



**DEPARTMENT OF THE ARMY**  
**SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS**  
**211 MAIN STREET**  
**SAN FRANCISCO, CALIFORNIA 94105 - 1905**

APR 09 1992

Regulatory Branch

Mr. Donald C. Tuttle  
 Environmental Services Manager  
 Department of Public Works  
 County of Humboldt  
 1106 Second Street  
 Eureka, California 95501-0579

Dear Mr. Tuttle:

The Corps of Engineers has reviewed the Draft Program Environmental Impact Report on Gravel Removal on the Lower Eel River (February, 1992). The proposed project consists of the removal of approximately 1.3 million cubic yards of gravel per year from the Eel and Van Duzen Rivers. The gravel would be removed by the excavation of trenches measuring approximately 1,600 feet long, 50 feet wide, and 15 feet deep. Stockpiling would occur in the river bed. Currently, 868,000 cubic yards of gravel are removed per year from this system per year. The new proposal includes the removal of an additional 440,000 cubic yards per year. The Corps of Engineers regulates certain activities associated with gravel mining under Section 404 of the Clean Water Act (33 U.S.C. Parts 320 through 330) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). Under the the Clean Water Act, the Corps regulates the placement of fill into "waters of the United States". On the Eel River, these "waters" extend to the high tide line in tidal waters and to to the ordinary high water mark on nontidal waters and include adjacent wetlands. Gravel mining activities that may require Section 404 authorization include, but are not limited to, stockpiling, disking, channelizing, bank modification, sorting, and river crossings. In certain instances, some of these activities are authorized under Nationwide Permits. However, these permits do not apply to designated Wild and Scenic Rivers. Under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), the Corps regulates certain work in or affecting navigable waters of the United States. The Eel River is considered to be navigable from its mouth to Worsick. For the purpose of gravel mining, regulated work includes, without limitation, excavation, filling, or other modifications of the of the navigable water. Work performed under this gravel mining proposal, therefore, may require Corps of Engineers authorization.

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APR 13 1992

The Corps recognizes the need to perform a program environmental analysis of mining in the Eel River and commends Humboldt County's efforts to complete such a study. We do, however, have several comments regarding the clarity and accuracy of Draft Environmental Impact Report (EIR). These comments are outlined below.

General Comments:

The County states that the objectives of the gravel mining are as follows:

1. to provide an economic return to the operators and land owners;
2. to provide jobs;
3. to provide gravel, sand, and crushed rock for construction projects both in and outside of Humboldt County;
4. to increase the tidal prism of the estuary; and
5. to enhance the quality of the fish habitat in the lower Eel River.

However, these objectives are not fully discussed in terms of the project impacts or project alternatives. It appears that changes in the tidal prism and fisheries habitat are results, rather than driving forces, in the development of this mining proposal. In addition, it has not been established that beneficial impacts to the estuary or the fisheries would, or may, occur from the proposed activity. In order to maintain these points as objectives, the County should develop a management plan which addresses these issues. This plan should specify the optimal tidal prism of the estuary and should evaluate alternatives for achieving the stated goal. In addition, it should identify the limiting factors of the fisheries habitat in the lower Eel and Van Duzen Rivers and should evaluate alternatives for enhancing these habitat components. Otherwise, these components should be removed from the statement of purpose. They, however, should be fully evaluated as impacts of the proposed mining.

Furthermore, the discussion of alternatives is limited to the No Action alternative, an adjustable extraction rate based on annual replenishment alternative, a reduced extraction volume alternative, an upland quarry alternative, and the proposed 1.3 million cubic yard per year extraction rate alternative.

With the exception of the proposed project, each of these alternatives is excluded from analysis with very little information provided. In order to justify the exclusion of an alternative, the County should demonstrate that the alternative is not feasible, does not meet the project purpose, or is not the least environmentally damaging option. Moreover, additional alternatives should be evaluated. Potential alternatives may include, at a minimum, continued bar skimming, terrace mining, and mining bars at alternative locations (especially for Site 6).

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In addition, the area of study is not clearly defined in the DEIR. It appears that, in some cases (e.g. endangered species), it is limited to the bars proposed for excavation. A larger geographic area which encompasses the area of potential impact should be included in the study area. A map clearly delineating this area should be included in the EIR. Also, the presentation of environmental setting and potential impacts in the DEIR is very unclear. The two sections should be clearly separated. Under environmental setting, the existing condition of each environmental component should be thoroughly and quantitatively discussed. In the current draft, this information is often not discussed until the environmental impacts section. In addition, in the proper section, the environmental impacts of the proposed mining should be thoroughly and quantitatively evaluated.

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Lastly, the proposed monitoring program is a key component of this project proposal. However, very little specific information is available regarding the specifics of the plan. In order to evaluate its effectiveness, the following information is required:

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1. the precise location of the bar transects;
2. the specific timing of the bar and longitudinal surveys;
3. the specific timing and scale of aerial photography; and
4. the benchmark to be used.

It has been established that portions of the Eel River have aggraded over the past decades, partially as a result of the 1964 flood. However, prolonged gravel extraction in excess of replenishment rates in conjunction with several years of poor flows has contributed to the reversal of this trend. In order to avoid adverse impacts resulting from uncontrolled degradation of the stream channel, data describing existing and predicted channel elevations should be provided, and a goal for managing the bed elevation should be established.

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Specific Comments:

page i On page i, the document states that 200 gallons of water per hour would be required for operation of the crushing plants. This figure represents 0.05 per cent of the river summer low flow volume. However, on page 10, the document states that the 200 gallons per minute would be required. This represents three per cent of the summer low flow. This contradiction should be corrected.

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page ii Historic removal is estimated as 700,000 to 1,000,000 cubic yards. Is this figure a per year rate or a cumulative quantity?

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page iii The document states that the noise generated by gravel processing "would not enhance" the adjacent riparian habitat. "Would not enhance" should be changed to "would adversely impact."

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page vi The second paragraph should be changed to read as follows:

"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 #6 would be a significant, adverse impact.

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page vi Here and throughout the DEIR, the County states that a monitoring plan would be implemented to reduce the significance of adverse impacts incurred by the proposed level of mining. However, a monitoring plan, in and of itself, would not alleviate the magnitude of adverse impacts to the river channel. It would serve only to identify these impacts. In order to reduce the magnitude of the impacts, a remedial action plan would be needed.

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page vi The DEIR states that the decreased extraction rate alternative is not recommended. The reasons for dismissing this alternative should be fully discussed.

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page vii The document states that the proposed monitoring program would mitigate the potential scour impacts identified in the EIR. This plan may identify and quantify these impacts; however, it would not mitigate them. Measures for rectifying the impact once it is identified by the monitoring program should be included in the plan.

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- page 25 The DEIR cites Dames and Moore's calculations of potential bed degradation. Under what extraction scenario do these calculations apply? | 14
- page 26 This table needs a datum. | 15
- page 27 The DEIR utilizes the Department of Agriculture's sediment yield estimate 19,942,412 cubic yards per year in the Eel River. Assuming that one per cent of the suspended sediment is bedload, the document states that the calculated bedload would be 1,994,241 cubic yards per year. This appears to be an error in calculation. The actual figure should be 199,424 cubic yards ( $19,942,412 \times 0.01 = 199,424$ ). Furthermore, in a 1979 study, the Corps of Engineers estimated the suspended sediment load of the Eel River to be 16,205,932 cubic yards at most (Smith and Patrick, 1979). Using the one per cent criterion, this figure implies a bedload of 162,059 cubic yards. | 16
- page 27 The description of the river bed and low flow channel should include figures illustrating channel morphology throughout the project area. | 17
- page 28 The description of riparian habitat should include a map of vegetation in the project area. In addition, this description should fully discuss the composition and quality of this habitat and its regional context. | 18
- page 29 The document uses varying names for the species of fish. It should be revised to use one name for each species consistently. | 19
- page 33 Change "title prism" to "tidal prism". | 20
- page 33 The discussion of the existing habitat available for birds, mammals, reptiles, and amphibians should be expanded. In addition, the list of bird, reptile, and amphibian species occurring in the study area should be expanded. | 21

- page 34 The document states that no rare, threatened, or endangered species occur in the project area and then contradicts itself by stating that the bald eagle (Haliaeetus leucocephalus) and the peregrine falcon (Falco peregrinus anatum) both occur in the project area. This point should be revised. In addition, the environmental setting section should discuss the occurrence of all candidate and listed species in the project area. A list of these species was provided to the County by the the U.S. Fish and Wildlife Service by letter of January 24, 1992. The potential impacts to each of these species should be discussed in the environmental impacts section. 22 23
- page 35 The section discussing air quality should include a quantitative discussion of existing air quality conditions relative to state and national standards. 24
- page 36 In the discussion of flooding, the DEIR should include a evaluation of the magnitude and impacts of these floods. 25
- page 37 What are the dates of the aerial photographs taken before and after the construction of the Highways 101 and 211 bridges? 26
- page 37 The DEIR concludes that the channel elevation of the Eel River has not changed "very much" over the last 80 years. This conclusion should be quantified. In addition, the discussion of conclusion that "some change" has occurred in the bed elevation of the Van Duzen River should be expanded. It is not clear whether the figures represent channel migration or bed elevation changes. In addition, paragraph seven states that the bed at the south pier of the Route 101 bridge over the Van Duzen River degraded by 20 feet between 1924 and 1991. Paragraph eight states that this same site degraded 4.5 feet between 1925 and 1991. This contradiction should be clarified. 27
- page 47 The DEIR states that "[i]t is unknown at this time what the impacts of trenching will be as there was no analysis or CEQA documentation prior to the initiation of trenching." However, information is available from trenching on the Mad River and by analyzing the impacts of trenching on the Eel River thus far. These impacts may include, at a minimum, channel realignment, fish entrapment and mortality, channel degradation, water quality degradation, lowering of the ground water table, degradation of riparian vegetation, and altered patterns of erosion and sedimentation. These points should be fully discussed in the EIR. 28

- page 47 The document states that trenching can "create a new | 29  
cheaper, more efficient channel." What is meant by  
this statement?
- page 51 The document refers to a "minor lowering" of the river | 30  
beds over they past 17 years. This degradation should  
be quantified.
- page 53 The document concludes that the proposed mining would | 31  
result in an unknown amount of channel degradation in  
the Eel and Van Duzen Rivers and that this degradation  
would, in turn, impact bridge piers and levees. The  
discussion of channel degradation should also consider  
the impacts of channel degradation to habitat for fish  
and wildlife, riparian vegetation, and ground water.  
The nature and magnitude of these impacts should be  
established.
- page 54 Table 3.5 needs a datum. | 32
- page 55 Under what flow conditions does this cross section | 33  
apply?
- page 58 The DEIR states that past gravel mining has not | 34  
significantly changed channel morphology through the  
project area. This statement should be quantified and  
the area of study should be clearly identified.
- page 58 The proposed fisheries habitat monitoring program | 35  
should be explained in detail.
- page 60 The document states that an increase in the tidal prism | 36  
of the estuary would enhance fisheries habitat. This  
statement should be substantiated.
- pages 60 |  
thru 63 The evaluation of impacts to wildlife should be revised | 37  
to include a thorough discussion of all impacts to fish  
and wildlife potentially incurred by the proposed  
project. These impacts should be quantified to the  
extent possible. Points that should be evaluated  
include, at a minimum, the displacement of riparian  
habitat, channel degradation, alteration of channel  
morphology and stream flow characteristics, degradation  
of water and air quality, fish entrapment and  
mortality, increased noise levels, and ground water  
impacts.



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Fish and Wildlife Enhancement  
Sacramento Field Office  
2800 Cottage Way, Room E-1803  
Sacramento, California 95825-1846

In Reply Refer To:  
PPN 2059

April 15, 1992

PUBLIC WORKS	
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Mr. Donald Tuttle  
Humboldt County Public Works Department  
Natural Resources Division  
1106 Second Street  
Eureka, CA 95501-4484

**Subject:** Draft Program Environmental Impact Report on Gravel Removal Operations, Lower Eel and Van Duzen Rivers, Humboldt County, California

Dear Mr. Tuttle:

The Fish and Wildlife Service (Service) has reviewed a Draft Program Environmental Impact Report (DEIR) describing and analyzing potential environmental effects caused by eleven gravel removal operations along the Lower Eel and Van Duzen Rivers. The eleven operations propose to cumulatively remove 1.2 million cubic yards of gravel annually. The following comments are provided to voice the Service's general concerns about Eel River gravel extraction operations and to assist you in evaluating the proposed projects' impacts on fish, wildlife, and their habitats. These comments are not intended to take the place of any formal comments that may be required under the provisions of the Fish and Wildlife Coordination Act or the Endangered Species Act (ESA), as amended.

The Service commends the County's efforts to develop a comprehensive environmental impact analysis that seeks to identify and minimize potential adverse effects from gravel extraction operations within portions of the Eel River watershed. However, the Service believes that the County falls short in not including the multitude of other gravel removal operations within the drainage and addressing their individual and cumulative deleterious effects on the natural riverine environment. We strongly encourage the County to further define the scope of a revised DEIR to encompass other on-going and any anticipated, within the reasonably foreseeable future, extraction operations that may cause cumulative environmental impacts within the watershed, including the estuary and nearby coastal areas. Additionally, the "No Project Alternative" should be redefined to be an analysis of environmental impacts associated with the full or partial cessation of existing gravel removal operations.

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Every effort should be made by the County to achieve and maintain existing levels of native fishes in the Eel River drainage. The Eel River and its tributaries yield one of the largest populations of coho (*Oncorhynchus kisutch*) and chinook (*Oncorhynchus tshawytscha*) salmon and steelhead (*Oncorhynchus mykiss*) in the state. Historically, the Eel River supported

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different runs of chinook salmon (now only fall-run) and sizable populations of chum (*Oncorhynchus keta*) and pink (*Oncorhynchus gorbuscha*) salmon, which are now non-existent in the Eel River basin. The remaining native fish populations in the Eel River basin face numerous threats to their viability. Habitat destruction, competition with non-native species such as the Sacramento squawfish (*Ptychocheilus grandis*), and migration barriers such as summer dams cumulatively stress the native fisheries. In particular, the multitude of proposed and on-going gravel mining operations in the Eel River basin would affect salmonids (salmon and steelhead).

In a letter dated January 24, 1992, the Service provided the County a list of federal endangered and threatened species and candidate species that may occur within the project area and recommended that surveys be made to assist in evaluating project impacts. However, the DEIR does not discuss whether surveys have been made to determine the presence of any of the candidate species within the project area and immediate vicinity and, if present, any adverse effects that the proposed projects may cause. One of the benefits of considering candidate species early in the planning process is that by exploring alternatives, it may be possible to avoid conflicts that could develop, should a candidate species become listed before or while the projects are operational. In addition, in instances where the Service addresses proposed projects under its Fish and Wildlife Coordination Act authority, such as the issuance of a Section 404 or Section 10 permit by the U.S. Army Corps of Engineers (Corps), we must also analyze the impacts on candidate species and make recommendations to mitigate any adverse effects.

The green sturgeon, *Acipenser medirostris*, and longfin smelt, *Spirinchus thaleichthys*, may be affected by multiple gravel removal operations. Both currently-used gravel removal methods, trenching and skimming, and the timing of operations should be analyzed for potential impacts, within the project area and estuary, on these species. There is concern that the upstream removal of sand and gravel will deplete the amount of material recruited to the beaches at the mouth of the Eel River. Reduction of sand spits and dunes could reduce the amount of nesting habitat available to the western snowy plover, *Charadrius alexandrinus nivosa*. Candidate amphibian species possibly occurring in the project area include the northwestern pond turtle, (*Clemmys marmorata marmorata*), and the California red-legged frog (*Rana aurora draytonii*). The Service has been petitioned to list the turtle and frog as endangered or threatened species under the ESA. We are currently reviewing the status of these animals and anticipate issuing a 90-day finding in the near future. The presence and potential adverse effects on the white-footed vole, (*Arborimus albipes*); Pacific fisher, (*Martes pennanti pacifica*); Pacific western big-eared bat, (*Plecotus townsendii townsendii*); and California wolverine, (*Gulo gulo luteus*), also remain to be ascertained and discussed. We still recommend that appropriately timed surveys for the identified candidate species be undertaken by qualified biologists. Survey results should be published in a revised environmental document to provide a realistic evaluation of project impacts.

The DEIR does not address the possibility that nest sites or activity centers of the threatened northern spotted owl (*Strix occidentalis caurina*) may occur in forested habitat near the proposed operations on the Van Duzen River. Consistent high noise levels during the breeding season (March through July) within 1/4 mile of spotted owl nest sites or activity centers may impair

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breeding activities of that species. The applicant should 1) contact Mr. Gordon Gould of the California Department of Fish and Game at 916-654-4264 to determine whether there are known spotted owl sites near the proposed operations, and 2) survey suitable owl habitat within 1/4 mile of the proposed operations in a manner consistent with the Service-approved spotted owl survey protocol of March, 1992 (enclosed). If owl sites are located within 1/4 mile of the proposed operation, the applicant should contact the Service to determine measures to avoid prohibited take, or seek authorization for incidental take. Such authorization requires development of a conservation plan with measures to minimize and mitigate take, a process that normally takes several months.

We would object to any further fragmentation and loss of riparian habitat along the Eel River or its tributaries associated with gravel removal operations, such as that discussed at site #6 or the construction of additional river access roads that did not provide suitable mitigation. Generally, riparian areas should be avoided. If unavoidable losses are incurred, we recommend that lost habitat be replaced with in-kind habitat with no net loss of habitat value or acreage. A mitigation/monitoring plan would need to be submitted before project impacts occurred, in order that the potential success of proposed mitigation measures could be assessed.

The Service disagrees with the assumption that eleven identified avian species have co-existed, apparently with minimal disturbance, with gravel mining operations during the past 30 years. No historical data is presented to show population trends during the time period and whether or not alterations in population levels and diversity have resulted from increased gravel mining operations. The monitoring program should be expanded to include methods for monitoring and evaluating avian species populations that could be negatively affected by continued gravel removal activities. Additionally, monitoring procedures for assessing the in-stream aquatic invertebrate community and other wildlife utilization patterns in adjacent riparian habitats should be included in the final monitoring plan.

Based upon these considerations, we recommend that the County address our concerns and submit a revised Draft Environmental Impact Report for our review before preparing a final environmental document. If you have any questions about these comments, please call Jim Browning or Darren Fong of my staff at (916) 978-4613.

Sincerely,

*Doug Weirich*

*for* Wayne S. White  
Field Supervisor

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Enclosure



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE

Southwest Region, HCB  
777 Sonoma Avenue, Room 325  
Santa Rosa, California 95404

MAR 30 1992

March 25, 1992

F/SW02:CPM

Donald C. Tuttle  
Environmental Services Manager  
Humboldt County Dept. of Public Works  
1106 Second Street  
Eureka, California 95501-0579

Dear Mr. Tuttle:

We reviewed the Draft Program Environmental Impact Report (DEIR) on Gravel Removal from the Lower Eel River. The DEIR describes the proposed removal of 1,220,000 cubic yards of gravel per year from 11 extraction sites. Nine of these sites are on the Lower Eel River between Fernbridge and the mouth of the Van Duzen River. The other two are on the Van Duzen River near the mouth of Yager Creek.

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We welcome Humboldt County's efforts to begin managing gravel extraction with a comprehensive, program approach. A Program EIR is the logical first step. Unfortunately, we believe that the DEIR is inadequate. It does not provide enough information to allow a scientific assessment of the potential impacts of gravel extraction alternatives on anadromous fisheries and their habitat. It does not provide a vision of how the Lower Eel could be restored by carefully directing gravel extraction efforts according to a Lower Eel restoration plan.

The DEIR should provide more information on the history and impacts of the two gravel mining projects that occur near Garberville. The current proposal by the Satterlees to mine 200,000 cubic yards annually from the Eel River near Alderpoint should also be addressed.

The DEIR states that the lower Eel is mainly used as a migration corridor for anadromous fish. This may be the case given the current conditions, but it is possible that rearing habitat was historically available in this reach of the river. Widening and shallowing of the river in this area has probably resulted in the loss of cooler pool, riffle, and run areas shaded by riparian vegetation. Improperly managed gravel extraction activities may prevent the restoration of the river to historic conditions.

The discussion of bedload transport rates reveals the wide range of estimates that are found in the literature. In 1982 the Dept. of Water Resources developed a bedload transport estimate of 107 kcy (thousand cubic yards) for the Middle Fork of the Eel. Hawley and Jones in 1969 estimated a bedload transport rate of 400 kcy at Scotia, most of which is sand according to Ritter. The DEIR cites a June 1970 Sediment Yield and Land Treatment



report which estimated a bedload transport rate of 124 kcy. This report estimated bedload to be 1% of Eel River total sediment transport, but bedload to be 15% of total Van Duzen River sediment transport, and thus estimated a 234 kcy bedload transport total for the combined Van Duzen and Eel flow below the mouth of the Van Duzen. The USDA report of 1970 developed a bedload transport estimate of 2.0 million cubic yards. Arcata Readimix's 1992 use permit application includes bedload transport estimates of 300 kcy to 800 kcy.

Thus, bedload transport estimates range from about 107 kcy to about 2.0 million cubic yards. We believe that the main reason for the large range of estimates is due to the assumptions that were made in the absence of direct measurements. Bedload is assumed to be anywhere from 1 to 15% of total sediment load. Bedload has not been directly measured. Also, some have estimated the 1964 flood to be an eighty-year flood event, although it is possible that it could have been a hundred-year or even two-hundred year flood event.

Because knowledge of suspended sediment and bedload transport rates are so important in understanding the geofluvial morphology and dynamics of the Lower Eel, we recommend that the County include a program to develop reliable estimates of these rates as part of its gravel monitoring program. This might be done on a cooperative basis with the U.S. Geological Survey, and would probably require new measurements and modelling efforts.

It is unclear whether the proposed 1.22 million cubic yards of annual gravel extraction will cause net degradation of the stream and fisheries habitat. First, we do not know the average bedload transport rates. Second, we do not know how the County will manage extraction limits during years when little or no gravel replenishment occurs (such as over the last five years). Also, it is unclear to what extent the trenching or skimming methods will be permitted for gravel extraction. Trenching has the potential to cause major headcutting and shifting of the river thalweg, while skimming typically increases the river's width/depth ratio and wetted area, reducing sediment transport ability and increasing bank erosion.

A good monitoring program would allow these problems to be documented, but in itself will not prevent these impacts from occurring. The County should annually set extraction limits and methods both on a project-by-project basis and on an overall basis. The limits should be based on two considerations- gravel replenishment during the rainy season and achievement of restoration goals. Restoration goals should be developed as part of a comprehensive restoration plan, which we describe below.

We believe that the County should develop a restoration plan for the Lower Eel. Based on the historical record, this reach of the

river ran narrower, deeper, and cooler. There was more riparian vegetation on the banks of the river, and the bank-full channel had more meanders. Given the human-induced and natural changes that have occurred over the years, it is probable that this reach of the river is out of balance. The restoration plan would be developed after careful analysis of historic aerial photos and bridge elevations, and measurements and calculations of flow velocity, width, depth, discharge, sediment transport rates, slope, sinuosity, bed roughness, and other factors. The plan would provide detailed design and phased construction plans for a stable, enhanced river morphology. Such a plan would probably include riparian vegetation planting, meander restoration, and gravel removal. The gravel removal could support the needs of the gravel industry. Similar restoration planning is now underway in the lower South Fork of the Eel and Bull Creek. This plan would allow the County to manage gravel extraction in a proactive mode, rather than a reactive mode.

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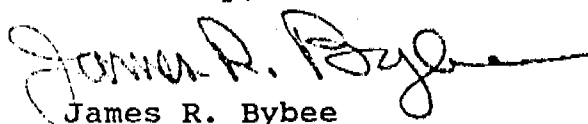
The sample monitoring program described in Appendix A of the DEIR should be adequate to monitor changes in the river caused by gravel extraction. If it is funded by taxing gravel operators on a per ton basis, some means of accurately and independently measuring extraction amounts should be developed. Otherwise, the operators will have economic incentives to underreport gravel extraction volumes. In addition, we recommend that the county add the geofluvial analysis and restoration plan elements described above.

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The DEIR outlines all of the agencies and permits that are required for gravel extraction in the Lower Eel. However, we emphasize the fact that the County is lead agency for all mining within the county, and therefore should not unduly rely on other agencies to manage and protect the Eel River.

If you have any questions regarding these comments please contact Chris Mobley of my staff at the above address; telephone (707) 578-7513. Thank you.

Sincerely,



James R. Bybee  
Environmental Coordinator  
Northern Area

cc: Larry Preston, DFG  
Mike Long, USFWS  
James Pompy, DMG



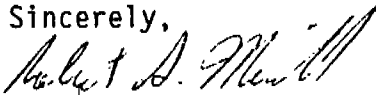
Letter to Mr. Tuttle  
April 10, 1992  
Page 2

Section 30608 of the Coastal Act states that no person who has obtained a vested right in a development prior to January 1, 1973 need obtain a coastal development permit. Thus, it is possible that some of the older gravel mining operations along the lower Eel River may not need a coastal development permit. However, to establish a vested right, among other things, a project proponent must demonstrate that he or she had obtained all necessary local, state, and federal discretionary permits to undertake the development prior to January 1, 1973. In addition, the project proponent must demonstrate that the project has not been expanded or significantly changed in any way since then. 59

In localities such as Humboldt County where the local government has a local coastal program (LCP) that has been certified by the Commission, the local government issues all of the Coastal Development Permits for development within the coastal zone except for any development on tidelands, submerged lands, or on public trust lands, whether filled or unfilled. The Commission retains the authority for issuing permits on these lands. The Commission has prepared maps for all of the certified areas that show the boundary between the Coastal Development Permit Jurisdictions of the County and the Commission. These maps are based in part, on information about public trust lands obtained from the State Lands Commission. A copy of the map for the project area is enclosed. The map shows that the Commission's coastal development jurisdiction covers a relatively broad area along the river. As a result, some of the gravel mining operations may be entirely within the Commission's coastal development permit and not within the County's area. 59

If you have any questions about the above information, please don't hesitate to call. Once again, thanks for the opportunity to comment.

Sincerely,

  
ROBERT S. MERRILL  
Coastal Analyst

Enclosure

cc: Commissioner Bonnie Neely

2600p

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STATE OF CALIFORNIA  
\*\*\*\*\*  
REGIONAL WATER QUALITY CONTROL BOARD  
NORTH COAST REGION

1440 GUERNEVILLE ROAD  
SANTA ROSA, CALIFORNIA 95403  
PHONE (707)576-2220  
ATSS 8-590-2220  
FAX (707)523-0135

APR 2 1992

DATE: 4-2-92

TO: DON TUTTLE

FROM: TOM DUNBAR

SUBJECT: EEL RIVER GRAVEL FIR

NUMBER OF PAGES: 4  
(INCLUDING THIS COVER PAGE)

DRAFT COMMENTS.  
COMMENT FROM YOU  
BEFORE WE FINALIZE?

BRVHMCO.DOC ON JRH MINI DOC DISK

SUGGESTED TEXT TO SUPERCEDE THAT CONTAINED PP 45-47 OF DRAFT PROGRAM  
EIR-GRAVEL REMOVAL LOWER EEL RIVER -- SCH #92013033

Some activities associated with the gravel removal projects described in this EIR will require permits to be issued by the Corps of Engineers pursuant to Clean Water Act Section 404 and/or Rivers and Harbors Act Section 10. (See page 49...or whatever it becomes). The activities within Corps jurisdiction include any filling within waterbodies or wetlands (including stockpiling, diking, channelizing, bank modifications, sorting and river crossings--see Corps letter of March 26, 1992) and dredging (including trench-type gravel extraction ??when trenching extends into the river underflow??) (??and may be interpreted to also include the "skimming"-type of gravel mining??). Before the Corps can issue its permit, the applicant must contact the Regional Water Quality Control Board, North Coast Region regarding Water Quality Certification pursuant to Section 401 of the federal Clean Water Act.

The Regional Board's procedure for response to requests for such certification are established in State law and regulations and include the following steps:

The applicant submits a Request for Certification including the following:

A letter or Form requesting certification, including a full description of the activity involved;

A completed copy of the application for the Corps permit;

Evidence of compliance with California Environmental Quality Act (CEQA) such as a Negative Declaration, reference to this EIR, or other proceeding;

A filing fee computed according to the schedule contained in Section 2200 of the California Code of Regulations, Title 23. The schedule in effect at the time of preparation of this EIR is as follows:

"Fees for fill or dredge operations shall be assessed on an annual basis for as long as the waste discharge requirement is in effect, as follows:

Fill: One acre or less, flat fee of \$1000  
More than one acre, \$1000 per acre or part thereof (not to exceed the statutory maximum).

Dredge: Less than 10,000 cubic yards, flat fee of \$500  
10,000 to 20,000 cubic yards, flat fee of \$2000  
More than 20,000 cubic yards, \$2000 plus \$250 for each additional 5000 cubic yards or part thereof (not to exceed the statutory maximum).

(the statutory maximum at this time is \$10,000 -- would be reached at 10+ acres "fill" and/or at 180,000+ CY of "dredge"

61000  
4500

160

page 2 of gravhmc0.doc

The Regional Board staff reviews the application to verify its completeness and whether or not Waste Discharge Requirements can be waived.

If the activity will not discharge to the river or can be conducted with minimal threat to water quality, it is within the matters covered by Regional Board Resolution No. 87-113 -- Waiving Waste Discharge Requirements for Specific Types of Discharges -- and a waiver is issued. This action is equivalent to "401 Certification" and enables the Corps to issue its permit.

In the event that the proposed activity is beyond the scope of Resolution No. 87-113 the staff cannot issue a waiver but instead must process the matter for regulation under Waste Discharge Requirements which are adopted by the Board -- an action which is also equivalent to "401 Certification".

Should the Board find that the activity will cause uncontrollable water quality impacts, it would recommend that the State Water Resources Control Board deny certification and the Corps could not issue a permit.

Applicants for Corps permits should also be aware of Clean Water Act Section 404 (b)(1) (regarding the specification of disposal sites for dredged or fill material) and its implementation by the Corps and EPA. The implementation guidelines are published as Part 230 of Title 40-Code of Federal Regulations. In general, Section 404(b)(1) and the guidelines establish very strict controls over fill-placement activities which may have adverse effects to municipal water supplies, wetlands, fishery habitats or recreational areas.

In addition to the regulations dealing with dredging and filling activities which attend gravel mining and processing, there are provisions of the federal Clean Water Act and State Water Code which require regulation of wastewater discharges from gravel processing, concrete/pavement manufacturing and stormwater discharges associated with industrial activities such as gravel mining and concrete/paving manufacturing. Finally, there are regulatory provisions governing storage and spill-prevention/detection systems for petroleum products (fuels and asphalt). The Regional Board's implementation of these regulatory measures is outlined in the following paragraphs.

61  
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Wastewaters from industrial processes. The Board has, for many years, prohibited all discharges of waste to the Eel River and its tributaries during the May 15-September 30 low-flow period. During the October 1-May 14 period, discharges are allowed only if there are 100-to-1 dilution flows and the discharge causes no degradation of the River's natural background conditions. The result of these restrictions on aggregate-related industries has been development of practices which comply with the Board's prohibitions. The activities described in this EIR are consistent with those practices. The Regional Board, in 1987,

pg 3 of gravhmco.doc

adopted Resolution No. 87-113 -- Waiving Waste Discharge Requirements for Specific Types of Discharges and has, since that time, found that the types of activities described in this EIR do qualify for waiver. The scope of operations described in this EIR is not expanded beyond the levels actually accomplished in the past, thus it is reasonable to expect that Resolution No. 87-113 will continue to be applicable.

Stormwater Discharges Associated with Aggregate Mining and Manufacturing of Concrete/Paving Products. In late 1991, the Regional Board was delegated responsibility to implement a Statewide General Permit which may be used by owner/operators of sites which have stormwater discharges which must be permitted under the National Pollutant Discharge Elimination System (NPDES) Program. The operations described in this EIR, if they have a discharge of stormwater via a conveyance to the Eel River or its tributaries from any area of industrial activity, may obtain NPDES permit coverage (ie permission to discharge) by following the steps set forth in the Statewide General Permit. The first step is to obtain a copy of the General Permit, Notice of Intent Form and Instructions from the Regional Board office. The second step, if there will be a stormwater discharge associated with the activity, is to read and understand the General Permit and follow its basic directions: fill out and submit the Notice of Intent along with the \$500 filing fee to the State Board office in Sacramento. The terms of the Permit point to the next steps -- eliminate any possibility of non-stormwater discharge, prepare and implement a Stormwater Pollution Prevention Plan and prepare and implement a Stormwater Discharge Monitoring Program.

The Regional Board is responsible for verifying compliance with the General Permit and may use any of its enforcement authorities to obtain compliance. Areas of concern regarding the activities described in this EIR include:

(quote from item 5 --pages 6 & 7 of the permit)

Petroleum Storage Regulation. There are differing levels of regulation regarding handling and storage of petroleum products which are especially important at the river-side facilities described in this EIR. Any underground tanks must be operated in accordance with County of Humboldt administration of State regulations. Any above-ground tanks above the jurisdictional threshold must comply with State registration and monitoring regulations. Any tanks exceeding 700-gallon capacity must be covered by a <sup>SPILL CONTROL</sup> Spill Control, Countermeasure // and Contingency Plan (SPCC Plan) in accordance with federal regulations. The objective of all of these regulations is simple -- to avoid spillage of fuels and asphalt products where they may immediately affect the sensitive uses of the Eel River or its tributaries. Non-compliance with any of these regulations which causes or threatens to cause pollution of the river will result in enforcement action by the Regional Board.

In summary, the Regional Board is involved in three distinct regulatory roles which may impact gravel operators. Compliance with the discharge prohibitions, stormwater General Permit and petroleum controls will effectively minimize all water quality effects of the activities described by this EIR.

[continue with text at page 47: A Streambed ....]



4. **Alternative sources**

Alternative sources of gravel within Humboldt County are dismissed in the report. The report points out that "there is a demand both inside and outside of Humboldt County for gravel". but fails to address the impact of other areas using Humboldt County as their alternative gravel source.

68

**General Channel Degradation**

The report alleges "past gravel extraction has not significantly changed the morphology of the river" and "available information does not indicate any long-term trend of the elevation of the river bed at these three bridges." There is evidence to the contrary:

69

- The channel cross sections taken at the highway 101 bridge over the Van Duzen River in 1957 and 1992 display an average channel lowering of 5-7 feet with a maximum of 12 feet for the left structure.
- The report admits there is "potential long-term lowering of the bed of the river which could lead to scour of the piers under the Van Duzen bridge, Fernbridge, and Cock Robin Island bridge." This potential degradation and subsequent impacts to the bridges must be mitigated or avoided.
- The report states "due to the five-year drought, in some cases it was difficult to find gravel bars that contained enough material above the 3% line to allow for an efficient removal operation." In other words, lack of replenishment has decreased the bed elevation to the point that miners are forced to dig trenches in order to recruit gravel.

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**Mitigation**

The Draft Environmental Impact Report does not provide measures to mitigate the potentially significant impact to the bridge structures. The report proposes implementing a monitoring program "to minimize the significant effects which could occur from a general lowering of the bed". A monitoring plan will not minimize the effects of the mining, it will only observe them. The report contends "a good monitoring program leading to intelligent and proper decisions related to the changes in bed levels would mitigate the potential identified scouring effects on bridge piers." The Environmental Impact Report should relate these "intelligent decisions" for identified potential impacts. In other words, what does the County propose to do if the monitoring plan proves that the riverbed is indeed degrading?

72

**Sediment Yields**

There is little evidence in the Draft Environmental Impact Report suggesting sufficient replenishment to support the proposed annual 1.2 million cubic yard extraction. Although the sediment yield estimates provided in the report are inconclusive, the proposed removal is four times higher than even the highest yield estimate from the report as shown below:

	Sediment Discharge (cy)
Department of Water Resources (1982)	160,000
Hawley & Jones <sup>1</sup> (1969)	400,000
Sediment Yield (1970) Assumed 1%	234,400
USDA (1970) 1% of Suspended Sediment <sup>2</sup>	199,424

The above yields are estimated from measured suspended sediment, typically 2-6 percent of the suspended load<sup>3</sup> in lowland rivers. The yield variability illustrates the problem inherent in developing a gravel management plan which relies on predicted replenishment rates.

73

**Hydrology**

The 100-year discharge adopted by the Draft Environmental Impact Report of 1,250,000 cubic feet per second (cfs) should be reexamined. The 1986 FEMA Flood Insurance Study for Humboldt County, for example estimates the 100-year discharge at the mouth of the Eel River to be 695,000 cfs and 500-year at 924,000 cfs.

74

**Sediment Transport**

The Environmental Impact Report should not rely on the HEC-6 model (or any other sediment transport model) to establish mining's impacts on the river system. In 1982, the National Research Council studied six of the most popular sediment transport models (including HEC-6) in order to determine the effects of riverbed degradation during flood passage on flood stage. The study rejected the use of movable bed models due to 1) unreliable formation of sediment-discharge capacity of flows, 2) inadequate formulation of the variable friction factor of erodible bed flows, 3) inadequate modeling of bed armoring and 4) inadequate modeling of bank erosion.<sup>4</sup>

75

**Other comments on the Draft Environmental Impact Report:**

- The two Van Duzen sites and three Eel River sites should be included in the Final Environmental Impact Report.
- The potential impacts of the proposed annual 150,000 cubic yard removal by Arcata RediMix downstream of Fernbridge should also be included in the Final Environmental Impact Report.
- The report suggests that Caltrans could use the report "to determine the potential effects on highway bridges near the gravel extraction area." In order to effectively use the report it should specify the proposed depth and cross sectional limits of the excavation at each of the proposed extraction sites.

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<sup>1</sup> Assume 1.5 per cubic yard per ton

<sup>2</sup> 1% of 19,942,412 cubic yards per year (12,361 acre ft)

<sup>3</sup> Collins, Brian and Thomas Dunne. 1990. Fluvial Geomorphology and River-Gravel Mining: A guide for Planners, Case Studies Included. California Department of Conservation, Division of Mines & Geology, Sacramento, California.

<sup>4</sup> Dawdy, D.R. and Vanioni, V.A., "Modeling Alluvial Channels", Water Resources Research 22(9), pp. 71S-81S, August 1986.

It is clear that if the County allows extraction in excess of one million cubic yards per year without regard to replenishment, the river will react. Simple mass balance suggests that removal in excess of replenishment will induce either streambed or bank erosion as the river seeks an equilibrium sediment load. Excessive streambed or bank erosion threaten the structural integrity of bridges crossing the river and adjacent roadway in the project area. To reduce the uncertainty in replenishment and the river's response to specific mining operations, a positive management plan should be implemented. Two of the most promising alternatives are as follows:

**Redline**

The redline strategy employs tying all excavation to a static datum by defining the river's thalweg elevation. Gravel extraction is only permitted in reaches above the redline. A optimal channel configuration could be designed which would protect bridge structures and other instream facilities as well as provide suitable habitat for fish and wildlife. 79

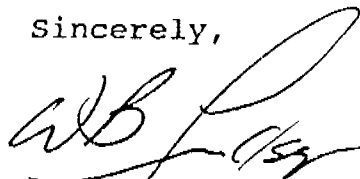
The monitoring plan can be used to guarantee compliance with the redline standard. The redline elevation could be adjusted if new structures with lower foundation are constructed or changes to the river's morphology are desired. The redline allows new or expanded operations to be evaluated quickly and efficiently.

**Financial Incentives**

None of the current alternatives provide an incentive to limit channel degradation or lateral erosion. If a bridge is damaged as a result of channel degradation, tax dollars are used to repair the structure. Potential mitigation for the project should tie the financial responsibility for repairing the instream structures to the operator's activities. 80

If you have any questions or require further information, please contact Cathy Crossett of my staff at (916) 327-3218.

Sincerely,



W.B. LINDSEY  
Hydrology/Hydraulics Engineer

- cc: Linda Evans, District 1 IGR/CEQA Review
- Dennis McBride, District 1 Hydraulics
- Tom Falenz, Legal Division
- Karen Kovacs, Department of Fish and Game
- Mike Sandeki, Division of Mines and Geology

7

## DEPARTMENT OF TRANSPORTATION

1, P.O. BOX 3700  
 CA 95502-3700  
 TDD PHONE 707/445-6463

(707) 445-6412



MAR 25 1992

March 23, 1992

1-Hum-101-57.69-63.56  
 1-Hum-36-0.0  
 1-Hum-211-79.08  
 Draft Program EIR on  
 Gravel Removal from Lower  
 Eel River  
 SCH# 92013033

PUBLIC WORKS	
<input type="checkbox"/>	DIR
<input type="checkbox"/>	AV
<input type="checkbox"/>	BUS
<input type="checkbox"/>	ENG
<input type="checkbox"/>	MAINT.
<input type="checkbox"/>	RD
<input type="checkbox"/>	EM
<input checked="" type="checkbox"/>	NR
<input type="checkbox"/>	PK
<input type="checkbox"/>	RP
<input type="checkbox"/>	SEC
<input type="checkbox"/>	FILE
TIC 4/30/92	

Mr. Donald Tuttle  
 Humboldt County Public  
 Works Department  
 1106 Second Street  
 Eureka, CA 95501

Dear Mr. Tuttle:

We have reviewed the Draft Program Environmental Impact Report (DPEIR) on the proposed gravel extraction from 11 sites on the Lower Eel River Basin. We have previously commented on the Notice of Preparation of this document on January 27, 1992. We now offer the following comments:

Caltrans remains interested in the impacts that this project will have on the State transportation system. In general, we feel that the State highways in the vicinity of the gravel extraction operations are not capacity-limiting for through traffic. However, we are concerned with the Level of Service (LOS) of the at-grade intersections and the impacts of turning movements generated by gravel-hauling trucks. The DPEIR should identify the gravel hauling routes for each extraction site. For the at-grade intersections of local roads with State highways that will have high volumes of truck-turning movements or potential safety concerns, we feel that an intersection capacity and safety analysis should be conducted and should include suggested mitigation measures.

The Hansen Lane access to State Highway Route 101 and other existing road approaches onto Routes 101, 36, and 211 may require upgrading to meet current commercial standards specified in the State Highway Design Manual.

We suggest that the County encourage the use of rail or barge facilities as an alternative to highway transportation (as considered on Page 64 of the DPEIR), to reduce the impact of increased trip generation on the State Highway system.

81

Mr. Donald Tuttle  
March 23, 1992  
Page 2

Should the gravel extraction methods used in this project have a cumulative affect resulting in a need to protect Fernbridge (a "historical structure"), the project would require review by the State Historic Preservation Officer (SHPO) and by the Caltrans Division of Structures.

The analysis of the impact of noise (Pages 68 and 69) generated by project site #2 operations identified passenger cars on freeways as single event noise generators. Traffic noise is a steady source and should be considered as such. The combining of freeway and processing plant noise may result in an incremental net increase level of noise. | 82

Should you have any questions, please call Dave Carstensen at (707) 441-5813.

Very truly yours,

*Patricia L. Secoy*  
PATRICIA L. SECOY, Chief  
Transportation Planning Branch

cc: D. Cox, State Clearinghouse

## GOVERNOR'S OFFICE OF PLANNING AND RESEARCH

10 TENTH STREET  
SACRAMENTO, CA 95814

APR 6 1992

Apr 03, 1992

DONALD TUTTLE  
COUNTY OF HUMBOLDT  
1106 SECOND STREET  
EUREKA, CA 95501Subject: GRAVEL REMOVAL FROM LOWER EEL RIVER IN HUMBOLDT COUNTY  
SCH # 92013033

Dear DONALD TUTTLE:

The State Clearinghouse has submitted the above named draft Environmental Impact Report (EIR) to selected state agencies for review. The review period is now closed and the comments from the responding agency(ies) is(are) enclosed. On the enclosed Notice of Completion form you will note that the Clearinghouse has checked the agencies that have commented. Please review the Notice of Completion to ensure that your comment package is complete. If the comment package is not in order, please notify the State Clearinghouse immediately. Remember to refer to the project's eight-digit State Clearinghouse number so that we may respond promptly.

Please note that Section 21104 of the California Public Resources Code required that:

"a responsible agency or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency."

Commenting agencies are also required by this section to support their comments with specific documentation. These comments are forwarded for your use in preparing your final EIR. Should you need more information or clarification, we recommend that you contact the commenting agency(ies).

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact Daralynn Cox at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

A handwritten signature in black ink, appearing to read "Christine Kinne".

for Christine Kinne  
Acting Deputy Director, Permit Assistance

Enclosures

cc: Resources Agency

MEMORANDUM

To : Director  
State Clearinghouse  
Office of Planning and Research  
1400 Tenth Street  
Sacramento, CA; 95814

Date : 4/01/92

From : Office of the Secretary

4/3 (E)

Subject: Agency Comments

Attached are individual comments of departments, boards, or commissions within The Resources Agency requested by your State Clearinghouse Notice of Completion and Environmental Document Form on the subject item(s). Agencies responding to your request are listed below.

Attachment(s)

<u>Resources Date:</u>	<u>SCH#</u>	<u>Department</u>	<u>Comment</u>
2 22 92	92013033	CCC CONS F&G P&R/OHP S LANDS	no response COMMENT no response x no comment no response

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Notice of Completion

Appendix F

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0613

SCH # 92013033

Project Title: Gravel Removal from the Lower Eel River

Lead Agency: Humboldt County Public Works Department

Contact Person: Donald C. Tuttle

Street Address: 1106 Second Street

Phone: (707) 445-7741

City: Eureka

Zip: 95501

County: Humboldt

Project Location

County: Humboldt

City/Nearest Community: Fortuna

Cross Streets: N/A

Total Acres: 200

Assessor's Parcel No. N/A

Section: Twp. Range: Base:

Within 2 Miles: State Hwy #:

Waterways: Eel River

Airports: Rohnerville

Railways: Eureka Southern

Schools: N/A

Document Type

CEQA:

NOP

Early Cons

Neg Dec

Draft EIR

Supplement/Subsequent

EIR (Prior SCH No.)

Other

NEPA:

NOI

EA

Draft EIS

FONSI

Other:

Joint Document

Final Document

Other

Local Action Type

General Plan Update

General Plan Amendment

General Plan Element

Community Plan

Specific Plan

Master Plan

Planned Unit Development

Site Plan

Rezone

Prezone

Use Permit

Land Division (Subdivision, Parcel Map, Tract Map, etc.)

Annexation

Redevelopment

Coastal Permit

Other Lease

Development Type

Residential: Units

Acres

Office: Sq. ft.

Acres

Employees

Commercial: Sq. ft.

Acres

Employees

Industrial: Sq. ft.

Acres

Employees

Educational

Recreational

Water Facilities: Type

MGD

Transportation: Type

Mining: Mineral

Gravel

Power: Type

Watts

Waste Treatment: Type

Hazardous Waste: Type

Other:

Object Issues Discussed in Document

Aesthetic/Visual

Agricultural Land

Air Quality

Archeological/Historical

Coastal Zone

Drainage/Absorption

Economic/Trade

Fiscal

Flood Plain/Flooding

Forest Land/Fire Hazard

Geologic/Seismic

Minerals

Noise

Population/Housing Balance

Public Services/Facilities

Recreation/Parks

Schools/Universities

Septic Systems

Sewer Capacity

Soil Erosion/Compaction/Grading

Solid Waste

Toxic/Hazardous

Traffic/Circulation

Vegetation

Water Quality

Water Supply/Groundwater

Wetland/Riparian

Wildlife

Growth Inducing

Landuse

Cumulative Effects

Other Fishery Habitat

Present Land Use/Zoning/General Plan Use

Natural Resources

Project Description

Proposed removal of 1,220,000 cubic yards per year of gravel from 11 sites on Lower Eel River basin. Some sites contain gravel processing plants.

ARINGHOUSE CONTACT: DARALYNN COX (916) 445-0613

TE REVIEW BEGAN: 2-18-92

I REV TO AGENCY: 3-2-92

NCY REV TO SCH: 4-1-92

COMPLIANCE: 4-3-92

USE SCH NUMBER ON ALL COMMENTS

PLEASE FORWARD LATE COMMENTS DIRECTLY TO THE LEAD AGENCY ONLY

D/APCD: 22 (Resources: 2/22)

CHI SNT Resources, Coastal Comm, Conservation Fish & Game, Parks & Rec, Bus Transp Hous, Caltrans, State Lands Comm, Health & Welfare

CHI SNT State/Consumer Svcs, Environment Affrs, ARB, Reg. WQCB, Yth/Adlt Corrections, Independent Comm, State Lands Comm

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RECEIVED FEB 18 1992 STATE CLEARINGHOUSE

DMG FILE 2-2

# Memorandum

Mr. Douglas P. Wheeler  
Secretary for Resources

Date : March 27, 1992

Mr. Donald Tuttle  
Humboldt County Public  
Works Department  
1106 Second Street  
Eureka, CA 95501

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Subject: Draft Environmental  
Impact Report (DEIR)  
for the Gravel Re-  
moval from the lower  
Eel River.  
SCH #92013033

From : Department of Conservation—Office of the Director

The Department of Conservation's Division of Mines and Geology has reviewed the Draft Environmental Impact Report (Draft EIR) submitted for the annual removal of 1.3 million cubic yards of gravel from a seven mile stretch of the Eel River and 50,000 cubic yards per year from the Lower Van Duzen River. The following comments, prepared by the Mined-Land Reclamation Project staff, are offered to assist in your review of this project.

o The monitoring program should include, at minimum, ground-based surveys of the channel that include the deepest portions of the channel (which usually is underwater), the bankfull limits, and bench marked endpoints. These should be accomplished by a licensed professional. The cross section surveys should include sections at mined bars, upstream and downstream riffles, and in close proximity to fixed elevation structures.

83

The monitoring program included in the Draft EIR does not offer a management strategy that is based on quantitative parameters. The monitoring program should be based on a physical acceptable limit to channel degradation (bed elevation lowering). The basis for establishment of the specific elevation should be discussed in the Final EIR. The suggested cross section monitoring program should specifically indicate how these effects would be evaluated and state a quantitative limit of physical change that would be acceptable. The Final EIR should specify a redline depth, i.e., a limit to acceptable channel lowering, as reflected by the channel thalweg based on bridge piers, levee toes, or other restrictions. The Final EIR should define an acceptable limit to channel lowering or propose mitigation for channel degradation, headcutting, bank erosion, and siltation.

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The Final EIR should note that changes in sediment supply due to mining result in channel adjustment (e.g. slope, width, depth, and sinuosity) especially where removal far exceeds replenishment. This relationship is inherently difficult to quantify. Impacts to the biotic river

88

environment are linked to severe channel adjustments but are also difficult to isolate and quantify. Given the present state-of-the-science of river gravel management, avoidance of significant impacts can best be attained through a sustained yield approach to mining aggraded gravel, which will limit the severity of hydraulic disruption and allow periodic flood events to refill mined areas. Until more specific information exists for the lower Eel River bedload supply, replenishment amounts, and bed elevation relationships, which could be collected in a careful program of monitoring, the Department recommends a "sustained yield" approach to determining extraction volumes in order to avoid significant impacts. These impacts may include undercutting of bridges, levees and pipelines; impacts to the shallow water table; changes in bank erosion patterns; and changes to fish migration corridors.

- o The depth of gravel in portions of the project area may be considerably shallower than 200 feet as indicated in the Draft EIR. The geophysical survey for the proposed ARCO pipeline showed material consistent with weathered bedrock at depths ranging from 18 to 62 feet at the confluence of the Van Duzen with the Eel River. 89
- o The Draft EIR states that no significant effects have resulted from past mining practices. The Final EIR should note that the recent, large increase in gravel removal that has been accomplished by a different excavation method during the past 5 years; this is not included in the evaluation of significant effects of past mining practices. In accessing significant impacts, the Final EIR should focus on and discuss the proposed amount of gravel to be removed, which far exceeds any cumulative, historical amount, and the mining method to be used (e.g. trenching.) 90
- o It is not clear that the trench mining method is completely acceptable to the Department of Fish and Game (DFG), as the document implies. The Draft EIR states that "it is unknown what the impacts of trenching will be as there was no analysis done or CEQA document prepared prior to initiation of trenching." Further, it is unclear why the County-owned Worsck gravel bar will be excavated by the skimming method while the document states that trenching is the believed to be the "proper strategy" by DFG. The Final EIR should discuss the management strategy to be used when the upstream operators have an adequate supply of gravel while downstream operators experience a deficit because gravel is trapped in deep trench excavations in the upstream mining areas. 92 3

- o The Draft EIR states that Humboldt County does not have the available "terraces" that could replace in-stream mining sources, in the event of significant impacts from utilizing in-stream sources. The final document should discuss the alternative materials sources available, such as upland shale or chert quarries, the possible industrial uses and limitations for the alternative types of material, and the economic implications in developing these alternative sources. 94
  
- o The Dames and Moore hydraulic evaluation of mining in connection with the ARCO pipeline does not include mining in sites 2, 3, 4, 5, or 6, but evaluates larger excavations than those indicated in the gravel removal project. With mining in these areas included, the amount of bed degradation predicted by the model in the event of multiple, bankfull flows may dramatically increase. If a modelling attempt is used in the Final EIR to evaluate the severity of project impacts, it should better reflect the project conditions. 95
  
- o The Draft EIR indicates that siltation may occur when trenches are first connected to the rising water elevation in the low flow channel. The monitoring program should include a provision for tracking this effect and propose mitigation to offset siltation effects. 96
  

The Draft EIR stated that a comparison should be made that evaluates channel geometry changes using a comparison of cross sections measured in early 1900 to those of today. This evaluation should be included in the EIR. 97

  
- o The Surface Mining and Reclamation Act of 1975 (SMARA - Public Resources Code §§ 2710 et seq.) and the State Mining and Geology Board regulations for surface mining and reclamation practice (California Code of Regulations (CCR), Title 14, Chapter 8, Article 1, §§ 3500 et seq.) require that a reclamation plan be submitted to and approved by the lead agency prior to the commencement of new mining operations. A reclamation plan should be used to assure that adverse environmental effects due to surface mining are prevented or minimized and should specifically discuss methods to be used to control streambed and bank erosion. The Draft EIR states only that reclamation will consist of smoothing out scraper (heavy equipment) tracks on the mined gravel bars. 98

# Memorandum

To : 1. Projects Coordinator  
Resources Agency

Date : April 2, 1992

2. Mr. Donald Tuttle  
Humboldt County Public Works Department  
Natural Resources Division  
1106 Second Street  
Eureka, California 95501

4/30

From : Department of Fish and Game

Subject: SCH 92013033 - Draft Environmental Impact Report (DEIR) on Gravel Removal From the Lower Eel River, Humboldt County

The Department of Fish and Game (DFG) has reviewed the proposed DEIR on gravel removal from the lower Eel River. The purpose of this document is to assess potential environmental effects resulting from annual removal of 1,222,000 cubic yards of river-run material at 11 different company sites located close to one another in the lower Eel River watershed. An evaluation was made of nine sites located on the lower Eel River between the mouth and Van Duzen River confluence and two sites located on the lower Van Duzen River.

The document was submitted in fulfillment of requirements dictated by Section 15168 of the California Environmental Quality Act (CEQA). The advantages of a program environmental impact report (EIR) outlined by CEQA are designed in part to:

1. Provide an occasion for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action.
2. Ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis.
3. Allow the lead agency to consider broad policy alternatives and programwide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts.

We believe the DEIR is inadequate because it fails to:

1. Disclose all gravel operations within the project area and others upstream of the project area on the Van Duzen, south fork Eel and mainstem Eel River which can affect recruitment to the lower extraction sites. Therefore, an adequate cumulative assessment was not completed;

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1. Projects Coordinator  
2. Mr. Donald Tuttle  
April 2, 1992  
Page Two

2. Consider the effects of various extraction methods on stream morphology; | 100
3. Disclose the effects of the different gravel extraction techniques on anadromous fish migration and spawning and rearing habitat; | 101
4. Disclose the full impact to riparian habitat and associated wildlife or the effects of riparian habitat loss on channel stability and morphology; and | 102
5. Fully analyze project alternatives and methods or propose mitigation for the "project". | 103

The DFG provided comments to Humboldt County in response to a Notice of Preparation of a DEIR on January 7, 1992, stating the DEIR should address the issue of cumulative impacts from all gravel operations (Section 15130 CEQA guidelines). We commented that the county must attempt to determine the volume of gravel removed from the system each year, including the unregulated gravel operations, as an integral part of the DEIR. The document did include the larger unpermitted (no county use permits and reclamation plans) operators in the area but it failed to disclose other active gravel operations. These include existing County, California Department of Transportation, construction companies, and timber company operations and recently proposed operations which intend to extract 150,000 cubic yards per year below Singley Road (APN 106-011-11) and 200,000 cubic yards per year at Alder Point (APN 216-302-03). Also, Humboldt Bay Gravel proposes (APN 200-043-05) to relocate from its current location at Palmer Avenue to Fernbridge next to the Humboldt Creamery with additional extraction immediately adjacent. | 104

The document reports the historic maximum volumes of gravel removed from the lower Eel River apparently ranged from 700,000 to 1,000,000 cubic yards. This volume was apparently extracted over the short-term for the purpose of highway construction but may not reflect the current rate of extraction. It is doubtful that current extraction rates are known because estimates are based on volumes listed in vested rights, conditional use permits and reclamation plans and these sources of information may not reflect actual extraction volumes. Furthermore, as stated earlier, these estimates do not include all the gravel operations on the Eel and Van Duzen rivers. | 105  
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The document states that there has been no apparent major change in river morphology in the last 30 years. The document also discusses requirements for gravel skimming operations to maintain finished slopes of between two and three percent and, with regard to fishery habitat, to stay clear of the low-flow channel and to have no measurable impacts during the gravel extraction period. These statements are very misleading and imply that low-flow conditions currently provide suitable fish habitat and passage to begin with. If the stream channel is braided or very shallow at the commencement of yearly gravel extraction, postextraction slope gradients can impede fish passage the following fall when flows rise and sheet over the lowered streambed. This also occurs when the thalweg fills and channels braid during the following winter from skimming operations which take gravel in excess of recruitment from bars with already minimum slopes (<two to three percent). This is particularly true in streams where riparian vegetation has been removed. Subsequently, stream channel impacts can occur downstream from extraction sites because finished low-gradient slopes may be inadequate to allow gravel movement in drought years. The DEIR should evaluate the various extraction techniques, including skimming at different percentages and trenching, and discuss the effects of each technique on river configuration, fish habitat and potential for recruitment to downstream gravel bars.

The DFG has recommended two to three percent slopes to ensure adequate channel configuration for fish migration at low flows and gravel movement to downstream bars. Humboldt County recently referred to us a conditional use permit application (APN 106-111-11) for gravel extraction which requested a one percent slope. An analysis of the relationship of finished graded slope to bar shape, channel configuration, gravel recruitment and fish habitat, should be presented so that options for mitigation or avoidance of significant impacts of gravel extraction with this percentage slope can be considered by all affected publics and agencies including Humboldt County.

The document briefly discusses the trenching method conceived and used by gravel operators in conjunction with DFG personnel in response to drought-related reductions in gravel recruitment to the lower Eel River. Operators desperate for source material requested lateral expansion of gravel bars into adjacent riparian vegetation. This proposal would cause direct riparian habitat losses and, we believe, would result in the formation of broad shallow channels. DFG agreed to try trenching as a means to keep the low-water channel incised and to protect adjacent riparian vegetation. The concept was designed to

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concentrate extraction in a small area while allowing other areas to recruit gravel and develop riparian vegetation. Riparian vegetation maintains the channel size and shape and provides channel stability. It is also an important indicator of channel change.

The DEIR makes a cursory assessment of trenching based on results of the operations in the Mad River. The difference in the magnitude of the watershed, the stream channel, sediment load and hydrology of the Eel River relative to the Mad River is great. It is doubtful that a trench in the Eel River constructed in the area of gravel deposition (inside bend) would cause any changes in channel shift. However, this issue should be analyzed by a qualified fluvial geomorphologist. The document failed to assess impacts of trenching to channel morphology or fish habitat. We agree with the document that extensive use of the trenching methods may restrict recruitment to downstream bars in low-water years. Project alternatives should be developed for gravel operators under such conditions.

The document concluded that trenches, some as long as 1600 feet, could impede angler access to the river. A series of smaller 400-foot long trenches was suggested as an alternative to long continuous trenches. The potential impacts to aquatic resources, primarily the trapping and stranding of fish, should be evaluated in the DEIR.

The DEIR should include an analysis of effects on water temperature with varying extraction techniques and subsequent finished slopes. Low and wide gravel bars absorb more solar radiation and result in warmer water than narrower, deeper channels. There also should be analysis of unscreened water intakes and the effect of approach velocities at diversions on fish fry or fingerlings.

Direct cumulative impacts to riparian vegetation along the eastern side of the Eel River over time were considered significant (page 66, paragraph 7). This assessment takes into account the loss of riparian habitat from past flood flows, major land clearing efforts, levee construction and gravel processing facilities. While, arguably, these recent losses from gravel operations are a fraction of the total losses since the turn of the century, we believe alternatives for enhancing and restoring riparian vegetation along the lower Eel River should be addressed and developed.

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Indirect impacts to riparian habitat through reduced growth occur from the dust generation by trucks and heavy equipment. DFG staff have visited many extraction sites and observed a fine layer of dust covering vegetation surrounding roads and processing plants. The DEIR should discuss this potential impact. | 116

The document mentions that all 11 sites have operated more or less for quite some time. We believe that once the methods for transporting gravel outside the county are specified (i.e., by rail, barge or both), all 11 sites as well as others may be utilized simultaneously. Existing riparian habitat wildlife values within this area will be further eroded.

The document fails to analyze riparian plant and animal species affected by the proposed placement of a gravel processing plant covering 40 acres in the heart of the large, dense riparian forest on the west side of the river related to site #6. This action would have a significant effect on resident and migratory wildlife by fragmenting the large contiguous tract of riparian habitat, thus reducing its value for wildlife species. We believe the placement of this facility on the west bank would preclude wildlife use immediately on the site and indirectly along the entire periphery. The DEIR recommends the assessment of this impact be incorporated within a supplemental EIR, however, the intent of this document was to evaluate potential impacts resulting from all 11 operations. | 117

There was also no analysis of the wetland and riparian impacts from the proposed Nally (Humboldt Bay Gravel) plant relocation or a discussion of increased use of road access (75 trucks one way) within a riparian corridor associated with the proposed 150,000 cubic-yard extraction per year at the Singly Bar. | 118  
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We believe that long-term plans for siting of processing facilities should be discussed in the DEIR. Spreading potential new facilities into otherwise undisturbed areas will further significantly affect already impacted riparian resources in the lower Eel River. | 120

The document states on page 10, that "it is further assumed that gravel would only be permitted to be removed from the river between June 1st and October 1st". The document stated that the period of July and August would have the least risk for potential operation impacts to anadromous fish. Because of the upstream migration of adults in fall and winter and peak downstream migration period of juveniles in April and May, it is reasonable

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to postpone activity to June through September during low water periods to minimize impacts to fish resources. The document should include an analysis of alternatives regarding operation timing. The Eel River is subject to varying stream heights in these months and pit's, depressions or trenches could strand and kill fish. The DEIR should discuss flow fluctuations and measures to avoid stranding losses. 121

A threshold condition should be specified that would identify when extraction operations should cease or be curtailed. The DEIR should explore this and suggest alternatives for periods of low gravel recruitment. We strongly suggest that regulations be developed and adopted outlining the temporary suspension and/or scaling down of operations when no recruitment occurs. We believe that large volumes of gravel exist within the Eel River for utilization. However, as we have stated previously in many letters to the county, the county needs to address how the remaining gravel resources will be allocated when storage and recruitment of gravel resources become depleted. We recommend this discussion be included under The Relationship Between Local Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity (page 77). 122

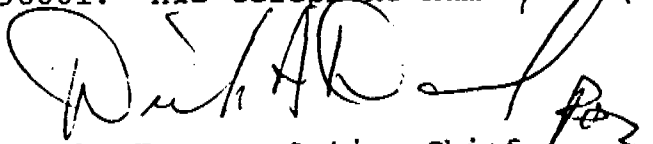
Scour to bridge footings was also identified as a potential significant effect. The document offers several alternatives to streambed elevation. The DEIR suggests the results of the yearly operations should be monitored to assess a permissible amount of gravel to be extracted each year. The DFG was encouraged by the content of the gravel monitoring plan (Appendix A) but we believe our concerns and recommendations should be resolved prior to approval of additional gravel extraction projects.

Finally, the use permits for these projects should be phased for five-year periods not to exceed a total of 15 years. Each subsequent phase should be permitted only upon demonstration that established operation and mitigation requirements have been successfully implemented.

In summary, the DFG believes this DEIR needs major revision before it can be considered adequate under CEQA. We urge the county to incorporate our concerns and recommended changes into the DEIR and recirculate it as a draft for public and agency review prior to preparing a final EIR. We believe this recommended course of action is appropriate given the tremendous fish and wildlife resources at stake and the significant potential for gravel extraction operations to cause significant adverse impacts to such resources. 123

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If you have any questions, please contact Regional Manager Mr. Banky E. Curtis, Department of Fish and Game, 601 Locust Street, Redding, California 96001. His telephone number is (916) 225-2363.



John Turner, Acting Chief  
Environmental Services Division

cc: National Marine Fisheries Service  
777 Sonoma Avenue  
Santa Rosa, California 95404

Department of Conservation  
Division of Mining and Geology  
1416 Ninth Street, Room 1341  
Sacramento, California 95814

State Lands Commission  
1807 13th Street  
Sacramento, California 95814

US Fish and Wildlife Service  
2800 Cottage Way, Room E-1803  
Sacramento, California 95825



PLANNING DIVISION  
OF THE PLANNING AND BUILDING DEPARTMENT  
**COUNTY OF HUMBOLDT**  
3015 H STREET  
EUREKA, CALIF. 95501-4484      PHONE (707) 445-7541

MEMO

Date: March 9, 1992

To: Don Tuttle, Environmental Services Manager

From: *Kirk Gothier*  
Kirk Gothier, Supervising Planner

Subject: Draft Program Environmental Impact Report (EIR) On Gravel Removal From The Lower Eel River

The Planning Division has reviewed your program EIR and offers the following comments.

Considering the complexity of the project and the amount of time you had to prepare this environmental document, you have done a remarkable job. The Program EIR is generally well organized, contains all of the mandated sections, and will be an invaluable document in reviewing existing and future gravel mining projects in the Lower Eel River area.

As described in your Summary and Introduction, the Program EIR will be used "as a reference document to support supplemental environmental documents containing more detail on specific project sites". Consequently, our comments are intended to take full advantage of your efforts to prepare a Program EIR that is easy to read and use with future supplements to the EIR.

GENERAL COMMENTS:

Because we anticipate processing several gravel extraction projects within the study area in the next few months, we do have the following general comments:

- 1. The Project Description in the Summary (page i) should be clarified to indicate that the "project" involves those "activities" which are described in sections 21065 (b) and (c) of the Public Resources Code. Table 1 on page 11 should also be referenced, and the Summary should include an explanation of what the extraction volume estimates were based on. | 124
- 2. A summary table should be included in the Environmental Effects section of the Summary (pages ii - v). The summary table should briefly list each significant effect, proposed mitigation measures, and alternatives that could reduce or avoid the effects. | 125
- 3. The discussion of environmental effects throughout the document should be expanded to include a more detailed analysis of traffic impacts. | 126

Page 64 of the Program EIR concludes that "The current operations generate very little volumes of traffic." However, on the same page the document acknowledges that "Sites #3, #4, #5, #8, and #9 generate an unknown amount of truck traffic". Because these sites account for almost 75 percent of the total estimated gravel extraction activity, truck traffic impacts need to be further evaluated. Specifically, all local haul routes should be identified and the impacts on traffic safety and road quality should be discussed. | 127

On page 65 the program EIR estimates that 200 truck trips per day for 100 days could be generated from site # 6 alone. Potential truck traffic from all of the sites should be estimated, and the Program EIR should discuss all associated environmental effects, mitigation measures, and alternatives.

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4. The discussion of Mitigation Measures throughout the Program EIR should be expanded to include a description of how the mining operators could extract gravel in a way that improves fisheries habitat and reduces flood hazards.

129

Page 60 of the Program EIR concludes that, "If the proposed cubic yards of gravel were removed each year which resulted in a minor lowering of the bed, which in turn would increase the tidal prism and volume of the estuary, one could argue that would be a positive impact on the quality of the fishery habitat as far as the estuary is concerned".

A qualified fishery biologist should be consulted to determine how fish habitat in the Lower Eel River could be improved. A hydrologist should also be consulted to determine how mining activities could mitigate potential flood hazards. While it may not be practical to return the Lower Eel to its natural condition (potential adverse impacts on the existing bridges alone may prevent this), the Program EIR should include a discussion of the mitigation measures that could be implemented by the mining operators as a part of their activities.

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We may have a rare opportunity here to mitigate at least some of the adverse fisheries impacts and flooding hazards that have resulted from a severely aggraded river system.

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5. The discussion of Alternatives throughout the document should be expanded to include a discussion of establishing an extraction base line which is below the existing aggraded river level, and above a level that may threaten the existing bridges.

134

Page vi of the Summary indicates that the Program EIR "assumes that it is environmentally correct to maintain the present river bed morphology, bed slope and elevation". However, as described in paragraph 5 on page 60 of the Program EIR, it may be environmentally desirable to lower the present river bed morphology. Consequently, the alternative of directly or indirectly lowering the river bed through gravel extraction operations to improve fisheries habitat should be discussed in more detail in the Program EIR.

135

The EIR should also discuss all potential adverse impacts associated with lowering the river bed and increasing surface mining levels in the project area.

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### SPECIFIC COMMENTS:

We also offer the following specific comments to facilitate the incorporation of the Program EIR into future environmental documents:

1. The project description and background information on pages 7-15, 27-36, and 38-44 should be consolidated in the Project Description section of the Program EIR (beginning on page 7).

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To help readers use the Program EIR with future Supplements, the Project Description section in the Program EIR should be reorganized into the following subchapters:

Introduction: The introduction would include a general description of the project.

Subchapter 1: This subchapter would include all background information and a detailed description of all gravel extraction activities on site #1.

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Subchapters 2 -11: These subchapters would include all background information and detailed descriptions of all gravel extraction activities on sites #2 - #11.

To help future readers find all relevant information for a particular site, it would also help if each subchapter included a detailed project site map. I have attached the Tentative Map Checklist that the Planning Commission will use in reviewing future projects in the project area. Illustrating the information which is required by the Tentative Map Checklist on each of the 11 sites would really help the future users of the Program EIR.

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2. The Environmental Impacts section beginning on page 50 should also be reorganized into the following subchapters:

| 140

Impacts Throughout The Project Area.

Subchapter 1: Impacts resulting from gravel extraction activities on site #1.

Subchapters 2 - 11: Impacts resulting from gravel extraction activities on sites #2 - #11.

3. The Flows and Sediment Discharges section of the Program EIR (pages 16 - 27) should be summarized in 1 or 2 pages, and the technical discussion should be moved to an appendix. The discussion in this section is highly technical and us non-hydrologist types would really appreciate a summary. If readers are so inclined they can wade through the details in the appendix.

| 141

The relative accuracy of the estimated annual gravel deposition within the study area should also be discussed. What is the margin of error for the referenced studies? If the estimate of annual gravel deposition is highly speculative, it should be identified as such.

| 142

Again, I would like to applaud your efforts in preparing this fine document in a relatively short time frame. I only offer these lengthy comments because I know how important your Program EIR will be in helping all of the involved parties review proposed gravel extraction activities within the project area.

Please call me at 7541 if you would like to discuss any of the above comments.

cc.

Board of Supervisors  
Planning Commission  
Director of Public Works  
CAO  
Builders Exchange  
Surface Mining Operators  
Audobon Society  
Sierra Club  
Fish & Game Advisory Committee  
Cal Trout

(11)

EEL RIVER RESOURCE CONSERVATION DISTRICT  
P.O. BOX 66, FERNDALE, CA 95536

April 2, 1992

Subject: Comments to the Draft Program EIR On Gravel  
Removal From The Lower Eel River

TO: Mr. Donald C. Tuttle, Environmental Services Manager  
Humboldt County Department of Public Works  
1106 Second Street  
Eureka, CA 95501-0579

Dear Mr. Tuttle:

Thank you for the opportunity to review the program EIR. We support the overall purpose and objectives of the project as described in the draft.

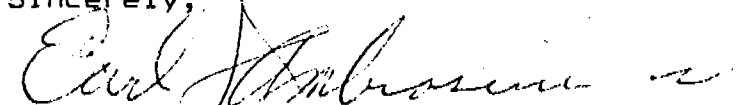
We do not support alternative #1, nor #4. We would support an alternative that allows a maximum amount of material to be removed but is consistent with the annual replenishment rate, maintains the existing bed elevation, re-creates deep water habitat, and reduces deposition in the Eel River estuary - some flexible combination of Alternatives #2 and #3.

To obtain this alternative would require a comprehensive monitoring program and annual adjustments of extractable amounts. We also believe that it cannot be known what amounts are suitable until at least 5 years of monitoring can be completed.

The attached comments are attached for your consideration.

Again, thank you for preparing this report. It contains valuable information.

Sincerely,



Earl J. Ambrosini, Sr., Vice President  
Board of Directors

EEL RIVER RESOURCE CONSERVATION DISTRICT  
P.O. BOX 66, FERNDALE, CA 95536

April 2, 1992

Subject: Comments to the Draft Program EIR on Gravel  
Removal From The Lower Eel River

1. Loss of Riparian Habitat:

Comment: The only additional impact upon riparian habitats beyond existing conditions consist of:

a. The addition of one gravel extraction, storage area and processing facility on the Elbert Land site, site #6, on the West side of the Eel River. This has the potential to severely impact existing high value habitat.

b. Due to the significant increase in annual mining volume over historic levels, the potential for flow diversion by method of mining (skimming, trenching, or pit) may deflect flows into riverbanks and cause bank erosion, and loss of land and riparian habitat.

Recommendations:

a. Permitting agencies carefully review siting of extraction sites, storage facilities and batch plants to avoid riparian habitat loss.

b. Extraction methods should be closely monitored and the permits allow flexible agency control to alter the permit to reduce impacts as they are observed. (See comments on monitoring)

c. Gravel operators and permitting agencies should be aware that new mapping and habitat descriptions for the Eel River delta will be available in May or June to assist in evaluating habitat extent, value and location.

2. Loss of Aquatic Habitat - Creation of deep water habitat for anadromous fish.

Comment:

Consistent with objectives 4 and 5 of the proposed gravel extraction as described in this EIR, aquatic habitat and the value of the estuary for fish have been severely impacted by the sedimentation and gravel deposits. Appropriate extraction of volumes from the river channel have the potential to improve the habitat and health of the estuary, or, if inappropriate, of causing further damage to the habitat and the economic value of this resource and its commercial, recreational and tourist values.

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**Recommendations:**

a. Monitoring (see comment section covering this issue) will be a key element of determining the effects of the extraction on fish habitat.

b. Evaluation of mining methods, skimming, trenching and pit, should promote re-creation of deep water habitat wherever possible. | 146

c. It is assumed that gravel operators will bear the costs of the monitoring program. It is currently unknown what this monetary cost will be at this time. It is suggested that gravel operators be asked to voluntarily add an incremental contribution (perhaps 1/2 cent/cu.yd.) to build a fund for needed research and implementation projects that will improve the habitat and help restore needed salmon and steelhead stocks. In the interest of utilizing, maintaining and restoring resource values, including wild salmon and steelhead stocks, this contribution could mitigate incidental or unforeseen negative impacts to the resource. Decisions of the use of this fund could be held by an association of the contributing gravel operators or other body. | 147

**3. Bank Erosion - Liability**

**Comment:**

Work in the late 1970's and 1980's on the Eel River below Fernbridge by the Corps of Engineers has allegedly caused bank erosion for which the county held liability as sponsor. In the late 80's, bank erosion on the south side of the Eel River upstream of Fernbridge was alleged to have been caused by nearby mining. Future bank erosion is likely to occur above, through and below the extraction area. Despite the best of planning and monitoring to avoid any possibility of bank erosion, it will occur as it has in the past. Landowners may claim the erosion is a result of gravel mining. No discussion in the EIR presents alternatives of how challenges to causes of bank erosion will be addressed. | 148

**Recommendation:**

a. The responsible permitting agency should be held harmless in potential suits.

#### 4. Monitoring Program

##### Comments:

The monitoring program will be the key to the successful mining program. Without a flexible and very complete monitoring program, the potential negative impacts of morphological changes, bed changes, thalweg change, bank erosion and threat to bridge piers and fish habitat cannot be evaluated.

Recommendations: In addition to the described monitoring program described in the EIR:

a. Two monitoring cross sections, one immediately upstream of the project area and one approximately 1/2 mile above the project area should be established to evaluate changes.

b. Three monitoring cross sections, one immediately below the project area, one approximately 1/2 mile below the project area and one at the Cock Robin Island Bridge (comment G below) should be established to evaluate changes.

c. Before long term permits for the maximum amount of gravel extraction are issued, at least 5 years of in place monitoring should be initiated to establish its adequacy and provide a baseline for evaluation. Only annual permits should be allowed for the first five years with prescribed amounts to be extracted by each operator. Thereafter, permit quantities and lengths should be determined by the permitting agencies based upon the growing data gathered from monitoring.

d. The costs of monitoring should be borne by the gravel extractors and an adequate system of adjusting necessary fee assessment rates should be clearly defined.

e. Evaluations of the monitoring data should be used to annually adjust extraction rates, mining methods, and mining locations that may vary upon replenishment rates.

f. A very definitive permit should be developed so that extraction rates are wholly dependent upon protecting fish habitat, streambanks, and bed and thalweg integrity that will not threaten bridges.

g. A monitoring cross section should be established at the Cock Robin Island bridge to measure the impact of upstream gravel extraction in the estuary. This site will provide information on two issues.

i. Whether fine sediments are increasing or decreasing.

ii. To assure the integrity of the bridge foundation.

## 5. Bed Degradation/Aggradation

### **Comments:**

It is unclear from the EIR whether a goal is to reduce the bed elevation, or maintain the elevation. It is repeatedly noted that the bed at Fernbridge is similar to the bed elevation when the bridge was constructed in 1911. This would conclude that a net degradation through this reach would threaten Fernbridge piers. Monitoring and gradual increases of annual extraction appear to be the only way to approach proposed extraction rates and assure the integrity of the thalweg, bed elevation and protect banks and riparian habitat.

### **Recommendations:**

a. As recommended under monitoring and bank erosion, baseline information is needed to anticipate what the response will be to the large and annual removal of the proposed volumes. Monitoring and a gradual increase of mining volumes over a 5 year period will provide information to determine if the annual volumes proposed are excessive on a year-in/year-out basis.

## 6. Change in Particle Size deposits in the Eel River Estuary

### **Comments:**

Particle sizes of sediments deposited in the Eel River estuary are larger in the most recent decades than they were in the preceding 2000 years. Possible explanation for this finding may include.

1. That in recent decades, Eel River watersheds have been dramatically de-vegetated by logging, road construction and burning, resulting in more rapid runoff and a higher energy river system capable of carrying larger sediment particles further into the estuary.

2. Recent large floods have more impact on impacted watersheds.

3. Larger particle size sediment deposits within the Eel River estuary in the most recent decades are too large to move out to the ocean by tidal action exacerbating a build up of sediment in the estuary and subsequent loss of tidal prism.

**Recommendations:** The monitoring station at Cock Robin Island as stated in the monitoring comment. Issue #4, be used to see if sediment build ups are still occurring

Issue #7. Gravel Replenishment to project area.

**Comment:**

Apparently past extraction nor floods have significantly altered the bed elevation of the Eel River at Fernbridge since it was constructed. This seems to imply that past gravel extraction in its intermittent and varied volumes have not created excessive degradation. Estimates of replenishment rates are varied and again point to the need for monitoring to determine what the actual rates of replenishment will be. The proposed mining rate is both an increase beyond any historical one year amount, and proposes to do it on a sustained annual rate.

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**Recommendations:**

a. More information is needed to be able to measure the replenishment rate. Monitoring as described in the draft with the additions recommended in Issue #4 are needed.

Issue #8 - Extraction Methods and affect on River Morphology

**Comments:**

Three mining methods are mentioned, skimming, trenching and pit mining. It is unclear how these methods will be utilized at which locations.

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**Questions:**

a. Why has pit mining been banned?

Page 52, para. 4 Front end loaders remove gravel from a fairly concentrated area to depths of approximately 8 to 10 feet from the top of the bar. Method no longer approved by Fish and Game. Historically the impacts of this method appear to have been negligible as observed by noting the integrity of the river bed following high flows.

b. Who will determine which mining method will be used?

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c. What are the effects of trenching on channel morphology and the potential diversion of flows causing bank erosion? In order to avoid bank erosion, is there a way for the trenching to occur towards the middle of the channel and parallel to the stream flow?

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d. From Page 51, para. 51 - "Essentially through the project area from the mouth of the Van Duzen River to Fernbridge, the high flow morphology of the river has been changed through the construction of levees and flood control efforts such as rip rapping some of the banks subjected to scour. Removal of these overflow areas to high flow has concentrated the energy of the high flow to a narrower part

of the river bed, thereby moving more material through the project area."

Do these structures maintain river energy and could it be causing more deposition in the estuary? Do these hard confining structures reduce the deposits of gravel through the project area?

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e. Skimming

From Page 51, para 8. and Page 52, para 1&2. - "Skimming spreads the channel flow over a wider area, increasing bed/flow contact, increasing friction and thereby deposits of gravel. This effect means that less bedload would be moved by flows by decreasing the efficiency of the river to move sediment. At high flows, the large volumes of bedload moving during the high flow would tend to drop on the lowered areas of the bars caused by the skimming. Increased deposits can cause threading and meander that can deflect flows into streambanks."

Does this mean that continued extraction is necessary to maintain annual channel thalweg? That in a given high flow year, the river may hit banks?

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f. Trenches

From Page 60, Para. 6 - "Because the trenches are 10 to 15 feet deep, they may be providing pool area for fish to rest in a low flow period in late October to early November after they've become connected to the main low flow channel."

Could trenches become traps for salmon, isolated from the low flow channel?

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