

SUMMARY

INTRODUCTION

This Program Environmental Impact Report (EIR) will describe and analyze the potential environmental effects resulting from 13 gravel removal operations located close to one another in the Lower Eel River watershed. This type of document provides an overview of the cumulative effects of removal of gravel from the bed of the Eel River near Fortuna, California.

This document can be incorporated by reference into future environmental documents prepared on individual gravel removal projects within the same area.

PROJECT DESCRIPTION

The 13 gravel operations fall under the jurisdiction of the Humboldt County Planning Commission. The Commission must review and approve Conditional Use Permits, Surface Mining Permits, and Reclamation Plans for all gravel operations. It may also make a determination of vested rights and issue a special permit. Projects on the Eel River often require a Coastal Development Permit from the Planning Commission.

This Program EIR was triggered by a pending action of the Board of Supervisors involving the award and execution of a lease with a low bidder. The lease would have permitted the contractor to remove up to 200,000 cubic yards per year from the County owned bar at Worswick.

The Board was informed by Cal Trout, Audubon Society, and the Sierra Club that execution of the lease would result in a suit being filed against the County. The suit would have contested the vested right and special permit issued to the County Public Works Department for 200,000 cubic yards December 16, 1987, and the adequacy of the original CEQA document covering the 200,000 cubic yards per year at Worswick.

The lease constitutes a project as defined in Section 21065 (a) of the CEQA. The granting of permits and approvals of reclamation plans by the Planning Commission is a project as defined in Section 21065 (c) of the CEQA.

Of the 13 projects covered in this Program EIR, five have already received a Conditional Use Permit (CUP) or vested right, four have approved reclamation plans, and three have received Coastal Development Permits from the County.

The total annual maximum volume of gravel that can be extracted by the five operations with CUP or vested rights equals 557,000 cubic yards. The remaining eight operations involve an additional 923,000 cubic yards per year. The total equals 1,480,000 cubic yards per year maximum.

The total potential volume removed from the Eel River Basin in Humboldt County is obtained by adding the upper basin amount of 325,000-391,000 to 1,480,000 which equals 1,805,000 cubic yards per year up to 1,871,000 cubic yards per year. The basis of these numbers is contained in Table 1 in the Final EIR.

The objectives of the proposed gravel extraction are:

1. Provide an economic return to the operators and land owners.
2. Provide jobs;
3. Provide gravel, sand and crushed rock for construction projects both in and outside of Humboldt County.

Gravel can be mined in a variety of ways. Some of these are described in the EIR. The most common methods used on the Eel River are skimming with scrapers or front-end loaders and trenching on the inside radius of existing gravel bars.

Seven of the existing operations contain gravel crushing plants which include jaw crushers, conveyor belts, and shaking screens. This allows gravel to be crushed to different sizes and sorted into individual stockpiles.

Two of the sites contain an asphalt plant and one site contains a concrete making plant.

The gravel crushing plants require water to provide dust control. Water demand can reach 200 gallons per hour, which is equivalent to 0.0074 cfs. If all seven of the gravel processing plants were operating at once, this would require 0.052 cfs, which is equal to about 0.05% of the low summer flow occurring in this particular stretch of the Eel River.

The gravel crushing plants generate 90 dBA at 50 feet. The asphalt plants generate between 75 and 80 dBA at a 50 foot distance. Scrapers operating on the gravel bar generate 70 to 75 dBA at 50 feet, as do front-end loaders and 10-yard dump trucks.

Summer bridges are required at some sites in order for equipment to reach gravel bars west of the low flow channel. These summer bridges consist of rail flatcars placed on approach fills built up of gravel.

ENVIRONMENTAL EFFECTS OF THE PROJECT

If 1,480,000 cubic yards of gravel are removed each year without regard to the previous season's replenishment, it is predicted that the bed of the river from the mouth of the Van Duzen River to Cock Robin Island Bridge and upstream on the

Van Duzen and Eel River could be lowered to a point that could endanger the integrity of the bridge piers of the bridges located at Highway 101 on the Van Duzen River, Highway 211 at Fernbridge, and possibly at Cock Robin Island Bridge. Also, the bridge piers of the railroad bridge next to Highway 101 on the Van Duzen River could be endangered.

The last significant flow occurred in February 1986. Five years of significant gravel extraction with no large flows to provide replenishment has reduced the gravel supply available for extraction by skimming.

Looking at the river over the past 30 years, it appears that past gravel extraction may have changed the morphology of the river through the project area. Historic annual maximum amounts of gravel removal appear to range from 700,000 to 1,000,000 cubic yards. These large amounts occurred during the construction of the Highway 101 freeway through the area in 1957/58 and possibly during the past five years.

Gravel extraction over the past five years has increased significantly. This has changed the morphology of the low flow channel in several places.

With regard to impacts on fishery habitat, skimming operations stay clear of the low flow channels and have no measurable impacts during the extraction period. Trenching operations have the potential to generate relatively minor amounts of silt and clay left behind to settle on the bottom of the trench. This material can be activated through destratification of the trench pool after it is connected to the channel during increased flows in the late fall. Historically, the Eel River has carried such large amounts of suspended sediment at high flow that this relatively small amount should have negligible effect.

A phenomenon observed in the Mad River following trenching could also occur in the Eel River. The situation occurs when the river rises following the first major storm in the fall such that the trenches are connected with the main flowing channel. Then, as the river drops after the storm, the river adopts the trench as the main channel and abandons the old original channel. When this occurs, the invertebrates living in the gravel substrate of the original channel are lost, which represents a loss of fishery habitat. In this particular stretch of the Eel River, the bed contains a high percentage of sand and therefore does not contain very many invertebrates. In other words, if it were a clean and open gravel bed, there would be a much higher quality of fishery habitat and the potential for this adverse impact would be much greater. Essentially, the majority of the fish in the Eel River use the channel through the project area mostly as

a migration route for getting up and down the river and do not spend much time in this stretch of the river.

Regarding trenches, a survey was made in late May of 1992 of the bottom of the trenches in the Mad River. The fishery biologist observed no fish utilizing the trenches and they measured one inch of fine silt on the bottom. They did see fish in the normal low flow channel nearby.

Until a significant storm occurs to rework the gravel in and around these trenches, the full impact of these trenches on the aquatic habitat of the Mad River will be unknown. The Eel River is a much larger system and the trenches are more likely to be reworked even in low flow years.

There are two major potential impacts on wildlife from these gravel operations. One is due to a potential reduction in the riparian habitat along the east bank of the river and on some of the islands. The other is from high noise levels.

The original riparian forest among the banks of the river has been reduced since the days of settlement of the Eel River Delta. Beginning in the late 1950's and early 1960's gravel processing yards were moved from the river bed up to the top of the river bank along the east and north side of the river. Portions of existing riparian vegetation were removed during construction of the Sandy Prairie Levee in 1959 which removed a significant amount of potential riparian zone along the east side of the river. Therefore, all that remains is a relatively narrow strip along the east side of the river from Fernbridge south to the Mercer-Fraser yard, then it picks up again at Charlie Hansen's yard (Site No. 8), and continues south to near the mouth of the Van Duzen River. The majority of the riparian vegetation exists on the west side of the river. If a gravel processing yard is placed in the heart of the riparian area on the west side of the river as proposed by Elbert Land (Site No. 6), it is predicted that some riparian vegetation would have to be removed. This removal and increase in noise levels is predicted to have a significant adverse impact on wildlife living in that area.

Eleven birds of concern listed by the Department of Fish & Game have been seen on an infrequent basis in the area. They have been impacted by the cumulative removal of much of their riparian habitat.

Gravel processing plants operating throughout most of the year at six of the sites on the Lower Eel River, would generate noise levels that would adversely impact the potential for breeding and nesting in adjacent riparian areas. Much quieter areas would exist in the riparian forest on the west side of the river.

Mammals attempting to live in the narrow riparian corridor on the east side of the river would be subjected to noise, ground vibration, and dust during the summer months when active gravel extraction is occurring. These impacts are fairly restricted to the access roads leading down to the river from the processing yard.

Based on the analysis of the 11 birds of concern, their preferred nesting and breeding areas, and the times of year they utilize the Eel River Delta, it was concluded that impacts on wildlife from these projects would be insignificant, with the exception of the proposed new gravel processing site related to Site No. 6 in the middle of the western riparian forest. The impacts at Site No. 6 can be addressed in a Supplemental EIR (SEIR) for that project.

Red-legged frogs were found in a ponded backwater area near Site No. 12 downstream of Fernbridge. Foothill yellow-legged frogs were found in a ponded area near Site No. 8. These amphibians are candidate species for the U.S. Fish & Wildlife Service's Rare and Endangered Species List. As mitigation all permits should include a condition requiring a 150-200 foot buffer area around these ponded areas, from gravel extraction activities.

Each year during the spring and summer, various types of annual plants grow sporadically on the gravel bars. There are about 2,700 acres of dry gravel bar with this type of vegetation between the mouth of the Van Duzen and the mouth of the Eel. Nine of the 11 operations on the Lower Eel River could conceivably disturb up to 135 acres of this vegetation community. This represents about 5 percent of the existing area. The two sites on the Van Duzen River could potentially disturb less than 4 percent of the total available gravel bars. Therefore, it was determined that impact on this type of vegetation is insignificant.

In 1989, four acres of riparian vegetation were removed from the upper flat river terrace at Worswick. The Department of Fish & Game considered this a significant impact and a violation, and has sought to have it corrected since that time. In March of 1989 when a permit from the Coastal Commission was applied for by the agent of the operator, a condition on the permit was that this four-acre area of riparian vegetation be restored.

Currently there are no proposed expansion plans of any of the existing processing yards. Also, the existing operators have proposed no new access routes to the river bed. The only operations proposing new sites are Mr. Land at Site No. 6 in the western riparian forest, Mr. O'Neill at Site No. 12, and Mr. Fred Bott at Site No. 13. Two of these three projects are

currently under review by the Planning Department. Detailed impacts related to these proposals will be covered in supplemental environmental documents accompanying their applications.

Based on the analysis in this report, it was determined that long-term (130-years) cumulative impacts on riparian vegetation along the eastern side of the Eel River from Fernbridge to the mouth of the Van Duzen River are significant. Of interest, the amount of riparian vegetation remaining along the west side of the river in 1991 is greater than that which existed in 1940.

The impacts on recreational use of the project area caused by gravel extraction and processing plants include increased noise levels, changes in the aesthetics of the river bed and the riparian zone, a minor decrease in air quality from scraping operations during the summer, and a decrease in accessibility to some parts of the low flow river channel. People utilizing the river bed near the low flow channel would experience noise levels of 60 dBA from gravel processing plants on the river bar opposite sites No. 2, No. 3, No. 4, No. 5, No. 6, No. 8, No. 9 and No. 11. Fishermen utilizing the mouth of the Van Duzen River would experience levels of 52 dBA which are quite low and potentially tolerable. A person experiencing passive recreation is often more aware of noise levels. Normal conversation is around 60 to 62 dBA. The noise levels of 60 to 65 dBA would decrease the quality of some recreational experiences in much of this area when the gravel processing plants are operating.

Between June 1st and October 1st when skimming and trenching operations could occur, noise levels of 70 to 80 dBA at a distance of 50 feet would be created on the river bar. These levels are too high to permit a quality passive recreational experience, and are considered an adverse effect. Cumulatively, if all trenching and skimming operations occurred simultaneously at all of the 11 sites from Fernbridge to the mouth of the Van Duzen River, the effect on the recreational visitor may be adverse both from a noise pollution standpoint and a visual standpoint. On the other hand, some visitors may be intrigued by the activity and may not mind the noise.

Noise levels at Sites No. 10 and No. 11 during operation would be similar to those generated by the other sites. The gravel processing plant at Site No. 11 would generate fairly high levels at a distance of 50 to 100 feet. Fishermen have been observed utilizing the Van Duzen River at the mouth of Yager Creek which is a mile downstream of Site No. 11. Therefore, levels generated at the mouth of Yager Creek would be tolerable. Gravel removal operations at Site No. 10 cover the

general region around the mouth of Yager Creek and would generate noise levels of 70 to 80 dBA during the period of activity. This would be too high for most fishermen.

The proposed location of a gravel processing plant related to Site No. 6 in the heart of the 600 acre riparian forest along the west side of the Eel River would generate noise level from a high of 90 dBA at 50 feet down to 54 dBA at the outer edge of the riparian forest.

Impacts on recreationists from that operation would occur mostly to someone attempting to hike through the forest. This location is about 4,000 feet west of the end of Sandy Prairie Road.

Some of the trenches dug on the inside of gravel bars have been 1,600 feet long. Fishermen attempting to reach the low flow channel adjacent to a trench have had some difficulties because they have to walk around the trench.

Some fishermen use the access road constructed from gravel processing yards to the bed to obtain access to the river. This is particularly true at Sites No. 1, No. 2, No. 7 and No. 9. And additional access exists to the mouth of the Van Duzen River off of Highway 101 southbound land near the Van Duzen River bridge.

Summer operations which involve placement of summer bridges, utilization of scrapers, front-end loaders, and 10-yards dump trucks create adverse visual impacts to recreationists who may be walking along the river bars. These types of activities have occurred since the 1950's. These impacts occur only from June 1st to October 1st unless this time period is extended by the Department of Fish & Game.

Noise levels generated by the gravel processing plants, asphalt, and related equipment are discussed in detail in the document. Distances were measured to nearby occupied structures in order to estimate the noise level at the exterior wall of the home. Most of the closest occupied structures would receive noise levels of 60 to 66 dBA at the exterior wall. These levels would be perceived as an adverse impact to a person attempting to carry on some type of quiet activity outside the home. Noise levels through a standard wall of a house and window are attenuated 15 to 20 dBA resulting in levels inside the house ranging from 40 to 45 dBA. These levels are normally tolerable during the daytime, but may not be to a person who works at night and must sleep during the day.

One of the highest noise levels at the exterior wall was opposite Site No. 4 with a predicted level of 70 dBA. Because

this processing plant and the nearest occupied structure by Highway 101, it is recognized that a steady noise of 70 dBA would be experienced during the daytime, plus a single event noise levels from large trucks on the highway. Unless the structure is sound-proofed, these levels would be considered adverse and create interior levels of 50 to 55 dBA which would not be acceptable.

SIGNIFICANT EFFECTS

Noise levels generated by the extraction equipment and processing plants along the seven mile project area of the Eel River and the one mile area on the Van Duzen River cannot be avoided. These levels are significantly higher than the natural or ambient levels on the river bar.

Installation of summer bridges, construction of haul roads, skimming marks, trenches and temporary gravel piles next to the trenches have an impact on the aesthetics of the river during the June 1st through October 1st period of extraction activity. Whether these are significant or not is in the eye of the beholder. These activities have been ongoing for at least 30 years.

The potential long-term lowering of the bed of the river, which could lead to scour of the piers of the three bridges, would be a significant adverse effect. Predicting the bed level changes and preventing damage to the bridges can only occur through the implementation of a monitoring program.

The proposed placement of a gravel processing plant in the heart of the 600 acre riparian forest on the west side of the river related to Site No. 6 would create a significant adverse impact on wildlife.

MITIGATION MEASURES

PROPOSED TO MINIMIZE THE SIGNIFICANT EFFECTS

The adverse noise levels can be somewhat controlled through the utilization of standard mufflers on all of the extraction equipment and operating the processing plants during normal working hours Monday through Friday from 8:00 a.m. to 5:00 p.m.

Decreasing the length of some trenches to a maximum of 400 feet would mitigate access impacts to fishermen attempting to reach the low flow channel during fishing season.

Minimizing the number, length and height of the small stockpiles temporarily placed next to trenches would minimize visual impacts to the natural river scene between June 1st and October 1st. Inclusion in the Reclamation Plan of general smoothing off of scars left from skimming and stockpiling

would also minimize visual impacts of the operation after October 1st of each year.

To minimize and control potential significant adverse effects from lowering the river bed due to over-extraction, a River Management Plan must be adopted. The River Management Plan should contain a monitoring section that requires a consulting firm hired by the County and funded by the gravel operators to collect data necessary to enable the agencies with jurisdiction to make annual decisions on where and how much gravel can be removed from the Lower Eel and Van Duzen Rivers without adversely effecting the river's resources and infrastructure. Funding of the monitoring program could be done through a yield tax per ton or unit volume taken from each site. It is expected that the annual monitoring program would cost between \$40,000 and \$50,000. The monitoring period would involve periodic biological surveys, as well as taking two sets of cross-sections and thalweg profiles, plus aerial photos and ground photos each year. This information would be compiled and compared to data from previous years in order to determine gravel recruitment, changes in channel morphology, and impacts on wildlife and fisheries.

To assure protection of the red-legged and foothill yellow-legged frogs, all permits must contain a condition requiring that gravel extraction activities remain 150-200 feet away from the pond and river areas containing these frogs.

ALTERNATIVES TO DECREASE THE ENVIRONMENTAL EFFECTS

Several alternatives were developed and analyzed for impacts on the environment. The first alternative is to permit no expansion of the currently permitted operations. This consists of an annual removal of up to 557,000 cubic yards. That amount exceeds the amount of gravel that has been deposited in the area each year during the past few years. The impacts of this alternative have been described in the FEIR.

The second alternative would be to allow the currently permitted amount plus the proposed amount of gravel to be extracted per year. This total is 1,480,000 cubic yards and far exceeds the amount stored in the bed above the aforementioned baseline. The effects would be severe on the river morphology, wildlife, fish, bed elevations, river bank stability, water quality, and recreational use. The bridge piers of local bridges would be undermined endangering major transportation routes such as highway 101, the road to Ferndale, and the railroad.

The third alternative would involve determining the new amount of gravel stored at each site each year based on analyses of the monitoring program. The analysis would involve measuring many channel morphology parameters such as the new amount of gravel that moved onto each bar by comparing the new spring cross-sections with the prior fall cross-sections, thalweg profile changes, riffle and pool morphology, bed levels at bridge piers, etc. Aerial photographs would assist in project design and monitoring, and would permit volumetric measurements of gravel bars before and after extraction.

This alternative assumes it is environmentally correct to maintain the present bed slope and elevation from the mouth of the Van Duzen to Fernbridge. Continuous annual removal of replenished gravel may not allow much bedload to move downstream towards the estuary. This could be a positive effect in that it may decrease the rate of deposition and filling in of the estuary. However, careful monitoring would have to be done to assure the bed did not drop in elevation near the piers at Fernbridge and Cock Robin Island Bridge which could lead to pier scour.

The fourth alternative that would decrease environmental effects and enhance fishery habitat in some areas would be for the operators to search the Eel River and its tributaries for gravel bars that contain gravel stored above the 3% imaginary plan and for valleys that were buried during the 1955 and 1964 floods. For example, Cuneo Creek watershed above Bull Creek unraveled in these floods, burying two County bridges under several feet of gravel. Another example is the portion of Larabee Valley north of Blocksburg and east of Alderpoint Road that was buried in gravel. Inferior gravel quality, a lack of access, and a lack of permits may limit the use of some upriver sites. However, this alternative could take the pressure off existing sites in the Lower Eel River and enhance the fishery habitat in the upper portions of the watershed.

The fifth alternative analyzed the feasibility of using rock from upland quarries as a substitute for gravel. It was found that most of the inland rock pits contain rock that contains too much dirt for use as base rock. It also contains a high percentage of weathered rock that does not withstand traffic very well.

Hard rock quarries are very expensive to operate when trying to create crushed rock in a mixture that will meet state specifications for base rock.

A sixth alternative would be to terminate all gravel removal from the project area. This would decrease some environmental impacts to fishery resources, wildlife, air quality, water quality, bridge piers, and nearby homes.

The adverse effect on the local economy would be very severe because the construction industry, highway maintenance, and timber industry are very dependent on gravel.

The bed of the river may rise and stay high and braided following a flood, which would adversely effect fish passage and survival.

AREAS OF CONTROVERSY

The Sierra Club, Audubon Society and Cal-Trout notified the County of several areas of concern should current extraction volumes continue. They are concerned that changes along this stretch of the Eel River could be leading to significant adverse impacts on fishery resources, riparian vegetation and related wildlife, accessibility to the river, quality of passive recreation, impacts on water quality, and the issue of whether gravel should be treated as a finite and potentially rare resource. In response to these concerns the County agreed to prepare this program EIR hoping to identify and analyze potential environmental effects.

ISSUES TO BE RESOLVED

The County Board of Supervisors must choose among the various alternatives. Based on this analysis, the Public Works Department believes the best alternative is to have a River Management Plan prepared by a qualified consulting firm, under contract to the County Planning Department, funded by the gravel operators on the Eel River. The River Management Plan would include a monitoring program requiring measurements and observations during certain times of the year. These measurements should be done by one consulting firm.