____ Wetland: Yes_____No_X_
Remarks:

Suspect area. Low spot against berm. Former large log pond. USGS shows this basin as a pond. Has been unused since mid 80's.

ROUTINE WETLAND DETERMINATION FORM

Project/Site: **Eastside Aggregates** Date: 6-28-99
Applicant: **Hat Creek Construction** Sample Point: 08N
Investigators: **Jeff Glazner** County: **Shasta** State: **CA**
Quad(s): **Cassel** Section **10** Township **36N** Range **3E**
Atypical Situation? Yes (No) Potential Problem Area? Yes (No)

VEGETATION

Dominant Plant Species	Status	% Cover	Non-Dominant Plant Species	Status	% Cover

Percentage of dominant species that are OBL, FACW, or FAC: %
Remarks: Unvegetated.

SOILS

Map Unit Name (Series/Phase): Malinda extremely gravelly sandy loam, 15-30% slopes
Mottled? Yes / (No) Gleyed? Yes / (No) Matrix Color: 7.5YR 4/2 Mottle Color:
Redoximorphic Features:

_____Gleyed or Low Chroma Colors
_____Low Chroma w/ Mottles
_____Aquic Moisture Regime
_____Listed on Local Hydric Soil List
_____Reducing Conditions
_____Sulfidic Odor
_____Concretions
_____Other

Remarks: Organic in top 12", loamy clay below.

HYDROLOGY

Inundated? Yes_____No_X_ Saturated? Yes_____No_X_ Depth of/to Free Water:
Primary Indicators:

_____Inundated
_____Saturated in Upper 12"
_____Water Marks/Drift Lines
_____Sediment Deposit
_____Algal Matting
_____Drainage Patterns in Wetlands

Secondary Indicators

_____Oxidized Root Channels in Upper 12"
_____Water-Stained Leaves
_____Local Soil Survey Data
_____Other

Remarks:

WETLAND/WATERS DETERMINATION

Hydrophytic Vegetation Present? Yes_____No_____
Hydric Soils Present? Yes_____No_____ Waters of the U.S.: Yes_____No_X_
Wetland Hydrology Present? Yes_____No_____ Wetland: Yes_____No_X_
Remarks: Suspect area. Dark spot on photo.

ROUTINE WETLAND DETERMINATION FORM

Project/Site: **Eastside Aggregates** Date: 6-28-99
Applicant: **Hat Creek Construction** Sample Point: 09N
Investigators: **Jeff Glazner** County: **Shasta** State: **CA**
Quad(s): **Cassel** Section **10** Township **36N** Range **3E**
Atypical Situation? Yes No Potential Problem Area? Yes No

VEGETATION

Dominant Plant Species	Status	% Cover	Non-Dominant Plant Species	Status	% Cover
Salix lasiolepis	FACW	70			
Artimisia douglasii	FACW	30			

Percentage of dominant species that are OBL, FACW, or FAC: 100 %
Remarks: Pinus ponderosa scattered among willows.

SOILS

Map Unit Name (Series/Phase): Malinoka extremely gravelly sandy loam, 15-30% slopes
Mottled? Yes / (No) Gleyed? Yes / (No) Matrix Color: 5YR 3/3 Mottle Color:
Redoximorphic Features:

_____Gleyed or Low Chroma Colors	_____Reducing Conditions
_____Low Chroma w/ Mottles	_____Sulfidic Odor
_____Aquic Moisture Regime	_____Concretions
_____Listed on Local Hydric Soil List	_____Other

Remarks: Loamy soil. Lacks redoximorphic features.

HYDROLOGY

Inundated? Yes_____No_X_ Saturated? Yes_____No_X_ Depth of/to Free Water:

Primary Indicators:	Secondary Indicators
_____Inundated	_____Oxidized Root Channels in Upper 12"
_____Saturated in Upper 12"	_____Water-Stained Leaves
_____Water Marks/Drift Lines	_____Local Soil Survey Data
_____Sediment Deposit	_____Other
_____Algal Matting	
_____Drainage Patterns in Wetlands	

Remarks: Groundwater near surface as indicated by vegetation. Not in upper part.

WETLAND/WATERS DETERMINATION

Hydrophytic Vegetation Present? Yes_X_No_____
Hydric Soils Present? Yes_____No_X_ Waters of the U.S.: Yes_____No_X_
Wetland Hydrology Present? Yes_____No_X_ Wetland: Yes_____No_X_
Remarks: Suspect area. Data point taken in band of willows growing at base of escarpment.