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Staff:	Jim Baskin
Staff Report:	July 26, 2002
Hearing Date:	August 7, 2002
Commission Action:	

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.:	1-00-055
APPLICANT:	Humboldt County Department of Public Works
PROJECT LOCATION:	At the Worswick gravel bar along the east side of the Eel River, at 1300 Fernbridge Drive, next to Highway 101, south of Fernbridge, in Humboldt County. APN 200-321-11.
PROJECT DESCRIPTION:	Extract up to 25,000 cubic yards of sand and gravel during the 2002 gravel extraction season (between September 15 and October 15) and process aggregate materials at an adjoining upland site.
LAND USE PLAN DESIGNATION:	Natural Resources (NR).
ZONING DESIGNATION:	Natural Resources, with Streams and Riparian Corridors Protection combining zone (NR/R).
LOCAL APPROVALS RECEIVED:	Humboldt County: (1) Vested Rights Determination (SP 73-87) issued Feb. 1, 1987 for the annual removal of up to

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200,000 cubic yards of gravel; (2) Reclamation Plan Approval No. RP-05-94; and (3) Approval of Financial Assurances guaranteeing reclamation of the site; (4) Final Program EIR on Gravel Removal from the Lower Eel River.

OTHER APPROVALS REQUIRED:

State Lands Commission; California Department of Fish & Game F&GC Section 1603 Streambed Alteration Agreement; U.S. Army Corps of Engineers Letter of Permission

SUBSTANTIVE FILE DOCUMENTS:

Humboldt County LCP; Humboldt County Program Environmental Impact Report on Gravel Removal from the Lower Eel River

SUMMARY OF STAFF RECOMMENDATION:

Staff recommends that the Commission approve with conditions the coastal development permit for sand and gravel extraction, processing and stockpiling. The applicant proposes to extract gravel between September 15 and October 15, 2002, from a gravel bar along the lower Eel River from a site located approximately 1,500 feet upstream from the Highway 211 (Fernbridge Drive) crossing. The Commission previously granted a five-year permit to the applicant in 1996 (CDP-1-96-062). However, due to the on-going development of multi-year gravel mining permitting protocols by involved federal resource agencies, the current application seeks authorization for a specific extraction proposal for only the 2002 mining season.

Although information is currently being gathered by the National Marine Fisheries Service (NMFS) in anticipation of re-issuance of the U.S. Army Corps of Engineers' (USCOE) Letter of Permission (LOP) for gravel mining on the Eel River through 2007, data collection has not been completed. In the interim, the NMFS has issued a draft amended biological opinion addressing the Corps' administrative extension of the current LOP through the 2002 calendar year. The draft amended opinion finds that direct or cumulative impacts of gravel mining in 2002 subject to LOP standards would not result in more than incidental take to federally-listed endangered or threatened salmonid species. The opinion's scope does not support approval of mining activities beyond the immediate extraction season. Without this information, and in the absence of any other information that demonstrates that gravel extraction in future years would not result in significant cumulative or individual adverse impacts to threatened or endangered fish

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species that cannot be mitigated, the Commission would be unable to find that gravel mining in future years was consistent with the Coastal Act.

The specific gravel extraction plan prepared by the applicant is currently being reviewed by the County of Humboldt Extraction Review Committee (CHERT), the local reviewing entity established by the County in coordination with development of the USCOE's LOP process for permitting gravel mining pursuant to Section 404 of the Clean Water Act. Under both the County of Humboldt's surface mining regulations and the LOP process, gravel mining entities are required to submit gravel pre-extraction plans for review and approval of the CHERT as a way of ensuring that gravel extraction each year does not exceed the annual replenishment of the site by the river, and that other potential resource impacts from gravel extraction are avoided.

Measures to prevent disturbances to both riverine and terrestrial habitat have been recommended. The bar contains environmentally sensitive riparian vegetation areas. To prevent disturbance of such habitat, staff recommends that the Commission require that the gravel extraction activities be conditioned to avoid environmentally sensitive habitat areas and other locations where gravel extraction could have significant adverse impacts. In recognition of the fact that areas of the bar contain very young vegetation that has not developed to the point where it provides appreciable habitat value, and that the Coastal Act defines environmentally sensitive areas in such a way as to only include riparian vegetation with habitat value, the condition does not ban extraction in all areas containing vegetation, but only those areas where the riparian vegetation has reached a size and extent where there is an expectation of appreciable habitat values for nesting, forage and cover of wildlife being afforded.

In developing the recommended conditions, staff has considered the requirements imposed on the applicants by other regulatory agencies, including the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the California Department of Fish and Game, and the State Lands Commission.

As conditioned, staff believes that the proposed project is fully consistent with the Coastal Act.

STAFF NOTES:

1. Jurisdiction and Standard of Review

The proposed project is located within the Commission's area of original or retained jurisdiction. Therefore, the standard of review that the Commission must apply to the project is the Chapter 3 policies of the Coastal Act.

2. Recommendation Contingent on Finalization of NMFS Biological Opinion

The staff recommendation to approve the permit with conditions at the August 7, 2002 meeting is contingent upon a draft Biological Opinion issued by the National Marine Fisheries Service (NMFS) becoming finalized prior to the hearing. To approve the project, the Commission must make findings under Sections 30231 and 30233 of the Coastal Act that the proposed gravel mining project for the 2002 extraction season would not result in significant cumulative adverse impacts on threatened salmon species in the lower Eel River. To make these findings, the staff report relies upon the conclusions of a draft Biological Opinion prepared by NMFS on the effects on threatened salmon species of gravel mining projects in Humboldt County during the 2002 gravel mining season authorized by the Corps. No other comprehensive analysis of the cumulative effects of 2002 gravel mining in the lower Eel River on threatened salmon species is currently available for the Commission to rely upon.

The draft Biological Opinion was prepared as a result of formal consultations between the U.S. Army Corps of Engineers (Corps) and NMFS pursuant to Section 7 of the Federal Endangered Species Act. The draft Biological Opinion concludes that extraction of gravel during the summer months of 2002 will not result in more than incidental take of threatened salmonid species and will not jeopardize their continued existence provided that extraction operations are conducted in the manner prescribed in a set of conditions attached to the Biological Opinion. The Coastal Commission staff recommendation incorporates the relevant conditions of the Biological Opinion into the recommended conditions of approval. As the Biological Opinion is still only in draft form as of the date of the publication of this report, the conditions in the Biological Opinion and even the basic conclusion that gravel extraction in 2002 will not jeopardize the threatened salmon species are subject to change.

The staff would normally not schedule for Commission action a project for which final information necessary to adjust permit conditions or findings is not yet available. However, delaying Commission action to September or a later meeting would have severe consequences for the applicant's project. The gravel mining projects on the North Coast have historically been required by the Commission and other regulatory agencies to cease operations by October 15 each year to avoid the increased impacts of in-stream gravel mining that can occur during the rainy season. If the Commission cannot act on this project at the August hearing, a continuance to the September meeting or later would significantly limit the time period available for mining should the Commission eventually approve the project.

NMFS staff have indicated to Commission staff that the Biological Opinion is likely to be finalized before the August 7, 2002 Commission meeting in time to allow whatever changes are made to the conditions of the Biological Opinion to be incorporated into the Commission staff recommendation as appropriate by addendum or orally by staff at the Commission meeting. In an effort to accommodate the applicant, staff has scheduled the

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project for Commission action on August 7, 2002, even though the possibility remains that the Biological Opinion may not be finalized by August 7. Staff notes, however, that because the Commission's action must be based on conclusions and conditions which are actually adopted by the National Marine Fisheries Service in a final Biological Opinion, the staff would likely have to withdraw its recommendation if the Biological Opinion is not finalized by the time of the Commission hearing. Withdrawal of the staff recommendation would cause the Commission's action on the application to be continued to another Commission meeting.

I. MOTION, STAFF RECOMMENDATION, AND RESOLUTION

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve Coastal Development Permit No. 1-00-055 pursuant to the staff recommendation.

STAFF RECOMMENDATION OF APPROVAL:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of the majority of the Commissioners present.

RESOLUTION TO APPROVE PERMIT:

The Commission hereby approves a coastal development permit, subject to the conditions specified below, for the proposed development on the grounds that, as conditioned, the development will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS: See attached Appendix A.

III. SPECIAL CONDITIONS:

1. State Lands Commission Review

PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director, a written determination from the State Lands Commission that:

- a. No State lands are involved in the development; or
- b. State lands are involved in the development and all permits required by the State Lands Commission have been obtained; or
- c. State lands may be involved in the development, but pending a final determination an agreement has been made with the State Lands Commission for the project to proceed without prejudice to that determination.

2. Run-Off Control Plan.

A. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit, for the review and approval of the Executive Director, a plan for run-off control to avoid significant adverse impacts on coastal resources. The runoff control plan shall include, at a minimum, the following components:

- (1) A suite of the following temporary erosion and runoff control measures, as described in detail within in the "California Storm Water Best Management Commercial-Industrial and Construction Activity Handbooks, developed by Camp, Dresser & McKee, *et al.* for the Storm Water Quality Task Force, shall be used during mining: *Spill Prevention and Control (CA12)*, *Vehicle and Equipment Fueling (CA31)*, *Vehicle and Equipment Maintenance (CA32)*, *Employee / Subcontractor Training (CA40)*, and *Dust Control (ESC21)*;
- (2) A narrative report describing all temporary runoff control measures to be used during mining;
- (3) A site plan showing the location of all temporary runoff control measures; and
- (4) A schedule for installation and removal of the temporary runoff control measures.

B. The permittee shall undertake development in accordance with the approval final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a

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Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

3. Extraction Limitations

Extraction of material shall be subject to the following limitations:

- a. The permittee shall extract material only in the time frame, location, and mining method set forth in Coastal Development Permit Application No. 1-00-055, dated October 23, 2000 and revised by the applicant on July 19, 2002;
- b. The permittee shall extract no more than 25,000 cubic yards of gravel from the site;
- c. Excavation shall not occur in the active channel (area where water is flowing unimpeded through the river channel) and shall be limited to exposed river bar areas a minimum of six (6) feet horizontally from the current water's edge;
- d. The minimum skim floor elevation shall be set at the elevation of the water surface that occurs during the 35th percentile exceedance flow for the stream, as measured at the relevant USGS stream gauge for the stream or stream reach. If the applicant is unable to directly mark the water's edge during the 35th percentile exceedance flow, the minimum skim floor elevation shall be set using one the following alternative methods:
 - (1) The elevation corresponding to a two-foot vertical offset above the summer low flow water surface elevation, or
 - (2) The 35th percentile exceedance flow elevation as derived from a simple hydraulic modeling programs such as HEC-RAS®, used in conjunction with the current cross sections at the mining site, and including the cross section at the riffle location in vicinity to the mining site;
- e. The flow elevation shall be marked at the water's edge throughout the mining areas. A skim floor elevation lower than the level established by the above methods may be utilized if the permittee presents written evidence for the review and approval of the Executive Director that NMFS has concurred with the lower level;
- f. Extraction quantities shall not exceed the long term average sustained yield based on estimates of mean annual recruitment, as utilized by CHERT;
- g. Gravel extraction operations shall not disturb or remove any of the riparian vegetation on the river banks; and

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- h. Gravel extraction operations shall not disturb or remove any of the riparian vegetation on the gravel bar that is either: (1) part of contiguous riparian vegetation complex 1/16 acre or larger, or (2) one-inch-in-diameter at breast height (DBH) or greater.

4. Seasonal Site Closure

The excavation area must be regraded before October 15. Regrading includes: (a) filling in depressions created by the mining; (b) grading the excavation site according to prescribed grade; (c) sloping downward to the river channel, removing all seasonal crossings and grading out the abutments to conform with surrounding topography; and (d) removing all temporary fills from the bar.

5. Extraction Season

Extraction shall only be performed during the period from September 15 to October 15. All regrading required by Special Condition No. 4 must be completed by October 15.

6. Termination Date

The gravel operations authorized by this permit shall terminate on October 15, 2002. Continued gravel operations after that date shall require a new coastal development permit.

7. Resource Protection

The gravel extraction and processing operations shall not disturb or remove any of the established riparian vegetation habitat along the banks of the river, nor any of the riparian vegetation on the gravel bar that is either: (1) part of contiguous riparian vegetation complex 1/16 acre or larger; or (2) one-inch in diameter-at-breast-height (DBH) or greater. No new haul roads shall be cut through the habitat. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete, oil or petroleum products, or other organic or earthen material from any gravel extraction or reclamation activities shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into river waters.

8. Permit Amendment

Any proposal to take more than the maximum permitted 25,000 cubic yards of materials, to take more than the amount of gravel sufficiently replenished by the river preceding high-flow season, to increase the size of the permitted area, to extract in a manner contrary to the extraction limitations set forth in Special Condition No. 3 or to make any other changes to the proposed operation shall require an amendment to this permit.

9. CHERT Review

PRIOR TO THE COMMENCEMENT OF ANY GRAVEL EXTRACTION OPERATIONS, the permittee shall submit evidence that the County of Humboldt Extraction Review Team (CHERT) has reviewed the project for the 2002 gravel extraction season. The applicant shall inform the Executive Director of any changes to the project recommended by the CHERT. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

10. Streambed Alteration Agreement

PRIOR TO THE COMMENCEMENT OF ANY GRAVEL EXTRACTION OPERATIONS, the permittee shall submit a copy of any necessary Section 1603 Streambed Alteration Agreement or other approval required by the Department of Fish and Game for the project for the 2002 gravel extraction season. The applicant shall inform the Executive Director of any changes to the project required by the Department of Fish and Game. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

11. U.S. Army Corps of Engineers Approval

PRIOR TO THE COMMENCEMENT OF GRAVEL EXTRACTION OPERATIONS, the permittee shall submit a copy the permit issued by the U.S. Army Corps of Engineers granting approval for the project for the 2002 gravel extraction season, or a Letter of Permission, or evidence that no permit or permission is required. The applicant shall inform the Executive Director of any changes to the project required by the Army Corps of Engineers. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

IV. FINDINGS AND DECLARATIONS

The Commission hereby finds and declares:

A. Site Description.

The applicant proposes to extract up to 25,000 cubic yards of river run sand and gravel during the 2002 gravel extraction season and process gravel in adjacent upland areas at the Worswick gravel bar within the lower Sandy Prairie landform along the east side of the lower Eel River, approximately 1,500 feet southeast of Fernbridge in Humboldt County (see Exhibit Nos. 1 and 2). The subject property is located along the southwest side of U.S. Highway 101 and is accessed via Fernbridge Drive (State Route 211).

The proposed extraction would occur within a portion of the 227-acre parcel. The parcel stretches along approximately ½ mile of the river and extends from approximately the middle of the Eel River northeasterly to the North Coast Railroad Authority (NCRA) right of way. The bulk of the parcel consists of portions of the Worswick gravel bar lying below the northeastern bank of the river. The bar is largely exposed during low river flow conditions during the dry season and submerged during high flow conditions in the winter. The northeasterly side of the parcel does encompass the riverbank and a narrow, approximately 50-foot-wide strip of upland area adjacent to the railroad right of way. This upland strip has been used previously and is proposed to be used again as part of the current application as an aggregate facility where processing activities including sorting and crushing occur. The entire property is within the Commission's retained permit jurisdiction. The Commission previously granted a five-year permit to the applicants in 1996 (CDP No. 1-96-062).

The Eel River and its tributaries are ranked among the most significant anadromous fisheries in Northern California. Chinook salmon, coho salmon and steelhead trout are among the most important species with regard to commercial and sport fisheries. The project area and the lower Eel River are mainly utilized by the anadromous fish as a migration route to and from the upstream spawning grounds. In addition, the National Marine Fisheries Service (NMFS) indicates that the lower Eel River supports summer rearing for juvenile salmonids, especially steelhead yearlings and fall Chinook sub-yearlings, and holding areas for adult summer steelhead as well as spawning and nursery habitat for marine fishes and invertebrates.

The riverine habitat of the river channels on the site (37 acres) and the occasional ponds that form under summer low water conditions provide habitat for invertebrates, fish, amphibians such as frogs and salamanders, invertebrate-eating birds and various mammals including river otters and mink and other mammals that come to the river to forage (such as deer and raccoon). The exposed cobble (275 acres) in the gravel bars adjacent to the low-flow channels provides roosting habitats for two avian species, killdeer (Charadrius vociferus) and western snowy plover (Charadrius alexandrinus)

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nivosus), but otherwise represents one of the sparsest habitats in terms of wildlife diversity and numbers.

North Coast riparian scrub habitat occurs on "islands" between the low flow channels and is the most extensive plant community at the project site occupying a total of approximately 93 acres. Portions of this habitat are inundated every winter during high river flows. The vegetation growing within the North Coast riparian scrub habitat is dominated by coyote brush (Baccharis pilularis), which forms a dense shrub layer in some areas. The understory is comprised of weedy annual grasses and forbs. Only a sparse covering of small trees is found in the north coast riparian scrub communities (5%-25%), including black cottonwood (Populus balsamifera ssp. trichocarpa) and willows (Salix sp.). The riparian scrub habitat of Sandy Prairie supports a variety of wildlife species, including a number of small mammals such as raccoon (Procyon lotor), striped skunk (Mephitis mephitis), gray fox (Urocyon cinereoargenteus), rodents and rabbits, and many bird species that use the foraging, nesting and cover.

The most important of the habitat types found at Sandy Prairie is the North Coast black cottonwood forest. A total of approximately 35 acres of this habitat is found within the project area on an island within the bank-full channel. Approximately 100 acres is found on the west (left) bank terrace adjacent to the river and is outside of the extraction area. This habitat type is a broad-leaved, winter deciduous forest dominated by black cottonwood with willow and red alder (Alnus rubra). The forest has a dense canopy as well as a dense shrub layer and herbaceous understory. The stands of North Coast black cottonwood forest on the applicant's property range back to 20 to 25 years old, becoming established following major flooding of the Eel River that occurred in 1964. The cottonwood forest represents the most structurally complex habitat on Sandy Prairie, which in turn supports a higher number and diversity of wildlife species than the other habitats. The North Coast black cottonwood forest provides valuable foraging, breeding, roosting, and shelter habitat for a wide variety of wildlife species, including at least nine bird species, eight mammalian species, two amphibian species, and one reptile species.

In general, the riparian vegetation lining the lower Eel River is perhaps the single-most important element for the natural environment in the area. The riparian habitat provides habitat for most of the birds and mammals in the project area. The presence of two different kinds of riparian habitat, the North Coast Scrub and the North Coast black cottonwood forest, provide habitat for a greater number of wildlife species than a more uniform and simple habitat structure would.

The riparian zone along the river provides migration routes for wildlife. Over 200 different species of birds and 40 different species of mammals have been observed in the Eel River Delta, most of which utilize portions of the riparian corridor. In addition to its habitat value, the riparian corridor also provides water quality protection, stream bank stabilization through root penetration, and flood protection.

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The project site is used by federally listed threatened and endangered species including coho salmon (Oncorhynchus kisutch), Chinook salmon (Oncorhynchus tshawytscha), steelhead trout (Oncorhynchus mykiss), and the western snowy plover (Charadrius alexandrinus nivosus). The coho was listed by the federal government as a "threatened species" along the northern California and southern Oregon coastlines in May 1997 with critical habitat designated in May 1999. Chinook salmon was federally listed as "threatened" in September 1999 with critical habitat designated in February, 2000. Most recently, the steelhead trout was listed as "threatened" in June, 2000. The western snowy plover is a federally listed "threatened species" that has been observed roosting and nesting on gravel bars on the lower Eel River. The plover sightings on the Eel River have been in the months of April through early August, during the nesting season. The plovers establish their nests on the open gravel bars rather than in trees.

The Southern Oregon – Northern California Coasts Evolutionarily Significant Unit coho is currently a candidate for listing as an endangered or threatened species under the California Endangered Species Act (CESA). Other fish species in the river that are listed by the California Department of Fish and Game as "species of special concern" include coastal cutthroat trout (Oncorhynchus clarki), Pacific lamprey (Lampetra tridentata), and Green sturgeon (Acipenser medirostris). Special status species are those legally protected by state or federal endangered species laws, those under consideration for such protection or those of concern to state or federal resource agencies. Even though no special status species apart from the fish species mentioned above have been found at the site, the black cottonwood riparian forest areas at the site offer suitable habitat for a state listed endangered species, the willow flycatcher (Empidonax traillii), and four "species of special concern:" the black-shouldered kite (Elanus caeruleus), Cooper's hawk (Accipiter cooperii), yellow warbler (Dendroica petechia), and yellow-breasted chat (Icteria virens).

B. Detailed Project Description.

The applicant proposes to extract up to a maximum of 25,000 cubic yards of sand and gravel between September 15 and October 15, 2002. In addition, the applicant proposes to seasonally process and stockpile gravel in upland areas adjacent to the gravel bar. The County uses the gravel extracted and processed at the site in the repair of County-maintained roads and bridges.

The County has mined and processed gravel at the site for many years. The specific location of extraction has stayed nearly the same from year-to-year. The County last extracted gravel from the site in 2000. The work plan for 2000 was typical of extraction that has occurred at the site in the past. In 2000, an area measuring approximately 500 feet long by 425 feet wide was mined to a depth of approximately two to three feet. The extraction was at a distance of approximately 150 to 200 feet from the water's edge, and the extraction area was left at a slope of 1½ percent toward the river. For the 2002 season, the extraction area would encompass a roughly 5.8-acre area located to the west and north of the 2000 season extraction area approximately 150 to 550 feet back from the

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water's edge (see Exhibit No. 3). Gravel would be skimmed from the bar in this area to a one- to two-foot depth.

Gravel is proposed to be extracted using a bulldozer, front-end loader, and dump trucks. The trucks will haul extracted material from the extraction site off the bar via an existing access road that rises up the bank through the riparian forest to the upland terrace for stockpiling and processing. The Eel River's low flow channel runs along the southern side of the streambed, on the opposite direct from the processing site, so no stream crossings are proposed as part of the project.

The applicant is proposing to perform some processing of the gravel to be extracted at the site. The processing operation would occur in the upland strip between the riparian forest area that lines the northern bank of the river and the NCRA right-of-way. The processing operation would use a portable rock crusher unit that is comprised of various units including an electrical generator housed in a 40-foot-long semi-tractor trailer, a hopper with conveyor, jaw crusher with conveyor, cone crusher with conveyor, and a screening unit with conveyor. The gravel processing operation does not produce pea gravel or other aggregate products that require washing to remove sand and other fines. Therefore, there is no wash water discharge associated with the processing operation and no sedimentation basin.

Gravel is proposed to be stored in a 500-foot-long by 80-foot-wide stockpile area in piles that would be approximately 20 feet in height

C. Background on Eel River Gravel Mining.

Lower Eel River Gravel Extraction Operators

The lower Eel River has been used for gravel extraction since 1911. Currently, 11 gravel operations are located along an eight-mile stretch of the lower Eel River, and three additional operations are located on the lower reaches of the Van Duzen River, which flows into the Eel River at Alton. The 11 operations along the Eel River are within the coastal zone. The annual maximum amount of gravel permitted to be extracted by the 14 gravel mining operations in the lower Eel and Van Duzen Rivers is estimated by the County to be approximately 1,480,000 cubic yards. Actual extraction is generally much lower and was estimated to be approximately 437,350 cubic yards for 1999.

The projects are interrelated in the sense that all of the gravel bars derive their material from the same upstream sediment sources. Brown and Ritter (1972) determined that the Eel River was a "hydraulically-limited" rather than "sediment-limited" river. This means that replenishment is more a factor of the size and duration of winter flows than the production of sediment in the watershed. This determination was based on the calculated high amounts of sediment that currently exist in active landsliding occurring in the watershed.

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Thus, over-extraction by all of the projects in the lower Eel River combined with multiple low winter flow years can contribute cumulatively to erosion of the bed and banks of the river, which in turn can erode adjacent riparian and other habitat areas, interfere with fishery resources, undermine bridge supports, and cause other significant adverse impacts. However, as noted in the County Programmatic Environmental Impact Report (PEIR), these same impacts can and have occurred when excessive deposition from high winter flow/duration events occur.

Besides the cumulative impacts resulting from river morphology changes, other significant cumulative adverse impacts resulting from the gravel mining operations can occur. The potential impacts include habitat degradation from the installation of new gravel processing operations and access roads within environmentally sensitive habitat adjacent to the exposed gravel bars, exclusion of recreational use of the river banks, and noise. These types of impacts typically do not occur if the area is properly managed.

1991 Program Environmental Impact Report

Until 1991, there had been very little coordinated review of the combined effects of the various gravel mining operations. Permits granted in the past by the various approving agencies were site specific and granted with little knowledge of the cumulative impacts of gravel mining throughout the lower Eel River.

Gravel mining operations on the Eel River now require the approval of a number of different local, state and federal agencies. The initiation of coordinated review began to change in 1991. That year, Humboldt County considered the granting of a gravel lease from the County owned bar at Worswick. To comply with environmental review requirements under CEQA, the County decided to prepare a Program Environmental Impact Report (PEIR) to describe and analyze the potential environmental effects resulting from the 13 gravel removal operations in the lower Eel River watershed. The document was certified in July 1992 and is intended to be incorporated by reference into future environmental documents prepared for individual gravel extraction projects in the area.

As part of that effort, the County initiated a comprehensive review of the status of County permits for each of the 13 operators to reach a final determination as to which operations were proceeding according to valid vested rights or County permits, and which ones required further review. The Department of Fish and Game also began to insist that the operators demonstrate that they had all necessary County approvals before the Department would issue annual Section 1603 Streambed Alteration Agreements.

As a result, information was documented about the significant cumulative adverse impacts of the gravel mining operations. The PEIR showed that little change in the bed occurred over the last 75 years. Annual monitoring as well as analysis of additional

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sources of historic bed elevations has further substantiated this. Most recently a comparison by the Corps of Engineers repeating cross sections at locations that were surveyed in 1969 showed little change in the last 30 years.

County of Humboldt Extraction Review Team (CHERT)

The County developed a strategy for controlling the cumulative impacts of the gravel operations on riverbed degradation and bank erosion. At the heart of the strategy is an annual administrative approval of extraction plans that specifies the particular method and location of extraction. The primary mitigation measure recommended by the Program EIR is for the County to prepare a River Management Plan that includes, as a primary component, an annual monitoring program to make annual decisions on where and how much gravel can be removed from the lower Eel and Van Duzen Rivers without adversely affecting the river. As described in the Program EIR, the monitoring program was to be conducted by a consulting firm using funds provided by the gravel operators. The monitoring program would involve periodic biological surveys, creating cross-sections and thalweg profiles, and taking aerial photos and ground photos each year for each gravel operation. This information would be compiled and compared to data from previous years to determine gravel recruitment, changes in channel morphology and impacts on wildlife and fisheries. The implementation of this program is currently occurring through the Army Corps of Engineer's LOP process and the Humboldt County Interim Management Program. Much of this information is being collected by consultants for the gravel operators as part of the annual monitoring requirements of permitting and reviewing agencies before the commencement of mining each season.

The County established its "Lower Eel River Interim Monitoring Plan" for use until such time that the River Management Plan is developed. The monitoring plan incorporated and refined the reporting and monitoring requirements that were developed in 1991. The Plan also calls for the establishment of a review team to provide the County and other oversight agencies with scientific input on the gravel operations. The Committee that was established is known as 'CHERT' (County of Humboldt Extraction Review Team) and is composed of independent fluvial geomorphologists, biologists, and botanists. CHERT has the authority for the County to review all annual mining plans and prescribe changes to those plans as deemed necessary. CHERT integrates all the monitoring data developed by the gravel operators for geomorphic evaluations of the streambed and also evaluates and recommends practices designed to preserve and enhance vegetation and wildlife habitat.

Army Corps of Engineers and Section 7 Consultation with NMFS and USFWS

In the fall of 1993, due to an amendment to the Army Corps of Engineers Clean Water Act Regulatory Program, the Army Corps of Engineers (Corps) became more involved in regulating gravel extraction operations. Whereas previously, the Corp's regulatory review of many in-stream gravel extraction operations focused mainly on the installation of channel crossings and stockpiling of material on the river bar, in 1993, the Corps

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began actively regulating incidental fill related to gravel mining activities themselves. In an effort to streamline the processing of Corps permits for numerous in-stream gravel operations within Humboldt County, the Corps adopted a Letter of Permission (LOP) procedure for authorizing such projects (LOP 96-1). The LOP was adopted after a series of interagency and public meetings. An applicant for a project covered by the LOP must submit yearly gravel plans and monitoring information to the Corps for approval under the procedure. The Corps incorporated the CHERT review process into its LOP procedure. In addition, the LOP process requires consultations under Section 7 of the Endangered Species Act. The National Marine Fisheries Service (NMFS) issues a Biological Opinion regarding impacts of gravel extraction to the listed salmonid species. The western snowy plover, a listed threatened species, also requires consultation with the U.S. Fish and Wildlife Service. As with NMFS, mitigation measures required by the Endangered Species Act are incorporated into extraction requirements. As more information is gathered, these requirements are revised as necessary.

The National Marine Fisheries Service originally issued a Biological Opinion (Opinion) for the Letter of Permission Procedure for Gravel Mining and Excavation Activities within Humboldt County, California (LOP 96-1) in July, 1997. The LOP 96-1 was due to expire in August, 2001. Several Endangered Species Act listing actions occurred subsequent to the issuance of NMFS' 1997 Opinion including designation of critical habitat for Southern Oregon/Northern California Coastal (SONCC) coho salmon, listing of California Coastal (CC) Chinook salmon as threatened and designation of critical habitat, and listing of Northern California (NC) steelhead as threatened. As a result of the listing of additional salmonid species and designation of critical habitat in 1999, the Corps requested reinitiation of Section 7 ESA consultation and NMFS prepared a revised Biological Opinion (May 1, 2000). In June, 2001, the Corps extended the expiration date of LOP 96-1 to October 31, 2001 and requested an amendment to the duration of the 2000 Biological Opinion which analyzed the extended duration of the proposed gravel extraction activities.

NMFS began working with the Corps, other agencies, and Humboldt County gravel operators and their consultants during the winter of 2001-2002 on a replacement LOP procedure anticipated to be in place for the 2002-2007 extraction seasons (LOP 2002-1). A draft LOP 2002-1 was circulated for public comment in May, 2002 at which time it became apparent to involved agencies that several issues could not be resolved prior to the 2002 mining season. As a result, the Corps decided to further extend LOP 96-1 through December 31, 2002 to provide an authorization process for the 2002 gravel mining season and again requested that NMFS amend the 2000 Biological Opinion to analyze the extended duration of LOP 96-1.

Commission staff received a copy of the Draft amended 2000 Opinion for the 2002 gravel extraction season on July 15, 2002. The amended Draft Opinion incorporates newly available information that was not previously analyzed in the 2000 Biological Opinion. In addition, the amended Draft Opinion incorporates changes to the project

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description and listed effects of gravel mining and extraction activities for the proposed extended duration of LOP 96-1. In the Draft amended Opinion, NMFS concludes that extending the LOP 96-1 procedures for gravel mining operations during 2002, "is still not likely to jeopardize the continued existence of Southern Oregon/Northern California (SONCC) coho salmon, Central California (CC) Chinook salmon, or Northern California (NC) steelhead, or destroy or adversely modify SONCC coho salmon designated critical habitat." NMFS and the Corps expect that a new LOP will be implemented prior to the 2003 gravel extraction season.

Proposed Listing of Coho Salmon Under California Endangered Species Act

On July 28, 2000, the California Fish and Game Commission (CFGC) received a petition from the Salmon and Steelhead Recovery Coalition requesting that the coho salmon north of San Francisco (i.e., Southern Oregon / Northern California Coast Environmentally Significant Unit or "SONCC Coho ESU") be listed as an endangered species under the California Endangered Species Act (CESA). The petition described runs of coho as having declined 90 percent in the past 30 years, to stand at 1 percent of the historic levels. CFGC subsequently forwarded the petition to the California Department of Fish and Game (CDFG) to review the petition and determine whether acceptance of the petition would be appropriate. On April 5, 2001, the CFGC accepted the petition for listing, initiating a 12- to 14-month review period by CDFG in which appropriate recommendations on the requested listing were to be developed. During that period, the protection granted to listed species under the CESA was extended to candidate species, specifically prohibiting taking of the species without the express consent of CDFG.

On April 27, 2001, the CFGC published a notice of findings declaring the coho a candidate species (see Exhibit No. 8). Pursuant to Section 2084 of the Fish and Game Code, CDFG also adopted a Statement of Proposed Emergency Regulatory Action for the species' candidacy period (see Exhibit No. 9). The so-called "2084 rules" establish a variety of performance standards for various types of in-stream activities, including gravel mining, that are to be required as part of any Streambed Alteration Agreements issued by CDFG. The standards are intended to minimize potential impacts to the coho during its listing candidacy.

In April 2002, the CDFG released Candidate Status Review Report 2002-3, "Status Review of California Coho Salmon North of San Francisco." The report concluded that CDFG had found that while a CESA "endangered" listing was not warranted at this time, the SONCC Coho ESU was in serious danger of becoming extinct throughout all or a significant portion of its range. Accordingly, CDFG recommends that the CFGC list the SONCC Coho ESU as "threatened." Although the CFGC received the status review report at its June 20, 2002 hearing, no action was taken on the listing. The CFGC is scheduled to begin accepting public testimony and discussing the proposed listing at its August 1, 2002 meeting.

D. Protection of the Riverine Environment.

The proposed project involves the surface mining extraction of sand and gravel from the Sandy Prairie landform of the lower Eel River using heavy mechanized equipment for grading and dredging operations. Several Coastal Act policies address protection of the portion of the river environment below the ordinary high water mark from the impacts of development such as gravel mining. These policies include Sections 30231 and 30233. Section 30231 applies generally to any development in riverine environments and other kinds of water bodies in the coastal zone. Section 30233 applies to any diking, filling, or dredging project in a river and other coastal waters. Gravel extraction within a river bed is a form of dredging within a wetland.

Section 30231 of the Coastal Act states, in applicable part:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes... shall be maintained and, where feasible restored...

Section 30233 of the Coastal Act provides as states, in applicable part:

(a) *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*

...

(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas. (emphasis added)

...

(c) *In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary...*

The above policies set forth a number of different limitations on what development projects may be allowed in rivers within the coastal zone. For analysis purposes, the limitations can be grouped into four general categories or tests. These tests are:

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1. that the purpose of the filling, diking, or dredging is for one of the eight uses allowed under Section 30233;
2. that feasible mitigation measures have been provided to minimize adverse environmental effects;
3. that the project has no feasible less environmentally damaging alternative; and
4. that the biological productivity and functional capacity of the habitat shall be maintained and enhanced where feasible.

(1) Allowable Use for Dredging and Filling of Coastal Waters

The first test set forth above is that any proposed fill, diking or dredging must be for an allowable purpose as enumerated under Section 30233 of the Coastal Act. The proposed project involves dredging for mineral extraction. Surface mining of gravel aggregate materials is specifically enumerated as a permissible use in the above-cited policy, provided the activity is not undertaken in environmentally sensitive areas; Section 30233(a)(6) allows dredging for mineral extraction, provided the activity is not undertaken in environmentally sensitive areas. Therefore, to the extent that the proposed gravel extraction will avoid environmentally sensitive areas, the proposed project is consistent with the use limitations of Section 30233(a)(6).

As currently designed and limited to the 2002 extraction season, the proposed project does not have the potential to affect environmentally sensitive areas. The environmentally sensitive habitat consists of various types including nesting habitat for the threatened western snowy plover, North Coast riparian scrub habitat occurring on high points within the bank-full channel of the river, North Coast black cottonwood forest occurring on a large island and on the left bank of the river within the project site and the live waters of the river which is habitat for threatened salmonid species. The proposed mining project would be located in areas that would avoid intrusion into these habitat areas and/or be performed at times when sensitive species were not nesting and/or utilizing the site for habitat. Descriptions of the habitats and their use by wildlife are found in the Findings Section C, "Site Description," of this report.

Riparian Vegetation as Environmentally Sensitive Habitat

The Coastal Commission has previously determined in numerous permit actions that most forms of riparian vegetation are environmentally sensitive. The Commission has consistently conditioned permits for development near riparian woodlands along streams and rivers to avoid disturbances of riparian areas where mature vegetation exists.

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Some of the riparian coastal scrub-shrub vegetation on the gravel bar is inundated during high flows and is often uprooted and scoured by river flows. The hydrodynamics of the river can cause the channel itself to migrate over time, which in time can eliminate more stands of riparian scrub vegetation from one year to the next. As a result, much of the vegetation is young, having only grown a season or several seasons since the time of the last inundation severe enough to remove the plants previously growing there.

Given that some of this riparian vegetation is very new and underdeveloped, it may not provide habitat values sufficient enough for the areas to be characterized as environmentally sensitive.

Section 30107.5 of the Coastal Act defines "environmentally sensitive area" as:

Any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in the ecosystem and which could be easily disturbed or degraded by human activities and developments.

Under this definition, any area supporting a plant, animal, or habitat is environmentally sensitive if the area meets two main criteria: (1) the plant, animal, or habitat is either rare or of special value because of their unique nature or role in the ecosystem, and (2) the area could be easily disturbed or degraded by human activities and developments. The non-persistent scrub-shrub riparian areas clearly meet the second criterion in that the gravel extraction materials on the river bar, such as proposed by the applicant, can quickly obliterate any of this habitat the extraction activities comes in contact with. With regard to the first criterion, the riparian scrub-shrub vegetation is not rare, as it usually does not contain rare or endangered species and can be found extensively on the many gravel bars along North Coast waterways. However, such vegetation can be considered especially valuable and therefore also meet the second criterion. In general, riparian vegetation must grow to a certain size and mass before it can begin to contribute significantly to the river ecosystem. A willow sprig growing in isolation that has just taken root and only rises a few feet out of the ground cannot provide much forage area, nesting opportunities, or much screening from predators for birds and other animals who choose to use it. As the sprig grows taller, however, and as more riparian plants colonize the surrounding area, the sprig, and the plants now growing in association with it, can start to provide forage, nesting, and cover opportunities that make it especially valuable habitat and therefore an environmentally sensitive area.

There is no clear-cut answer to the question of just when in the growth and development of riparian scrub-shrub vegetation it reaches the point where it can be considered environmentally sensitive. In discussions with California Department of Fish and Game staff, Commission staff has learned that no specific plant height and diameter, coverage, age, etc. thresholds exist for riparian vegetation that define when habitat value sufficient to categorize the vegetation as environmentally sensitive. Part of the reason for this

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uncertainty is that there can be tremendous variability in the values of riparian vegetation of the same size from one location to the next depending on such factors as surrounding habitat and vegetation, surrounding land uses, river configuration, etc.

One existing standard that may provide useful guidance for determining when riparian scrub-shrub vegetation reaches the point of becoming environmentally sensitive is a standard imposed in the USACE Letter of Permission (LOP) Procedure authorizing gravel mining in Humboldt County. The LOP, which was first issued in 1996, was developed by the Corps after a number of interagency meetings and consultations with representatives of various state and federal resource agencies. The LOP sets a number of restrictions on the gravel extraction projects that it authorizes. One such restriction concerns riparian vegetation. The restriction states as follows:

All riparian and woody vegetation and wetlands must be avoided to the maximum extent possible. Any riparian vegetation or wetland that is to be disturbed must be clearly identified by mapping. Woody vegetation that is part of a contiguous 1/8-acre complex or is at least two inches in diameter breast height (DBH) must be mitigated if it is disturbed. Impacts to other woody vegetation must be described and a summary submitted to the Corps and CHERT with the gravel extraction plans. These impacts may require mitigation may require mitigation at the discretion of the Corps...

The restriction establishes a threshold for when impacts to riparian vegetation must be mitigated. The threshold is reached any time the riparian area that would be disturbed contains woody vegetation that is part of a contiguous 1/8-acre complex or is at least two inches (2") diameter at breast height.

The U.S. Army Corps of Engineers administers its permit program under Section 404 of the Clean Water Act (and the related Section 10 of the Rivers and Harbors Act of 1899). This administration does not limit mineral extraction in wetlands and open coastal waters to the same extent that Coastal Act Section 30233 does. As previously stated, Section 30233(a)(6) only allows the dredge or fill of wetlands and open coastal waters for mineral extraction if the mineral extraction occurs outside of environmentally sensitive areas. Although the Corps can allow mineral extraction in an environmentally sensitive area so long as mitigation is provided, the Commission cannot allow mineral extraction within an environmentally sensitive area at all. Thus, the Corp's purpose in determining when mitigation should be required is not the same as determining when riparian vegetation reaches a level of growth and development such that it should be considered environmentally sensitive.

By requiring mitigation whenever a riparian vegetation area that is to be disturbed contains woody vegetation that is part of a contiguous 1/8-acre complex or is at least 2 inches DBH, the Corp's LOP indicates that vegetation at this level already is providing habitat value. Otherwise, if the vegetation were not providing habitat value there would

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be no need for mitigation. Therefore, the Commission finds that the riparian vegetation must reach a form of growth and development where it provides important habitat values at some point before the Corps threshold is reached. Acknowledgement of this fact is contained in the rest of the Corps standards which indicate that impacts to other woody vegetation not rising to the threshold level must also be described and submitted to the Corps and may require mitigation at the discretion of the Corps.

In discussions with CDFG staff, Commission staff has discerned that under average growing conditions, a willow tree that is one inch (1") in DBH or part of a contiguous 1/16-acre complex would likely have survived for one growing season. Given that riparian vegetation is only becoming established during the first growing season, the vegetation may not provide significant habitat value at this point. On the other hand, vegetation that has survived more than one growing season would be established and likely to be used by wildlife. Therefore, the Commission finds that the riparian scrub-shrub vegetation should be characterized as an environmentally sensitive area when the vegetation contains woody vegetation that is part of a contiguous complex of 1/16-acre or larger or is one-inch or larger in DBH. In addition, by restricting extraction in vegetated areas that are essentially half as developed as the riparian vegetation for which mitigation is indicated under the Corps' LOP, the Commission will minimize the chances that any riparian vegetation providing significant habitat value will be disturbed by the proposed gravel extraction.

To ensure that mineral extraction proposed by the applicant each year is not performed within an area of environmentally sensitive riparian vegetation, thereby remaining an allowable use under Coastal Act Section 30233(a)(6), the Commission attaches Special Condition No. 3 which requires the applicant to extract gravel only from the area and in the manner proposed in the permit application. The condition also specifies that all vegetated areas containing woody vegetation meeting the above-described aerial and growth habit criteria for environmentally sensitive areas be avoided. Furthermore, the Commission attaches Special Condition No. 7, which further states that gravel extraction operations shall not disturb or remove any area of riparian vegetation growing on the river banks or on the gravel bar meeting either the aerial extent or plant girth criteria discussed above.

Another form of environmentally sensitive areas that can potentially be found at the site are seasonal nesting sites of the western snowy plover. As noted previously, the western snowy plover is a federally listed threatened species which in the past has been observed nesting on gravel bars of the lower Eel and Van Duzen Rivers during April through early August. As the Commission considers the habitat of rare and endangered species to be environmentally sensitive areas, the Commission finds any areas utilized by the western snowy plover during the nesting season when the birds are present constitute environmentally sensitive habitat areas. To avoid impacts to the western snowy plover, the applicant proposes not to commence gravel extraction operations until after September 15 when the plover nesting season has ended. As so designed, the project

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would not impact western snowy plover nesting sites during the time of nesting when such areas constitute environmentally sensitive areas.

Moreover, the Commission attaches Special Condition No. 3(c) which requires that excavation not occur within the actual channel, where sensitive salmonid species could be present. Therefore, as conditioned herein, the proposed gravel extraction operation is consistent with the use limitations of Section 30233 of the Coastal Act on dredging in coastal water bodies as the mining operation is for mineral extraction in areas that are not environmentally sensitive, consistent with Section 30233(a)(6).

(2) Feasible Mitigation Measures

The second test set forth by the dredging and fill policy of the Coastal Act is whether feasible mitigation measures have been provided to minimize the adverse environmental impacts of the proposed project.

Depending on the manner in which the gravel operation is conducted, the portions of the proposed project to be conducted below the ordinary high water mark could have four potentially significant adverse effects on the natural environment of the lower Eel River. These impacts include: (a) impacts on fisheries; (b) alteration of the riverbed and increased bank erosion; (c) impacts on environmentally sensitive riparian vegetation; and (d) impacts to western snowy plover; and (e) impacts to the water quality of the river. The potential impacts and their mitigation are discussed in the following sections:

(a) Fisheries

As noted previously, the Eel River and its tributaries are ranked among the most significant anadromous fisheries in Northern California and include Coho salmon, Chinook salmon, and steelhead trout, all federally listed threatened species under the federal Endangered Species Act. The project area and the lower Eel River are important for these anadromous fish as a migration route to and from upstream spawning grounds. In addition, the lower Eel River supports summer rearing for juvenile salmonids, especially steelhead yearlings and fall Chinook sub-yearlings, and holding areas for adult summer steelhead as well as spawning and nursery habitat for marine fishes and invertebrates.

The impacts of gravel mining operations on sensitive fish species include more than just the individual impacts of a particular gravel mining operation at one site. Often of greater significance is the cumulative adverse impact on sensitive fish species from all of the various gravel mining operations occurring along the river. Accurately assessing significant adverse cumulative impacts of the various gravel mining operations on sensitive fish species can be a difficult task for any one operator to perform.

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An assessment of the significant adverse cumulative impacts of U.S. Army Corps of Engineers (Corps) permitted gravel mining operations along the lower Eel River on sensitive fish species does exist in the form of Biological Opinions issued by National Marine Fisheries Service (NMFS). These Biological Opinions are issued as a result of formal consultations between the Corps of Engineers and the NMFS pursuant to Section 7 of the Federal Endangered Species Act. As discussed previously in the "Background on Regulation of Eel River Gravel Mining" Finding, the Corps decided to extend LOP 96-1 (originally due to expire on October 31, 2001) through December 31, 2002 to provide an authorization process for the 2002 gravel mining season while a new LOP for subsequent gravel mining seasons is prepared. The Corps requested that NMFS amend the most recent (2000) Biological Opinion to analyze the extended duration of LOP 96-1.

NMFS has prepared a draft amended Biological Opinion for the extended duration of LOP 96-1 that incorporates newly available information that was not previously analyzed in the 2000 Biological Opinion regarding the effects of gravel mining and extraction activities on listed salmonids (see Exhibit No. 6). According to NMFS, gravel mining results in both short-term and long-term changes to channel form and function and such changes affect habitat function for listed salmonids. The draft amended Biological Opinion indicates that gravel mining could result in adverse impacts to listed salmonids from the input of fine sediment, reduced bar height and channel confinement, and a reduction of habitat complexity as a result of various gravel extraction related activities.

Construction and removal of channel crossings and the use of heavy equipment can adversely affect salmonids. Heavy equipment is required to operate in the wetted, low flow channel to construct and remove the crossings, which are typically placed at riffle locations. According to NMFS, Chinook salmon build redds and spawn in riffles and the redds could be subject to a pulse of fine sediment during removal of the channel crossing in late fall. In addition, the operation of heavy equipment has the potential to result in disturbance to salmonids caused by noise and vibration in the extraction work area. Furthermore, culverted stream crossings can also impact rearing salmon habitat by impeding or altering channel stream flow dynamics.

NMFS also indicates that juvenile and adult salmonid stranding could occur as a result of certain extraction methodologies depending on how the methodology is implemented and the manner in which the extraction area is reclaimed and left following extraction. For example, bar skimming allows inundation of the skimmed area more frequently and at lower river stage heights, resulting in an increase in the width-to-depth ratio of the channel, which results in an increase in the area where mainly juvenile, but possibly adult, salmonid stranding may occur. The potential for salmonid stranding is minimized if the gravel bars are groomed

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to be free of depressions and graded to provide a free draining surface back towards the river thalweg following extraction.

The draft Opinion also indicates that gravel mining has the potential to result in elevated turbidity levels and increased sedimentation. Fine sediments can become entrained in runoff from skimmed bar surfaces, as skimming typically exposes finer sediment that would be inundated during lower discharges. According to NMFS, increased sedimentation can adversely impact salmonid spawning habitat by filling pores spaces, which decreases hydraulic conductivity of the gravel, thus reducing the supply of oxygenated water to incubating eggs.

Gravel extraction can also impact migratory, rearing and holding habitat by increasing the width-to-depth ratio of river channels, decreasing channel confinement, and changing the hydraulic function of gravel bars required to create and maintain pools and riffles. NMFS has concluded that when gravel bars are skimmed to a depth less than the water surface that would result when river discharges are at or exceed the watercourse's 35th percentile flow, or approximately two feet above the low-flow water surface, loss of channel confinement can result.

Gravel mining can also result in a reduction of large woody debris, which provides important rearing and holding habitat for salmonids. Large woody debris at gravel mining sites is often removed for use as firewood or for constructing burl furniture.

Although gravel mining has the potential to result in several adverse short-term and long-term impacts to salmonids and salmonid habitat, NMFS indicates that adherence to the above-described project design features minimizes effects of gravel extraction on listed salmonid species. NMFS concludes in the draft amended Biological Opinion that:

Some individuals may be injured or killed during mining operations, or harmed by the resultant effects of gravel mining on habitat. However, the effects to listed salmonids from the short duration of the proposed action (year 2002 mining operations only) is not expected to rise to a population level effect and is not anticipated to reach the level where a reduction in the likelihood of both the survival and recovery of listed salmonids, at the Evolutionarily Significant Unit (ESU) scale, occurs. Also due to the short duration of the proposed action, it is not anticipated that SONCC coho salmon designated critical habitat will be adversely modified or destroyed.

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Based on existing biological information, NMFS concludes that extraction of gravel during the summer months will not result in more than incidental take of threatened salmonid species and will not jeopardize their continued existence provided that extraction operations are conducted in the manner prescribed in a set of conditions attached to the Biological Opinion. To ensure that significant adverse impacts to salmonids from exceedance of incidental take of listed species does not occur, the Commission incorporates within the standards of Special Condition Nos. 3 and 5 the relevant RPMs and Conservation Recommendations proposed by NMFS in their draft Biological Opinion.

To prevent impacts to salmonids associated with loss of channel confinement, the Commission includes within the mining limitation standards of Special Condition No. 3 a requirement that the minimum skim floor depth (maximum extraction depth) be at the water level corresponding to the 35th percentile exceedance flow of the river as measured at the USGS stream level gauge nearest to the mining site.

In addition, gravel mining operations on the river bed need to cease before the rainy season to prevent significant adverse impacts to fisheries, as the runs of the various species of anadromous fish up and down the river increase in the fall with the rise in river water levels and remain at high levels through the early spring. In recent F&GC Section 1600 Streambed Alteration Agreements issued for gravel extraction at the project site, the Department of Fish and Game has limited gravel extraction operations to June 1 through October 15 each year, which corresponds to the period when potential impacts to fisheries is lowest. The conditions of the NMFS Biological Opinion also require completion of gravel mining operations by October 15. Therefore, the Commission attaches Special Condition No. 5 that requires mining and all post-extraction bar grooming work and equipment removal be performed during the summer months and completed by October 15 to ensure no significant disturbance to anadromous fish.

NMFS and the Corps expect that a new Biological Opinion on the effects of lower Eel River gravel mining on sensitive fish species and new LOP will be implemented prior to the 2003 gravel extraction season. This new Biological Opinion will be prepared as a result of formal consultations between the Corps and NMFS pursuant to the Federal Endangered Species Act on the Corps' proposed issuance of a new LOP to authorize gravel mining beyond the 2002 season. This Biological Opinion will likely contain new recommendations on how to further limit gravel extraction operations to avoid significant adverse cumulative impacts on sensitive fish species. For purposes of gravel extraction in 2002, NMFS concludes that extending LOP 96-1 for gravel mining operations during 2002 "is still not likely to jeopardize the continued existence of Southern Oregon/Northern California (SONCC) coho salmon, Central California (CC)

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Chinook salmon, or Northern California (NC) steelhead, or destroy or adversely modify SONCC coho salmon designated critical habitat.”

Therefore, the Commission finds that as conditioned, the proposed gravel mining for the 2002 extraction season would not result in significant cumulative adverse impacts on sensitive fish species consistent with the requirements of Sections 30231 and 30233 of the Coastal Act.

(b) River Morphology

As discussed above, a potential major impact of gravel mining operations is degradation of the riverbed and erosion of the riverbanks. Such impacts can occur if the amount of gravel extracted from a particular part of the river over time exceeds the amount of gravel deposited on the site through natural recruitment—the downstream movement of sand and gravel materials. Bed degradation and bank erosion can also result from the manner in which gravel is extracted. For example, if gravel bars are skimmed too close to the low-water surface or are left with a very shallow slope, at higher flow stages the river will tend to spread across the bar, reducing the overall depth of flow and resulting in rapid channel migration or instigation of a multi-channel “braided” configuration. This is also true of watercourse reaches where aggradation of materials is a problem. Such sites tend to trap gravel that would otherwise move downstream, potentially trapping or impeding fish migration up and down the river.

The applicants propose to extract a maximum of only 25,000 cubic yards during the 2002 extraction season, to be excavated under a bar-skimming method designed in consultation with CHERT and CDFG staff. Although this amount is small relative to the overall permitted gravel mining activity along the Eel River (up to 1,480,000 cubic yards annually), extraction without consideration of river morphology concerns could cause bed degradation and riverbank erosion.

Therefore, to ensure that the mineral extraction proposed by the applicants does not degrade the riverbed by compromising channel confinement, the Commission includes within the requirements of Special Condition No. 3 that states that the applicants shall extract material only by “bar-skimming,” retaining a minimum vertical buffer between the bottom of the extraction and the elevation of the live water of the river corresponding to the water level of the 35th percentile exceedance flow, or two feet, as proposed. The requirement will ensure that disturbance of the active channel will be avoided.

(c) Riparian Vegetation

As discussed previously under Findings Section IV(4)(a) above, the project site contains North Coast riparian scrub habitat and North coast black cottonwood

forest. North Coast riparian scrub habitat occurs on "islands" between the low flow channels and is the most extensive plant community at the project site, occupying a total of approximately 93 acres. Approximately 100 acres of North Coast black cottonwood forest is found on the west (left) bank terrace adjacent to the river outside of the extraction area, as well as 35 acres found within the project area on an island within the bank-full channel. Thus, the proposed project has the potential to adversely affect environmentally sensitive riparian vegetation at the Sandy Prairie site.

To prevent disturbances to riparian habitat, Special Condition No. 3 includes the requirement that the mining be performed as proposed by the applicants, on the portions of the gravel bar that do not contain or are in close proximity to riparian vegetation with environmentally sensitive habitat characteristics. Furthermore, the Commission attaches Special Condition No. 7, which reiterates that gravel extraction and processing operations shall not disturb or remove any area of environmentally sensitive vegetation growing on the gravel bar or river bank, and enumerates the threshold growth characteristics for when riparian vegetation becomes environmentally sensitive habitat. In this manner, disturbance to all of the environmentally sensitive riparian vegetation in the vicinity of the project will be avoided.

(d) Western Snowy Plover

The western snowy plover (Charadrius alexandrinus nivosus) was listed as a threatened species by the U.S. Fish and Wildlife Service in 1993. Snowy plovers were first documented nesting on gravel bars along the lower Eel River in 1996, which prompted increased surveying and monitoring efforts to describe the seasonal and spatial use of the lower Eel River by plovers. Surveys have indicated that snowy plovers are distributed along the unvegetated portions of larger gravel bars from the mouth of the Eel River upstream to the mouth of the Van Duzen River and have been found on the gravel bars from early April until early September.

According to a Biological Assessment prepared by qualified biologists entitled, "*Biological Assessment- Snowy Plover Habitat on the Lower Eel River, Humboldt County, CA,*" (July, 2001), approximately 805 acres of gravel habitat are potentially usable for snowy plovers. This estimate varies considerably from year to year and during the nesting season, as it is dependent primarily on river flow levels. The Biological Assessment summarizes plover use of the gravel bars from 1996 to 2001. This survey data indicates an increasing population of plovers in the lower Eel River area over the past five years.

Because the plover is a federally-listed threatened species, the responsibility for protecting the species rests with the U.S. Fish and Wildlife Service (USFWS).

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The Service's Arcata Fish and Wildlife Office coordinates with the U.S. Army Corps of Engineers (Corps) to provide guidance and regulatory review to private gravel extraction operators and the County of Humboldt on the lower Eel River. The USFWS has set forth recommendations for plover protection based on current data. These recommendations have been incorporated as Special Condition No. 4 and are outlined below.

Western snowy plover adults, nests, and chicks are very cryptic, largely because of their ability to blend in with their surroundings as a defense strategy. All life stages of the plover are susceptible to death or injury by humans driving, operating equipment, and otherwise using occupied plover habitat. Disturbance from noise and activity associated with gravel extraction, vehicle use, and pre-gravel extraction activities may adversely affect western snowy plovers by altering their feeding and breeding behavior, reducing the suitability of nesting habitat, masking essential warning signs of predators, and attracting potential scavengers/predators.

According to the USFWS, data from other portions of the western snowy plover's range suggest that activity and vehicle use in nesting and chick rearing habitat during low light and night conditions likely increases the risk of vehicle strikes to plovers, including adults. Activities associated with gravel extraction (including surveys for engineering, hydrology and biological resources) often need to be conducted prior to the initiation of gravel extraction activities. Because these pre-extraction activities require vehicular use and human presence in potential nest areas during the nest season, a potential exists to adversely affect the western snowy plover through direct harm or harassment.

According to recent survey data provided in the Biological Assessment, four nests were discovered during the 2000 nesting season on a portion of the upper Worswick bar. This area was mined by Humboldt County after the 2000 nesting season. There were three nests in the extraction area prior to extraction and three nests in the area the following year after extraction. Similar results were achieved during each year, with two nests hatching three eggs and one nest hatching two eggs. Three other nests were established very near the extraction site in 2000 and one was established near the extraction site in 2001. Approximately equal numbers of nests were established in the Worswick extraction site both prior to and after the extraction. In addition, nesting success was comparable and site fidelity was evident both in and out of the extraction area with some birds moving just a few meters from year to year for at least one of the nests.

In the recommended measures set forth by the USFWS, gravel extraction operations that commence after September 15, following the peak plover nesting season, are not subject to the surveying and monitoring protocol required for mining activities that commence prior to September 15. The applicant proposes

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to commence gravel extraction after September 15 to avoid potential adverse impacts to plovers. Special Condition No. 5 requires that extraction not be performed prior to September 15 as proposed.

Therefore, the Commission finds that the western snowy plover would not be significantly adversely affected by the project as proposed and no additional mitigation is required to protect western snowy plovers.

(e) Water Quality

If properly managed, the proposed gravel operations should not significantly adversely affect the river's water quality. However, gravel extraction operations in close proximity to an open stream course could adversely impact water quality, and ultimately the biological productivity and fisheries resources of the river. For example, pushing gravel materials or allowing sediment-laden water to drain from an excavation bucket into the river could degrade water quality and biological productivity by increasing the turbidity of the water. In addition, if not retained to allow settlement of suspended sediment, wash water from gravel processing activities could entrain soil materials which could result in sedimentation of coastal waters.

To prevent such occurrences, the Commission attaches Special Condition Nos. 2, 3, 4, and 7. Special Condition No. 2 requires that a runoff control plan be reviewed and approved by the Executive Director ensuring that mining equipment be maintained and operated in such a manner as to not allow for release of petroleum products into the river, and that spill clean-up materials be available on the worksite, and that operators and sub-contractors undergo spill contingency training. Special Condition No. 3 requires the applicant to perform the mining project on the exposed gravel bar as proposed, to avoid in-water activities that might result in sedimentation of the river. Special Condition No. 4 requires that all materials be promptly removed from the river after the cessation of mining and prior to the start of the rainy season. Special Condition No. 7 prohibits placing any material into the river during gravel extraction activities. Furthermore, to abate dust generated during mining from entering the river, the requirements of Special Condition No 2 include that the erosion control plan include watering of the bar access roads during mining operations.

Therefore, as conditioned, the project will avoid significant adverse impacts to coastal water quality.

(f) Conclusion

The Commission finds, as conditioned herein, the proposed gravel extraction operation is consistent with the requirements of Section 30233 of the Coastal Act,

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in that feasible mitigation measures have been provided to minimize adverse environmental effects. The gravel extraction limitations and performance standards imposed through Special Condition Nos. 2, 3, and 4 are designed to prevent impacts to river morphology, riparian vegetation, threatened and endangered species, and water quality. Together with the requirements of Special Condition Nos. 5 and 7, to limit the extraction season and prohibit placement of material into the active channel, the project is conditioned to ensure that significant adverse impacts to the Eel River from the proposed gravel extraction operation will be avoided. Therefore, the proposed project as conditioned is consistent with the requirements of Sections 30231 and 30233 of the Coastal Act.

(3) Alternatives

The third test set forth by the Commission's dredging and fill policies is that the proposed dredge or fill project must have no feasible less environmentally damaging alternative. In this case, the Commission has considered the various identified alternatives, and determines that there are no feasible less environmentally damaging alternatives to the project as conditioned by Special Condition Nos. 1-11. A total of four possible alternatives have been identified, including: (a) the "no project" alternative; (b) obtaining sand and gravel from quarry operations; (c) obtaining sand and gravel from terrace deposits in the Eel River floodplain; and (d) modifying the proposed project. As explained below, each of these alternatives are infeasible and/or more environmentally damaging than the proposed project as conditioned.

(a) No Project Alternative

The no project alternative means that no gravel extraction would occur at the site. Without extraction from the site, an equivalent amount of sand and gravel materials would be obtained from other sources to meet regional demand for cement and concrete aggregate products for the construction of roads, buildings, and other development. Increasing production from other river bar extraction operations would have environmental impacts similar to or greater than the proposed project.

The proposed project is located in an area where gravel has historically been accumulated and mined. Mining in many other parts of the river where gravel does not accumulate could lead to changes in river geomorphology which, in turn, could cause a variety of adverse impacts such as increased sedimentation, the undermining of bridge supports, and bank erosion resulting in the loss of environmentally sensitive riparian habitat areas and/or adjacent agricultural lands.

As discussed below, obtaining additional sand and gravel terrace deposits from the valley floors of local rivers would also create adverse environmental impacts similar to or greater than the proposed project. The Commission therefore finds that the "no project"

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alternative is not a feasible less environmentally damaging alternative to the project as conditioned.

(b) Obtaining Sand and Gravel from Quarry Operations

Excavation from the river could be avoided if an equivalent amount of sand and gravel could be obtained from upland quarries. As discussed in the Final Program EIR on Gravel Removal from the Lower Eel River, certified by Humboldt County in 1992, there are few quarries in the vicinity where it would be economically feasible to obtain material of sufficient quality and quantity to that available at the project site. The substrate of nearby areas of Humboldt County are composed mostly of the Franciscan formation that is comprised of large masses of greywacke and sandstone interspersed with less competent (for construction applications) clay and silt materials. This composition of material generally does not lend itself to quarrying. The quarries that are found in the region are generally located in remote areas with limited water supplies and where no nearby processing facilities are available. The unprocessed materials would need to be transported greater distances resulting in associated traffic and air quality impacts. The Commission therefore finds that substituting gravel extracted from quarry operations is not a feasible less environmentally damaging alternative.

(c) Obtaining Sand and Gravel from Terrace Deposits

Excavation from the river could be avoided if an equivalent amount of sand and gravel products could similarly be obtained from terrace deposits in the floodplain of the lower Eel, Van Duzen, or Mad Rivers. The floors of these river valleys are underlain by substantial amounts of gravel deposited over thousands of years and provide upland rock quarries. However, commencing gravel extraction from these terrace deposits would create its own adverse environmental impacts. Much of the undeveloped valley floor of each of these rivers is developed with agricultural and timber production uses. Converting productive coastal agricultural lands or forest lands to gravel extraction or other uses would not be consistent with Coastal Act policies which call for the maintenance of lands suitable for agriculture and timber production. Most of the remaining undeveloped areas of these river valleys are currently covered with riparian habitat and other environmentally sensitive habitats. Extracting gravel from such areas would result in far more impact to environmentally sensitive habitat than extraction at the project site as conditioned by the permit to avoid all riparian habitat. Therefore, the Commission finds that substituting gravel extracted from terrace deposits in local river valleys is not a feasible less environmentally damaging alternative to the proposed project as conditioned.

(d) Modifying the Proposed Project as Conditioned

Various modifications to the project as proposed and conditioned could be made in an attempt to reduce the environmental effects. One such modification would be to mine in

different locations at the project site. However, this modification would not result in less significant adverse impacts than the project as conditioned under this permit. As discussed previously, the proposed project has been conditioned to restrict mining to areas that would avoid significant adverse impacts to coastal resources. Therefore, modifying the proposed gravel extraction project to require mining in different locations at the project site could result in greater impacts to coastal resources and would not be a feasible less environmentally damaging alternative.

No other feasible modification to the proposed extraction scheme has been identified. Therefore, the Commission finds that modifying the proposed gravel extraction project as conditioned is not a feasible less environmentally damaging alternative.

(4) Maintenance and Enhancement of Estuarine Habitat Values

The fourth general limitation set by Sections 30231 and 30233 is that any proposed dredging or filling project in coastal waters must maintain and enhance the biological productivity and functional capacity of the habitat, where feasible.

As discussed in the section of this finding on mitigation, the conditions of the permit will ensure that the project will not have significant adverse impacts on water quality, riparian vegetation, rare and endangered species, stream morphology, fisheries, or other coastal resources. By avoiding impacts to coastal resources, the Commission finds that the project will maintain the biological productivity and functional capacity of the habitat consistent with the requirements of Sections 30231 and 30233 of the Coastal Act.

The Commission thus finds that the project is an allowable use, that there is no feasible less environmentally damaging alternative, that no additional mitigation is required for the impacts associated with the dredging of coastal waters, and that estuarine habitat values will be maintained or enhanced. Therefore, the Commission finds that the proposed development, as conditioned, is consistent with Sections 30231 and 30233 of the Coastal Act.

E. Protection of Environmentally Sensitive Habitat Areas.

Section 30240 of the Coastal Act states that environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values and that development in areas near such sensitive habitat areas shall be sited and designed to prevent significant adverse impacts to these areas.

As discussed above in the section on permissible uses for dredging of wetlands and open coastal waters, the proposed project will not adversely affect environmentally sensitive habitat outside of the bank-full channel of the river. None of the riparian habitat along the banks of the river will be disturbed by the extraction operation itself. In addition, existing haul roads through the riparian areas will be used to truck gravel from the bar to

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the stockpiling and processing facility. No new haul roads are proposed to be cut through the riparian woodland. To ensure that no new haul roads are created through riparian woodland, the Commission attaches Special Condition No. 7 that requires that the proposed project not disturb or remove any of the established riparian vegetation at the site and prohibits the cutting of new haul roads through the habitat.

As conditioned, the Commission finds that the project is consistent with Section 30240 of the Coastal Act, as the project will avoid significant adverse impacts to the environmentally sensitive habitat area found on the site.

F. Visual Resources.

Section 30251 of the Coastal Act provides in applicable part that the scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall: (a) be sited and designed to protect views to and along the ocean and scenic coastal areas, and (b) be visually compatible with the character of surrounding areas.

The gravel extraction and gravel processing operations will be visible from Highway 101 and from Fernbridge Drive, the highway frontage road. However, these operations are seasonal activities that would occur for only one month during the 2002 season (September 15 through October 15). In addition, the activities have been occurring at the site for many years, and many of the approximately twelve gravel operations occurring along the lower Eel River are similarly visible from Highway 101 and other public roads. The proposed project will not be any more prominent than the gravel extraction and processing activities that have occurred in the past. Therefore, the Commission finds that the proposed project is visually compatible with the character of the area as gravel extraction operations here and in the vicinity have long been a part of the view shed.

Stockpiling gravel could have the greatest impact on visual resources of all of the activities proposed because the stockpiles could potentially be made very tall and block views to a certain degree of the river from public roads. However, as proposed by the applicant, the stockpiles would be a maximum of 20 feet high. At that height, the stockpiles would not rise appreciably above the tops of the trees in the adjacent riparian woodland and thus would not block views of the river that are not already blocked by the woodland. To ensure that the Commission would have the opportunity to review any future proposals by the applicant to change other aspects of the project that could affect visual resources and their conformity with Coastal Act Section 30251, the Commission attaches Special Condition No. 8. The condition states that changes to the approved operation shall require an amendment to the coastal development permit.

Therefore, the Commission finds that, as conditioned, the proposed project is consistent with the visual resource policies of Section 30251 of the Coastal Act, as the project is

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compatible with the visual character of the surrounding area and will not block views to and along the coast.

G. Public Access.

Coastal Act Section 30210 requires in applicable part that maximum public access and recreational opportunities be provided when consistent with public safety, private property rights, and natural resource protection. Section 30211 requires in applicable part that development not interfere with the public's right of access to the sea where acquired through use (i.e., potential prescriptive rights or rights of implied dedication). Section 30212 requires in applicable part that public access from the nearest public roadway to the shoreline and along the coast be provided in new development projects, except in certain instances, such as when adequate access exists nearby or when the provision of public access would be inconsistent with public safety. In applying Sections 30210, 30211 and 30212, the Commission is limited by the need to show that any denial of a permit application based on these sections, or any decision to grant a permit subject to special conditions requiring public access, is necessary to avoid or offset a project's adverse impact on existing or potential public access.

The project site is located between the first public road (U.S. Highway 101) and the sea (the Eel River is considered to be an arm of the sea in this area).

Recreational use of the river in this particular section of the river is very limited, largely because there are very few access points to the river. The principal public access use of the project site that does occur is by fishermen who use the river channel for recreational fishing. Other public access and recreational uses of this stretch of the river include canoeing and recreational boating. The prime fishing season occurs in the spring before the gravel extraction season begins. To the extent that canoeists and boaters do use the river channel during the extraction season, the proposed mining and aggregate processing operations would not be performed on portions of the exposed gravel bar and adjacent upland area on the north bank that might interfere with boating uses. The main channel will remain open and unimpeded for shallow-draft water transit through this reach of the lower Eel River.

Thus, the project will not significantly affect the fishermen, canoeists or other recreational boaters. Furthermore, gravel extraction operations have been occurring at the site for many years. The continued extraction authorized by this permit will not create any additional burdens on public access than have existed in the past. The project will not create any new demands for fishing access or other public access use.

Therefore, the proposed project would not have a significant adverse affect on public access that would be significant enough to warrant requiring public access. The Commission finds that the project, as proposed without new public access, is consistent with the public access policies of the Coastal Act.

H. State Lands Commission Review.

The project is located in the bed of the Eel River, a navigable river, between the ordinary high water marks. As such, the State of California may hold a public trust easement and other property interests at the site. Any such property interest would be administered by the State Lands Commission. An application has been submitted to the State Lands Commission for consideration of approval of a general lease. To assure that the applicant has a sufficient legal property interest in the site to carry out the project consistent with the terms and conditions of this permit, the Commission attaches Special Condition No. 1 which requires that the applicant submit evidence that any necessary authorization from the State Lands Commission has been obtained prior to issuance of the permit.

I. CHERT Review.

Pursuant to the USCOE's Letter of Permission procedures and the County of Humboldt's surface mining regulations, in-stream gravel mining projects within Humboldt County are required to be assessed for potential direct and cumulative to riverine resources by an independent scientific panel known as the County of Humboldt Extraction Review Team, or "CHERT." The CHERT in turn makes specific recommendations to the County and the Corps with regard to appropriate actions that should be taken on the mining applications. Often during the review of mining plans for the upcoming mining season, CHERT may make constructive recommendations to the applicants in the interest of designing a mining proposal that will avoid and/or minimize significant adverse impacts to river resources. These recommendations may involve changes to the amount of gravel proposed to be extracted, the specific location(s) of the extraction area(s), or modifications to the proposed mining techniques. To ensure that the project recommended for approval by CHERT is the same project that was reviewed under this permit by the Commission, and to ensure that extraction does not exceed the extraction limits established under Special Condition No. 3, the Commission attaches Special Condition No.9 which requires that prior to commencing gravel operations, the applicant submit a copy of the pre-extraction mining plan review comments obtained from the CHERT.

J. Department of Fish and Game Review.

The project requires an annual Section 1603 Streambed Alteration Agreement from the California Department of Fish and Game. The applicant has not yet received an agreement for the 2002 gravel extraction season. Therefore, to ensure that the project area reviewed by the Department of Fish and Game is the same project area that was reviewed under this permit by the Commission, and to ensure that extraction does not exceed the extraction limits established under Special Condition No. 3, the Commission attaches Special Condition No.10 which requires that prior to commencing gravel operations, the applicant submit a copy of the Section 1600 agreement approved by the Department of Fish and Game.

K. U.S. Army Corps of Engineers Review.

The project is within and adjacent to a navigable waterway and is subject to review by the U.S. Army Corps of Engineers (USACE). Pursuant to the Federal Coastal Management Act, any permit issued by a federal agency for activities that affect the coastal zone must be consistent with the coastal zone management program for that state. Under agreements between the Coastal Commission and the USACE, the Corps will not issue a permit until the Coastal Commission approves a federal consistency certification for the project or approves a permit. To ensure that the project ultimately approved by the Corps is the same as the project authorized herein, the Commission attaches Special Condition No. 11 that requires the applicant, prior to commencing gravel extraction operations, to demonstrate that all necessary approvals from the USACE for the proposed gravel extraction have been obtained.

L. California Environmental Quality Act.

Section 13906 of the California Code of Regulation requires Coastal Commission approval of a coastal development permit application to be supported by findings showing that the application, as modified by any conditions of approval, is consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Public Resources Code Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available, which would significantly lessen any significant effect that the activity may have on the environment.

The Commission incorporates its findings on conformity with Coastal Act policies at this point as if set forth in full. These findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As discussed herein in the findings addressing the consistency of the proposed project with the Coastal Act, the proposed project has been conditioned in order to be found consistent with the policies of the Coastal Act. As specifically discussed in these above findings which are hereby incorporated by reference, mitigation measures which will minimize all adverse environmental impact have been required. These required mitigation measures include requirements that limit extraction to avoid environmentally sensitive habitat areas, rare and endangered species, migratory fish, and extractions that could lead to changes in river morphology. As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse impact that the activity would have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act and to conform to CEQA.

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V. EXHIBITS

1. Location Map
2. Vicinity Map
3. Site Plan
4. Pre-extraction and Monitoring Cross-sections
5. Work Plan
6. Public Notice - Extension of Letter of Permission Procedure No. LOP 96-1 to December 31, 2002, U.S. Army Corps of Engineers, June 12, 2002
7. Pre-Decision Draft, *Biological and Conference Opinion for the Letter of Permission Procedure for Gravel Mining and Extraction Activities within Humboldt County (LOP 96-1)*, Third Amendment, July, 2002
8. *Notice of Findings*, California Fish and Game Commission, California Regulatory Notice Register, April 27, 2001
9. Excerpt, 14 CCR §749.1 – *Exhibit C: Incidental Take Authorization Standards for In-Stream Gravel Extraction During the Candidacy Period for the Coho Salmon* (Fish and Game Code Section 2084 Take Regulations), California Department of Fish and Game, April 27, 2001

APPENDIX A

STANDARD CONDITIONS

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. Interpretation. Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.
4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.



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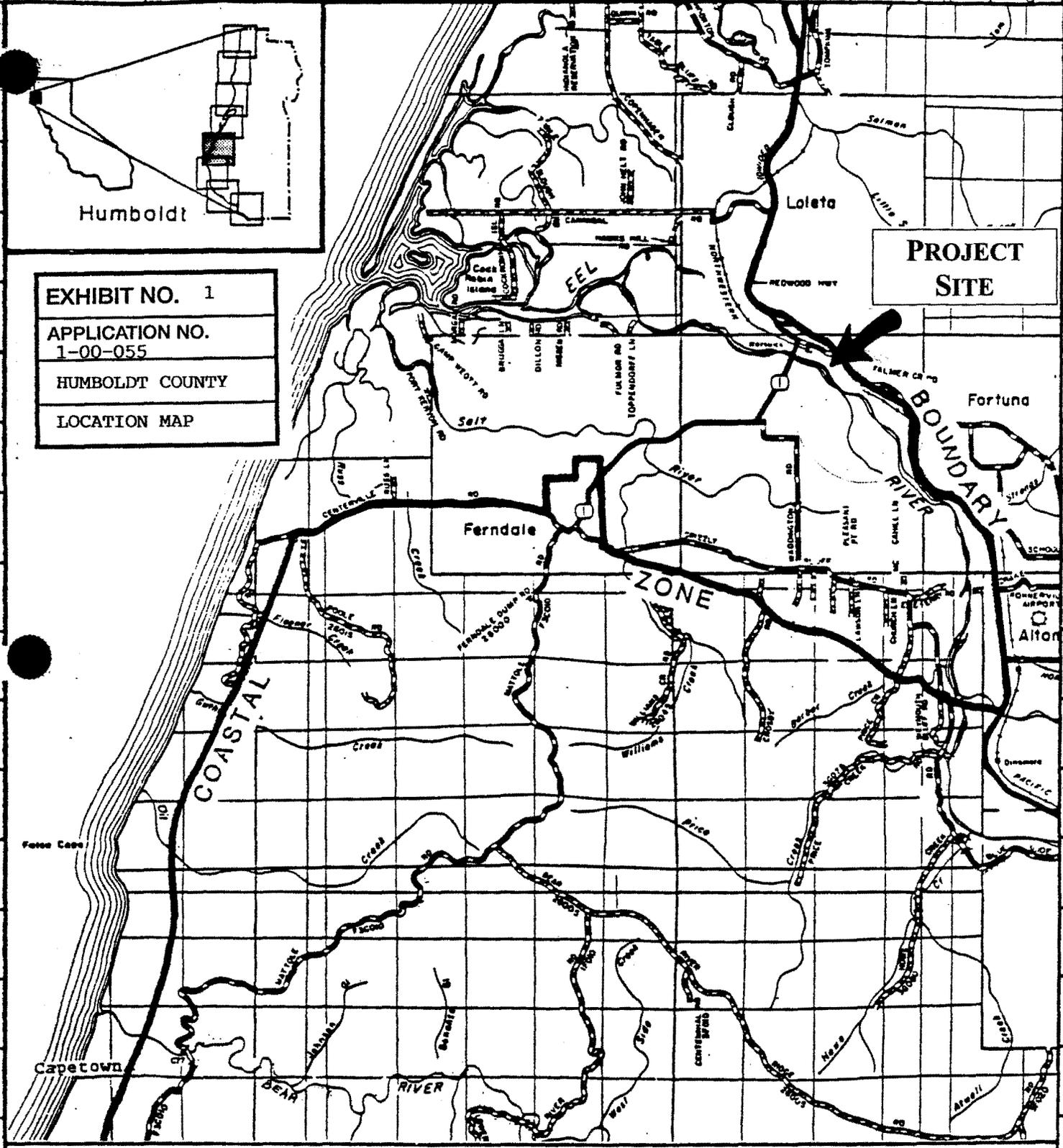
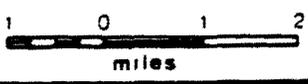
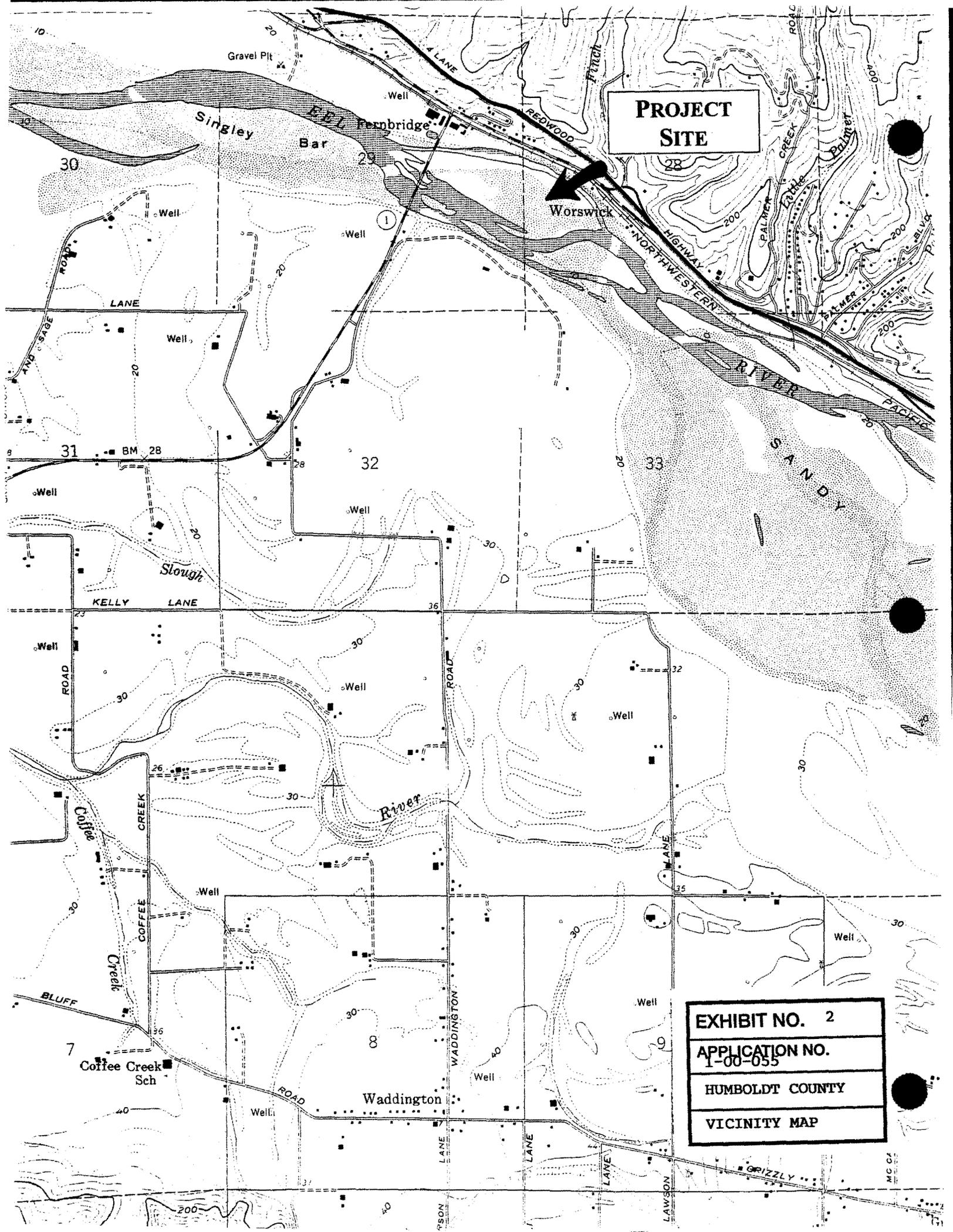


EXHIBIT NO. 1
APPLICATION NO.
 1-00-055
HUMBOLDT COUNTY
LOCATION MAP

PROJECT SITE

LOCATION MAP





**PROJECT
SITE**

EXHIBIT NO. 2
APPLICATION NO.
1-00-055
HUMBOLDT COUNTY
VICINITY MAP

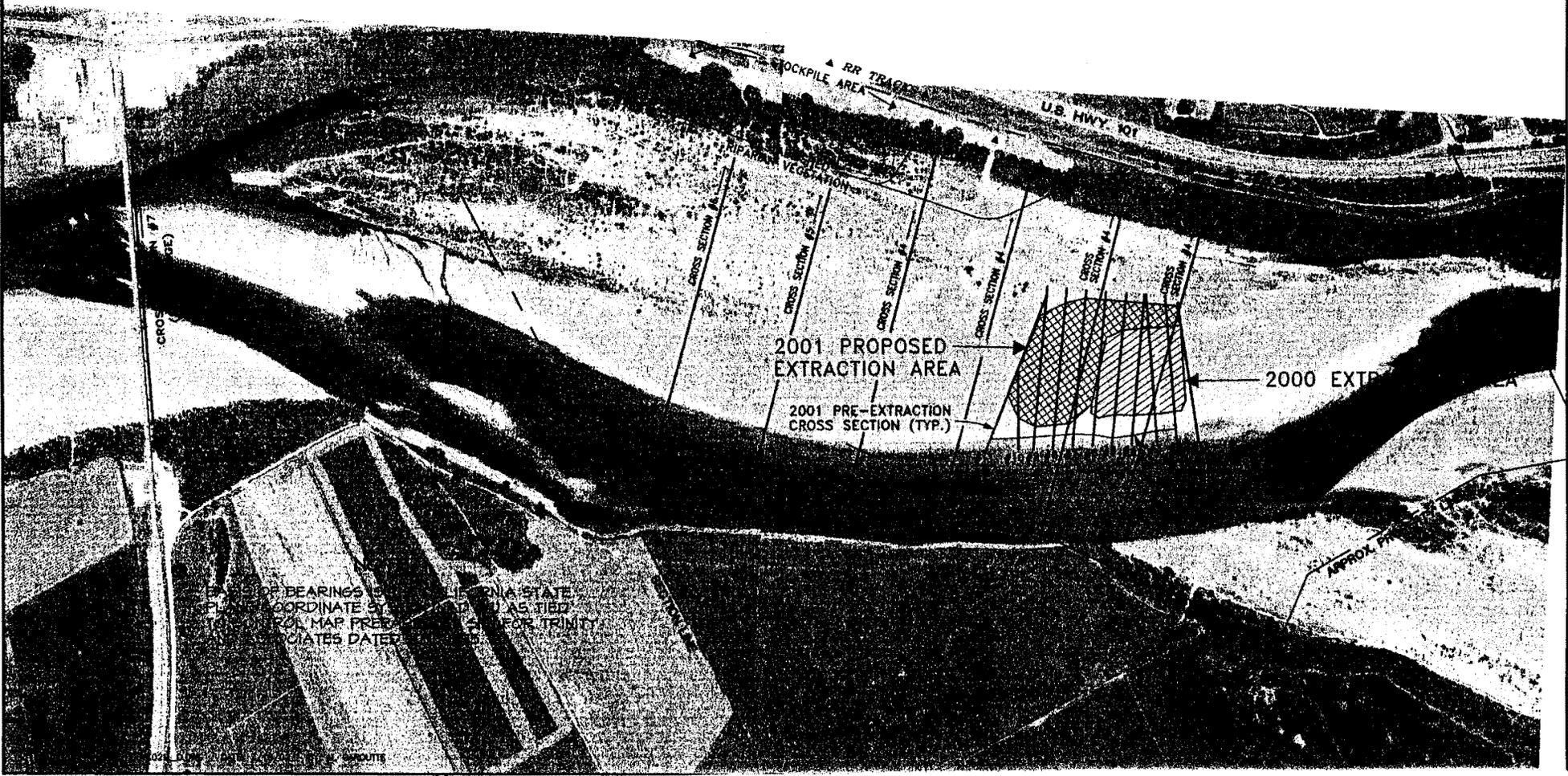
EXHIBIT NO. 3
APPLICATION NO. 1-00-055
HUMBOLDT COUNTY
SITE PLAN

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS
2002 ANNUAL MONITORING CROSS SECTIONS
OF
WORSWICK GRAVEL BAR
PLAN

DATE OF SURVEYS: 6/12/02-6/17/02
DATE OF PHOTO: 5/11/02

▲ CONTROL POINT
SCALE: 1"=500'±

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DISCHARGE AT SCOTIA, 6/17/02 = 410 c.f.s.



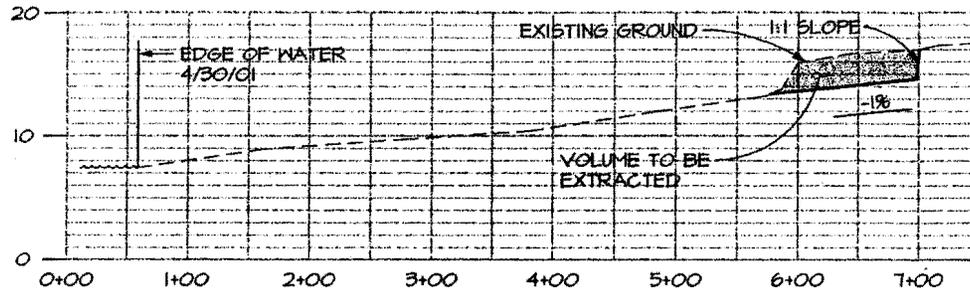
ALL BEARINGS AND COORDINATES
ARE BASED ON THE 1983 NAD 83
CONTROL MAP PROVIDED BY TRINITY
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COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

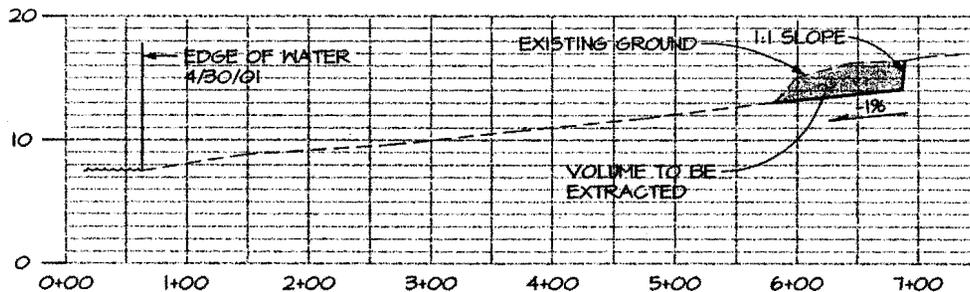
WORSWICK GRAVEL BAR

2001 PRE EXTRACTION
CROSS SECTIONS

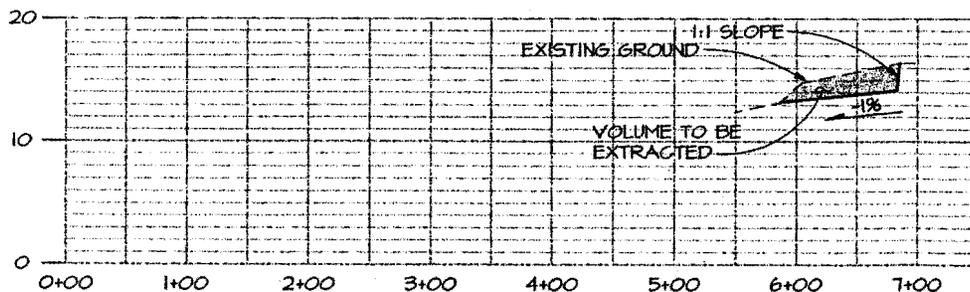
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CROSS SECTION NO. 3



CROSS SECTION NO. 2



CROSS SECTION NO. 1

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VERT.....1"=10'

SURVEY DATE

APRIL 30, 2001

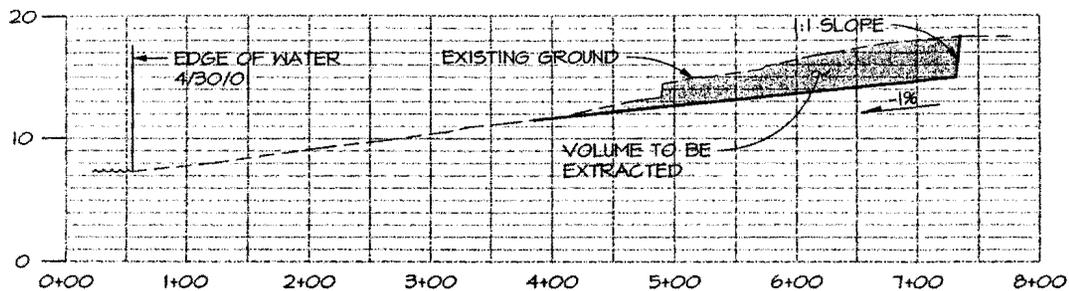
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APPLICATION NO. 1-00-055
HUMBOLDT COUNTY PRE-EXTRACTION & MONITORING CROSS- SECTIONS (1 of 15)

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

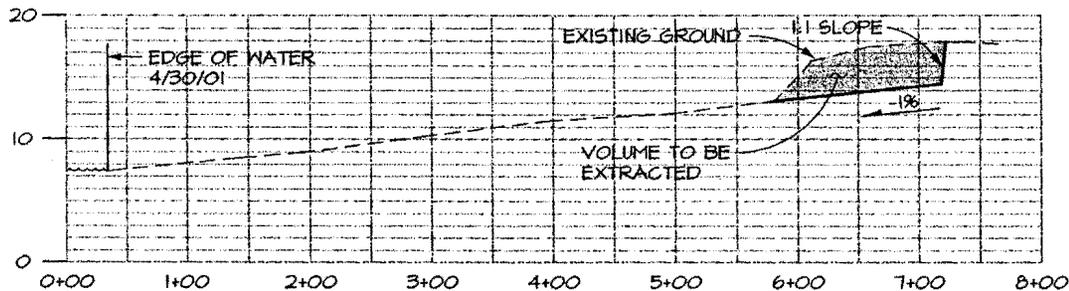
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CROSS SECTIONS

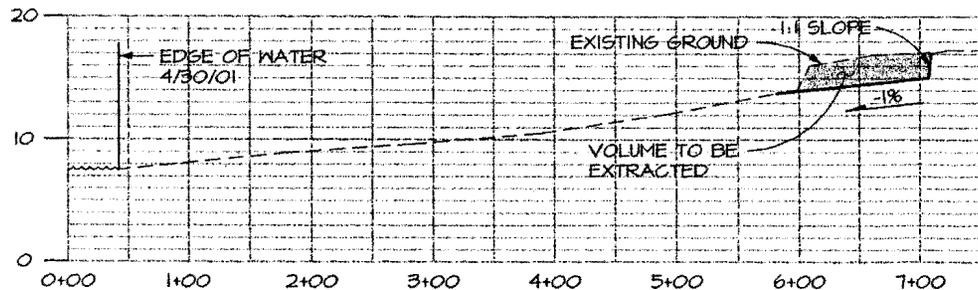
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CROSS SECTION NO. 6



CROSS SECTION NO. 5



CROSS SECTION NO. 4

2 of 15

SCALE

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SURVEY DATE

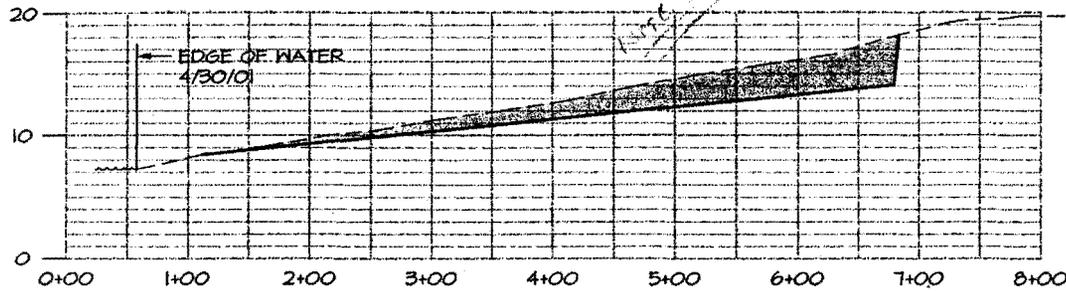
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COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

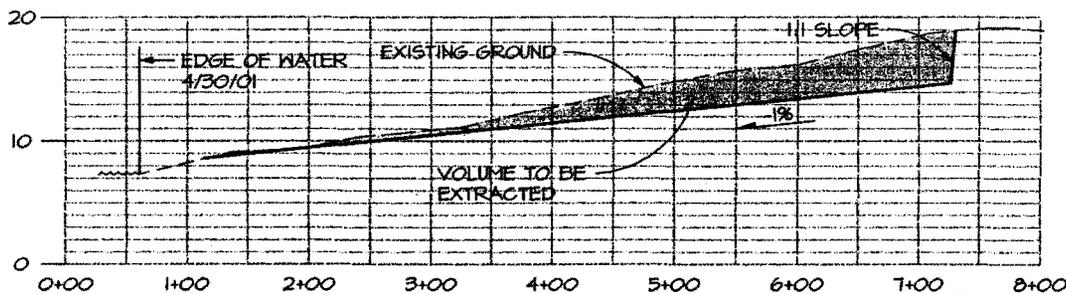
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2001 PRE EXTRACTION
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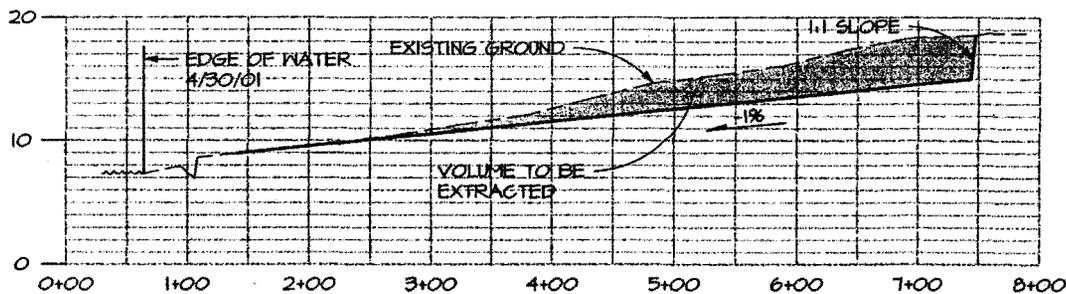
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CROSS SECTION NO. 9



CROSS SECTION NO. 8



CROSS SECTION NO. 7

51 page

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VERT.....1"=10'

SURVEY DATE
APRIL 30, 2001

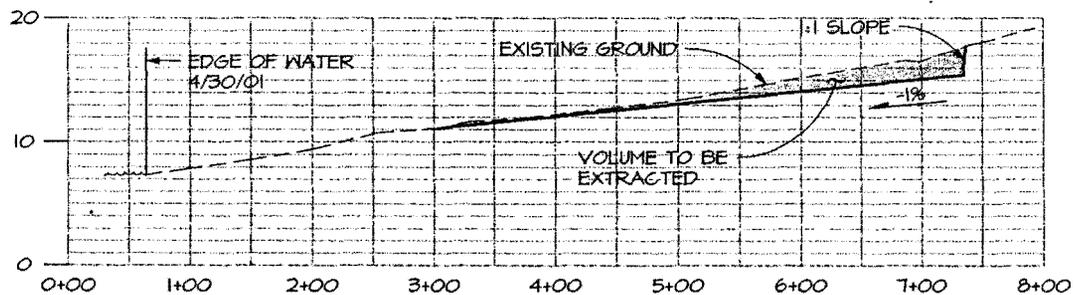
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COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

WORSWICK GRAVEL BAR

2001 PRE EXTRACTION
CROSS SECTIONS

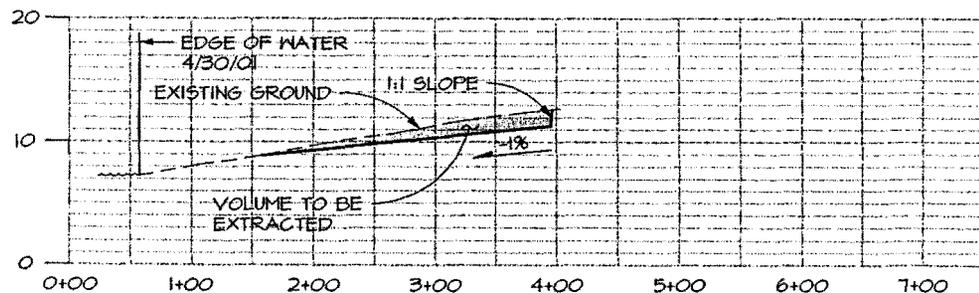
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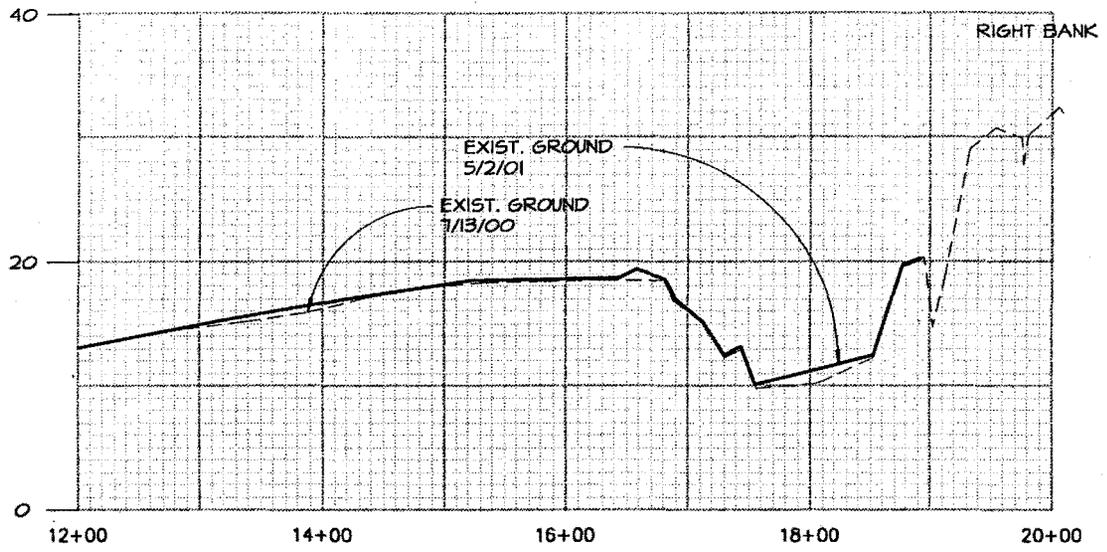
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SURVEY DATE
APRIL 30, 2001



CROSS SECTION NO. 10

5 of 15



COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

WORSWICK GRAVEL BAR

2001 ANNUAL MONITORING
CROSS SECTIONS

REVISED	DATE	SCALE
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SHEET 1 OF 7		

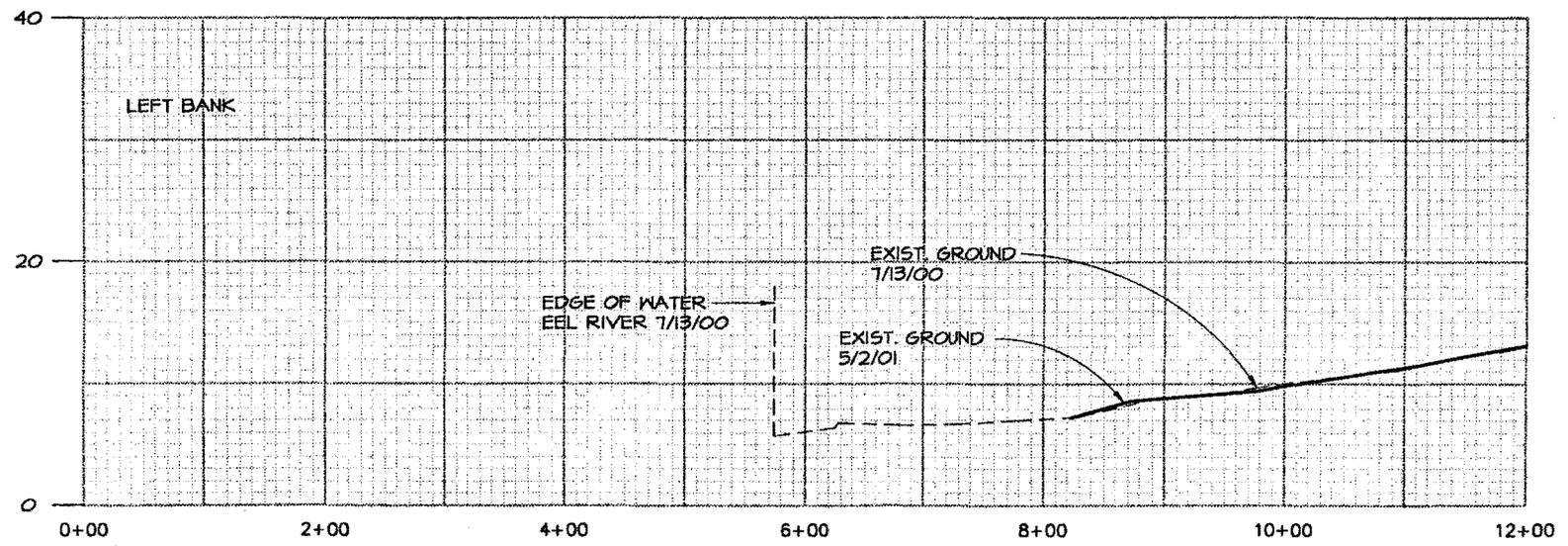
NOTES

ALL CROSS SECTIONS SHOWN HEREON ARE VIEWED
LOOKING DOWNSTREAM.

THE PURPOSE OF THESE CROSS SECTIONS IS TO
PERIODICALLY DOCUMENT ANY CHANGE IN THE
CHANNEL OF THE EEL RIVER AS A RESULT OF
GRAVEL EXTRACTION.

DATUM: 1929 MSL

DATE OF SURVEYS:
1/13/00
5/02/01



SCALE
HORIZ.....1"=100'
VERT.....1"=10'

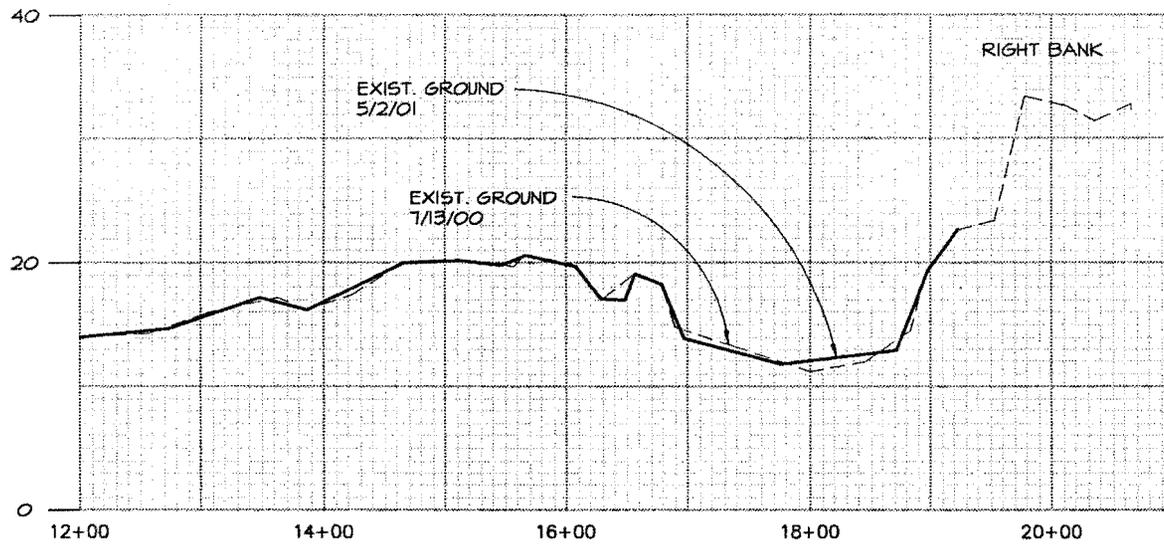
CROSS SECTION #1

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

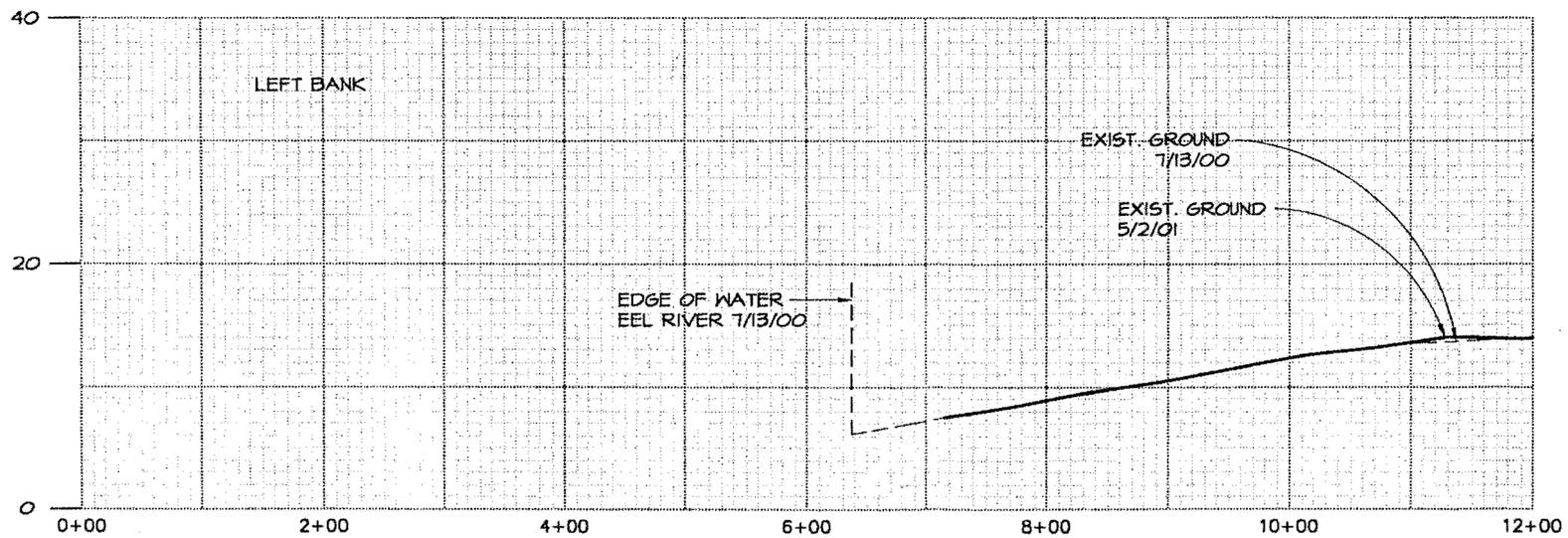
WORSWICK GRAVEL BAR

2001 ANNUAL MONITORING
CROSS SECTIONS

REVISED	DATE	SCALE
	5/16/01	AS SHOWN
SHEET 2 OF 7		



SCALE
HORIZ.....1"=100'
VERT.....1"=10'



CROSS SECTION #2

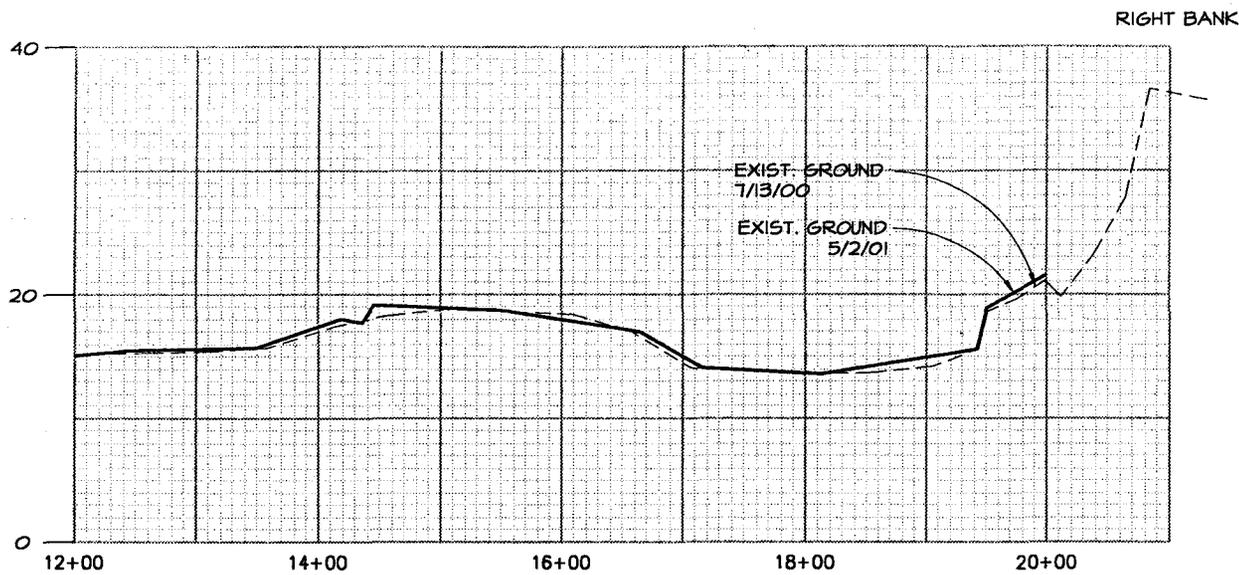
5/15

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

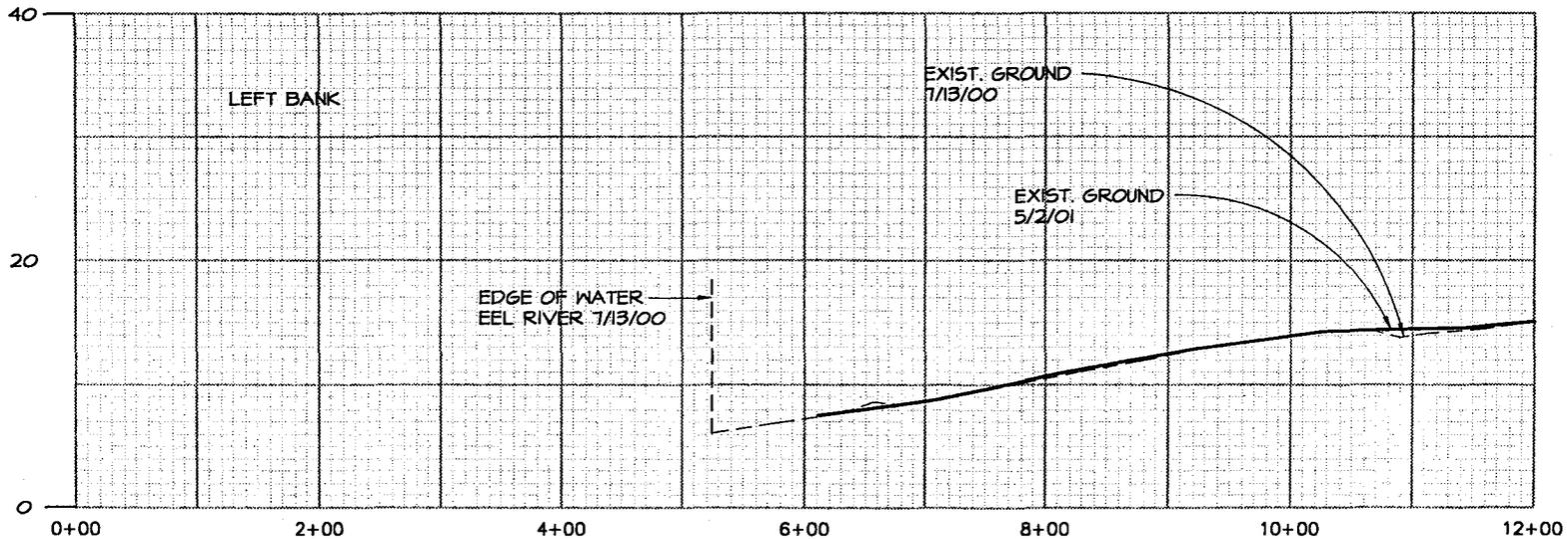
WORSWICK GRAVEL BAR

2001 ANNUAL MONITORING
CROSS SECTIONS

REVISED	DATE	SCALE
	5/16/01	AS SHOWN
SHEET 3 OF 7		



SCALE
HORIZ.....1"=100'
VERT.....1"=10'



CROSS SECTION #3

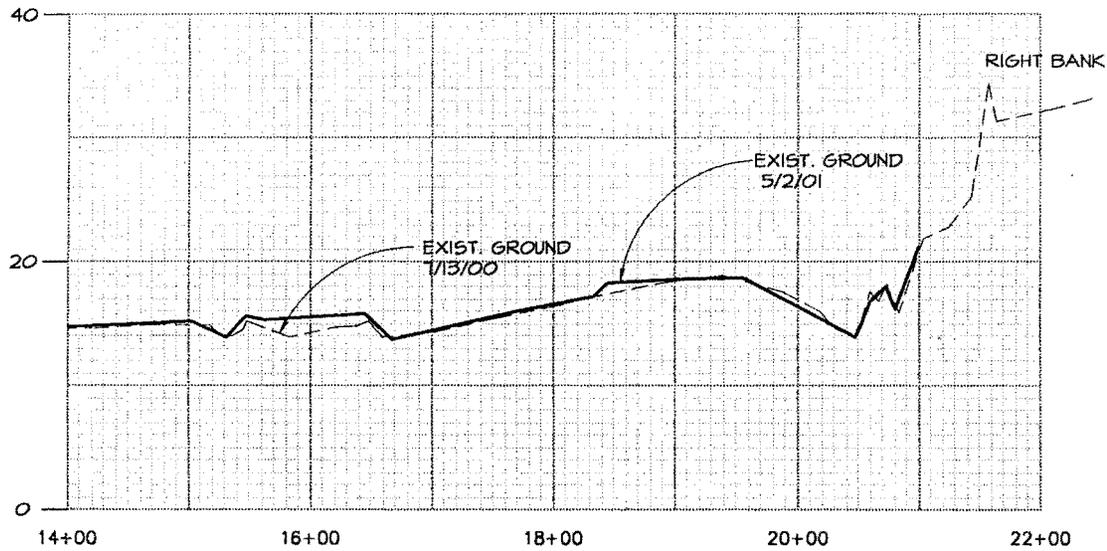
7/13/01

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

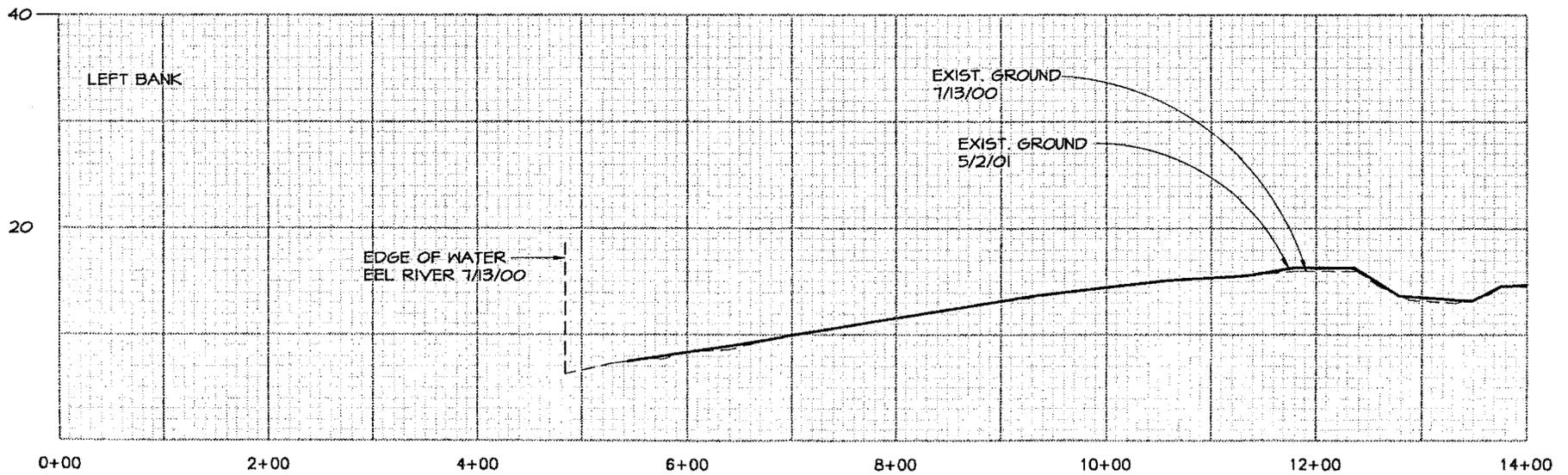
WORSWICK GRAVEL BAR

2001 ANNUAL MONITORING
CROSS SECTIONS

REVISED	DATE	SCALE
	5/16/01	AS SHOWN
SHEET 4 OF 7		



SCALE
HORIZ.....1"=100'
VERT.....1"=10'



CROSS SECTION #4

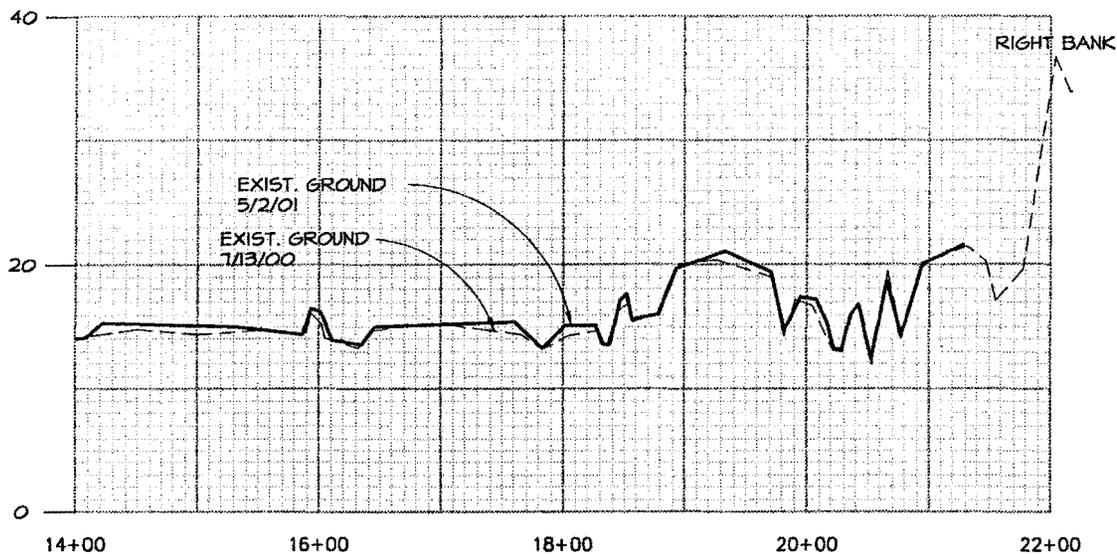
51702

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

WORSWICK GRAVEL BAR

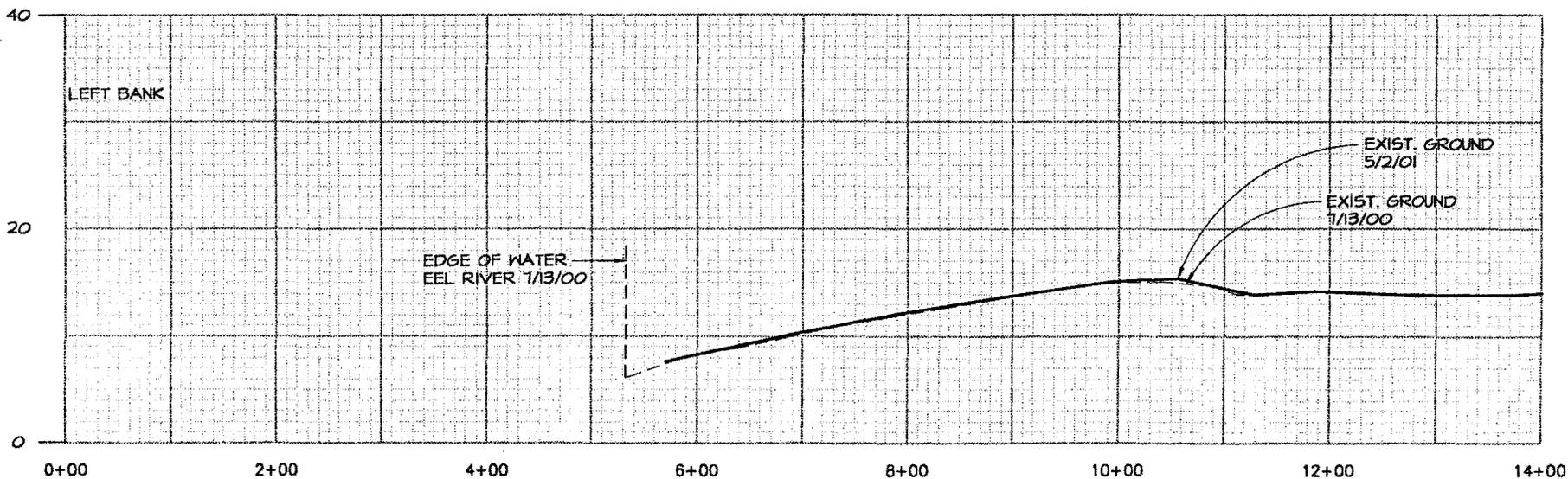
2001 ANNUAL MONITORING
CROSS SECTIONS

REVISED	DATE 5/16/01	SCALE AS SHOWN
SHEET 5 OF 7		

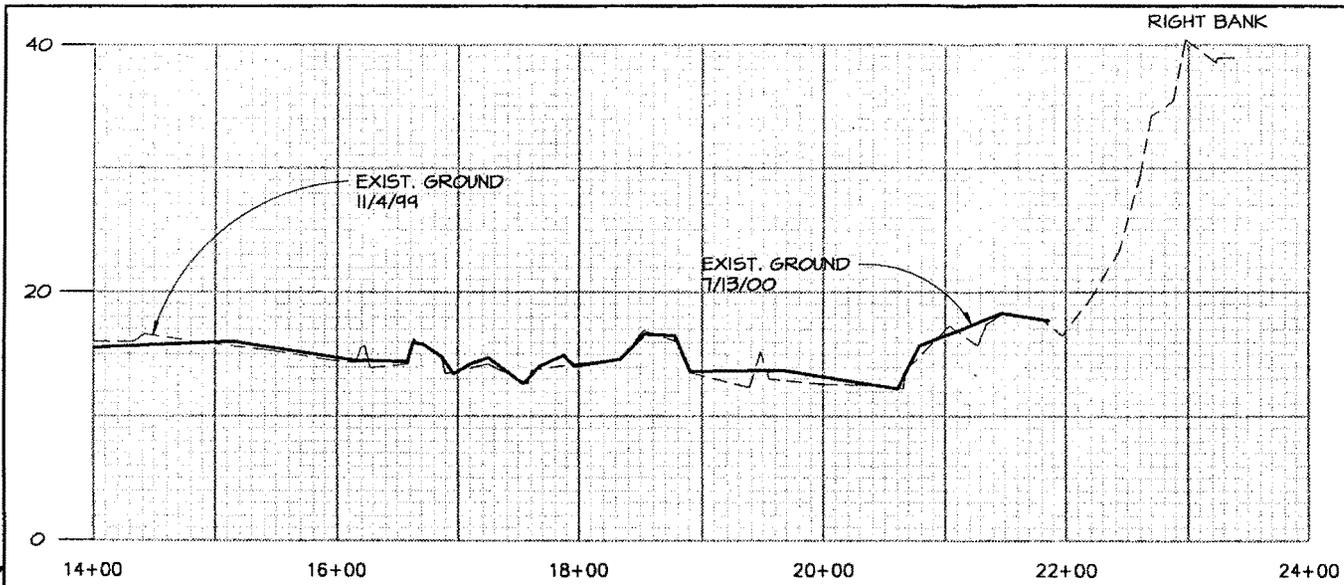


SCALE
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VERT.....1"=10'

90915



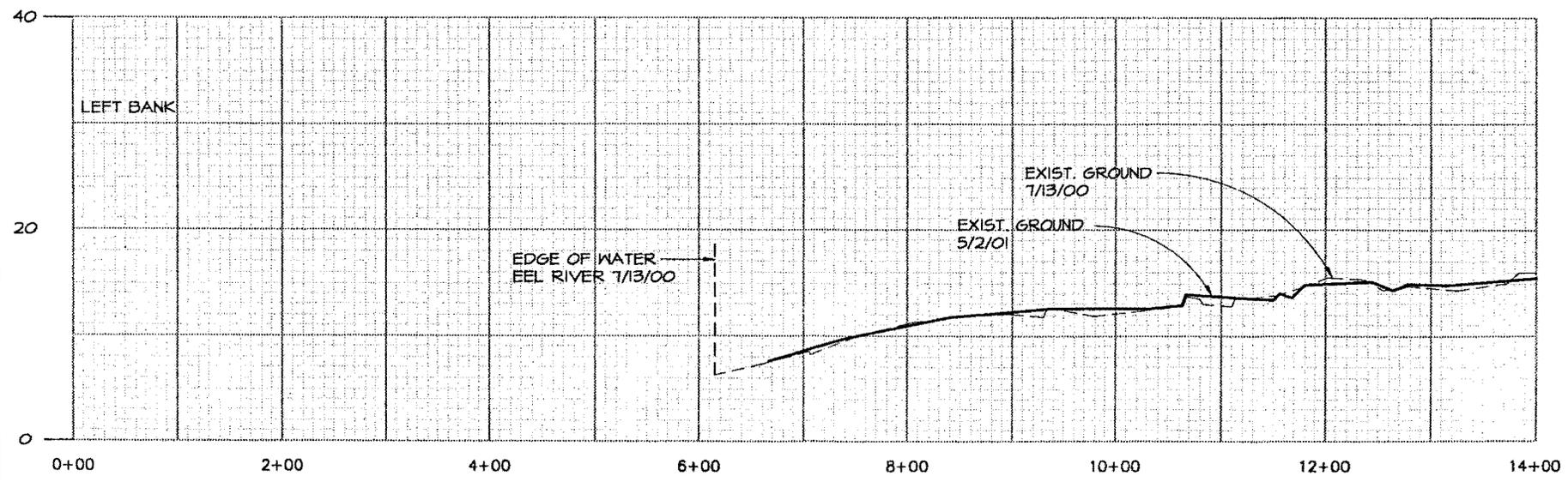
CROSS SECTION #5



COUNTY OF HUMBOLDT DEPARTMENT OF PUBLIC WORKS		
WORSWICK GRAVEL BAR		
2001 ANNUAL MONITORING CROSS SECTIONS		
REVISED	DATE	SCALE
	5/16/01	AS SHOWN
SHEET 6 OF 7		

SCALE
 HORIZ.....1"=100'
 VERT.....1"=10'

10415



CROSS SECTION #6

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

WORSWICK GRAVEL BAR

2001 ANNUAL MONITORING
CROSS SECTIONS

REVISED

DATE
5/16/01

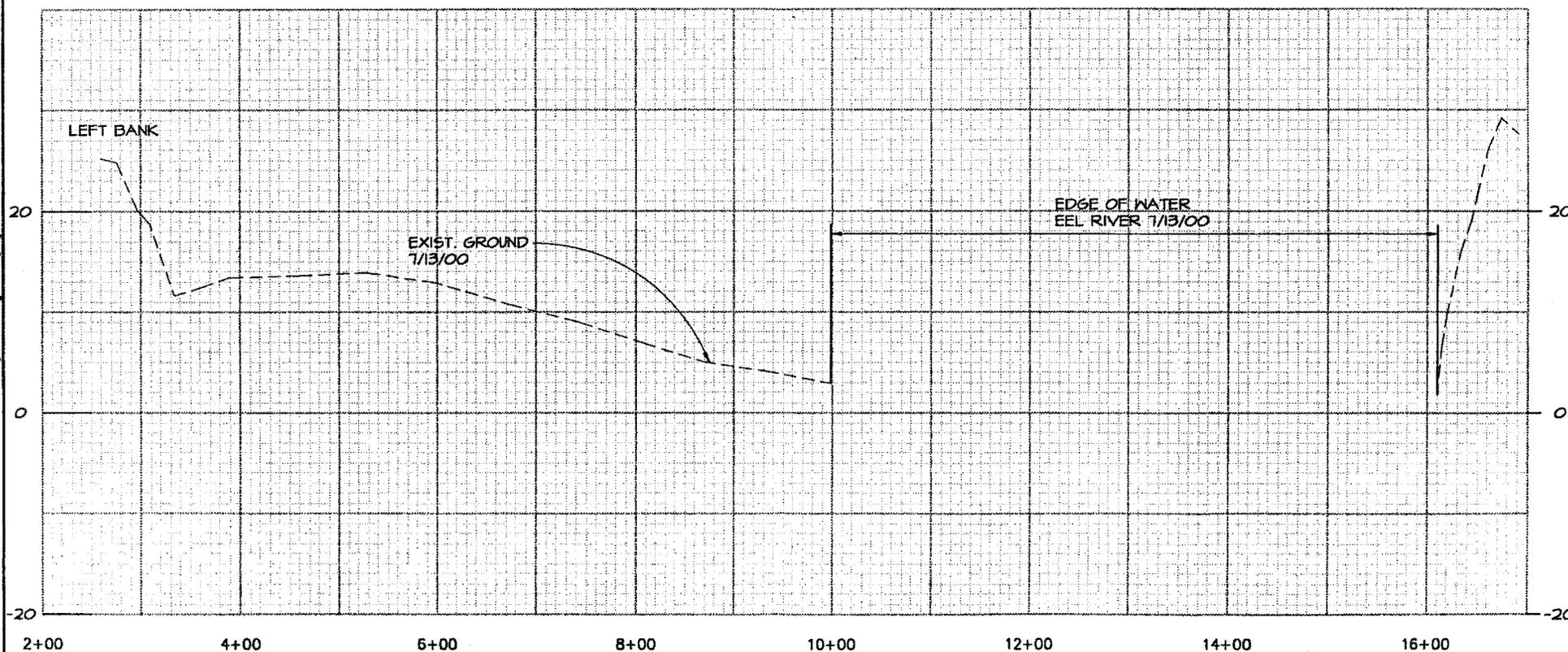
SCALE
AS SHOWN

SHEET 7 OF 7

SCALE

HORIZ.....1"=100'
VERT.....1"=10'

RIGHT BANK



CROSS SECTION #7
(50' UPSTREAM FROM FERNBRIDGE)

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

WORSWICK GRAVEL BAR

2002 ANNUAL MONITORING
CROSS SECTIONS

REVISED	DATE	SCALE
	6/19/02	AS SHOWN
SHEET 1 OF 4		

NOTES

ALL CROSS SECTIONS SHOWN HEREON ARE VIEWED
LOOKING DOWNSTREAM.

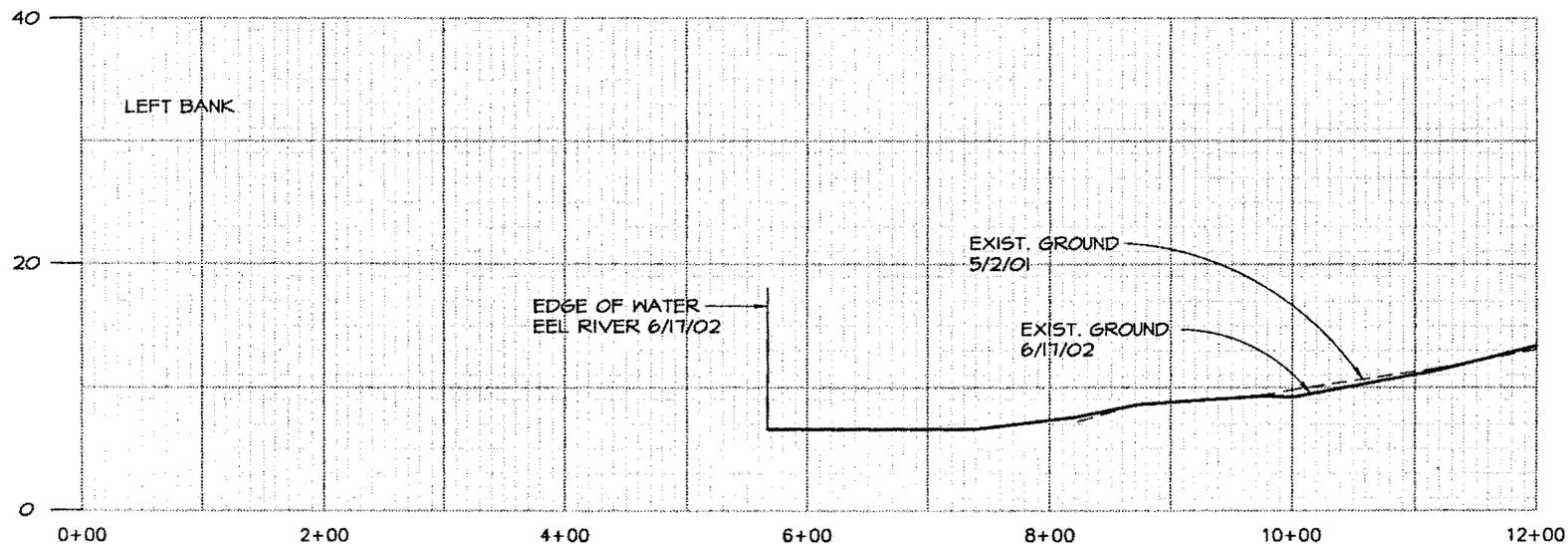
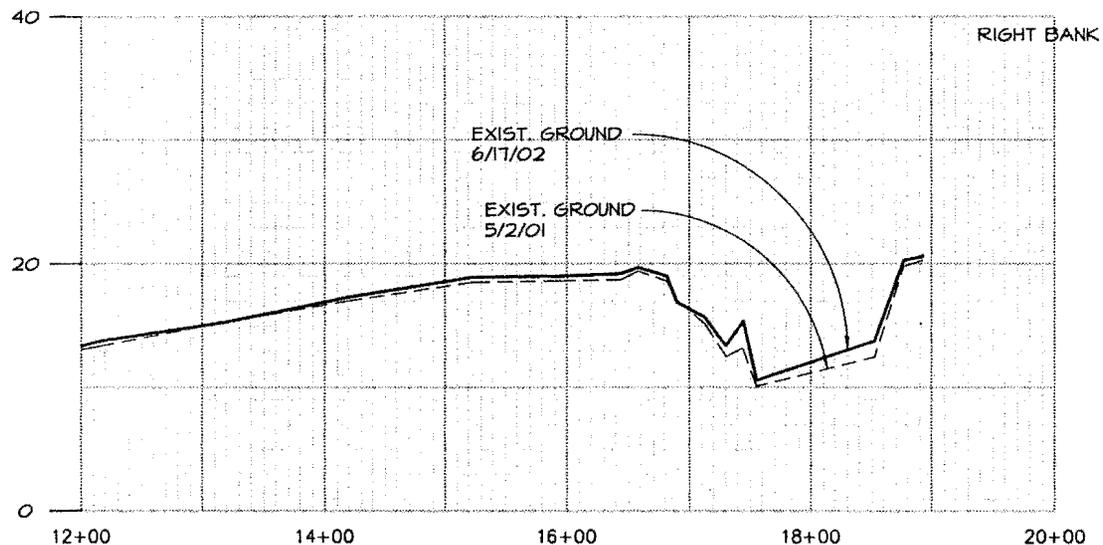
THE PURPOSE OF THESE CROSS SECTIONS IS TO
PERIODICALLY DOCUMENT ANY CHANGE IN THE
CHANNEL OF THE EEL RIVER AS A RESULT OF
GRAVEL EXTRACTION.

DATUM: 1929 MSL

DATE OF SURVEYS:
5/02/01
6/12-6/17/02

SCALE

HORIZ.....1"=100'
VERT.....1"=10'



CROSS SECTION #1

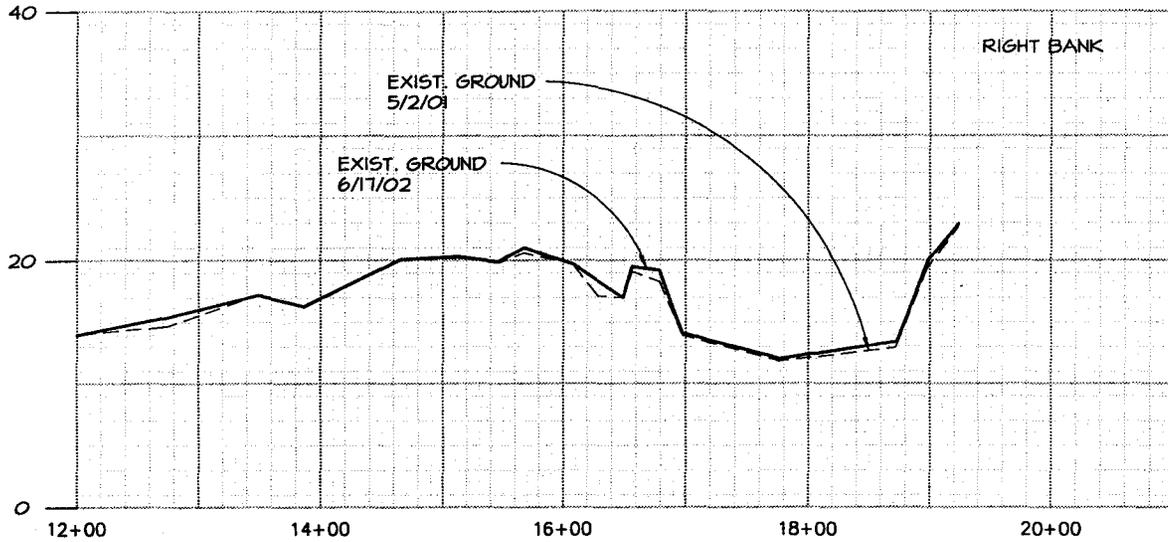
17.09.15

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

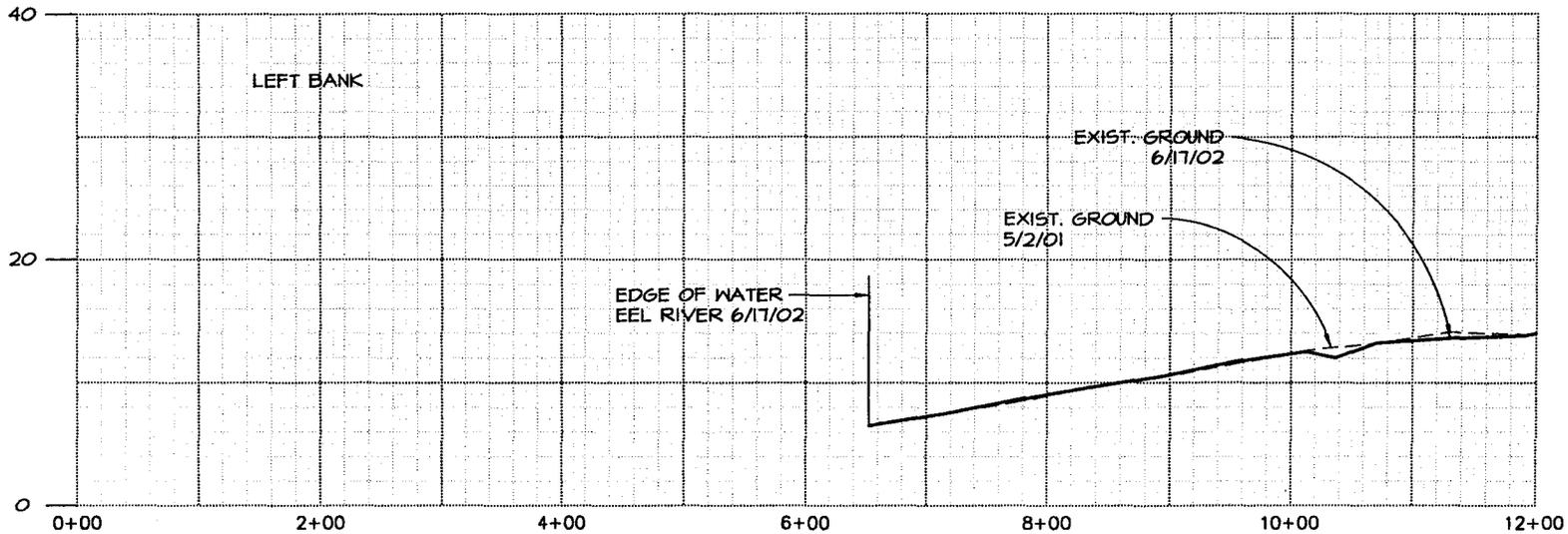
WORSWICK GRAVEL BAR

2002 ANNUAL MONITORING
CROSS SECTIONS

REVISED	DATE	SCALE
	6/19/02	AS SHOWN
SHEET 2 OF 4		



SCALE
HORIZ.....1"=100'
VERT.....1"=10'



CROSS SECTION #2

5/18/02

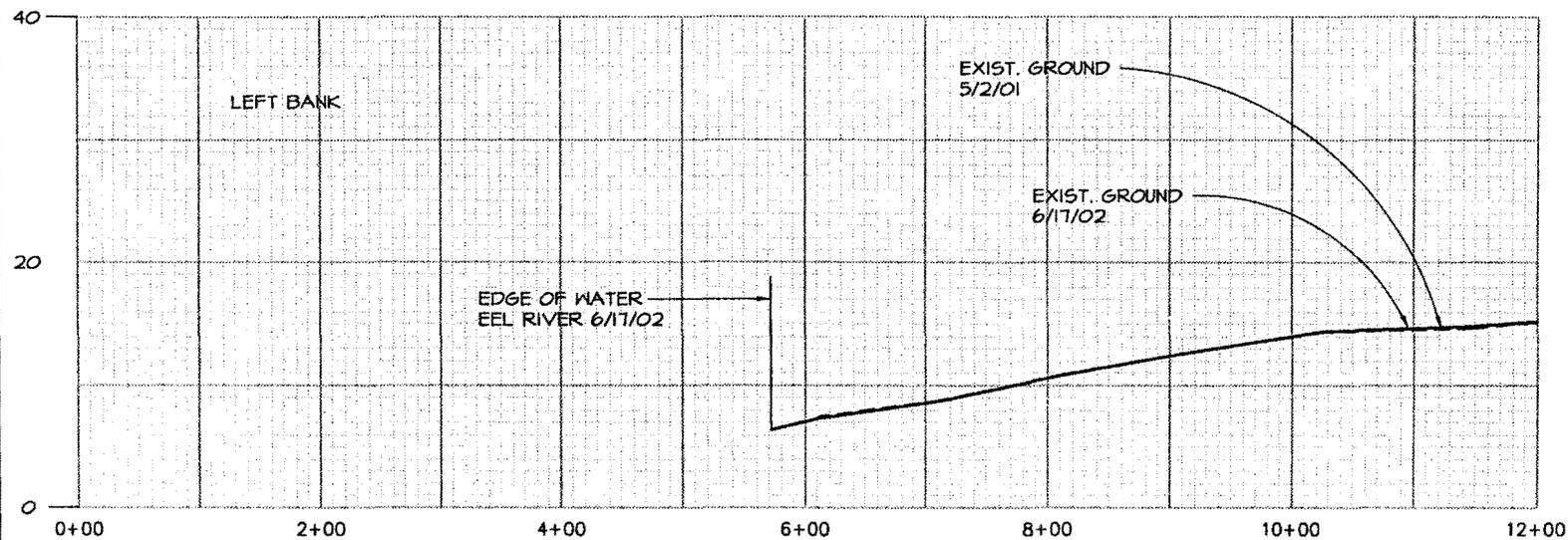
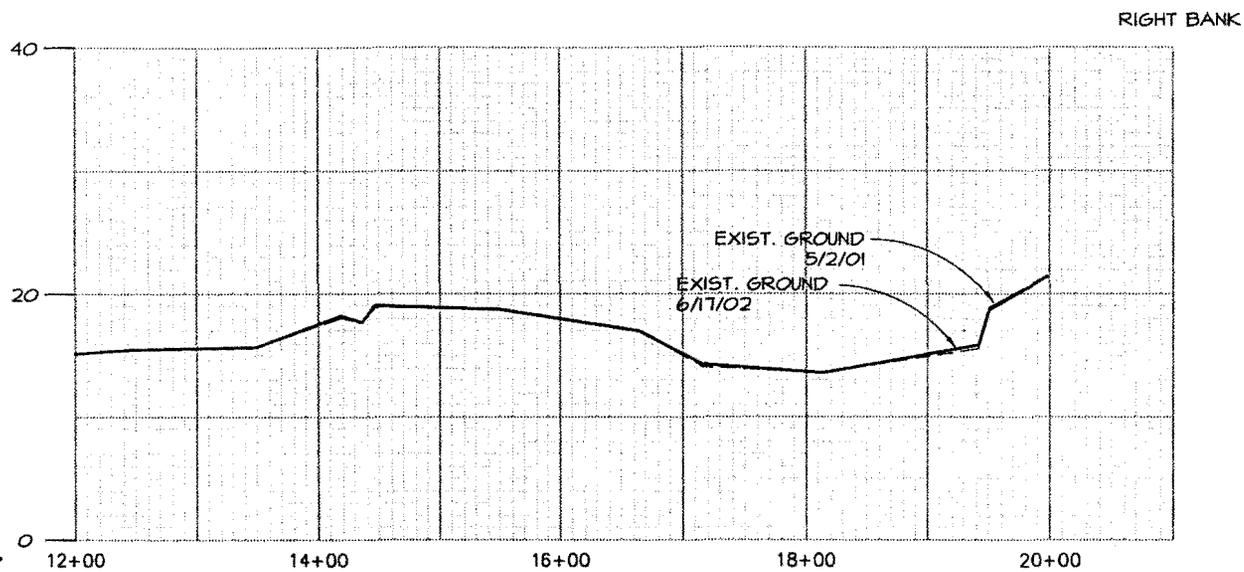
COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

WORSWICK GRAVEL BAR

2002 ANNUAL MONITORING
CROSS SECTIONS

REVISED	DATE	SCALE
	6/19/02	AS SHOWN
SHEET 3 OF 4		

SCALE
HORIZ.....1"=100'
VERT.....1"=10'



CROSS SECTION #3

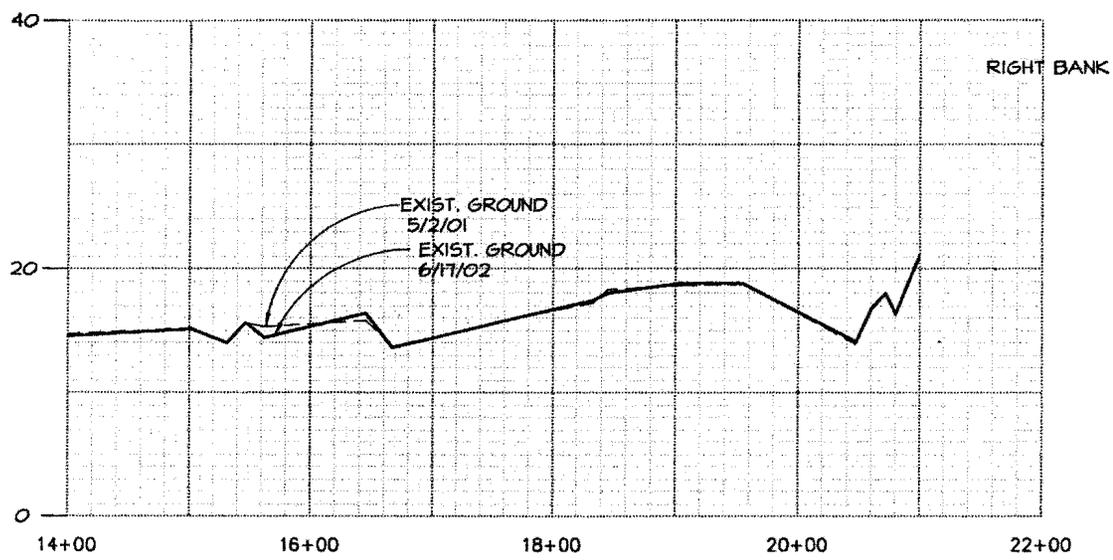
51 6/15

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

WORSWICK GRAVEL BAR

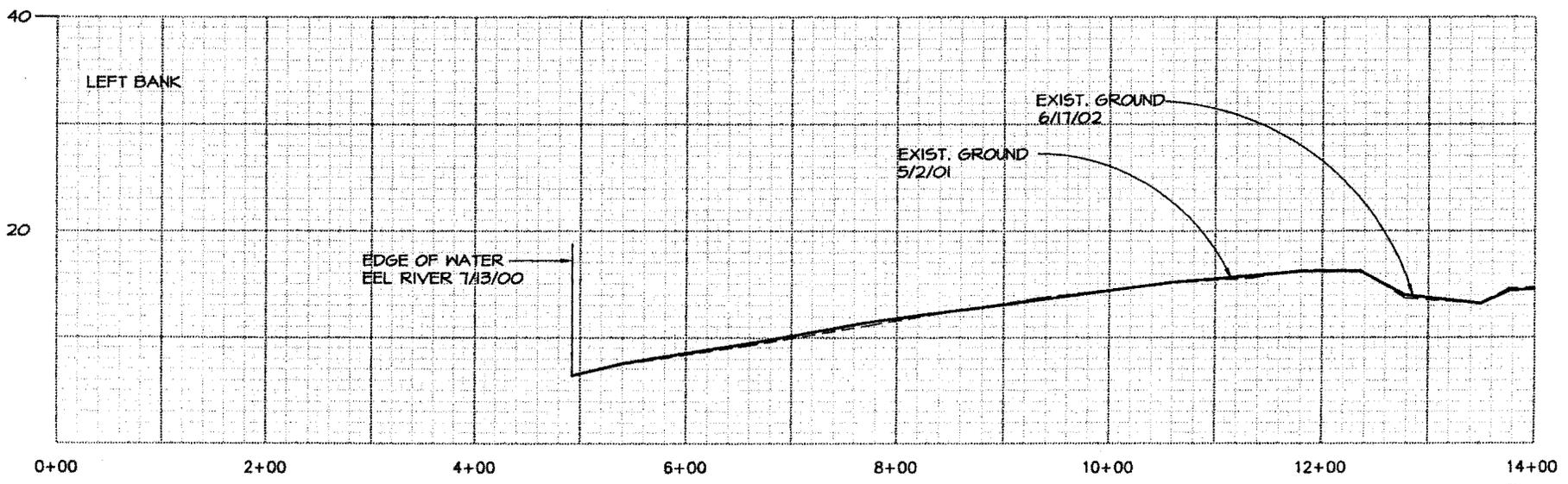
2002 ANNUAL MONITORING
CROSS SECTIONS

REVISED	DATE	SCALE
	6/19/02	AS SHOWN
SHEET 4 OF 4		



SCALE
HORIZ.....1"=100'
VERT.....1"=10'

15
51
15



CROSS SECTION #4

**WORK PLAN
WORSWICK GRAVEL BAR
SEPTEMBER - OCTOBER 2002**

The County proposes to extract approximately 17,500 cubic yards of material in 2002. Extraction will occur between September 15 and October 15. Reclamation of the bar will be accomplished by October 15.

Extraction will be accomplished by skimming an area measuring approximately 297,000 square feet to a depth of up to two feet. No work will be done in the water. Extraction will be at least 50' from water's edge and the bar will be left at a slope of 1.5%± toward the river. The extraction area is shown on the attached aerial photo, entitled 2002 Pre-Extraction Plan.

In order to provide a source of water for dust control on the haul road, a pit will be dug on the bar. The pit will be located adjacent to the haul road. Its dimensions will be approximately 12' wide, 50' long, and 8' deep. The excavated gravel will be placed alongside the pit and will be used for backfill when the project is completed.

The equipment to be used in this project includes a bulldozer, front-end loader, and dump trucks. Access to the bar is via an existing haul road. There will be no vegetation removal. Material will be hauled off the bar and stockpiled on the high river terrace. At some later date, a portable crusher will be set up in the stockpile area to process the river run material. The crushed rock will be stockpiled on the terrace.

The estimated volume of material available, calculated by comparing monitoring cross sections from 2000, 2001, and 2002 is 20,007 cubic yards. The estimated volume of material available from the extraction area, calculated from the pre-extraction cross sections is 17,463 cubic yards. Cut stakes will be installed throughout the extraction area to guide the equipment operators. This will prevent extraction of more gravel than the permitted volume. Upon completion of the skimming, post extraction cross sections will be obtained so that the actual volume of material extracted can be calculated. The site will then be reclaimed by smoothing all edges, eliminating any depressions and sloping it towards the water. All equipment and material will be removed from the bar.

There will be no equipment maintenance or fueling done on the gravel bar. The County Public Works Department uses a preventative maintenance program on all of its equipment. However, if any fluid leaks do occur, the contaminated gravel will be removed from the bar and disposed of properly.

The proposed mining operation will have no effect on any plant or animal species currently listed under the Endangered Species Act. The work will be completed before the next rain season begins, therefore, it will not impact any anadromous fish runs. The work will not begin until September 15 and, by that time, the Western Snowy Plover nesting on the bar will have been completed.

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APPLICATION NO. 1-00-055
HUMBOLDT COUNTY
WORK PLAN

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from the proposed action for this amendment. Otherwise, the action area has not materially changed.

Extraction Methodologies That Could Be Implemented in 2002

The 2000 Opinion describes gravel bar skimming (described as the most widely used method), and dry trenching as gravel extraction methodologies that could be utilized under the proposed action. Due to an increase in knowledge regarding the effects of gravel bar skimming on listed salmonid species, and a decrease in gravel deposition during the past two winters, NMFS expects that other gravel extraction techniques, such as wetland pits, "horseshoe" shaped deep skims, and alcove extractions could be implemented during the 2002 mining season. The 2000 Opinion also describes the option of using gravel extraction to improve fish habitat, with NMFS approval, although opportunities for this type of extraction are relatively limited on the permitted extraction sites within the action area. All extraction designs must still undergo the annual County of Humboldt Extraction Review Team (CHERT) review and recommendation process.

Wetland pits are irregularly shaped excavations (to avoid riparian vegetation) located on the 3-to-7 year floodplain surface. An excavator digs out the sediment down to the water table and leaves the sides of the pit moderately sloped. Wetland pits allow for gravel extraction away from frequently inundated gravel bar surfaces, and most salmonid habitat features. Wetland pits were used on the Mad River in the early 1990s, prior to LOP 96-1, and have since filled in with sediment deposits. Under LOP 96-1, wetland pits were used on the Mad River and the Van Duzen River during the 2001 mining season, and may be used on these rivers, as well as other rivers, in 2002. The wetland pits excavated in 2001 range from having little ground water in them, to being filled with ground water and/or river water. Wetland pits will only fill with sediment during large flow events, on the order of every 3-to-7 years, and typically over a multi-year period.

Horseshoe-shaped deep skims are an experimental gravel extraction method, which will be used on the Russian River beginning in 2002 (outside of the action area of this amendment). This extraction method could also be allowed under the proposed action, and this amendment, on a limited basis in Humboldt County (one on the Eel River near Scotia, and one on the South Fork Eel River at the Mendocino county line). This method extracts gravel from the downstream portion of gravel bars, with large horizontal and vertical offsets from the low flow channel, and an opening to the channel at the most downstream end of the excavation. These areas are excavated to a depth above the water table, with steeper (3:1) slopes on the sides, and gentler (6:1) slopes at the head of the excavation. The large horizontal and vertical offsets remove the excavation area away from frequent flow inundation and are intended to minimize effects to listed salmonid species by disconnecting the mined surface from frequent flow inundation. Due to less frequent flow inundation, horseshoe shaped deep skims may take a larger flow event to replenish than traditional skim designs.

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Alcove extractions may be authorized by LOP 96-1 during the 2002 mining season. This type of extraction is located on the downstream end of gravel bars, where naturally occurring alcoves form and may provide velocity refuge for juvenile salmonids during high flows, and potential thermal refuge for juvenile salmonids during the summer season. Alcove extractions are irregularly shaped to avoid disturbance of riparian vegetation, and are open to the low flow channel on the downstream end to avoid stranding salmonids. Alcoves are extracted to a depth above the water table, and are relatively small in area and volume extracted.

Gravel bar skimming and dry trenching are described in the 2000 Opinion. Gravel bar skimming is still expected to be authorized by LOP 96-1 for many sites within the action area. Based on CHERT and interagency preliminary site visits, dry trenching is expected to be used more extensively in 2002 than in previous years of LOP 96-1. In addition to the sites described in the 2000 Opinion, dry trenching may be proposed during 2002 at the Cook's Valley site on the South Fork Eel River, at the Leland Rock site on the Van Duzen River, and at Larabee and Truck Shop bars on the Eel River.

Biological Monitoring Requirements of LOP 96-1

The biological monitoring requirements of LOP 96-1, as described in the 2000 Opinion, were completed after three years of project implementation. The physical monitoring (e.g., cross sections and aerial photos) are on-going requirements of LOP 96-1. Cross sections, aerial photos, and pre- and post-extraction site visits will continue to be used to monitor compliance, and in some cases, may be used to monitor the effectiveness of project design features at minimizing the incidental take of listed salmonid species.

Status of the Species

This amendment addresses the following Federally listed species, and designated critical habitat:

- Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*): threatened; 62 FR 24588 (May 6, 1997). Designated critical habitat: 64 FR 24049 (May 5, 1999).
- California Coastal (CC) Chinook salmon (*Oncorhynchus tshawytscha*): threatened; 64 FR 50394 (September 16, 1999).
- Northern California (NC) steelhead (*Oncorhynchus mykiss*): threatened; 65 FR 36074 (June 7, 2000).

All three species and the associated designated critical habitat are found within the action area,

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except the Trinity River, where only SONCC coho salmon and their designated critical habitat are present.

Changes in Critical Habitat Designation

The critical habitat designation for the California Coastal (CC) Chinook salmon ESU has been vacated (65 FR 7764, Feb. 16, 2002) until a more thorough economic analysis of the designation can be completed by NMFS. Although there is no longer designated critical habitat for CC Chinook salmon, NMFS will still consider whether take resulting from harm due to habitat modification is likely to occur, and whether that take of CC Chinook salmon will jeopardize the continued existence of the listed species. Thus, NMFS will continue to analyze habitat impacts from proposed actions, and develop terms and conditions that minimize take by reducing habitat impacts.

Environmental Baseline

Lower Van Duzen River

Bar skimming has been used as an extraction technique at the Leland Rock site, adjacent to the lower Van Duzen River, during many seasons of implementation of LOP 96-1. Bar skimming was utilized during the 2000 mining season, and the 2000-2001 winter flows provided very little gravel replenishment to the skimmed bars. A reduction in channel confinement, and braided channel conditions were observed both upstream and downstream of the Highway 101 Bridge at the Leland Rock site in the spring of 2001. Although the area downstream of the bridge is a delta formed at the confluence of the Van Duzen and Eel rivers, NMFS thinks that the existing conditions, found both upstream and downstream of the bridge at this site, have been exacerbated by the use of bar skimming as an extraction technique. In response to the conditions found at the site in 2001, NMFS recommended that a dry trench be utilized downstream of the bridge as the extraction technique for that mining season. Bar skimming adjacent to the Eel River, upstream of the Van Duzen confluence, and a wetland pit upstream of the bridge were implemented during the 2001 mining season.

During November of 2001, NMFS observed the loss of channel confinement during rising fall flows, and the associated stranding of 133 adult Chinook salmon who were caught at shallow riffles during changes in flow conditions, and could not migrate through shallow riffle locations at the Leland Rock gravel extraction site. Aggraded channel conditions, shallow riffles, and adult fish passage problems were previously recognized for the lower Van Duzen River by the California Department of Fish and Game (CDFG). Adult fish stranding also occurred at this site during the fall of 1996 (S. Downie, CDFG, pers. comm. 2002). However, the use of bar skimming as an extraction technique in this aggraded channel reach has exacerbated the existing

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conditions by reducing gravel bar heights, with further loss of channel confinement, which has aggravated fish passage problems, as seen in the stranding of adult Chinook salmon during the fall of 2001. The potential for stranding of adult Chinook salmon at this site was not fully analyzed in the 2000 Opinion.

As stated above, stranding of adult Chinook salmon during upstream spawning migration occurred in the lower Van Duzen River, a tributary to the Eel River, in 1996 and 2001. In November 1996, stranding resulted in the mortality of thirty adult Chinook. An estimated 250-300 adult Chinook continued migrating following re-connection of the channel through the aggraded reach in 1996. On November 12, 2001, a total of 133 CC Chinook died as a result of stranding in the lower Van Duzen River. Based on the number of females, an estimated 333,000 eggs were lost from the population. (Scott Downie, CDFG Memo, 2001). The majority of spawning adults return as age 4 fish. Assuming a 30% survival rate (Groot and Margolis 1998) of each life stage (egg, fry, smolt; 1, 2, and 3 year old), loss of these adults resulted in loss of a potential 240 adults or 120 females. In 2001, following excavation and re-connection of the thalweg, more than 1,000 Chinook continued migrating up the Van Duzen River (Scott Downie, CDFG, personal communication).

Myers et al. (1998) reported that in 1965, CDFG estimated the Eel River watershed contributed 55,000 (62%) of the 88,000 Chinook for the California portion of the ESU. Although strong negative trends in the fall-run Chinook in the Eel River were identified and population estimates for Chinook in the Eel River watershed were less than 5,000 individuals (Myers et al. 1998), current estimates of Chinook populations are unavailable. However, record numbers of adult Chinook were reported 2001 in the Eel River; in the Van Duzen River, and its tributary Yager Creek, in the Mattole River, (Scott Downie, CDFG, personal communication), as well as in the Mad River and Redwood Creek (Michael Sparkman, CDFG, personal communication). In addition, out migrant data from upper Redwood Creek indicates a high number of young-of-year Chinook during 2002. As of June 30, and with approximately 6 more weeks of sampling, a total of 217,455 individuals had been collected compared with 123,633 individuals in 2001 and 120,692 individuals in 2000 (Mike Sparkman, CDFG, personal communication).

The mortality of 133 adult Chinook in the Van Duzen River may represent loss of 10% of the spawning population of the Van Duzen River in 2001, assuming, based on CDFG observations, that approximately 1200 adults successfully migrated. Using the same method of analysis, an estimated escapement in the Van Duzen River of 2,187 individuals is predicted in 2005 compared with potential 2,427 if the stranding had not occurred.

Lower Mad River

Increased width-to-depth ratio has been documented in the gravel mining reach of the Mad River.

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Knuuti (2001) described the lower Mad River as follows:

“Our analysis of these relationships also indicated that the river has several extensive sections (primarily where the gravel operators mine) where the channel is much wider and shallower than other sections of the river and much wider and shallower than would be expected in a stable system. While we did not place much emphasis on the results of the meander radius of curvature to meander wavelength relationship we did consider the channel’s high width to depth ratio to be significant. The extremely high width:depth ratio in sections of the lower Mad River is a primary result of gravel mining techniques. By level skimming the bars that the river builds each year, the gravel mining prevents the river from stabilizing itself. The disproportionate width:depth ratio may also adversely affect fish habitat in the river by reducing habitat diversity and possibly increasing water temperature.”

In addition, a narrower, deeper and longer skim was implemented at Christie Bar on the Mad River in June 2002 (prior to issuance of a Corps permit, or this amendment and the attached ITS). CHERT issued a recommendation for this type of experimental skim design in response to the braided channel conditions found at the site in an attempt to decrease the potential for additional channel braiding. The skim is adjacent to the low flow channel, extends farther up and down the gravel bar than usual, is also narrower, and possibly deeper than usual. The description of this gravel extraction is included in this section to describe changes to the environmental baseline of the lower Mad River, and to document the braided channel conditions found at this site. However, the ITS of this amendment does not authorize incidental take for the above described gravel extraction at Christie Bar, as this extraction began prior to the issuance of this amendment.

Effects of the Action

Additional information (e.g., Knuuti 2001, NMFS analysis, and Laird et al 2000) has provided a better understanding of the effects of gravel mining activities on listed salmonid species since issuance of the 2000 Opinion. In particular, a better understanding of the effects of: (1) increased width-to-depth ratio; (2) gravel bars becoming inundated at lower flows due to loss of channel confinement after skimming; (3) hydraulic control provided by gravel bars confining the channel, which is necessary to create and maintain pools and riffles; and (4) increase in fine sediment introduced from previously skimmed surfaces during the months of November and December, on listed salmonids are discussed below. The effects of new extraction methodologies, and the incorporation of other new information, are also presented below.

Mortality During Active Mining Operations

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The 2000 Opinion described that heavy equipment is allowed in the wetted, low flow channel only to construct and remove channel crossings, and that the use of heavy equipment in the low flow channel may result in the death of few juvenile salmonids due to the implementation of project design features. In order to better understand how channel crossings are constructed and removed, and the potential effects of these activities to listed salmonids, NMFS observed channel crossing construction and removal over the past few years. NMFS observed that heavy equipment may need to cross the channel more than once per construction and removal of each channel crossing.

In addition, the California Department of Fish and Game (CDFG) has observed Chinook salmon redds built under, or very near to, channel crossing locations on the Mad River in September and October of 2001 (J. Froland, CDFG, pers. comm. 2001). Temporary channel crossings are typically built at riffle locations, which are also locations where Chinook salmon build redds and spawn (spawning activity may begin as early as September, and peaks during November and December). Redds located near channel crossings may be subjected to a pulse of fine sediment from crossing removal. Due to the cover the temporary bridges provide, Chinook salmon may be attracted to spawn under or near the temporary bridges, and redds may experience direct crushing by crossing removal. Food for juvenile salmonids is also more abundant in riffle locations, and juvenile salmonids use riffles and the areas upstream and downstream of riffles extensively. More restrictive timing and location of crossings are necessary to minimize the potential effects of channel crossings on juvenile salmonids, and to Chinook redds constructed in the early fall months.

Disruption of Holding and Migration Patterns by Heavy Equipment Noise and Vibration Disturbance

Although fish (young-of-year steelhead in particular) have been observed during the day in the vicinity of operating heavy equipment (used to install a summer dam), increased numbers have been observed in the same vicinity during the day in the absence of operating equipment (D. Ashton, NMFS, pers. comm. 2002). This observation suggests that operation of heavy equipment may have an effect on juvenile salmonids not previously analyzed in the 2000 Opinion, and the potential for a decrease in juvenile habitat utilization (i.e., juveniles displaced from more favorable habitat into less favorable habitat) exists from the disturbance caused by heavy equipment operation.

Salmonid Stranding on Extraction Bars

An increased risk of juvenile and adult salmonid stranding is associated with trenching and bar skimming, as these extraction areas may become inundated during adult fall migration. An increased risk of juvenile salmonid stranding is associated wetland pits, horseshoe shaped deep skims, trenching, and bar skimming. Wetland pits minimize the risk of juvenile stranding by their

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location on the 3-to-7 year floodplain, so that inundation of these pits only occurs during large, winter flow events, and most likely not on an annual basis. During the large flow events that inundate wetland pits, juvenile salmonids are also likely to be subject to stranding in small natural depressions on floodplains. NMFS expects that wetland pits will be utilized on the 3-to-7-year floodplain to minimize potential juvenile stranding.

Horseshoe shaped deep skims minimize the risk of stranding by being open to the river channel on the downstream end of the extraction. Trenches also minimize the risk of stranding by being opened to the river channel after excavation, in all but one location. A closed trench was utilized at Larabee gravel bar on the Eel River, near the town of Scotia, in 2001, and is proposed again for 2002. Larabee is a low elevation, mid-channel bar that is inundated shortly after flows begin to rise, and typically stays inundated throughout the winter, providing connection between the trench and the river. This trench was monitored last winter by the applicant, and due to the low elevation of the mid channel bar, the trench was found to be consistently inundated, and salmonid stranding was not found at the site. A site-specific monitoring, and fish rescue plan, for trenches minimizes the risk of adult and juvenile salmonid stranding.

Bar skimming allows inundation of the skimmed area more frequently and at lower river stage heights, resulting in an increase in the width-to-depth ratio of the channel, which results in an increase in the area where mainly juvenile, but possibly adult, salmonid stranding may occur. The increased risk of adult and juvenile salmonid stranding in the fall, associated with an increase in width-to-depth ratio, is minimized by grooming and grading the skimmed gravel bars to provide a free draining surface back towards the river thalweg. However, the final grade of the gravel bar must have enough slope in the downstream, or towards the river, direction to actually provide for this free drainage, and must be free of depressions. LOP 96-1 requires bars to be left in a free draining condition, but does not specify what slope percentage is adequate to provide for free drainage. CHERT bar-specific recommendations have specified in what direction the finished skim surface is to be sloped, but also have not specified the percentage of slope required for a free draining surface.

Increases in Water Temperature

As stated in Appendix D of LOP 96-1 (Biological Monitoring requirements for Gravel Extraction in Humboldt County, CA), each applicant will study his/her project reach which shall include the gravel extraction reach (or zone) and distances upstream and downstream of the gravel extraction area equal to half the gravel extraction reach. Temperature readings were to be taken between July 1 and October 31, as part of the original biological monitoring required as part of LOP 96-1, and compared with the areas upstream and downstream of the gravel extraction reach. Although temperatures were monitored and documented within the action area as described in the 2000 Opinion, NMFS has not been provided with an analysis of comparisons to temperatures in unmined reaches that was required under LOP 96-1.

Elevated Turbidity/Sediment

Recent NMFS analysis has shown (B. Cluer, NMFS, unpublished data, 2002) that the introduction of sediment entrained from a skimmed gravel bar surface has more influence on potential Chinook spawning success than was previously considered. Reduction in channel confinement as a result of gravel bar skimming results in inundation of a skimmed bar at lower and earlier flows. Sediment entrained from the skimmed bar has the potential to affect Chinook salmon redds located downstream of and adjacent to gravel mining sites, during the critical Chinook salmon spawning period of November and December, as described in the "Impacts to Spawning Habitat" section below.

The entrainment of fine sediment from skimmed surfaces is derived from the loss of surface armor as described in the 2000 Opinion. However, the effect of this sediment being mobilized during lower flow events in November and December, due to decreased bar heights, was not discussed. In the absence of gravel extraction, gravel bars would be expected to rebuild their height through sediment deposition until a mature bar height is reached. Gravel bar skimming that reduces bar height increases the probability and frequency that gravel bars will become inundated during typical November and December flows, during the peak time which is important for Chinook salmon spawning success. Sediment entrained from skimmed gravel bars during this period has the potential to affect Chinook spawning success as described below.

The published daily suspended sediment load estimations by the USGS on the Mad River, Eel River, Van Duzen River, and the South Fork Eel River show a significant increase in slope near the daily average flow that is exceeded approximately 35% of the time in the historic record of daily flows for each river. The Trinity river also show a significant increase at the 30 to 40% exceedance flow, based on the USGS recorded suspended sediment data. Therefore, in order to minimize the effect of sediment from a skimmed bar surface, skim floor elevations should be greater than the elevation of the flow that represents the significant increase in sediment transport. Once the stream flow has reached the 35 to 40% exceedance flow, the extra volume of sediment mobilized from the skimmed bars will be a much smaller percentage of the total sediment, resulting in a reduced effect than if the sediment was mobilized at a lower flow.

Impacts to Spawning Habitat

As discussed in the 2000 Opinion, and under the "Elevated Turbidity/Sediment" and "Mortality During Active Mining" sections above, Chinook salmon redds located in the action area may be adversely affected in a number of ways by gravel mining activities. Short-term impacts to spawning habitat from gravel mining can occur by a flush of fine sediment onto spawning substrate or the redd itself, by the disturbance of redds caused by channel crossing location and removal, by changes to substrate size, and by increased redd scour due to increased bed mobility. Long term impacts to salmonid habitat from gravel mining occurs by reducing the size of

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geomorphic features, such as alternate bars, or by preventing the mature development of geomorphic features that form fundamental channel elements (Trush et al 2000). Geomorphic channel features drive sediment sorting processes that create and maintain salmonid spawning beds, rearing pools, diverse aquatic food base and feeding opportunities, and holding habitat. The long term loss of spawning habitat by repeated bar skimming is minimized by the short duration of the extended proposed action.

Sediment removal by bar skimming typically exposes smaller sediment sizes on bar surfaces that will be inundated during lower discharges, due to reduction of bar height and associated reduction of channel confinement. The intrusion of fine sediment into spawning substrate fills pore spaces, which decreases hydraulic conductivity of the gravel, thus reducing the supply of oxygenated water to incubating eggs (Kondolf and Williams 1999). In addition, particle sizes that reduce embryo survival and impede emergence have been defined as those less than 9.5mm (Tappel and Bjornn 1983). Bar skimming and grading methods typically excavate the coarse surface layer, reducing surface particle sizes and armoring, and reducing bar elevations by several feet lower than mature bar surfaces. This disturbance increases the availability of a source of fine sediment within the active channel that is available for mobilization by relatively low discharges during the critical early winter Chinook salmon spawning season.

To minimize the effects of the proposed action on listed salmonids, skim floors should not be overtopped until bed material is mobilized by the stream. As described in previous sections, our analysis (NMFS unpublished data 2002) shows that by plotting the suspended sediment data that is available at a gage, versus average daily streamflow, (or when available, instantaneous streamflow) an inflection point on the graph is obvious. This inflection point indicates where the rate of suspended sediment concentration increases rapidly with increasing flow. For the Mad River gage near Arcata, the first recorded bed material measurement roughly coincides with the inflection point of the recorded suspended sediment load. This indicates that the point of increased suspended sediment load, discussed in the previous section, is also the point when bed material is mobilized. This is likely due to increased flow entraining the finest bed material from pools or interstitial spaces in the coarse bed of the low flow channel, causing a sudden increase in the suspended sediment load. Therefore, flows should be confined in the channel until the bed material would normally be mobilized, which is at approximately 1000 cfs on the Mad River, which is also the approximate 35% exceedence flow described in the previous section.

Additionally, in order to minimize impacts to spawning habitat, skim floor elevations should be maintained at an elevation above the minimum flow that provides the maximum amount of spawning habitat. Rantz (1964) completed a study for the rivers of the North Coast Range to determine what the minimum flow should be to maximize spawning habitat. For the Mad River the optimum flow was estimated at 1200 cfs in the Rantz study. This flow corresponds well with the development of the top of the silt band at about 1000 cfs in the spring of 2002, with the flow of a significant increase in suspended sediment movement (35% exceedence flow), and with the

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first flow (1000 cfs) in which bed material was noted in the gaged record. For these reasons, NMFS thinks that the minimum one-foot vertical offset required by LOP 96-1 may not be sufficient in most cases to minimize effects to Chinook salmon spawning habitat that result from loss of channel confinement and bar inundation at lower and earlier flows.

Impacts to Migratory, Rearing and Holding Habitat

Gravel extraction has the potential to impact migratory, rearing and holding habitat in many ways, as discussed in the 2000 Opinion. In particular, gravel bar skimming increases the width-to-depth ratio of river channels, decreases channel confinement during rising fall and early winter flows, and changes the hydraulic function of gravel bars to create and maintain pools and riffles. Increased width-to-depth ratio in the gravel mining reach of the Mad River, and decreased channel confinement in the Van Duzen River are described in the "Environmental Baseline" section of this amendment.

Adult salmonid migration begins as early as September, and continues into the winter months. Chinook spawning begins as early as September and peaks in November and December. During the fall and early winter months gravel bars have not had time to replenish from the previous season of mining. A minimum depth over riffles at flows that fish use for spawning and migration need to be maintained in order to allow for adult passage and spawning success. NMFS thinks that an average of 18 inches of flow depth over a riffle is needed to minimize gravel mining effects to spawning and migration. LOP 96-1 states that a minimum vertical offset of one-foot between the low flow water surface elevation and the skim floor must be maintained. The minimum one-foot vertical offset required by LOP 96-1 does not typically provide the average of 18 inches of flow depth over a riffle, nor does it result in a confined channel during rising fall/early winter flows. A confined channel in the fall and early winter months is needed to minimize effects to spawning, migration, rearing and holding habitat.

Using a simplified riffle geometry, the minimum water depth required at the riffle thalweg is 28 inches to maintain the 18-inch average depth through the riffle transect (NMFS unpublished data 2002). Measurements on the Mad River indicate that a riffle thalweg depth of 28 inches corresponds with 1000 cfs, the flow that is exceeded 33% of the time. This flow corresponds with initiation of bed material, the development of the top of the silt band, the significant increase in suspended sediment load, and the optimum amount of spawning area.

CC Chinook salmon, NC steelhead, and SONCC coho salmon rear in the lower river systems where gravel extraction occurs. Chinook salmon use the lower river reaches in the vicinity of gravel extraction for rearing more extensively than the other listed salmonid species. Due to their life history requirements, Chinook salmon must increase in size and weight during juvenile rearing before out-migration in June in order to survive once they reach the ocean. The gravel extraction method of skimming alternate (point) and mid-channel bars prevents the natural

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sedimentation processes (i.e., sediment deposition, and the associated increase in bar height over time) from confining the channel. A channel confined by gravel bar height provides the hydraulic control necessary to create and maintain pools and riffles, reduces the increase in fine sediment delivered from mined surfaces during fall and early winter flows, and provides the necessary width-to-depth ratio to maintain greater channel depths for a given flow. By "disconnecting" a traditionally skimmed gravel bar from frequent flow inundation, many of the effects of gravel bar skimming can be minimized.

Vertical buffers (or skim floor elevations), and head of bar buffers can be used to protect channel confinement and the hydraulic control provided by a confined channel, which is necessary to create and maintain pools and riffles. Pools provide habitat for adult holding, and juvenile rearing and feeding. Riffles provide habitat for juvenile feeding, and adult spawning. As already discussed, adequate water depth over riffles is necessary for adult migration. Loss of channel confinement and the associated impacts to rearing, holding, and migratory habitat can occur after one season of mining operations. Additionally, long term impacts to salmonid habitat from gravel mining occurs by reducing the size of geomorphic features, such as alternate bars, or by preventing the mature development of geomorphic features that form fundamental channel elements (Trush et al 2000). Geomorphic channel features drive sediment sorting processes that create and maintain salmonid spawning beds, rearing pools, diverse aquatic food base and feeding opportunities, and holding habitat.

Loss of Large Woody Debris (LWD)

As described in the 2000 Opinion, LWD plays an important role in providing habitat for listed salmonid species. Although LWD deposited on gravel bars by high flows may not be in contact with the low flow channel, it provides important velocity refuge for salmonids during initial high flow events when gravel bars are inundated. LWD accumulations on gravel bars are relatively unstable in that they are mobilized at discharges approaching bankfull (Abbe and Montgomery 1996), at which time the bed material is also being transported. However, prior to this discharge, the deposited LWD provides important velocity refuge for juvenile salmonids. In addition, LWD on gravel bars is an important source of LWD recruitment into the channel, where it provides habitat diversity for adult and juvenile salmonids. During site visits throughout the year, NMFS has observed that the LWD deposited on gravel mining sites is cut and removed from gravel bars.

Summary of Effects to Listed Species and Critical Habitat

Gravel mining results in changes to channel form and function, and these changes affect habitat function for salmonids as described above. These channel and habitat changes occur at two different time-scales: (1) short-term, which occur at the time of, or shortly after mining, and are evident after one season of mining operations, and (2) long-term, which occur over many years,

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and include simplification of habitat and loss or reduction of fundamental geomorphic features. Project effects relative to SONCC coho salmon, CC Chinook salmon, and NC steelhead freshwater life history stages (i.e. spawning, migration, rearing and holding) are discussed in the above sections, and summarized below.

Spawning

Short-term impacts to Chinook salmon spawning habitat from gravel mining include the introduction of fine sediment onto spawning substrate, or the redd itself, in November and December. Fine sediment from one additional season of gravel mining will incrementally decrease the quality and quantity of Chinook salmon spawning habitat, which would lead to a reduction in Chinook spawning success.

Migration

Gravel bar skimming reduces bar heights which are needed to confine the channel during rising fall and early winter flows. Reduced bar height, and reduced channel confinement, can occur after one season of mining operations, and may decrease the quality of adult salmonid migratory habitat at riffle locations.

Rearing and Holding

Channel confinement and the hydraulic control provided by a confined channel, is necessary to create and maintain pools and riffles. Pools provide habitat for adult holding, and juvenile rearing and feeding. Riffles provide habitat for juvenile rearing and feeding. Reduction in channel confinement and an increase in width to depth ratio can occur after one season of mining operations. LWD also provides rearing and holding habitat, and a reduction in LWD is also expected to occur after one season of mining operations. It is expected that a reduction in the quantity and quality of rearing and holding habitat will occur due to the extended duration of one additional mining season.

Adherence to project design features minimizes some of the effects of the proposed action on listed salmonid species. However, even with the inclusion of project design features, NMFS expects harm to listed salmonids from the effects that result in a decrease in the quantity and quality of spawning, migratory, rearing, and holding habitat. The potential for increased width-to-depth ratio, loss of channel confinement in fall and early winter, reduction in the hydraulic control provided by gravel bars necessary to create and maintain pools and riffles, an increase in fine sediment introduced from skimmed surfaces during the critical Chinook spawning season of November and December, and loss of LWD recruitment, can all occur after one season of mining operations. The long-term habitat impacts caused by gravel mining include decreased pool depths, increased low-flow channel widths, reduced sinuosity and channel confinement, reduced sediment sorting processes, channel margin simplification, and reduced sediment delivery to downstream habitats. NMFS expects that long-term impacts would result after many seasons of gravel mining operations.

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Some individuals may be injured or killed during mining operations, or harmed by the resultant effects of gravel mining on habitat. However, the effects to listed salmonids from the short duration of the proposed action (year 2002 mining operations only) is not expected to rise to a population level effect and is not anticipated to reach the level where a reduction in the likelihood of both the survival and recovery of listed salmonids, at the Evolutionarily Significant Unit (ESU) scale, occurs. Also due to the short duration of the proposed action, it is not anticipated that SONCC coho salmon designated critical habitat will be adversely modified or destroyed.

Conclusion

Based on our review during the amendment process, NMFS concludes that LOP 96-1 for gravel mining operations during 2002 is still not likely to jeopardize the continued existence of Southern Oregon/Northern California (SONCC) coho salmon, Central California (CC) Chinook salmon, or Northern California (NC) steelhead, or destroy or adversely modify SONCC coho salmon designated critical habitat.

This concludes consultation on the third amendment of the May 1, 2000, LOP 96-1 Opinion. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the extent of incidental take is exceeded, or is expected to be exceeded; (2) new information reveals effects of the agency action may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR § 402.16). In instances where the amount of incidental take is exceeded, consultation shall be reinitiated immediately.

Terms and Conditions of the Incidental Take Statement

The May 1, 2000, Opinion describes monitoring requirements for applicants issued permits utilizing the LOP procedure. Some of these monitoring requirements had a three-year time frame, and have been completed, while other monitoring requirements are on-going. Additional monitoring requirements have been included as terms and conditions of the amended ITS (see Attachment One), in order to continue to measure the implementation and effectiveness of project minimization measures during the extension of LOP 96-1, and to track changes in channel morphology and habitat quality. Other new terms and conditions of the amended ITS include more protective project design features, and additional reporting requirements, which are required to minimize the incidental take of listed salmonid species, as indicated by the additional information utilized for this amendment of the 2000 Opinion. The terms and conditions of the ITS are expected to be included as a requirement of the Corps' annual Letter of Modification

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which is issued to applicants utilizing the LOP procedure, so that all applicants are aware of the new requirements.

If you have any questions please call Ms. Leslie Wolff of the Arcata Field Office at (707) 825-5172.

Sincerely,

Rodney R. McInnis
Acting Regional Administrator

Enclosures (Attachment 1 - Amended ITS; Attachment 2 - Habitat Mapping Protocol)

cc:

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Carl Harral, California Department of Fish and Game
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Kirk Girard, County of Humboldt Planning Department
Doug Jager, CHERT
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**Attachment 1- July 2002 Amended Incidental Take Statement for the May 1, 2000
Biological Opinion**

Take is defined as harass, harm, pursue, hunt, shoot, kill, trap, capture or collect, or attempt to engage in any such conduct of listed species of fish or wildlife without a special exemption. NMFS further defines "harm" as an act which kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or an applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary and must be undertaken by the Corps so that they become binding conditions of any grant or permit issued to an applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps must report the progress of the action and its impact on the species to the NMFS as specified in the incidental take statement [50 CFR § 402.14(i)(3)].

A. Amount or Extent of the Take

NMFS anticipates that gravel mining operations under LOP 96-1 during the year 2002 will result in take of listed salmonids. This will primarily be in the form of harm to salmonids by impairing essential behavior patterns as a result of reductions in the quality or quantity of their habitat. NMFS anticipates that the number of individuals harmed will be low. In addition, NMFS anticipates that a small number of juveniles may be killed, injured, or harassed during construction and removal of temporary stream channel crossings. NMFS does not expect take of adult salmonids to occur if the terms and conditions of this ITS are implemented.

The take of listed salmonids will be difficult to detect because finding a dead or injured salmonid is unlikely as the species occurs in habitat that makes such detection difficult. The impacts of gravel mining under LOP 96-1 will result in changes to the quality and quantity of salmonid habitat. These changes in the quantity and quality of salmonid habitat are expected to correspond to injury to or reductions in survival of salmonids by interfering with essential behaviors such as spawning, rearing, feeding, migrating, and sheltering. Because the expected

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impacts to salmonid habitat correspond with these impaired behavior patterns, NMFS is describing the amount or extent of take anticipated from the proposed action in terms of limitations on habitat impacts. The NMFS expects that physical habitat impacts will be: consistent with the areas described in Table 1 below, compliant with the project design features of LOP 96-1 and this incidental take statement, and within the expected effects of gravel mining operations as described in the 2000 Opinion, and this amendment.

Table 1. For each river, gravel bar sites are listed from the most upstream site to the most downstream site, and are not necessarily contiguous. The length of each site is measured along the center line of the stream, adjacent to each bar. Data was provided by Humboldt County Planning Division (April 26, 2000), except for the Cook's Valley site and the Fort Seward site where data was provided by the Corps (June 27, 2000), and the McKnight site, where data was provided by the Corps (June 25, 2001). Note that the experimental extraction on Christie Bar which began prior to this amendment is not covered by this ITS. Christie Bar is included in Table 1 only for potential mining plans that may begin implementation after issuance of this ITS.

Stream	Length (feet)	Gravel Bar Site Name	
Lower Eel	3646	McCann to Scotia Bars (near the town of Scotia)	
	4160	McCann to Scotia Bars	
	8340	McCann to Scotia Bars	
	8398	McCann to Scotia Bars	
	4844	McCann to Scotia Bars	
	7900	Dyerville Bar	
	2830	Hauck Bar	
	1117	Hansen Bar	
	1754	Upper Sandy Prairie Bar	
	3507	Canevari - Sandy Prairie Bar	
	2160	Lower Sandy Prairie Bar	
	3413	Warswick Bar	
	2807	Singley Bar (downstream of Fernbridge)	
	Lower Mad	2786	Guynup Bar (near the town of Blue Lake)
		965	Emmerson Bar
2550		Emmerson Bar	
278		Blue Lake Bar	
4270		Blue Lake Bar	
3345		Christie Bar	
2021		Johnson Bar	
2219	Essex Bar		
	3327	Johnson-Spini Bar	

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	1503	Johnson-Spini Bar (near Hwy 299 bridge)
South Fork Eel	3000	Cooks Valley (at the Humboldt/Mendocino County line)
	1218	Tooby Park/Garberville
	2097	Randall Sand and Gravel/Tooby Park/Garberville
	1854	Wallen/Johnson Redway Bar (near the town of Redway)
Lower Van Duzen	2304	Pacific Lumber Bar (near the town of Carlotta)
	661	Thomas Bess Ranch
	15506	Van Duzen Ranch
	1890	Leland Rock Gravel Bar
	755	Hauck Bar (at confluence with the Eel River)
Larabee Creek	1292	Charles Bar (in Larabee Valley)
North Fork Mattole	4909	Cook Bar (at confluence with mainstem Mattole River)
Lower Trinity	2000	McKnight Bar (near the town of Willow Creek)
	4497	Willow Creek (near the town of Willow Creek)
	834	Hoopa Valley Ready Mix (near the town of Hoopa)
Middle Eel	2000	Fort Seward, at approximate river mile 68

Anticipated incidental take will be exceeded if gravel mining operations extend beyond the areas described in Table 1 above, are not in compliance with the project design features of LOP 96-1, or the terms and conditions of this incidental take statement, or if effects of gravel mining operations are exceeded or different than the expected effects described in the 2000 Opinion or this amendment.

B. Effect of the Take

In the accompanying Opinion, the NMFS determined that this level of anticipated take is not likely to result in jeopardy to SONCC coho salmon, CC chinook salmon or NC steelhead, or in destruction or adverse modification of SONCC coho salmon designated critical habitat.

C. Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and

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appropriate to minimize take of SONCC coho salmon, CC chinook salmon and NC steelhead.

The Corps shall:

1. Ensure that channel form and function are retained, thereby minimizing declines in the quality or quantity of salmonid habitat.
2. Ensure that measures that minimize adverse effects to listed species and designated critical habitat are implemented as part of the LOP 96-1 procedure.
3. Ensure that measures that minimize impacts to listed salmonids are reviewed and approved by NMFS and other involved agencies before implementation.
4. Begin to track changes to salmonid habitat quality and quantity in the vicinity of gravel extraction sites.

D. Terms and Conditions

The Corps, and its permittees, must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

- RPM 1. Ensure that channel form and function are retained, thereby minimizing declines in the quality or quantity of salmonid habitat.
- a. All projects authorized under LOP 96-1 must continue to undergo the annual comprehensive hydrologic and geomorphic review, with associated recommendations, provided by CHERT.
 - b. Ensure that extraction quantities do not exceed the long term average annual sustained yield, based on estimates of mean annual recruitment, as utilized by CHERT.
 - c. NMFS shall participate in the review and recommendation process in order to provide concurrence that CHERT recommendations, and the applicant's mining plans, are consistent with the effects analysis, and incidental take statement of this amendment. To meet this condition, NMFS requires: that we receive copies of all pre- and post-extraction information, including cross sections and aerial photos; that a mutually agreeable date is scheduled between CHERT, the Corps and NMFS for site reviews, or a five working day notice of when the site review is scheduled to occur is provided to NMFS; and, that we provide concurrence with CHERT recommendations that deviate from LOP 96-1 project design features, or

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with the terms and conditions of this ITS. Concurrence by NMFS shall be provided prior to the Corps' issuance of the Letter of Modification.

- d. Ensure that a reasonable effort is made to provide vertical, rather than oblique, air photos for spring pre-extraction design purposes and that copies of these air photos are received by NMFS.

RPM 2. Ensure that measures that minimize adverse effects to listed species and designated critical habitat are implemented as part of the LOP 96-1 procedure.

- a. The minimum skim floor shall be set using one of the following methods. In the preferred method, the skim floor elevation shall be marked at the waters edge throughout each mining area, when the stream flow at the gage of the stream reaches the flow that corresponds to a significant increase in suspended sediment load, as listed as the 35% exceedance flow in Table 2 below.

Measurements on the Mad River indicate that a riffle thalweg depth of 28-34 inches corresponds with a streamflow of 950 cfs, the flow that is exceeded 35% of the time. This flow corresponds with initiation of bed material movement, the development of the top of the silt band, the significant increase in suspended sediment load, and the optimum amount of spawning area. Riffles on the Mad River and other Humboldt County rivers were observed to be approximately 4 to 6 inches at summer low flows. Therefore, a minimum two foot vertical offset from the low flow water surface elevation provides a riffle thalweg depth of approximately 28 inches, which corresponds to the flow that will provide confinement of the channel to approximately the 35% exceedance flow.

Therefore, if the applicant is unable to mark the waters edge when the stream flow is at the flows of Table 2, one of two alternative methods can be used to mark the minimum skim floor elevation: (1) the summer low flow water surface elevation can be used as a reference to measure a minimum two foot vertical offset to the skim floor, or (2) a simple hydraulic model, such as HECRAS, can be used in conjunction with the current cross-sections, including a cross section at the riffle location, to estimate the water surface depth at the 35% exceedance flow.

Consideration will be given to lowering the skim floor, or reducing the minimum vertical offset, on a site specific basis. Deviation from this requirement can be based on an analysis of riffle crest, thalweg, and water

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surface elevations, adjacent habitat types, and other relevant indicators at the specific site. Utilizing analysis and relevant evaluation criteria, CHERT may recommend a vertical offset that is less than or greater than the stated two foot minimum, but deviation below the two foot minimum vertical offset shall require concurrence by NMFS prior to permitting by the Corps. NMFS anticipates few reductions to the minimum vertical offset value of two feet.

Table 2 - The flow in the table represents the flow in which a significant amount of suspended sediment begins to move (the upward inflection point on the suspended sediment vs. flow rate curve)

USGS Stream Gage	Flow Exceeded 35% of Time
Mad River near Arcata	950-1000 cfs
Lower Eel at Scotia	3500-3800 cfs
Van Duzen near Bridgeville	470-500 cfs
South Fork Eel near Miranda	850 -900 cfs
USGS Stream Gage	Flow Exceeded 40% of time
Trinity River at Hoopa	3000 - 4000 cfs

- b. Consideration shall be given to protection of hydraulic processes that create and maintain pools and riffles. Protect gravel bar function by minimizing extraction on the upstream one-third of gravel bars, and by maintaining channel confinement necessary to protect pool maintenance processes.
- c. Implement a change in the season of channel crossing construction and removal in order to minimize impacts to juvenile salmonids, and early fall adult spawning salmonids, and their redds. Channel crossing construction shall not begin until June 15 for all rivers throughout the action area, except the Trinity River, where channel crossing construction can begin June 1. Channel crossing removal shall be completed by September 15 for the Mad and South Fork Eel rivers to protect any early redds from increased fine sediment, and to minimize the attraction to spawn near, or under temporary bridges. Channel crossing removal shall be completed by October 15 for all other river systems. Consideration shall be given to

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channel crossings located at riffles in order to minimize impacts to spawning sites and juvenile salmonids. The middle of riffles may provide the best location for temporary crossings, but crossing location shall be determined on a site specific basis. The proposed location, and reasoning used to determine how the crossing location minimizes effects to salmonids, shall be included in the CHERT recommendation.

- d. Where possible and safe, a person shall wade the stream ahead of heavy equipment crossing the wetted low-flow channel for temporary channel crossing construction and removal in an attempt to scare any rearing juvenile salmonids out of the crossing area. In addition, minimize the amount of time heavy equipment is in the wetted low-flow channel by limiting the number of heavy equipment crossings per each installation and removal. A maximum of two crossings per installation and removal shall be allowed, although one crossing where possible is preferred. Heavy equipment shall not be used in the wetted, low flow channel except for channel crossing installation and removal.
- e. Ensure that this ITS is attached to all Letters of Modification issued under LOP 96-1 to aid in compliance with terms and conditions by the applicants.
- a. NMFS shall provide concurrence with the CHERT recommendation and the Corps' Letter of Modification for the Leland Rock gravel extraction site on the lower Van Duzen River, prior to the issuance of the Letter of Modification. NMFS concurrence is necessary for this mining site (where effects and incidental take have previously been exceeded) to determine consistency with the effects analyzed in this amendment and to provide consistency with this ITS.

RPM 3. Ensure that measures that minimize impacts to salmonids are reviewed and approved by NMFS and other involved agencies before implementation.

- a. Ensure that prior approval is granted by NMFS for extensions to the June 1-October 15 season for gravel extraction operations.
- b. Ensure that culvert requests and information describing the need for culverts are provided to NMFS for review and approval of salmonid impact minimization measures.

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- c. Ensure that NMFS reviews and approves requests for fisheries enhancement projects that modify excavation procedures before being authorized by the Corps.

RPM 4. Begin to track changes to salmonid habitat quality and quantity in the vicinity of gravel extraction sites.

- a. Ensure that applicants perform the habitat mapping, described in Attachment 2.
- b. Riffle crest elevations, as measured at the thalweg, and tied to the survey datum are required adjacent to, and upstream and downstream of each gravel mining site. Riffle crest elevations shall be measured within the gravel extraction reach (or zone), and distances upstream and downstream of the gravel extraction area equal to half the gravel extraction reach. If gravel mining sites are contiguous, then riffle crests shall be measured throughout the contiguous mining reach.
- c. Redd surveys consisting of visual observation shall be conducted biweekly from October 1 through December 30. Redd surveys shall be conducted within the gravel extraction reach (or zone), and distances upstream and downstream of the gravel extraction area equal to half the gravel extraction reach. If gravel mining sites are contiguous, then the redd survey shall be conducted throughout the contiguous mining reach. The location of redds shall be mapped on aerial photos and geographically referenced (i.e., GPS or survey datum). Flagging or other visual identification shall be used to mark location of redds on the ground so follow-up surveys can determine persistence and identification of new redds. If stream conditions do not allow for effective or safe surveys, then the conditions of the stream shall be recorded (turbidity and flow) and surveys shall resume as soon as conditions improve. A redd survey report shall be submitted by January 15, 2003 and shall contain the following items:
 - i) Date and time of survey; name of surveyor(s)
 - ii) Stream and weather conditions at time of survey
 - iii) Number of new redds observed, by location (geographic coordinates and marked on aerial photos); habitat call for location of redds (e.g., pool tail crest, riffle crest)
 - iv) Number of old redds persisting and location
 - v) Number of fish observed, by species, per redd location, and fish condition observed (e.g., active spawning, pre-spawn mortality, spawned)

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out, carcass, and sex of fish)

vi) size of redd, and depth over redd (if fish are present, this information should be estimated to minimize disturbance)

- c. Snorkel surveys of wetland pits shall be required to monitor and assess juvenile stranding after high flows that inundate the wetland pit have receded. A monitoring plan that assesses salmonid stranding, which includes a fish rescue plan, shall be submitted as part of the mining plan when trenching is used as the extraction methodology.
- d. A monitoring plan that assesses salmonid stranding, which includes a fish rescue plan, shall be submitted as part of the mining plan when trenching is used as the extraction methodology.
- e. NMFS shall be provided color copies of all air photos, and all electronic copies of cross sections submitted under the entire implementation of LOP 96-1, by August 1, 2002, for our analysis purposes. Although NMFS has sporadically received copies of air photos, we do not have a complete data set of air photos, or electronic cross sections. Electronic cross sections shall be provided in a usable format.
- h. Ensure that all required monitoring is completed and that monitoring reports are provided to NMFS. Reports shall be submitted to:

Irma Lagomarsino
Supervisor Arcata Field Office
National Marine Fisheries Service
1655 Heindon Road
Arcata, CA 95521

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. If, during the course of the proposed action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Corps must immediately provide an explanation of the causes of the taking and review with NMFS the need for possible modification of the reasonable and prudent measures.

Conservation Recommendations

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Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information.

The NMFS believes the following conservation measures are consistent with these obligations, and therefore should be implemented by the Corps:

1. The Corps, in conjunction with NMFS and other involved agencies, should begin to develop additional updated monitoring protocols, that begin to answer questions regarding changes in habitat quantity and quality in the vicinity of gravel extraction operations. An important relationship to begin to monitor is that between river stage and discharge that is required to overtop skimmed gravel bar surfaces.
2. The Corps shall continue to work with NMFS, and other involved agencies on the LOP procedure for 2003-2007.
3. Educational signing regarding the importance of LWD for salmonids should be placed at access roads owned, controlled, or utilized by the gravel operators. In addition, in order to protect LWD deposited on mined gravel bars, all access roads owned or controlled by gravel operators should be gated and locked to reduce access.

In order for NMFS to be kept informed of the actions minimizing or avoiding effects or benefitting listed species or their habitats, NMFS requests notification of the implementation of the conservation recommendations.

Reinitiation of Consultation

This concludes formal consultation on the actions and processes described in the LOP 96-1 procedure. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the extent of incidental take is exceeded, or is expected to be exceeded; (2) new information reveals effects of the agency action may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR § 402.16). In instances where the amount of incidental take is exceeded, consultation shall be reinitiated immediately.

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Attachment 2 - Salmonid Habitat Mapping Protocol

Trend monitoring of habitat shall identify the type, quantity, and quality of salmonid habitat present in the vicinity of and influenced by commercial gravel extraction, as well as monitor its availability over time. The hydraulic geometry of the active channel creates the habitat conditions which salmonids use throughout their freshwater life cycle (upstream spawning migration and holding; redd forming; and juvenile rearing and holding). Trend monitoring shall require a different approach than the previously used CDFG Habitat Level III typing technique (CDFG California Salmonid Stream Habitat Restoration Manual.) This monitoring is intended to describe and quantify available habitat present on the pre and post season extraction aerial photographs at each extraction site to determine trends in the salmonid habitat following both the periods of annual bed material movement and replenishment, and annual extraction. Habitat parameters shall be linked by NMFS personnel to pre and post season cross-sections of extraction sites. NMFS shall be provided copies of both the pre and post season cross sections, and aerial photographs.

To initiate the monitoring and prior to field observations, an experienced fisheries biologist shall examine the spring aerial photographs using a stereoscope and delineate locations of moderate to high quality rearing habitat for juvenile salmonids, and holding and spawning habitat for upstream migrating adults. Habitat units for 0+, 1+, and 2+ steelhead shall be used as a surrogate for habitat use by other salmonids throughout the year. Habitat units shall be delineated on the photographs using polygons. Each polygon shall be assigned a tracking number, and the number shall be used to link field data to the aerial photograph. Specific habitat features to be described and measured shall include: habitat type, dimension, depth, velocity, substrate, etc. Dimensions are to be developed in conjunction with NMFS personnel. Field data for each polygon shall be entered into a spreadsheet of an appropriate data base (NMFS shall provide concurrence on the choice of data base). Cool water refuge shall be identified underwater, mapped and temperatures recorded. The area of each polygon shall be calculated in square feet, however, the dimension and shape of the habitat shall also be defined. The habitat data shall be entered into a spreadsheet or database program such as Excel or Access.

Continuous temperature monitoring in 2002, both in the vicinity of an extraction bar and in an unmined reach shall be used to compare the diel fluctuations in temperature and be related to actual habitat use throughout the summer and during the 24-hour cycle of temperature change. Previous temperature monitoring in the vicinity of gravel extraction operations did not have a reference site for comparison so the information is observational only and is insufficient to demonstrate that there is no difference in temperature in the vicinity of unmined and mined gravel bars.

Both a hard and electronic copy of a report shall be provided to the Corps and to NMFS by December 31. The report shall contain in the description of available habitats, species observed,

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a spreadsheet or database printout. Air photos with the delineated polygons and habitat details shall also be included.

Polygons identified from the aerial photos shall be field verified using underwater observations and measurements. In addition, field observations shall be conducted during late summer or early fall low flows periods.

neers ("Corps") regarding a
l Mine in Riverside County
with the California Endan-
SA") pursuant to Fish and

00.1. On March 9, 2001 the

Service issued a memorandum (1-6-00-F-715.2) in reference to biological opinion (1-6-00-F-715) specifying measures to be undertaken by the project applicant to mitigate any impacts of the project to the state-listed and federally-listed threatened reptile, desert tortoise (*Gopherus agassizii*). If the Department determines that the federal biological opinion is consistent with CESA, the applicant will not be required to obtain an incidental take permit (Fish and Game Code Section 2081) for project impacts to this species.

DEPARTMENT OF FISH AND GAME

PUBLIC INTEREST NOTICE

CESA CONSISTENCY DETERMINATION FOR RAMONA AIRPORT IMPROVEMENT PROJECT, SAN DIEGO COUNTY, CALIFORNIA

The Department of Fish and Game ("Department") received a request, on April 16, 2001 from the project applicant, Federal Aviation Administration ("FAA"), that consultations between the U.S. Fish and Wildlife Service ("Service"), the Department, and the U.S. Army Corp of Engineers ("Corps") regarding a proposed Ramona Airport Improvement Project in San Diego County be considered consistent with the California Endangered Species Act ("CESA") pursuant to Fish and Game Code Section 2080.1. On March 16, 2001 the Service issued a biological opinion (1-6-98-F-833.3-R1) to supplement the original biological opinion (1-6-98-F-46) specifying measures to be undertaken by the project applicant to mitigate any impacts of the project to the federally-listed endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*; shrimp) and the state-listed threatened, federally-listed endangered Stephen's kangaroo rat (*Dipodomys stephensi*; SKR). If the Department determines that the federal biological opinion is consistent with CESA, the applicant will not be required to obtain an incidental take permit (Fish and Game Code Section 2081) for project impacts to this species.

FISH AND GAME COMMISSION

NOTICE OF FINDINGS

NOTICE IS HEREBY GIVEN that, pursuant to the provisions of Section 2074.2 of the Fish and Game Code, the California Fish and Game Commission, at

its April 5, 2001, meeting in Monterey, accepted for consideration the petition submitted to list coho salmon (*Oncorhynchus kisutch*) north of San Francisco as endangered. Pursuant to subdivision (a)(2) of Section 2074.2 of the Fish and Game Code, the aforementioned species is hereby declared a candidate species as defined by Section 2068 of the Fish and Game Code.

Within one year of the date of publication of this notice of findings, the Department of Fish and Game shall submit a written report, pursuant to Section 2074.6 of the Fish and Game Code, indicating whether the petitioned action is warranted. Copies of the petition, as well as minutes of the April 5, 2001, Commission meeting, are on file and available for public review from Robert R. Treanor, Executive Director, Fish and Game Commission, 1416 Ninth Street, Box 944209, Sacramento, California 94244-2090, phone (916) 653-4899. Written comments or data related to the petitioned action should be directed to the Commission at the aforementioned address.

Fish and Game Commission

Robert R. Treanor
Executive Director

April 17, 2001

FISH AND GAME COMMISSION

NOTICE OF RECEIPT OF PETITION

NOTICE IS HEREBY GIVEN that, pursuant to the provisions of Section 2073.3 of the Fish and Game Code, the California Fish and Game Commission, on October 25, 2000, received a petition from the Milo Baker Chapter of California Native Plant Society to uplist the North Coast Semaphore Grass (*Pleuropogon hooverianus*) from threatened to an endangered species. At present, the North Coast Semaphore Grass is known from only four sites: two sites within Mendocino County, one site in Sonoma County and one site in Marin County. The North Coast Semaphore Grass is associated with wet, grassy areas within redwoods and mixed hardwood forests and along wet edges of forests.

Pursuant to Section 2073 of the Fish and Game Code, on October 31, 2000, the Commission transmitted the petition to the Department of Fish and Game for review pursuant to Section 2073.5 of said Code. The Department's evaluation and recommendation relating to the petition was received by the Commission at its April 5, 2001, meeting in Monterey. Interested parties may contact Ms. Sandra Morey, Chief, Habitat Conservation Planning Branch, Department of Fish and Game, at telephone (916) 653-4875

Section 749.1 is added to Title 14, CCR, to read:

749.1. Special Order Relating To Incidental Take Of Coho Salmon (*Oncorhynchus kisutch*) During Candidacy Period.

The commission finds that, based on current knowledge and protection and management efforts outlined in this regulation, including Exhibits A through D*, the level of habitat loss and take of coho salmon which is likely to occur during the period that this regulation is in effect will not cause jeopardy to the continued existence of the species.

(a) Take Authorization.

Based upon the above findings, the commission authorizes the take of coho salmon north of San Francisco (Exhibit A) during the candidacy period subject to the terms and conditions herein.

(1) Inland and Ocean Sport and Commercial Fishing.

Coho salmon may not be retained during sport or commercial fishing in any waters of the State. Incidentally hooked or netted coho salmon must be immediately released unharmed to the waters where they are hooked or netted.

(2) Suction Dredging.

Incidental take of coho salmon during suction dredging that complies with Section 228, Title 14, CCR, is authorized during the candidacy period.

(3) Research and Monitoring.

(A) Take of coho salmon by department personnel in the course of research and monitoring is authorized pursuant to Section 783.1(c), Title 14, CCR.

(B) Take of coho salmon in the course of research and monitoring by public agencies and private parties is authorized subject to restrictions in Exhibit B.

(4) Hatchery Operations.

Take of coho salmon by the Department of Fish and Game for hatchery management purposes is authorized pursuant to Section 783.1(c), Title 14, CCR.

(5) Habitat Restoration.

(A) Incidental take of coho salmon resulting from planning, assessment, inventory, construction, maintenance and monitoring activities related to the Department of Fish and Game Fisheries Restoration Grants Program and carried out in the manner prescribed in the department's "California Salmonid Stream Habitat Restoration Manual - Third Edition, January 1998", is authorized. Incidental take resulting from Fisheries Restoration Grants Program activities not carried out in such manner is authorized only if the activity is performed under the supervision or oversight of, or is funded by the department.

(B) Incidental take resulting from activities performed by department employees related to constructing,

installing, operating and maintaining facilities or stream features designed to eliminate or minimize barriers to fish migration and fish rescue operations is authorized pursuant to Section 783.1(c), Title 14, CCR.

(6) Extraction of Gravel Resources.

Incidental take of coho salmon resulting from the extraction of gravel resources in a stream or river, is authorized for the coho candidacy period provided that such activities are conducted in accordance with the measures specified in Exhibit C.

(7) Water Diversions.

Incidental take of coho salmon resulting from diversion of water, for any purpose, is authorized during the candidacy period, subject to the following conditions:

(A) Existing unscreened diversions may continue in operation through the candidacy period. Upon any future determination by the commission that coho salmon shall be added to the list of threatened or endangered species, incidental take for such diversions must be authorized under Fish and Game Code Section 2081(b) or be determined exempt from the permitting requirement under Fish and Game Code Section 2080.1.

(B) Diversions approved and constructed after the effective date of this section shall be screened and shall meet the Department of Fish and Game Fish Screening Criteria (dated June 19, 2000) included in this regulation as Exhibit D.

(C) Existing fish screens that are repaired, upgraded, or reconstructed during the candidacy period must meet the Department of Fish and Game Fish Screening Criteria (dated June 19, 2000) included in this regulation as Exhibit D.

(8) Department of Fish and Game Streambed Alteration Agreements.

Incidental take of coho salmon during the candidacy period is authorized for any project carried out in compliance with section 1601 or 1603 of the Fish and Game Code, for which a Lake or Streambed Alteration Agreement (Agreement) has been entered into between the department and the party undertaking the activity, provided that:

(A) any measures identified by the department as necessary to protect coho salmon are incorporated into the signed Agreement and are fully implemented by the party undertaking the activity; and

(B) the project otherwise complies with other relevant provisions of this section. Projects that will involve the extraction of mineral resources shall also comply with subsection (a)(6), and projects involving water diversions shall also comply with subsection (a)(7) of Section 749.1, Title 14, CCR.

(9) Pacific Lumber Company Habitat Conservation Plan.

Incidental take of coho salmon resulting from activities within the Plan and Permit Area described as Covered Activities in the "Habitat Conservation Plan for the Properties of The Pacific Lumber Company, Scotia Pacific Holding Company, and Salmon Creek Corporation, February 1999", is authorized during the candidacy period insofar as activities are conducted in accordance with the relevant Operating Conservation Plans.

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(10) Forest Practices.

Incidental take of coho salmon is authorized during the candidacy period for otherwise lawful timber operations that comply with conditions specified in the revised final rule language, "Protection for Threatened and Impaired Watersheds, 2000", sections 895, 895.1, 898, 898.2, 914.8, 934.8, 954.8, 916, 936, 956, 916.2, 936.2, 956.2, 916.9, 936.9, 956.9, 916.11, 936.11, 956.11, 916.12, 936.12, 956.12, 923.3, 943.3, 963.3, 923.9, 943.9 and 963.9, Title 14, CCR (which can be found on the Board of Forestry website at www.fire.ca.gov/BOF/pdfs/FRLZ00011814.pdf).

(11) Additions, Modifications or Revocation.

(A) Incidental take of coho salmon north of San Francisco from activities not addressed in this section may be authorized during the candidacy period by the commission pursuant to Fish and Game Code Section 2084 or by the department pursuant to Fish and Game Code Section 2081, on a case-by-case basis.

(B) The commission may modify or repeal this regulation in whole or in part, pursuant to law, if it determines that any activity or project may cause jeopardy to the continued existence of coho salmon north of San Francisco.

*A copy of Exhibits A through D which are referenced in this regulation is available upon request from the Fish and Game Commission, 1416 Ninth Street, Box 944209, Sacramento, CA 94255-2090 (Telephone 916 653-4899).

NOTE

Authority: Sections 200, 202, 205, 240 and 2084, Fish and Game Code. Reference: Sections 200, 202, 205, 240 and 2084, Fish and Game Code.

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EXHIBIT C**Incidental Take Authorization Standards
For In-Stream Gravel Extraction
During The Candidacy Period For Coho Salmon**

1. A gravel extraction plan including design features, mitigation measures, and enhancement recommendations that minimize impacts to salmonids shall be prepared by the operator and submitted to the Department for review and approval before extraction may begin. The maximum amount permitted to be removed shall be no more than the amount of sand and gravel that is annually replenished in the proposed extraction area, and cumulative extraction quantities shall be consistent with the long-term average annual sustained yield based on estimates of mean annual recruitment.
2. Extraction of gravel shall be accomplished by "skimming" or grading of gravel from bars above the low water channel unless another technique is approved in advance by the Department. The gravel bars shall be sloped from the bank down towards the thalweg and downstream to avoid stranding of salmonids. No holes or depressions shall be allowed to remain in the extraction area. No extraction of the streambanks shall be allowed.
3. Low flow channel confinement shall be maximized by utilizing the low flow silt line, where available, in designing the vertical offset. The silt line measurement shall be taken on or before July 15th of any year unless an alternate date is approved, in advance, by the Department. The vertical offset shall be at least one foot. A larger vertical offset, as determined by the Department, may be necessary to maximize the low flow channel confinement.
4. Gravel bar stability shall be protected by minimizing extraction on the upstream one-third of gravel bars. No extraction shall be allowed in riffle sections. The Department shall review proposed gravel extraction plans during an annual site inspection and make specific recommendations to protect salmonid habitat.
5. Channel crossing construction shall not begin before June 15. Removal of channel crossings shall be completed by September 30. If temporary culverts are installed, they will be installed in such a manner so that they will not impede the passing of fish up and down stream.
6. Large woody debris (LWD) shall be stockpiled before gravel extraction begins and redistributed on the gravel bar after the extraction site has been reclaimed at the end of the extraction season. To the extent possible, vehicular access onto gravel mining sites shall be controlled to minimize the loss of LWD from firewood collectors.
7. Trees exceeding 1 inch DBH shall not be removed, and clumps of smaller trees shall not be removed except by prior approval of the Department. The disturbance or removal of vegetation shall be minimized, shall not exceed that necessary to complete operations and shall be limited to areas where extraction has occurred within the past two years.
8. The project shall comply with Section 1601 or 1603 of the California Fish and Game Code, and a Lake or Streambed Alteration Agreement shall be obtained from the Department. Any measures identified by the Department as necessary to protect coho salmon shall be incorporated into the signed agreement and shall be fully implemented.

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