

**Project Plan and Reclamation Plan
Gravel Extraction
Emmerson Gravel Bar – Mad River
August 2008**

General Information

Emmerson Bar (Sec 29 & 30, T6N, R2E and APN 25-161-006, 312-151-15, and - 019) is approximately 230 acres in size and is located 0.3 miles north of the Mad River Bridge on Hatchery Road, near the City of Blue Lake, Humboldt County, California. The historic operation involves the removal of flood washed aggregate from the exposed bar surface and construction of a summer low flow channel crossing of the mainstem, Mad River. The following is a detailed project description of the gravel extraction activities occurring within the primary permit jurisdiction of the U.S. Army Corps of Engineers (Corps), being that property located below the Ordinary High Water (OHW) Mark of the Mad River.

Bar Description

A comparison of aerial photographs taken in the Fall of 2007 and Spring of 2008 indicates that the main channel has once again shifted laterally in a westerly direction and is now tightly compressed against the left bank in the area described longitudinally as mid-bar to a point downstream, close to the confluence of the North Fork and the mainstem. The main channel described longitudinally as mid-bar to the most upstream end of the bar is stable, with no evidence of lateral migration this past winter. A substantial amount of gravel was deposited at the mouth of the North Fork during the winter, resulting in a significant difference in thalweg elevations of the two channels.

Proposed Extraction Methodology

Granite is proposing two extractions at the Emmerson Bar site for the 2008 season. Site-1 is a long shallow skim west of the high, dry floodplain that is vegetated with annual grasses, scattered willows, and coyote brush. Site-1 is approximately 2.2 acres in size. Site-2 is an alcove skim located on the gravel deposit at the mouth of the North Fork and is approximately 1.4 acres in size. The sites are delineated on Granite Construction's Extraction Plan, DWG GE0801-1201-11.

The Site-1 extraction is proposed as a shallow skim that is approximately 890 feet long, averages 110 feet in width, and 4 to 6 feet deep (to the capillary fringe). This site is located in an abandoned and aggraded secondary channel. Granite expects to extract a maximum of 11,899 cubic yards of aggregate from this site. The side slopes will be graded to 2:1 and the head-cut will be sloped to 10:1.

The Site-2 extraction is an alcove excavation that is approximately 400 feet long and averages 10.5 feet deep. The extraction floor will be approximately 5 feet lower than the mainstem

thalweg. The extraction will be offset several feet from the base of the levee to maintain the integrity of the levee foundation. The extraction area will encompass the entire dry delta of the North Fork Mad River. Granite expects to harvest a maximum of 17,720 cubic yards of aggregate from this site. All slopes will be left at the natural angle of repose. A small portion of the extraction area at the downstream-most end of the site will be left intact until such time as suspended sediment has settled. At that time, the remaining material will be carefully removed, thus minimizing turbidity into the mainstem Mad River and creating a connection between the alcove and river.

The Site-1 extraction will be carried out by skimming with a rubber-tired, front-end loader or a dozer to an elevation equal to the capillary fringe. All extracted aggregate will either be loaded directly into trucks to be hauled off-site, or placed in temporary stockpiles in order to coordinate loading and truck availability. Upon completion of extraction operations, the extracted bar surface will be groomed as necessary to ensure there are no pits or depressions that may trap fish, and sloped to provide a free-draining surface. The Site-2 extraction will be carried out by skimming with a rubber-tired, front-end loader or dozer to an elevation equal to the capillary fringe. The remainder of the material will be removed with an excavator. All gravel excavated below the capillary fringe will be stockpiled and allowed to drain. This will eliminate the chance for discharge of sediment into the Mad River during transport across the low-water crossings.

No vehicles and/or equipment will be permitted to enter the wetted channel during operations or site preparation except for the sole purpose of bridge/culvert installation and removal.

Volume Estimate

Granite proposes to extract a maximum of 29,619 yd³ from the Emmerson Bar during the '08 season.

- ✓ Site-1 = 11,899 yd³
- ✓ Site-2 = 17,720 yd³

Temporary Stockpile Locations

All temporary stockpiles, if any, will be located away from the wetted channel, be placed within the designated extraction boundaries, and removed by October 1, 2008.

Haul Road

Accessing the Emmerson Bar by exiting the County Road approximately 1000 feet south of the Hatchery Road Bridge. The existing haul road accesses the left bank from an elevated terrace adjacent to the channel. Due to erosion during winter (2006) high-flows an 8 ft. high, vertical bank exists between the elevated terrace and the dry gravel bar. The Company proposes constructing a temporary ramp to the bar and proposed temporary bridge site. The

ramp will require approximately 300 (yd³) of river run material. The material will be imported from a local stockpile, removed, and returned to the stockpile upon completion of the project (see "Temporary Crossings". After crossing the Mad River, the proposed temporary haul road will pass through an elevated terrace to the Site-1 extraction site, down its length to the alcove (Site-2) extraction site, loop around, and back to the river crossings. During operating hours, the haul road and extraction areas will be sufficiently wetted to suppress dust. The proposed haul road is delineated on Granite Construction's Extraction Plan, DWG GE0801-1201-11.

Temporary Crossings

Bridge Crossing - Granite proposes installing a temporary bridge across the mainstem Mad River to access the Emmerson Bar extraction sites. The bridge crossing will be installed at the same location as in 2007 and as shown in the drawing previously referenced. The bridge crossing location was selected following consultation with Dennis Halligan of NRM. The wetted channel is approximately 90 feet wide and has a maximum depth of approximately 0.8 feet, as of 08/22/08. The bridge is 55 feet long x 13 feet wide. The right bank end of the bridge will be support by six concrete blocks (2' x 2' x 6' lg.), and the left bank end will be supported by a single K-rail. The left bank abutment will be formed with river-run aggregate imported via dump truck from the nearby Emmerson stockpile. The right bank (offside) abutment will be formed with river-run from the adjacent bar to a level equal to the bridge deck. The entire offside abutment will be encased in K-rails to minimize fine sediment transport into the stream during bridge construction and removal. This abutment will extend roughly 35 feet into the wetted channel and will require approximately 150 yd³ of material to complete. The single K-rail at the left bank location will be embedded in the bar to reduce the elevation of the bridge and to reduce the amount of material required to construct the abutment. Minimum clearance of 2 feet will be maintained from the bottom of the bridge to the water surface at time of construction.

Culvert Crossing - Granite proposes installing a temporary culvert crossing in the secondary channel located approximately 200 feet east of the bridge crossing. The 20 ft. long, 18 in. diameter culvert will be embedded at the thalweg and covered with river-run aggregate gathered from the adjacent bar.

The locations of the temporary crossings are defined in the Extraction Plan, DWG GE0801-1201-11 and the bridge/abutment plan and section details are illustrated in the drawing DWG GE0801-1201-14, "Temporary Bridge Crossing – Emmerson Bar". One front-end loader and one excavator will be used to construct abutments and to install the bridge/culvert. Two front-end loaders will be used to remove the bridge/culvert and abutments. Fording of the stream for construction and removal of the bridge/culvert will be kept to an absolute minimum.

35% Exceedence Elevation

In accordance with NOAA Fisheries recommendations made in the 03/23/04 document titled "Implementation of the Flow Based Minimum Skim Floor Elevation for the Mad River," the 35% exceedence flow elevation on the Emmerson Bar was determined by marking the gravel bar

during flows between 700 and 1,100 cubic feet per second (cfs). This event occurred on April 4, 2008, at approximately 9:00 a.m.; Granite personnel marked the water surface elevation on the bar at 50' intervals through the entire reach. The adjusted stream flow at the time of marking was determined to be 1030 cfs based on data obtained on the USGS website for the Mad River Arcata gage. For 2008, the 35% exceedence flow elevations will not be adhered to as bases for skim floor elevations at either extraction site. As mentioned above, Site-1 extraction elevations will be equal to the capillary fringe. The Site-2 extraction floor will be approximately 5 feet lower than the mainstem thalweg at the confluence, with an upstream slope of approximately 6 inches per 100 feet.

Mitigations and/or Restrictions

Woody vegetation that is part of a contiguous 1/8-acre complex, or is at least 2 inches diameter breast height (DBH) that is present within the extraction area will be flagged and left undisturbed. Additionally, large woody debris present within the extraction area will be set aside and subsequently replaced on the skim surface at the completion of extraction activities.