

Attachment 3c

ATTACHMENT B-1
APPROVED RECLAMATION PLAN

VAN DUZEN RIVER RANCH
HUMBOLDT COUNTY SURFACE MINING

RECLAMATION PLAN

Van Duzen River and Yager Creek
Humboldt County, California

File No. 204-041-19
CUP 19-94
RP 03-94
SMP 03-94
CDMG Mine No. 91-12-0049
Army Corps of Engineers File No. 20979N78
SCH # 92013033

Operator:

Jack & Mary L. Noble
P.O. Box 365
Fortuna, CA 95540
707-768-3739

Prepared by
Dr. Douglas Jager

as Part of
An application to the
County of Humboldt
for a
Surface Mining Permit
and approved
Reclamation Plan

First Submitted January 9, 1995
Revised and Resubmitted April 11, 1995
Revised and Resubmitted January 2, 1996
Revised and Resubmitted January 26, 1996
Revised and Resubmitted March 26, 1996
Revised for Public Review and Hearing July 3, 1997

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INTRODUCTION TO JULY 3, 1997 RECLAMATION PLAN

This version of the Reclamation Plan contains, under one cover, the revisions which were suggested in the comments received during the review of the Draft SEIR and Reclamation Plan. These revisions are the same as described in the June 26, 1997 Final Supplemental Environmental Impact Report.

SECTION I APPLICABLE GENERAL INFORMATION

1.0 Project Description

This is a cooperative commercial gravel extraction project among neighbors. The applicants expect that gravel extraction will produce a degree of protection from flood and stream bank erosion in an aggraded reach of the lower Van Duzen River.

This mine consists of instream river-run aggregate extraction from exposed gravel bars located in 14 parcels along the Van Duzen River and at the mouth of Yager Creek. The 14 parcels are located between river mile 3.2 and river mile 6.0 on the Van Duzen River and at the mouth of Yager Creek (at river mile 5.0 on the Van Duzen). This project may excavate up to 200,000 cubic yards of aggregate per year. The applicants expect that one benefit of this extraction will be flood-protection relief and stream bank protection.

Five stockpile sites will be located on six parcels located adjacent to the river. Gravel may be sorted onsite. No other aggregate processing is included under this application. Aggregate will be shipped from the ranch by truck and by rail.

1.1 State Division of Mines and Geology Identification Number

The Van Duzen River Ranch commercial gravel extraction is ongoing under a good faith agreement between the operator and the California Division of Mines and Geology while the operator pursues Humboldt County approval of this reclamation plan and its related conditional use permit application. This operation is identified by the California State Division of Mines and Geology as Mine Number 91-12-0049.

1.2 Project Location

The VanDuzen River Ranch and mine is located near the communities of Carlotta and Hydesville at:

1919 River Bar Road Fortuna, CA 95540
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Primary access to the ranch is via River Bar Road which joins State Highway 36 west of Hydesville, in the NW 1/4 Sec. 19, T2N, R1E, HBM. The general vicinity of the ranch and mine is shown on a regional vicinity map (Attachment 1). A portion of the local U.S. Geological Survey 7.5 minute Hydesville quadrangle map shows the location more specifically (Attachment 2).

1.3 Project Applicants

Jack and Mary L. Noble P.O. Box 365 Fortuna, Ca 95540 (707)768-3739
--

1.4 Designated Agent for Applicants:

Dr. Douglas Jager 349 Stagecoach Road Trinidad, CA 95570 (707) 677-0604
--

1.5 Mineral Right Property Owners

The 14 extraction parcels are owned by three parties. They are:

Jack & Mary L. Noble P.O. Box 365 Fortuna, Ca 95540	Les Fearrien P.O. Box 371 Hydesville, CA 95547	Dwight & Dorthy Jennings. 1522 River Bar Road Fortuna, CA 95540
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1.6 Stockpile Area Owners

There are five year-round stockpile areas located on six parcels. Five of these parcels belong to the applicants. One parcel (Stockpile 1) belongs to Phillip NyBerg.

Jack Noble P.O. Box 365 Fortuna, CA 95540	Phillip NyBerg. 105 North Main Fortuna, CA 95540
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1.7 Railway Ownership

This project will use the North Coast Railroad to ship some aggregate to market and in order to do so will have access to the rail line adjacent to Stockpile area four.

North Coast Railroad Authority 4 West 2nd St Eureka, CA 95501

1.8 Lead Agency and Contact

Lead Agency	Lead Agency Contact
Humboldt County Planning Department 3015 "H" Street Eureka, CA 95501-4484 Phone: (707) 445-7541 FAX: (707) 445-7446	Ginerva Chandler Deputy County Counsel 825 5 th Street Eureka, CA 95501 Phone: (707) 445-7357 FAX: (707) 445-6297

1.9 County Assessor's Parcel Numbers:

Van Duzen River Ranch Parcels

The Van Duzen River Ranch property contains 23 parcels (Table 1.9-1).. Refer to Attachment 3 for parcel locations. Assessor's parcel numbers have been assigned map reference numbers (MRN 1, MRN 2, etc.). The map reference number/Assessor's Parcel Numbers are assigned in Table 1.9-1. Some of the ranch parcels are upland areas and are not included in extraction or stockpile activities.

Extraction Parcels

Gravel will be intermittently extracted for flood and streambank protection from exposed gravel bars located in the 14 parcels shown in Tables 1.9-2 and 1.9-3. The parcels listed in Table 1.9-2 are owned by the applicants. The parcels listed in Table 1.9-3 are owned by participating neighbors. The parcels listed in Tables 1.9-2 and 1.9-3 extend upstream from the westerly end of the project area (river mile 3.2) to the easterly end (river mile 6.0). Stockpile parcels and the instream portions of extraction parcels are visible in photo-maps (Attachments 4, 5, 6, and 7).

Table 1.9-1. Van Duzen River Ranch County Assessor's Parcel Numbers

Map Reference No.	APN	Map Reference No.	APN
1	204-041-19	13	204-071-05
2	204-041-20	14	204-071-06
3	204-041-21	15	204-071-08
4	204-051-05	16	204-071-09
5	204-051-06	17	205-072-06
6	204-051-07	18	204-101-03
7	204-051-08	19	204-101-26
8	204-063-09	20	204-111-08
9	204-063-10	21	204-111-09
10	204-063-11	22	204-111-11
11	204-063-13	23	204-241-06
12	204-063-14		

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Table 1.9-2. Van Duzen River Ranch Extraction Parcels

Map Reference No.	APN	Map Reference No.	APN
19	204-101-26	13	204-071-05
11	204-063-13	14	204-071-06
22	204-111-11	16	204-071-09
12	204-063-14	15	204-071-08
10	204-063-11	17	204-072-06

Table 1.9-3. Extraction Parcels Belonging to Other Parties

Map Reference No.	APN	Owner
25	204-101-07	Jennings
25	204-101-08	Jennings
26	204-111-05	Fearrien
27	204-111-06	Fearrien

Stockpile Parcels

Gravel will be intermittently stockpiled at five sites (Table 1.9-4). The list in Table 1.9-4 starts at the westerly end of the project and goes upstream.

Table 1.9-4. Stockpile Parcels.

APN	Stockpile Number	MRN	Owner	Comments
204-101-02	1	24	NyBerg	A 1.25-acre portion along the western edge of this 34-acre parcel will be used as Stockpile Area 1 and as a transport route to River Bar Road. The rest of this parcel will be retained as pasture and woodland riparian habitat.
204-101-03	2	18	Noble	Stockpile Area 2 will be located in the southern portion of this triangular parcel. The rest of this parcel will be retained as pasture and woodland riparian habitat.
204-063-11 & 204-071-05	3	10 & 13	Noble	Stockpile area 3 will be located on an upland terrace south of the river in these parcels.
204-111-09	4	21	Noble	Stockpile Area 4 and the proposed railroad loading area is in the eastern portion of this parcel.
204-071-09	5	16	Noble	Stockpile Area 5 is located in the pasture on the north side of the river in this parcel.

1.10 California Regional Water Quality Control Board

With a letter dated August 1, 1994, the California Regional Water Quality Control Board has been notified of this project. This reclamation plan and related documents will be forwarded to the California Regional Water Quality Control Board for their review and certification.

1.11 Army Corps of Engineers 404 Permit Application

The Army Corps of Engineers has accepted an application for Section 404 authorization of this gravel mining project and said application is incorporated herein by reference. The Army Corps file number is 20979N78.

1.12 California Department of Fish & Game 1603 Agreements

The California Department of Fish and Game protects fish and wildlife from adverse impacts by issuing 1603 agreements for activities that might otherwise impact those values. These agreements include but are not limited to instream gravel extraction and summer bridge installation and removal. Said agreements are a normal part of this gravel extraction operation.

SECTION II ENVIRONMENTAL SETTING

2.0 Watershed Setting

The Van Duzen is the northernmost significant tributary of the Eel River. The Van Duzen basin covers 429 square miles. The basin elevation ranges from near 50 feet where it joins the Eel River to over 5,000 feet in its headwaters. Yager Creek, (137 square miles) is the largest tributary of the Van Duzen. The Van Duzen River drains into the Eel River about five miles below Yager Creek and 14 miles upstream from the mouth of the Eel. A stream gaging station, located between Bridgeville and Grizzly Creek, records runoff from the upper 222 square miles of the basin. Ogle (1953), Harvey Kelsey (1977 and 1980) and the Department of Water Resources (DWR, 1975) have studied and reported on the geology, hydrology, and erosion processes that dominate the watershed.

2.1 Ranch Setting

The Van Duzen River Ranch contains 900 acres. Three miles of the Van Duzen River and Yager Creek flow through the ranch. Following the 1955 and more recent floods the Van Duzen River and Yager Creek became highly aggraded (Kelsey, 1977, 1980, DWR, 1975). This aggradation, which continues today (Humboldt County, 1992), has adversely impacted the distribution of riparian vegetation, increased channel width and reduced channel depth, limited fish passage and spawning, reduced channel capacity, increased bank erosion, and increased the threat of flooding on the ranch and on neighboring property. Gravel extraction may help reduce the adverse effects of aggradation.

The riverine riparian portion of the ranch contains 210 acres. Within these 210 acres there are 100 acres of exposed gravel bars. The remaining 110 acres of riparian area is occupied by grass, brush, and trees. This portion is used for ranch equipment storage, winter livestock feeding, pasture, woodland grazing, and as wildlife habitat.

The ranch also includes 690 acres of upper river terrace and upland areas which are used for housing, agricultural material and equipment storage, farm buildings, winter livestock feeding, pasture grazing, hay production, and timber production.

The ranch property, exposed gravel bar extraction sites, stockpile areas, and access routes are located in portions of Sections 19, 20, 21, 27, 28, 29, 30, 32, and 33 in T2N, R1E, HBM. The project location is further described at the mouth of Yager Creek and in portions of the Van Duzen River between river mile 3.2 and river mile 6.0. Refer to the following section and to Attachments 1 through 8 for more site location details.

2.2 General Mine Geology and Geomorphology

This instream mining operation is confined to recent, unconsolidated quaternary alluvium located on exposed gravel bars between the banks of the lower Van Duzen River and at the mouth of Yager Creek. See Attachment 8, a partial regional geologic map by Kelsey & Allwardt (1974). The five stockpile areas are located on adjacent less recent quaternary alluvium and alluvial terraces.

The project extraction areas, located between river mile 3.2 and river mile 6 are in a major aggraded sediment deposition area which is influenced by significant features in the lower six miles of the Van Duzen River. Just upstream from the project area in Section 27 the river loses sediment transport capacity as it exits from a narrow canyon and spreads out adjacent to the upper Poverty Flat land form. The resulting sediment deposition adds to the flooding and aggradation problems in this reach. The risk of avulsion is high in this reach.

Yager Creek enters at river mile five. Yager Creek drains approximately 137 square miles and is the largest tributary of the Van Duzen River. Yager Creek, like the upper Van Duzen, is highly erodible and contributes a substantial volume of runoff and sediment to the upper Poverty Flat land form (Kelsey, 1977 and 1980; DWR, 1975). Yager Creek creates a backwater effect in the Van Duzen which also adds to the flooding, bank erosion, sediment deposition and channel aggradation problems in the extraction areas upstream from Yager Creek.

Downstream, at river mile 3.2, the Van Duzen channel narrows again. This confinement also creates a backwater effect that contributes to the sediment deposition, channel aggradation, flooding, and bank erosion problems that occur throughout the project reach.

Further downstream near river mile 0.5 the river is restricted to a width of 500 feet by the Highway 101 and Northern Pacific Railway bridges. This restriction creates a backwater effect that also contributes to flooding, channel aggradation and bank erosion throughout the lower Van Duzen River Poverty Flat landform.

2.3 Hydrology, Sediment Production and Bedload Transport

The mean annual precipitation for the basin is approximately 69 inches. The basin area above the Bridgeville stream gaging station is 222 square miles and the area for the entire basin is 429 square miles. The DWR (1975) used an annual runoff ratio of 1.68 to expand Bridgeville-gaged annual runoff to total-basin annual runoff. The DWR ratio was used to develop the basin runoff data in Table 2.3-1.

Table 2.3-1 Van Duzen River Basin Average Annual Runoff.

Basin	Basin Area (sq. mi.)	Annual Runoff (acre feet)		Average Annual Runoff (acre feet) (feet)		Period of Record for Average
		1992	1993			
Van Duzen	429	442,500	1,271,900	1,034,700	3.8	1951-93

Bedload transport is episodic. However average annual bedload transport rates help put gravel extraction in perspective.

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Table 2.3-2 - Van Duzen River Basin Average Annual Bedload Transport.

Basin	Approximate Average Annual Bedload Discharge		Source
	(tons)	(cubic yards)	
Van Duzen	680,000	485,000	USDA (1970)

2.4 Vegetation in Ranch Mining Areas

Karen Theiss and Associates were retained to describe and map the vegetation found in wetland sites, the extraction areas below ordinary high water and in the stockpile areas. Their August 1994 descriptions of areas that may be disturbed by the project are shown below (Tables 2.5-2, 2.5-3 and 2.5-4). The descriptions include plant wetland indicators as described in Table 2.5-1.

Table 2.5-1. Wetland indicator categories used in the "National List of Plant Species that Occur in Wetlands" (Reed 1988). Plant species are assigned to indicator categories based on their frequency of occurrence in wetlands. Plant species not included on the list are generally considered to be upland plant species.

Abbreviations	Wetland Indicator Category	Frequency of Occurrence in Wetlands
OBL	Obligate	>99 %
FACW	Facultative wetland	67 % - 99 %
FAC	Facultative	34%-66%
FACU	Facultative upland	1 %- 33 %
NL	Not listed by Reed(1988)	<1 %
NI	No indicator available	
*	More information needed	
+	Occurs at the high end of the frequency range	
-	Occurs at the low end of the frequency range	

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Table 2.5-2 - Description of vegetation in and near mining extraction areas.

<p>Area A - (Includes portions of MRN 25, 19 & 11 located South of river):</p> <p>There are scattered clumps of woody vegetation in this area. The largest of these stands are at the upstream end of the bar. The dominant species are red alder (<i>Alnus rubra</i>, FACW), sitka willow (<i>Salix sitchensis</i>, FACW+), arroyo willow (<i>Salix lasiolepis</i>, OBL), and black cottonwood (<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>, FACW). The trees are 25 to 30 feet tall, with a canopy cover of 90%. Growing in the understory is poison oak (<i>Toxicodendron diversilobum</i>, NL) and coyote brush (<i>Baccharis pilularis</i> var. <i>consanguinium</i>, NL). The smaller stands scattered on the bar are dominated by sitka willow and sandbar willow (<i>Salix exigua</i>, OBL), 10 to 15 feet tall.</p> <p>In between the trees, Area A is dominated by coyote brush and goldenaster (<i>Heterotheca oregona</i> var. <i>rudis</i>, NL). Common species are mugwort (<i>Artemesia douglasiana</i>, FACW) and fennel (<i>Foeniculum vulgare</i>, FACU). Closer to the river, the dominant species on the gravel bar is white sweetclover (<i>Melilotus alba</i>, FACU+), with 13% to 30% cover.</p>
<p>Area B - (Includes portions of MRN 19, 11, 22 & 12 located North of river)</p> <p>This site includes a large area above OHW with established stands of sitka willow and black cottonwood. Sandbar willow is common and arroyo willow occasional. In general, the stands are denser and taller with increasing distance from the river. In between the trees, the bar is dominated by coyote brush, white sweetclover, and goldenaster. Common species are mugwort, fennel, and annual grasses. Overall vegetation cover was approximately 25%. Near the river, the vegetation was sparse, with less than 5% to 20% cover by white sweet clover and black mustard (<i>Brassica nigra</i>, NL), and with a few stands of sandbar willow 6 to 10 feet tall.</p>
<p>Area C - (Includes portions of MRN 10, 26, 13, & 27)</p> <p>This site has one stand of sandbar willow, 8 to 12 feet tall. The remainder of the bar was dominated by white sweet clover with less than 5% to 25% cover.</p>
<p>Area D - (Portions of MRN 14 & 27 North of Van Duzen & West of Yager Creek):</p> <p>This bar has a few small stands of trees, mostly red alder, sitka willow, and black cottonwood to 15 feet tall. The remainder of the bar has sparse cover by white sweetclover.</p>
<p>Area E- (Portions of MRN 14 & 27 at mouth of Yager Creek):</p> <p>This bar, located at the mouth of Yager Creek, has a mosaic of mature trees, young trees, and open areas. The dominant trees are sitka willow, black cottonwood, and sandbar willow. Arroyo willow is common and red alder occasional. Most of the stands have dense canopies, with 90% to 100% cover. In between the trees, the bar was dominated by white sweet clover which was up to 6 feet tall and had up to 80% cover. Black mustard and coyote brush were also common. Occasional species included goldenaster, mugwort, fennel, nutsedge (<i>Cyperus eragrostis</i>, FACW), and annual grasses.</p>
<p>Area F - (Portions of MRN 14 & 16 North of River):</p> <p>This is a long, narrow bar. A portion of the bar contains a long strip of trees running along the river, about 500 feet long and 20 to 30 feet wide. The species are sitka willow, arroyo willow, sandbar willow, red alder and black cottonwood. The trees are 15 to 30 feet tall. There are also a couple of smaller stands of sandbar willow. The remainder of the bar has sparse cover (less than 10%) by white sweetclover.</p>

Table 2.5-2 - continued.

Area G - (Portions of MRN 15 & 16 North of River):

The only woody vegetation on G-Bar is young black cottonwood, about four feet tall, coyote brush, and seedlings of sitka willow. The dominant species on the bar are white sweetclover, Mexican tea (*Chenopodium ambrosioides*, FAC), goldenaster, and black mustard. Overall vegetation cover ranged from less than 5% near the river to 40% away from the river. Adjacent to G-Bar, above OHW, was a row of black cottonwood 40 feet tall.

Area H - (Portions of MRN 15 & 17 East of River):

This area contains a few isolated willows less than 10 feet tall, mostly sitka willow and some sandbar willow. The bar is also vegetated by white sweet clover, black mustard, and Mexican tea, with overall cover of 25%-30%.

Table 2.5-3 - Description of vegetation in stockpile areas.

Stockpile Area 1 - (Along the west edge of MRN 24):

Stockpile Area One is an abandoned homesite. An outbuilding is still standing and the house foundation is still intact. Surrounding the structure was pasture, with grasses and black mustard.

Stockpile Area 2 - (In the south portion of MRN 18):

Stockpile Area Two is vegetated by coyote brush (up to 10 feet tall) and annual grasses. It also contains stands of sitka willow and black cottonwood, 20 to 25 feet tall. Other species are white sweetclover, fennel, and arroyo willow.

Stockpile Area 3 - (Located in both MRN 10 and 13):

Stockpile Area Three is dominated by annual grasses, with some coyote brush (less than 6 feet tall) and goldenaster. Occasional species are fennel, sandbar willow, and black cottonwood (15 feet tall, less than 1% cover).

Stockpile Area 4 - (In the west portion of MRN 21):

Most of Stockpile Area Four is highly disturbed and covered with gravel. Around the disturbed area there is coyote brush, annual grasses and English plantain (*Plantago lanceolata*, FAC-). Occasional species are sitka willow, arroyo willow, fennel, mugwort, and bull thistle (*Cirsium vulgare*, FACU). Also contained in Stockpile Area Four, in the vicinity of Barber Creek and the railroad loading area is a dense stand of trees up to 50 feet tall, including red alder, black cottonwood, sitka willow, and arroyo willow.

Stockpile Area 5 - (In MRN 16 north of the river):

Stockpile Area Five is located in a pasture. The stockpile site presently contains a pile of stumps. The surrounding area contains annual grasses, goldenaster, and black cottonwood sprouts.

Table 2.5-4 - Description of vegetation in pond near extraction area.

Instream Lateral Scour Pool in Overflow Channel - (Located in MRN 19 & 22):
A perennial pond is currently located in an overflow channel North of the main flow. Impacts to the pond are being avoided by a 200-foot buffer strip separating the pond from disturbances. At the time of the survey in August 1994 the pond was approximately 50 feet by 100 to 150 feet. The water depth was approximately six feet. Aquatic plants growing in the water were water-statwort (*Callitriche* sp., OBL), and pondweed (*Potamogeton natans*, OBL; and *Potamogeton* sp., OBL). Cattails (*Typha domingensis*, OBL) were growing in the water, occupying about one quarter of the pond area. Wetland plants found growing around the perimeter of the pond were nutsedge, pennyroyal (*Mentha pulegium*, OBL), and dock (*Rumex conglomeratus*, FACW; and *R. crispus*, FACW-). Surrounding the pond were mature sitka willow, arroyo willow, and red alder.

2.5 Proximity to Permanent Bridges

The Caltrans U.S. 101 and Northern Railroad Authority bridges are located slightly more than two miles downstream from the lowermost extraction area included in this plan. State Highway 36 and the Northern Railroad Authority have bridges across Yager Creek about 1.2 miles upstream from the project area.

SECTION III MINING OPERATION

3.0 Project Summary

This mine consists of instream river-run aggregate extraction from exposed gravel bars along the Van Duzen River and at the mouth of Yager Creek. Some bars will be harvested more frequently than others. The exposed gravel bar extraction areas are located between river mile 3.2 and river mile 6.0 on the Van Duzen River and at the mouth of Yager Creek (at river mile 5.0 on the Van Duzen). This project may excavate up to 200,000 cubic yards of aggregate per year. One benefit of this extraction may be flood-protection relief and stream bank protection.

Five stockpile sites will be located adjacent to the river. Gravel may be sorted onsite. No other aggregate processing is included under this application. Aggregate will be shipped from the ranch by truck and by rail.

3.1 Project Starting Date

The project is ongoing and is identified as California State Division of Mines and Geology Mine Number 91-12-0049.

3.2 Period of Activity

Extraction of instream river-run aggregate normally occurs during the low-flow season. Extraction outside of the normal low-flow season window may occur under a Department of Fish and Game 1603 agreement. Aggregate may be shipped from stockpile areas year-round.

The project has no planned termination date. It will continue, intermittently, when and for as long as aggradation threatens ranch resources, aggregate materials and capital are available and market and regulatory conditions are favorable. However, this reclamation plan will terminate in 15 years on December 31, 2012. Renewal will be based on compliance.

3.3 Quantity to be Extracted

In many upland surface mining operations there is a limited physical quantity of ore and the total quantity to be extracted can be reasonably estimated. Instream aggregate mining is different. The Van Duzen River Ranch considers river aggradation to be a continuing problem along the lower Van Duzen River. Erosional processes within the upper watershed produce bedload sediment. The river system transports and modifies the bedload material until it reaches the lower river system where it settles out and replenishes the extraction areas.

The processes of erosion, transportation, replenishment and aggradation are episodic; they do not occur at uniform annual rates. Hence, extraction will not occur at equal annual rates. Regardless, annual extraction along the entire project reach will not exceed 200,000 cubic yards during any one year. Periodic replenishment of the gravel bars in this reach will require this mining activity to continue indefinitely. Therefore, there is no limit to the total amount of material that to be excavated.

3.3-1 Extraction Limit

Several factors will influence the annual aggregate extraction prescriptions for this project. Chief among these is the need to maintain year-round stream channel beneficial uses. The operators believe that the project reach channel is highly aggraded and are particularly interested in protecting ranch resources by increasing channel capacity to reduce the flooding and bank erosion impacts of frequently occurring floods along the lower Van Duzen. Preliminary channel and flood frequency analyses indicate that ranch objectives could be met if the lower Van Duzen channel had a bank full cross section of approximately 8,000 square feet. Depending upon flow synchronization with Yager Creek, backwater effects from the Eel, variability in channel width and energy gradient, an 8,000 square foot design capacity channel would carry a two-to five year flow event.

This analysis included a Manning's estimate of bankfull average water velocity of 5 to 6 fps at benchmark cross section number 9; where S was estimated at 0.002, R = 3.6 feet, and N = 0.25 to 0.30. At these velocities, a bankfull cross sectional area of 8,000 square feet would conduct discharges of 40,000 to 48,000 cfs. This analysis is based on preliminary data and future monitoring may suggest the need for adjustments in the analysis and conclusions. In 1995 cross section nine was approximately 1,370 feet wide with an area of approximately 5,510 square feet and a mean depth of 4 feet. If the mean depth of this section were increased by 1.8 feet (to 5.8 feet) the stream bankfull cross-sectional area would be approximately 8,000 square feet.

Annual extraction levels are often based, in large part, on gravel recruitment so as to minimize channel degradation. However, this project is unique in that the channel is highly aggraded and volume to be extracted is partly driven by the operator's desire to increase the capacity of the channel to convey flood waters and enhance fish passage while not significantly impacting habitat diversity and the important beneficial uses of the river and its channel.

This plan establishes a maximum cross section channel capacity limit of approximately 8,000 square feet for the project. Limited excavation beyond a bankfull 8,000 square foot capacity may be provided at certain sites in order to encourage sediment transport, channel degradation and sediment deposition which over time would achieve the desired flood-conveyance channel throughout the project reach. Limited extraction beyond the approximately 8,000 square foot cross section channel may be approved by the CHERT or other regulatory agencies when needed to protect or enhance riverine beneficial uses. Continued channel aggradation and the need to protect instream beneficial uses may not allow the entire channel reach cross sectional area to be expanded to 8,000 square feet. However, it does provide a maximum level of extraction which may meet the applicants flood protection objectives and thus, may not need to be exceeded.

3.4 Mining Methods to be Used

Gravel bar skimming, trenches, pits, and other environmentally sound methods that are consistent with the objectives of the project and authorized under Department of Fish and Game 1603 agreements will be used. Because flood and streambank protection are expected benefits of this project, instream excavation methods which will reduce bank erosion and increase the flood carrying capacity of the channel will be used. Gravel bar skimming is the

standard preferred method. This is a long-term project and it is to be expected that approved mining methods will adapt in response to improvements in technology.

When gravel bar skimming occurs during the summer months thalweg confinement will be maintained and water quality will be protected by utilizing a minimum one-foot vertical freeboard between extraction surfaces and the existing streamflow water surface. Areas of skimming will be sloped for drainage purposes so they will drain downstream and or across stream toward the low flow channel.

3.5 Area to be Disturbed by Extraction

The project area contains 100 acres of exposed gravel bars. These features of scour and deposition, somewhat variable from year to year, are located between the low-flow channel and periodic high water levels. Above the periodic high water levels there are established stands of woody riparian vegetation and other ranch lands where no excavation will occur. To meet the objectives of flood and streambank protection, some exposed gravel bars will be mined more frequently than others. Excavation will occur on no more than 50 acres of exposed gravel bar during any one year. The risk of avulsion is high in some reaches and the exact location of the exposed gravel bars within the entitled parcels which are subject to extraction may vary somewhat from year to year.

3.6 Processing

Gravel may be sorted onsite. No onsite washing, crushing or other aggregate processing is included under this application.

3.7 Stockpile Areas

Small, temporary stockpiles will be established at extraction sites during the low flow season. These will be removed prior to winter runoff conditions. A typical schematic diagram of these temporary stockpiles is shown on Attachment 10.

Five off-river stockpile areas are established under this plan. These stockpile areas are on level or nearly level alluvial terraces. Refer to the map-photos (Attachments 4-7) for stockpile area locations. The total aerial extent disturbed by all five stockpile sites is under 10 acres (Table 3.7-1). Gravel will be shipped by truck from Stockpile areas 1, 2, 3, and 5. Gravel will be shipped by both truck and rail from Stockpile area 4. All stockpile areas and areas adjacent to the stockpiles will continue to be periodically used for livestock feeding, grazing or other agriculture activities during the project.

Table 3.7-1 Summary of existing conditions at stockpile sites.

Stockpile Site	Area (acres)	Located in APN	Located in MRN	Current Use of Stockpile Site
1	1.25	204-101-02	24	Burned-home site
2	1.90	204-101-03	18	Open space & grazing

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Table 3.7-1 - continued.

3	1.60	204-063-11 & 204-071-05	11 & 12	Open space & grazing
4	3.70	204-111-09	21	Stockpile, storage, grazing and feeding
5	1.30	204-071-07 & 204-071-08	15 & 16	Stump storage & grazing
Total Area	9.75			

Stockpile Area 1. is located in County parcel number 204-101-02 on a 1.25 acre site adjacent to River Bar Road in the NE 1/4 of the NE 1/4 of Section 30, T 2N, R1E, HBM. Until recently this site contained a residence and other structures. The house burned in recent years and the site now contains a foundation, building remnants and trash. This site will be cleared and used for gravel storage and access to River Bar Road. Gravel trucks leaving this project will exit to River Bar Road through this parcel. River Bar Road is a 1.5-lane paved road between this site and State Highway 36. The distance is one mile. See Attachment 4.

Stockpile Area 2 is located directly south of stockpile area 1 at the south end of a six-acre parcel (parcel number 204-101-03). This parcel is in the NE 1/4 of the NE 1/4 of Section 30, T 2N, R1E, HBM. The existing land use of this parcel is mostly irrigated pasture and grazing with some brush and gravel bar. A non-pasture portion of this parcel will be used to stockpile gravel. Trucks hauling from this site will exit to River Bar Road through stockpile area 1. See Attachment 4.

Stockpile Area 3 is located south of the river approximately in the middle of the-project area. This area is in the north half of parcel number 204-063-11 and in a portion of parcel number 204-071-05. These parcels are in portions of the SE 1/4 of Section 29 and the SW 1/4 of Section 28. The existing use is open space and grazing. See Attachment 5.

Stockpile Area 4 is located in county parcel number 204-111-09 in the NE 1/4 of Section 29, T 2N, R 1E, HBM. This area is presently used for pasture, winter livestock feeding, gravel storage and ranch-equipment storage. When gravel is to be transported by rail it will be loaded from this site. Loading will be done by a conveyor belt and/or a front-end loader. A year-round flat car bridge across Barber Creek will be used to access the railroad track loading site near this stockpile area. See Attachment 5.

Stockpile Area 5 is located in the SE 1/4 of Section 28, T2N, R 1E, HBM in a 60-acre open pasture (in parcel 204-071-09). This site now contains a pile of stumps. See Attachment 6.

3.8 Access and Transportation

Primary access to the ranch is via River Bar Road which joins State Highway 36 west of Hydesville, in the NW 1/4 Sec. 19, T2N, R1E, HBM. Gravel will be exported from the ranch via one rail road route and four truck transportation routes. Refer to Attachment 11, a portion of the local U.S.G.S. topographic map.

Truck Route 1

Gravel will leave stockpile areas 2 and 1 and be transported to State Highway 36 via River Bar Road. Route 1 begins in the southeast quarter of Section 19 where stockpile site 1 joins River Bar Road. From here there is 1 mile of 1.5-lane road to Highway 36.

Truck Route 2

Gravel will be transported to State Highway 36 through the ranch main gate via River Bar Road. Route 2 is the 1.9 mile length of River Bar Road extending from the ranch main gate to Highway 36. It includes Truck Route 1. Route 2 is presently used by most traffic that enters and leaves the ranch. Logging trucks, gravel trucks, fertilizer trucks, feed trucks and heavy equipment hauling trucks now use this route.

Truck Route 3

If the market is to the east, trucks may use South Fisher Road which extends 1.5 miles from the mouth of Yager Creek to State Highway 36 about midway between Hydesville and Carlotta, near the center of Section 21, T 2N, R1E, HBM.

Truck Route 4

East bound trucks may also the Odd Fellows Road to reach State Highway 36. Odd Fellows Road is a 0.6 mile route that connects parcel 204-071-08 (MRN 15 on Attachment 6) to Highway 36 near Carlotta.

Access Route 6 (the rail road) Is adjacent to stockpile area four just north of Barber Creek. A flat car bridge and conveyor belt will be used to cross Barber Creek and access the track area for loading.

3.9 Summer Bridges

The Van Duzen River Ranch sustains important year-round ranch activity on both sides of the Van Duzen River and Yager Creek. During the low-flow season the river is forded, or one or more flat car bridges are used to gain access throughout the ranch property. Although the ranch may use up to seven summer bridge sites across the Van Duzen and Yager Creek, there is usually only one bridge and rarely will there be a need for more than three bridges to be installed at any one time. The number and location of bridges required will vary with river configuration and with agriculture and extraction activity. Bridges are installed and removed under Army Corps of Engineer's permits and exemptions and according to California Department of Fish & Game 1603 agreements which are designed to protect water quality and fish and wildlife resources. In the summers of 1994 and 1995 the ranch had one main bridge in place which can be seen near the center of Attachment 5. During the 1994 extraction season this bridge was used for agriculture activity and to transport gravel to stockpile area 4. During the 1995 extraction season no bridges were used for gravel mining. Bridges are pulled in the fall before the water rises significantly in order to avoid interfering with navigation (drift-boat fishermen) or other instream beneficial uses. The typical summer bridge consists of a railway-car bed with 3-foot tall log or concrete crib walls and gravel-fill approaches.

3.10 Benchmark Monitoring Cross Sections

Ten benchmark cross sections have been set across the Van Duzen and Yager Creek to provide long-term channel morphology monitoring support for this project. Nine were established in 1993. A tenth cross section was installed in 1995. The locations of these cross sections are shown on Attachments 4-7 and on Attachment 9. These cross sections are being

used to monitor thalweg elevations mean bed elevation and bankfull channel cross section area capacity. See Attachments 12-21.

3.11 Monitoring Annual Extraction

The amount of gravel extracted each year will be determined by some combination of the following various methods: sales, load counts, load weights, stockpile measurements and pre- and post-topographic analyses of extraction sites. The annual accounting/monitoring methods will vary with extraction methodology and disposition of the gravel.

3.12 Stormwater Drainage

The extraction areas and stockpile areas are located on deep alluvium which readily absorbs rain water and produces no offsite overland flow. The stockpile areas are on nearly level terraces which further enhances the infiltration of rain water. There are no plans for onsite aggregate washing; hence, there are no sedimentation ponds. Therefore, there is no need for a separate project-area storm water drainage plan. This reclamation plan will be forwarded to the California Regional Water Quality Control Board for their review and certification.

3.13 Erosion Control

Erosion processes can be classified in several ways. For this discussion the following classification scheme will be used: mass movement, wind erosion, and water erosion. Erosion by water will be divided into surface erosion, and channel erosion.

3.13-1 Mass Movement:

Land slides and other forms of mass movement are the downslope movement of rock or soil under the influences of gravity and are associated with steep terrain. The mined area is located in a gentle sloping alluvial terrain where mass movement is not an issue.

3.13-2 Wind Erosion:

The mined material is sand, gravel and cobbles. Very little fine textured material which might be subject to wind erosion is found on these gravel bars. The passage of heavy equipment over graveled areas may pulverize coarse material and create dust. Dust from graveled access routes will be minimized by watering the roadways during heavy use. Thus, wind erosion of mined material will not be a problem.

3.13-3 Surface Erosion:

Surface erosion includes splash erosion, rill erosion and interill erosion. Splash erosion is caused by raindrop impact. Rill and interill erosion is caused by overland flow. The surfaces of the extraction areas are coarse sands and gravels which resist detachment and splash erosion. The extraction areas and stockpile areas are located on deep alluvium which readily absorbs rain water and limits offsite overland flow. The stockpile areas are on nearly level terraces which produce no offsite overland flow. Following the above, surface erosion will not be a problem.

The stream crossing over Barber Creek, providing access to the railroad will use coarse gravel fill rather than native earth for the bridge approaches. The coarse gravel fill will resist surface

erosion. Native earth disturbed during bridge installation will be heavily mulched. Mulch will be maintained until native plants again protect disturbed sites.

3.13-4 Channel Erosion:

Channel erosion includes both bed and bank erosion. Channel erosion is a common occurrence in alluvial channels and this project reach of the Van Duzen River is no exception. Channel erosion can be increased and/or decreased by channel aggradation, channel degradation and gravel extraction. Ten benchmark cross sections (Section 3.10) have been established to monitor channel erosion. The operators have and will continue to use a variety of bio-engineering practices, hard points and vegetation to enhance instream habitat and to reduce the risk of significant channel erosion and protect ranch resources.

3.14 Contaminants

Sand and gravel mining does not produce contaminants. However, accidental fuel and lubricant leaks are a possibility. If such leakage does occur during mining the operators will remove contaminated material from the mined area.

3.15 Water Requirements

The only water that this mining operation will require is water used to wet road surfaces for dust control.

3.16 Project Influences on Future Mining

Future mining in the project area will not be jeopardized by this project. Future mining of aggregate in this area is dependent upon periodic replenishment, maintaining stream beneficial uses, favorable market conditions, and a favorable regulatory environment.

SECTION IV RECLAMATION ACTIVITIES

4.0 Introduction

Reclamation is defined in the Surface Mining and Reclamation Act (SMARA) as:

"... the combined process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations, including adverse surface effects incidental to underground mines, so that mined lands are reclaimed to a usable condition which is readily adaptable for alternate land uses and create no danger to public health or safety." (SMARA § 2733)

This is a long-term mining project. Reclamation will include periodic and annual reclamation activities as well as end-of-operation activities.

4.1 Disturbed Areas and End Uses

The specified end uses of areas disturbed by this surface mining operation are shown below.

Disturbed Area	Maximum Instantaneous Disturbed Acreage	Existing Use	End Use
Excavation Areas & Instream Haul Roads	60	Exposed Instream Gravel Bars	Exposed Instream Gravel Bars
Summer Bridge Sites	0.2	Exposed Gravel Bar	Exposed Gravel Bars
Stockpile 1	1.25	Burned-home site	Livestock Feeding
Stockpile 2	1.90	Riparian Habitat & Livestock Grazing & Open Space	Riparian Habitat & Livestock Grazing & Open Space
Stockpile 3	1.60	Livestock Grazing & Open Space	Livestock Grazing & Open Space
Stockpile 4	3.70	Ranch Equipment Storage, Aggregate Stockpile, Livestock Grazing & Feeding	Ranch Equipment Storage, Livestock Grazing & Feeding
Stockpile 5	1.30	Stump Storage, Pasture & Livestock Grazing	Pasture & Livestock Grazing
Barber Creek Crossing	0.10	Riparian Habitat & Open Space	Riparian Habitat & Open Space

4.2 Reclamation Activities

Disturbed Area	Reclamation Activity
Excavation Areas	Reclamation of excavated gravel bars includes: a. At the end of each operating year skimmed gravel bars will be sloped towards the low-flow channel and graded smooth to conform with adjacent topography and minimize the risk of fish entrapment. b. If pits or trenches are created, angled banks will be established as recommended on page 106 of the Eel River PEIR. c. High flows will periodically recruit gravel and rework channel morphology
Instream Haul Roads	Reclamation of Instream Haul Roads includes: a. Dust abatement when hauling occurs during the extraction season. b. High flows will periodically rework the bar surfaces and obliterate the roads.
Summer Bridge Sites	Reclamation of Summer Bridge Sites includes: a. Removal of summer bridge before high waters threaten to wash out the bridge or bridge approaches. b. Grade gravel approach fills smooth to conform to adjacent bar topography and slope towards the low-flow channel.
Stockpile 1	Reclamation of This Site includes: a. Maintain roadway from channel to River Bar Road. b. Smooth-out remaining gravel to create an elevated livestock feeding area.
Stockpile 2	Reclamation of This Site includes: a. Maintain roadway from channel to River Bar Road. b. Smooth out remaining gravel to conform with adjacent topography. c. Plant disturbed area with woody riparian vegetation consistent with adjacent riparian woody vegetation (willow, cottonwood). d. After woody vegetation has been reestablished occasional livestock grazing will occur.
Stockpile 3	Reclamation of This Site includes: a. Maintain roadway from channel to south-bank pastures b. Smooth out remaining gravel to conform with adjacent topography. c. Allow disturbed area to revegetate naturally with coyote brush and native grasses so as to conform with surrounding vegetation. d. Provide occasional onsite livestock grazing
Stockpile 4	Proposed end use requires no reclamation.

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4.2 Reclamation Activities - continued.

Stockpile 5	Reclamation of This Site includes: a. Smooth out remaining gravel to conform with adjacent topography. b. Plant disturbed area to make it consistent with vegetation in adjacent pasture at time of reclamation. d. Provide occasional onsite livestock grazing
Barber Creek Crossing	Reclamation of This Site includes: a. Remove bridge crossing. b. Remove and grade gravel bridge approaches to conform with existing adjacent topography. c. Remove overhead conveyor belt. d. Plant disturbed area with willows and cottonwoods to make it consistent with adjacent riparian vegetation at time of reclamation.

4.3 Time Schedule for Reclamation of Disturbed Areas

Disturbed Area	Reclamation Time Schedule
Excavation Areas	Reclamation of exposed gravel bars will occur periodically throughout the life of this project when high flows recruit gravel & rework the channel.
Instream Haul Roads	Reclamation of exposed gravel bars will occur periodically throughout the life of this project when high flows recruit gravel & rework the channel.
Summer Bridge Sites	Reclamation will occur annually before high winter-flow season.
Stockpile 1	This area will be used periodically to stockpile gravel. At other times throughout the life of this project and at the end of the project this area will be used for livestock feeding
Stockpile 2	This area will be used periodically to stockpile gravel. At other times throughout the life of this project this area will be used for livestock feeding. At the end of this project this area will be planted and provide riparian habitat and livestock grazing.
Stockpile 3	This area will be used periodically to stockpile gravel and graze cattle. At the end of this project this area will be allowed to revegetate naturally with coyote brush and native grasses so as to conform with surrounding vegetation. Following revegetation, the area will be used for occasional livestock grazing.
Stockpile 4	No change or reclamation proposed.
Stockpile 5	This area is located in an existing pasture. It will be used periodically to stockpile gravel. At the end of this project this area will be planted and used for livestock pasture.
Barber Creek Crossing	Reclamation will occur at the end of this project.

4.4 Reclamation Influences on Future Mining in this Area

Reclamation of excavated exposed gravel bars and summer bridge sites to instream uses will not preclude future mining at these sites. Reclamation of stockpile areas to proposed end uses will not disallow their future use as stockpile areas

4.5 Reclamation Influences on Public Health and Safety

Public access to ranch roads is limited by locked gates and barriers. Reclamation of stockpile areas will sustain agriculture activities that are normal to the region (i.e., agriculture equipment storage, the production of hay, livestock pasture, livestock grazing and livestock feeding). Reclamation of excavated exposed gravel bars and summer bridge sites to instream uses will allow normal river corridor uses to continue. Therefore, reclamation will not pose a threat to public health and safety.

4.6 Reclamation Standards

Pursuant to SMARA Section 2773 project reclamation activities will comply with the following standards provided in the California Code of Regulations (CCR), Title 14, Article 9, Sections 3700-3710.

4.6-1 Wildlife Habitat

Wildlife and wildlife habitat will be protected in accordance with CCR Section 3703.

Exposed Gravel Bar Excavation Areas:

Pond habitat will be avoided. Excavation and instream vegetation disturbance activities will comply with California Department of Fish & Game 1603 agreements which ensure that projects conducted in and around streams do not adversely impact fish and wildlife resources. If adverse impacts can not be avoided the DFG 1603 process ensures that adequate mitigation is provided.

Stockpile Area 1:

Stockpile Area 1 is a homesite and has no wildlife habitat.

Stockpile Area 2:

This area now contains developing riparian scrub vegetation with interspersed willows and cottonwoods. Premining conditions will be established at this site by planting native willow and cottonwood plants. Plant species and planting density will be consistent with adjacent riparian woody vegetation. Natural regeneration of coyote brush and other early seral species will occur in open areas between planted seedlings. Wildlife habitat quality and quantity at this site will recover to be at least as good as before mining commenced and similar to the habitat in the surrounding area.

Stockpile Area 3:

This area now contains developing riparian scrub vegetation. Premining conditions will be established at this site by allowing natural regeneration of coyote brush and other early seral species to invade the disturbed area. Wildlife habitat quality and quantity at this site will recover to be at least as good as before mining commenced and similar to the habitat in the surrounding area.

Barber Creek Crossing:

The flat car bridge and conveyor belt across Barber Creek will be removed. Soil disturbed during installation or removal will be mulched to prevent erosion and revegetated with native woody plants to enhance wildlife habitat values. Wildlife habitat quality and quantity at this site will recover to be at least as good as before mining commenced and similar to the habitat in the surrounding area.

Stockpile Area 4:

This area is used to store ranch equipment and products and has no wildlife habitat.

Stockpile Area 5:

This area is an open pasture with occasional wildlife use. This use will continue during and after the project.

4.6-2 Backfilling, Regrading, Slope Stability, and Recontouring

All backfilling, regrading, slope stability, and recontouring will conform with CCR Section 3704.

Excavated Areas and Bridge Approaches:

Regrading activities in these areas will comply with California Department of Fish & Game 1603 agreements.

Stockpile Areas:

Stockpile areas will be regraded to conform with surrounding topography.

4.6-3 Revegetation

Revegetation activities will conform with CCR 3705.

Excavated Areas:

Revegetation of exposed gravel bars is not included. However, woody plant material found in these bars prior to annual excavation activities will be avoided or salvaged according to California Department of Fish & Game 1603 agreements.

Stockpile Areas 1 & 4:

Revegetation is not consistent with end uses.

Stockpile Area 2:

The existing roadway will be maintained. The remainder of this site will be smoothed and decompacted. Revegetation will include seedlings or cuttings of willow and cottonwood which will be planted at a density and in a pattern which will be consistent with and complementary to surrounding riparian habitat. Open space between planted individuals will regenerate naturally with coyote brush and other early seral invaders.

Stockpile Area 3:

The existing roadway will be maintained. The remainder of this site will be smoothed and decompacted. Naturally regenerated coyote brush and other early seral invaders will revegetate the area and be consistent with and complementary to surrounding scrub vegetation.

Stockpile Area 5:

This terrace area will be smoothed to conform with adjacent land and decompacted. Area will then be planted with pasture grasses, brush or tree species to be consistent with adjacent vegetation at the time of reclamation.

Notes on Revegetation Standards

Natural Regeneration of coyote brush:

Coyote brush (*Baccharis pilularis* var *consanguinea*) is an extremely common dioecious member of the Asteraceae family. The female plant produces abundant light weight, wind borne seed during the winter months (November - January). This species is a primary invader and is easily established on permeable alluvial terraces and open gravel bars where it often develops a tap root that extends to depths of 10 feet or more.

Test Plots and Soil Analysis

Test plots and soil analyses are not needed for this revegetation program. Woodland and scrub riparian areas that will be planted normally support the native species that are involved. Disturbed agriculture land such as pastures are routinely replanted with pasture grasses as a matter of normal ranching activities.

Fencing:

Fencing and rotation grazing for plant protection and production is a normal part of ranch activity and requires no special attention under this reclamation plan.

Success of Regeneration

Success of revegetation will be judged by evaluating the presence, abundance, and cover provided by perennial plants that have been in-ground for at least three years and by comparison with the presence, abundance and cover found on adjacent areas.

Comparisons at Stockpile Areas 2, 3 and 5 will be made by sampling the vegetation immediately surrounding the disturbed sites to determine grass cover, brush cover or tree cover by species and then assuring that each of the disturbed sites contain at least the same cover or number of well-established stems per acre by species.

When necessary the following methods may be used on revegetated sites and adjacent reference areas. Grasses and forbs will be sampled for cover using a line-transect or quadrant method. Shrubs will be sampled for stem frequency and crown cover using a fixed plot method. Trees will be sampled for stem frequency and basal area using a fixed plot method. Photos of revegetated and nearby reference areas will also be provided.

Where reclamation calls for the establishment of pasture the following standards will apply. Pasture lands will be revegetated with a mixture of perennial rye, orchard grass and subclover at a combined rate of 30 lbs. of seed per acre. This mixture is expected to produce 3.5 tons of forage per acre per year without irrigation.

4.6-4 Drainage, Diversion Structures, Waterways, and Erosion Control

All drainage, diversion structures, waterways, and erosion control facilities will conform to CCR Section 3706.

As explained in Section 3.13 no special surface erosion control activities are required.

The extraction areas and stockpile areas are located on deep alluvium consisting of coarse textured sands and gravels which readily absorb storm water and produce no significant surface erosion risks. Furthermore, the stockpile areas are on nearly level terraces which produce no offsite overland flow. Because there is no offsite overland flow, surface drainage and erosion will not be a problem.

When stream alterations are required they will be done in accordance site specific Department of Fish and Game 1603 agreements.

4.6-5 Prime Agriculture Land Reclamation

This mining operation is not being conducted on prime agriculture lands. therefore the standards of CCR 3707 do not apply.

4.6-6 Other Agriculture Land Reclamation

Portions of this mining operation (Stockpile Area 5) will occur on non-prime agriculture land. Reclamation of non-prime agriculture land will conform with CCR Section 3708.

Stockpile Area 5 will be smoothed to conform with adjacent pasture land and decompacted. Area will then be planted with pasture grasses consistent with vegetation on surrounding pasture.

4.6-7 Building, Structure, and Equipment Removal

All building, structure, and equipment removal will conform to CCR Section 3709.

No buildings will be constructed for this mining operation. Stockpile Area 4 is presently used for storing ranch equipment and this use shall continue. Structures such as conveyor belts will be dismantled within 90 days following the termination of mining activities and removed from the site. Some mining equipment is also used for normal ranching purposes. Mining equipment that is not also used for ranching purposes will be removed from the site within 90 days following the termination of mining activities

4.6-8 Stream Protection including Surface and Groundwater

Streams including surface and groundwater will be protected in accordance with CCR Section 3710. Benchmark cross sections have been established to monitor changes in channel elevations and bank erosion.

Instream excavations will be done in accordance with site specific Department of Fish and Game 1603 agreements.

4.6-9 Topsoil Salvage

Areas to be disturbed and revegetated are alluvial terraces with no developed topsoil. Therefore the standards of CCR Section 3711 do not apply.

4.6-10 Tailing and Mine Waste Management

No tailings or mine waste will be generated. Therefore the standards of CCR Section 3712 do not apply.

4.6-11 Closure of Surface Openings

This mining operation will create no surface openings. Therefore the standards of CCR Section 3713 do not apply.

4.7 Reclamation Monitoring

Pursuant to CCR Section 2773(a), the success of reclamation will be monitored through an annual SMARA review process and for three years after the project has been completed or until performance standards are met.

4.8 Financial Assurances

The estimated costs of reclamation that might be incurred by the lead agency or by the Department of Conservation if the operators failed to meet their reclamation obligations are calculated below. The total estimated reclamation cost that might be incurred by these agencies is \$9,260.00. The applicants will provide financial assurances accordingly. The actual costs for the following, if done by the operator, would be considerably less.

Activity	Unit Cost (dollars)	Estimated Cost (dollars)
Mobilize (lump sum)	1,500	1,500
Annual Reclamation Activity		
Removal of up to Five Bridges	100	500
Groom up to 8 Excavation Areas	375	3,000
End of Operation Activity		
Grade up to Five Stockpile Areas	200	1,000
Remove Railroad loading Conveyor Belt & Barber Creek Bridge	2,000	2,000
Revegetation (per acre)	200	660
Annual Monitoring (one day per year for three years)	200	600
Total Required Financial Assurances		9260

SECTION V STATEMENT OF RESPONSIBILITIES

5.0 Statement of Responsibilities

I (we) the undersigned, hereby agree to accept full responsibility for reclamation of all mined lands as described and submitted herein and in conformance with the applicable requirements of Articles 1 and 9 (commencing with Sections 3500 et seq. and 3700 et seq. respectively) of Chapter 8 of Division 2 of Title 14 of the California Code of Regulations, the Surface Mining and Reclamation Act commencing with Section 2710 et seq., and with any modifications requested by the administering agency as conditions of approval.

Signed this _____ day of _____ 19 _____

Applicants

SECTION VI LITERATURE CITED

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SECTION VII ATTACHMENTS

Attachment 1

Van Duzen River Ranch Gravel Extraction Project Vicinity Map
in Humboldt County, California

Attachment 2

Van Duzen River Ranch Gravel Extraction Project Location on USGS 7.5' Map

Attachment 3

Van Duzen River Ranch and Project Parcels Locations on USGS 7.5' Map

Attachment 4

Photo-Map 1 of 4

Attachment 5

Photo-Map 2 of 4

Attachment 6

Photo-Map 3 of 4

Attachment 7

Photo-Map 4 of 4

Attachment 8

Geologic Map of General Project Area

Attachment 9

Channel Monitoring Cross Section Locations on USGS 7.5' Map

Attachment 10

Sketch of Temporary Stockpile

Attachment 11

Transportation Routes on USGS 7.5' Map

Attachment 12

Adjacent Property/Owner

Attachment 13

Attachment 13 has been omitted.

Attachments 14-23

Monitoring Cross sections

VAN DUZEN RIVER RANCH
HUMBOLDT COUNTY SURFACE MINING
RECLAMATION PLAN

Section VII Attachments
to the
RECLAMATION PLAN

Van Duzen River and Yager Creek
Humboldt County, California

File No. 204-041-19
CUP 19-94
RP 03-94
SMP 03-94
CDMG Mine No. 91-12-0049
Army Corps of Engineers File No. 20979N78
SCH # 92013033

Operator:
Jack & Mary L. Noble
P.O. Box 365
Fortuna, CA 95540
707-768-3739

Prepared by
Dr. Douglas Jager

as Part of
An application to the
County of Humboldt
for a
Surface Mining Permit
and approved
Reclamation Plan

First Submitted January 9, 1995
Revised and Resubmitted April 11, 1995
Revised and Resubmitted January 2, 1996
Revised and Resubmitted January 26, 1996
Revised and Resubmitted March 26, 1996
Revised for Public Review and Hearing July 3, 1997

VAN DUZEN RIVER RANCH
HUMBOLDT COUNTY SURFACE MINING
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Revised and Resubmitted January 26, 1996

Revised and Resubmitted March 26, 1996

Revised for Public Review and Hearing July 3, 1997

SECTION VII LIST OF ATTACHMENTS FOUND UNDER THIS COVER

The attachments of Section VII are bound together under this cover and incorporated into the Van Duzen River Ranch Reclamation Plan.

Attachment 1

Van Duzen River Ranch Gravel Extraction Project Vicinity Map
in Humboldt County, California

Attachment 2

Van Duzen River Ranch Gravel Extraction Project Location on USGS 7.5' Map

Attachment 3

Van Duzen River Ranch and Project Parcels Locations on USGS 7.5' Map

Attachment 4

Photo-Map 1 of 4

Attachment 5

Photo-Map 2 of 4

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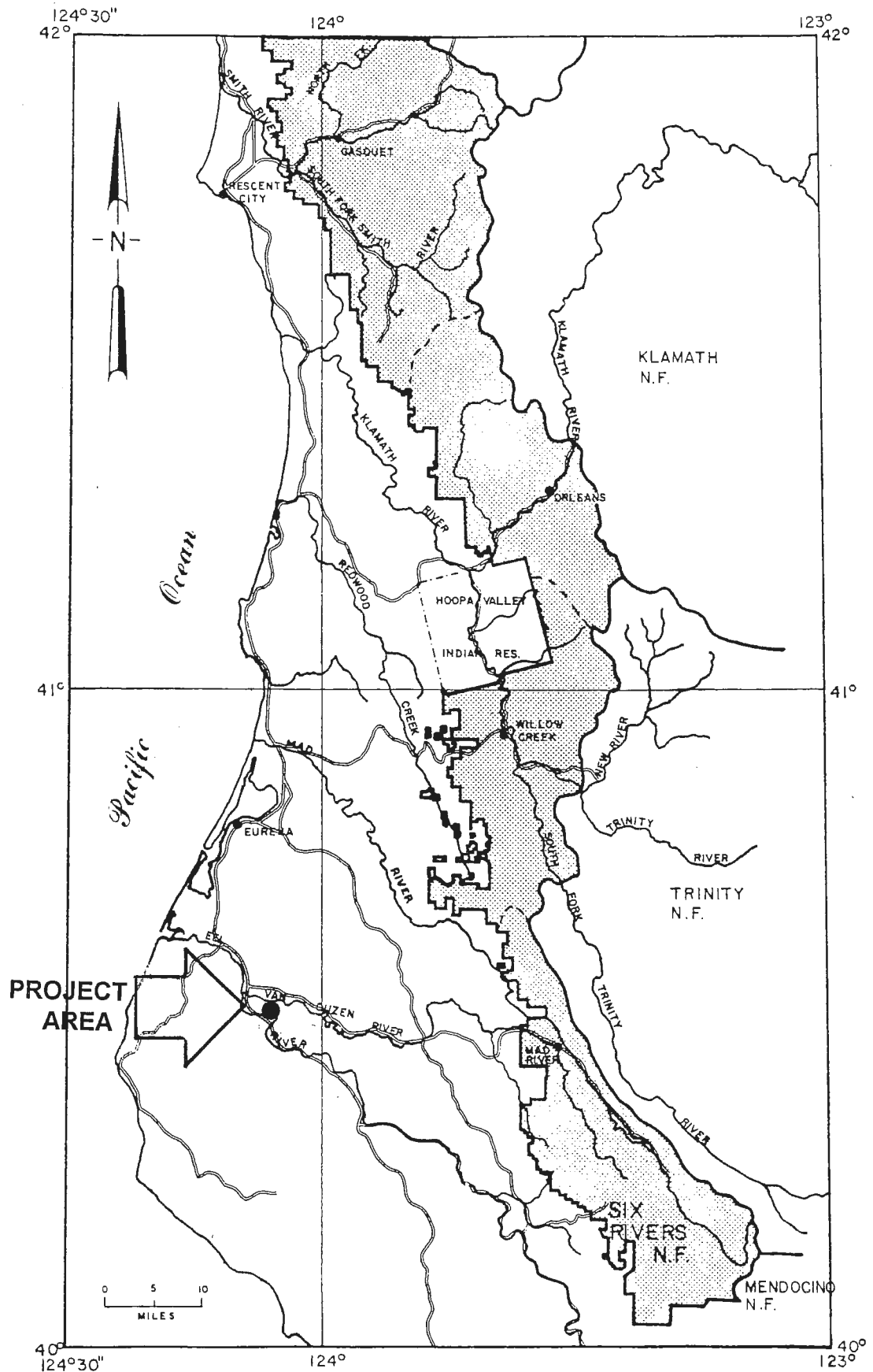
Attachment 13

Attachment 13 has been omitted.

Attachments 14-23

Monitoring Cross sections

VICINITY MAP



Attachment 1

Van Duzen River Ranch Gravel Extraction Project Vicinity Map
in Humboldt County, California

Map Scale $\pm 1:1,000,000$

Attachment Prepared by Doug Jager

Attachment 2

**Van Duzen River Ranch &
General Project Area**

CDMG Mine No. 91-12-0049

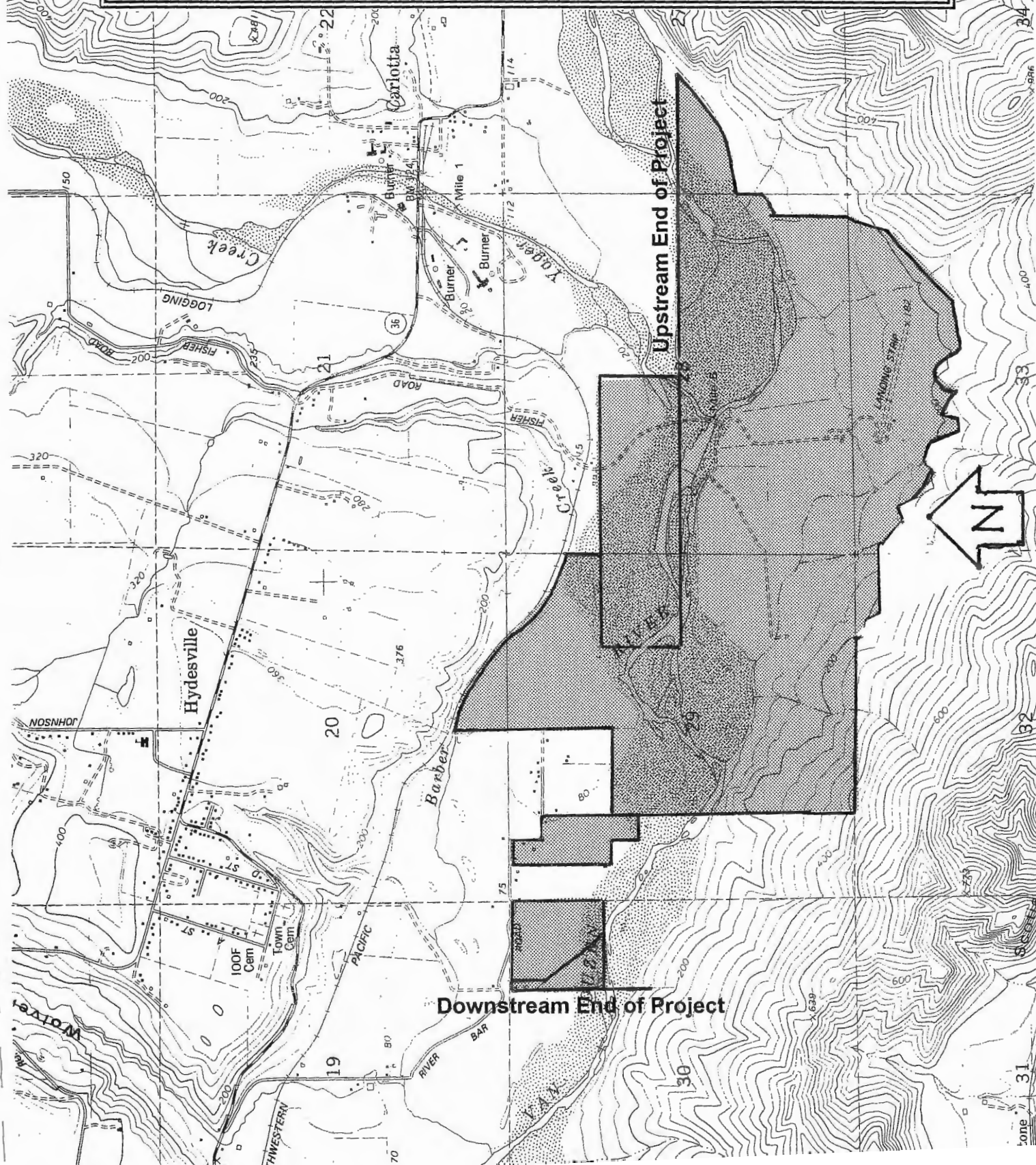
**Located on the Van Duzen River between
river mile 3 and 6 and at the mouth of
Yager Creek in**

**Secs. 27, 28, 29, & 30 T2N, R1E, HBM
Humboldt County, California**

**Partial Copy of
1979 Hydesville, California
U.S.G.S. 7.5' Quad Map**

**Scale is 1:24,000
Contour Interval is 40 feet**

Attachment Prepared by Doug Jager



Attachment 3

Van Duzer River Ranch & Project Area Parcels

CDMG Mine No. 91-12-0049

Located on the Van Duzer River between
river mile 3 and 6 and at the mouth of
Yager Creek in

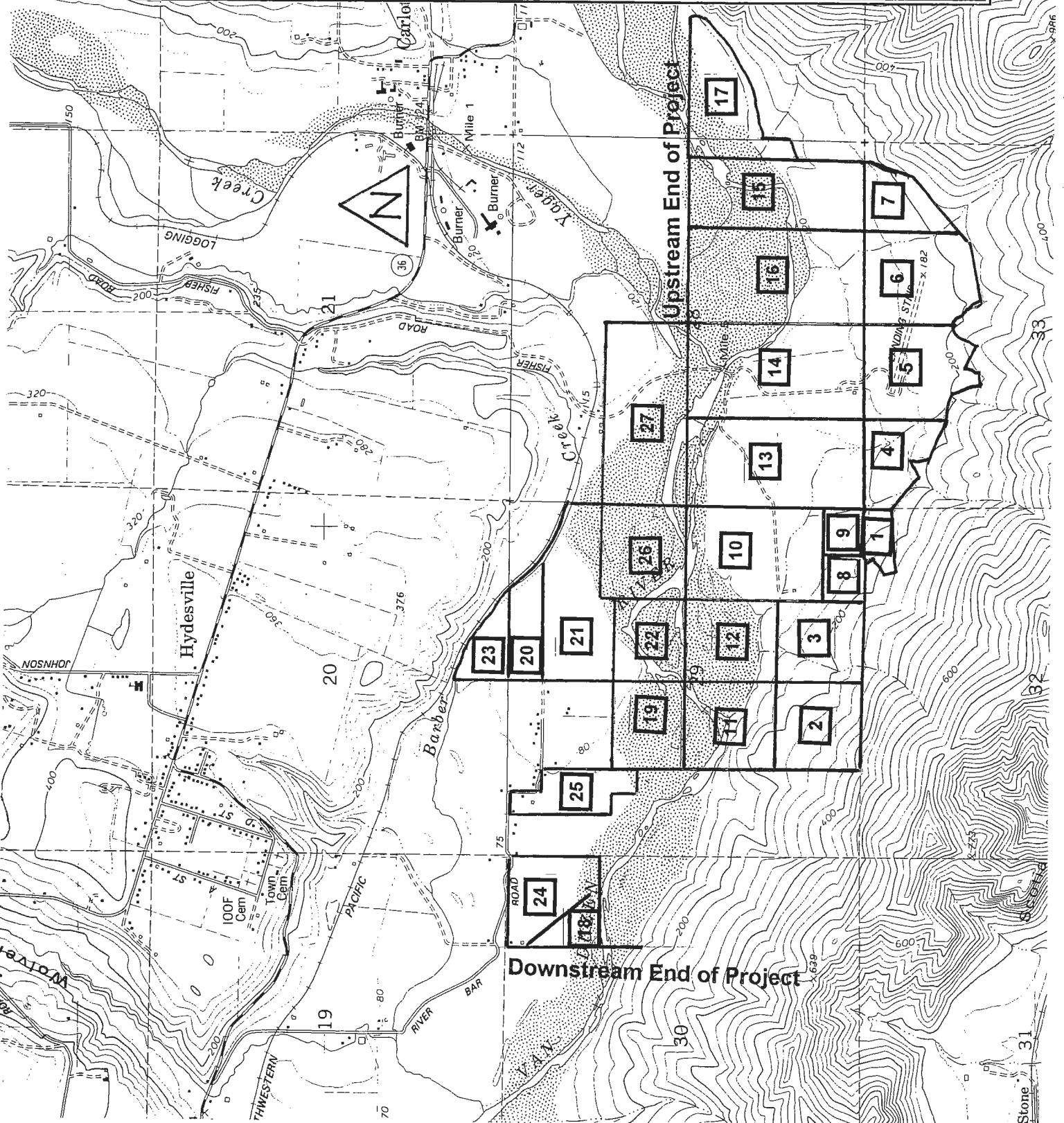
Secs. 27, 28, 29, & 30 T2N, R1E, HBM
Humboldt County, California

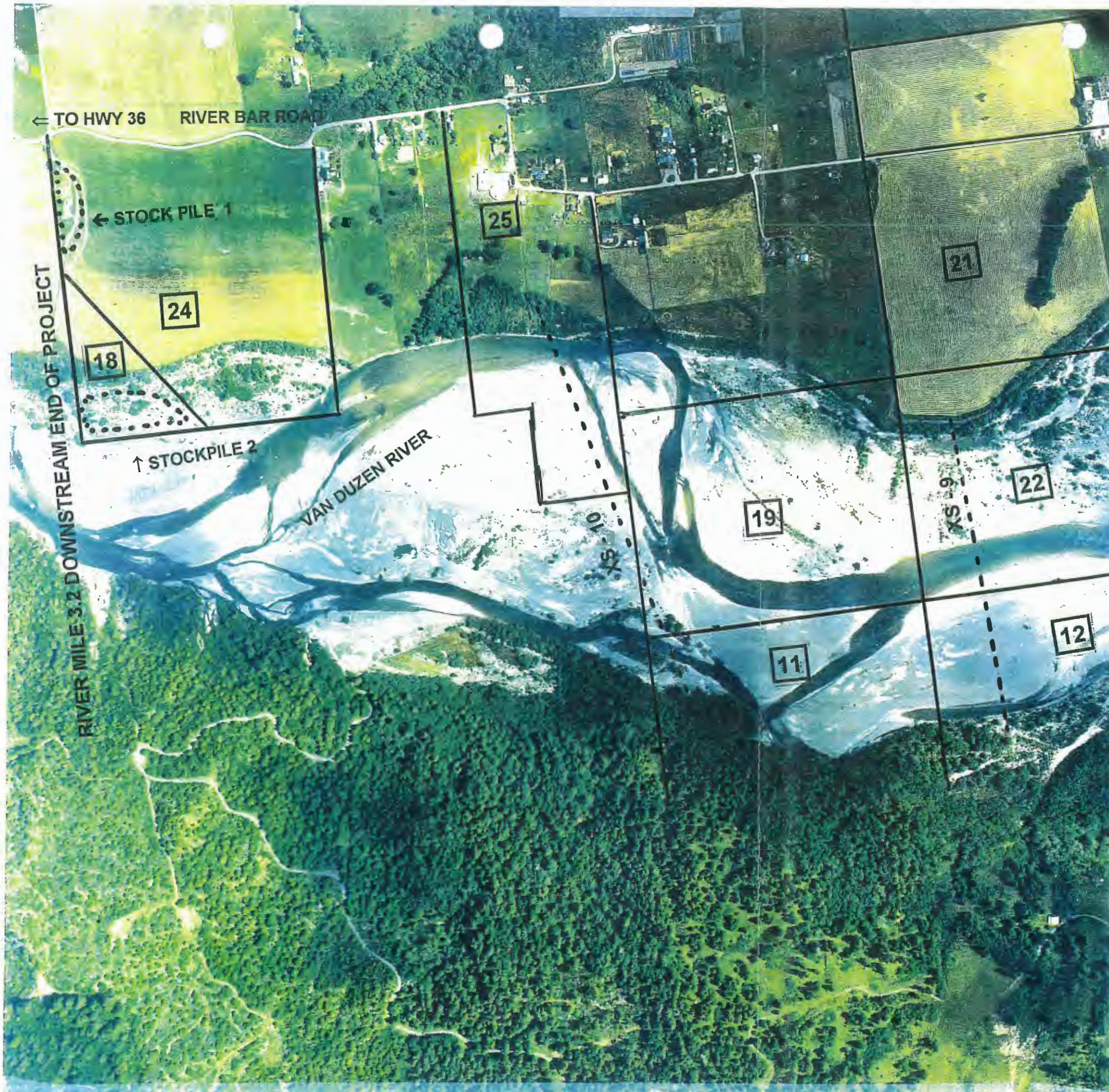
Partial Copy of
1979 Hydesville, California
U.S.G.S. 7.5' Quad Map

Scale is 1:24,000
Contour Interval is 40 feet

Attachment Prepared by Doug Jager

10 Parcel Map Reference Numbers. Refer to Reclamation Plan Tables 1.9-1 through 1.9-4 for County Assessor's Parcel Numbers





Attachment No. 4
Photo-Map No. 1 of 4

A Portion of the
Van Duzen River Ranch
Gravel Extraction Project
CDMG Mine No. 91-12-0049

Located on the Van Duzen River between
river mile 3 and 6 and at the mouth of
Yager Creek
in
Sections 27, 28, 29, and 30 T2N, R1E, HBM.
Humboldt County, California

Legend

— Parcel Boundaries±

- - - Cross Sections

19 Map Reference Numbers

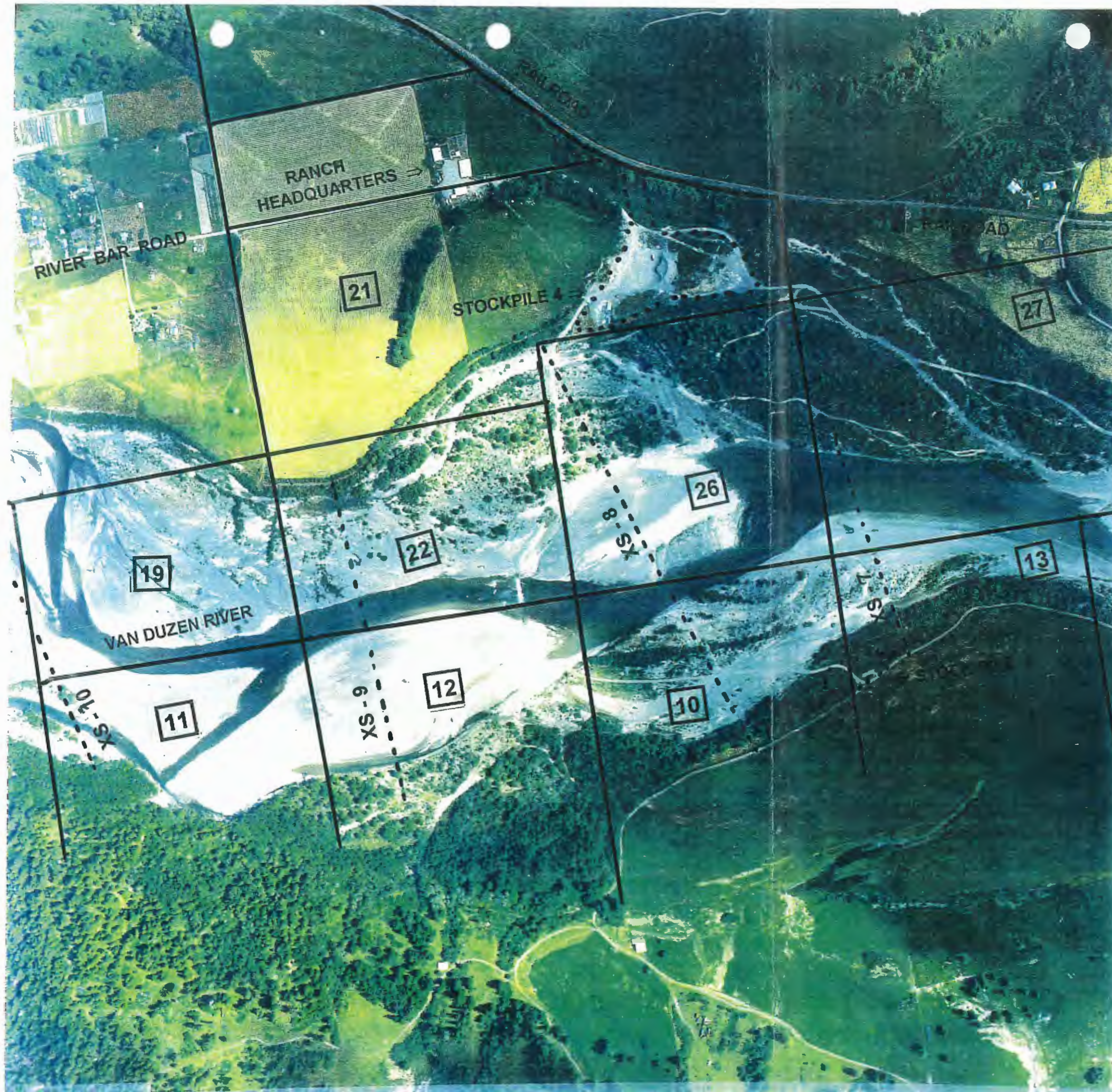
Refer to Tables 1.9-2, 1.9-3 and 1.9-4
in Reclamation Plan to associate
Map Reference Numbers
with
County Assessor's Parcel Numbers



North

Scale = 1:6,000±
Photo and Map Features to be used as
Match Lines

Photo Date June 12, 1995
Attachment Prepared by Doug Jager



Attachment No. 5
Photo-Map No. 2 of 4

A Portion of the
Van Duzen River Ranch
Gravel Extraction Project
CDMG Mine No. 91-12-0049

Located on the Van Duzen River between
river mile 3 and 6 and at the mouth of
Yager Creek
in
Sections 27, 28, 29, and 30 T2N, R1E, HBM.
Humboldt County, California

Legend

— Parcel Boundaries±

- - - Cross Sections

21 Map Reference Numbers

Refer to Tables 1.9-2, 1.9-3 and 1.9-4
in Reclamation Plan
to associate Map Reference Numbers
with
County Assessor's Parcel Numbers



North

Scale = 1:6,000±
Photo and Map Features to be used as
Match Lines

Photo Date June 12, 1995
Attachment Prepared by Doug Jager



Attachment No. 6
Photo-Map No. 3 of 4

A Portion of the
Van Duzen River Ranch
Gravel Extraction Project
CDMG Mine No. 91-12-0049

Located on the Van Duzen River between
river mile 3 and 6 and at the mouth of
Yager Creek
in
Sections 27, 28, 29, and 30 T2N, R1E, HBM.
Humboldt County, California

Legend

- Parcel Boundaries±
- Cross Sections

16 Map Reference Numbers

Refer to Tables 1.9-2, 1.9-3 and 1.9-4
in Reclamation Plan
to associate Map Reference Numbers
with
County Assessor's Parcel Numbers



North

Scale = 1:6,000±
Photo and Map Features to be used as
Match Lines

Photo Date June 12, 1995
Attachment Prepared by Doug Jager



Attachment No. 7
Photo-Map No. 4 of 4

A Portion of the
Van Duzen River Ranch
Gravel Extraction Project
CDMG Mine No. 91-12-0049

Located on the Van Duzen River between
river mile 3 and 6 and at the mouth of
Yager Creek
in
Sections 27, 28, 29, and 30 T2N, R1E, HBM.
Humboldt County, California

Legend

———— Parcel Boundaries±

..... Cross Sections

21 Map Reference Numbers

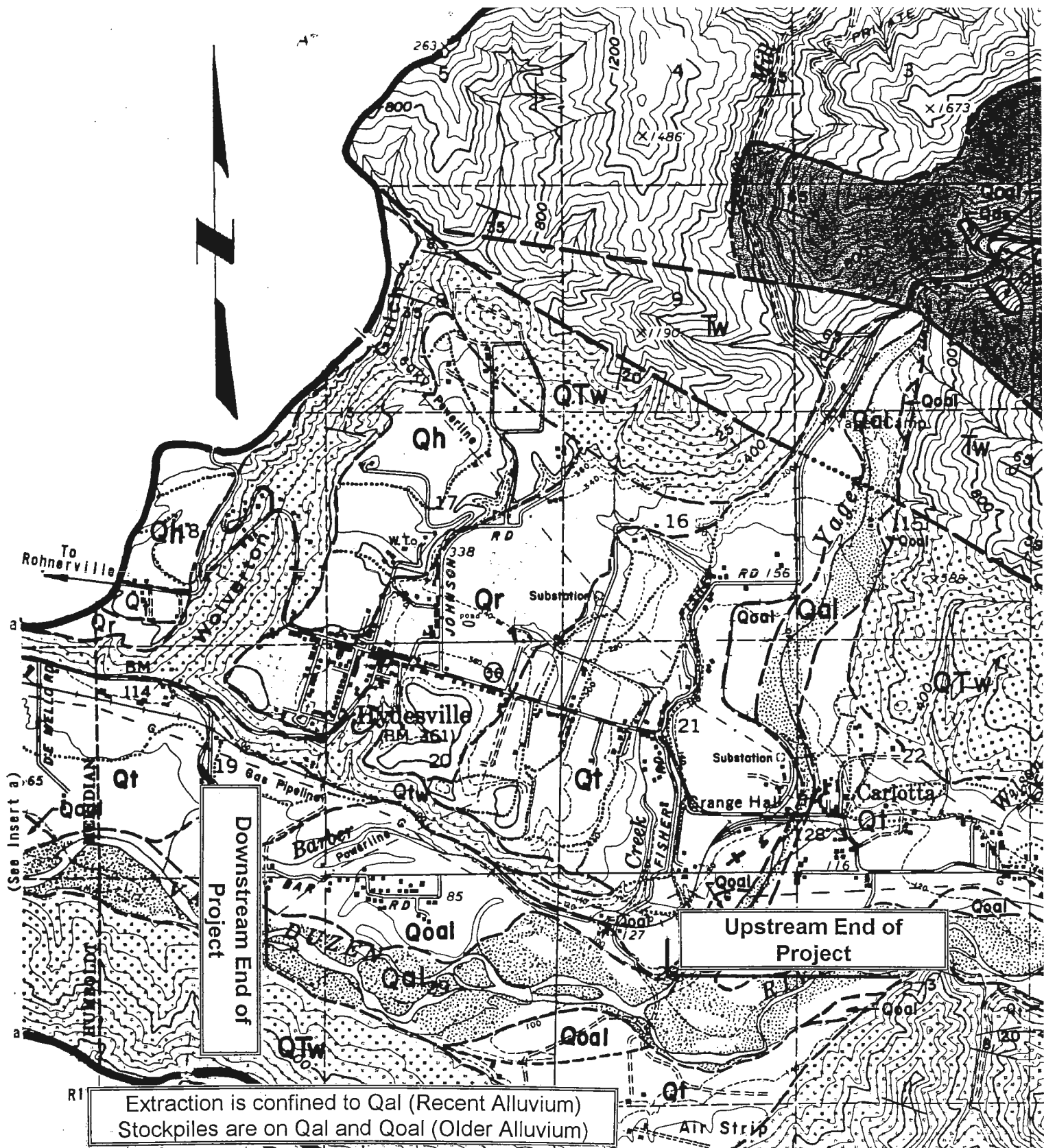
Refer to Tables 1.9-2, 1.9-3 and 1.9-4
in Reclamation Plan
to associate Map Reference Numbers
with
County Assessor's Parcel Numbers



North

Scale = 1:6,000±
Photo and Map Features to be used as
Match Lines

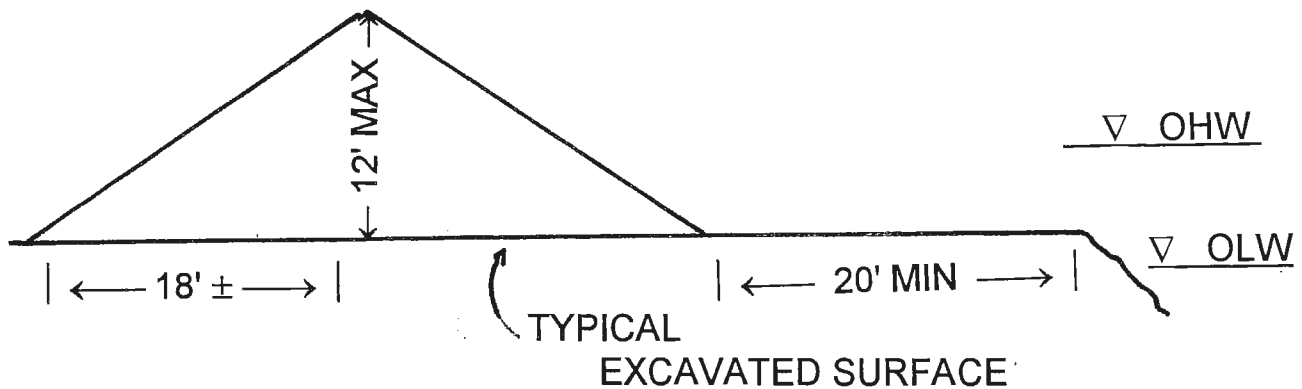
Photo Date June 12, 1995
Attachment Prepared by Doug Jager



<p>Attachment 8 Geologic Map of General Project Area CDMG Mine No. 91-12-0049 Located on the Van Duzen River between river mile 3 and 6 and at the mouth of Yager Creek in Secs. 27, 28, 29, & 30 T2N, R1E, HBM Humboldt County, California</p>	<p>Partial Copy of 1974 Geologic Map Prepared by Kelsey & Allwardt (1974)</p> <p>Scale is 1:35,200± Contour Interval is 80 feet</p> <p>Attachment Prepared by Doug Jager</p>
--	---

Attachment 10

MAXIMUM TEMPORARY STOCKPILE LENGTH IS 125 FEET
MAXIMUM TEMPORARY STOCKPILE VOLUME IS 2,000 CUBIC YARDS



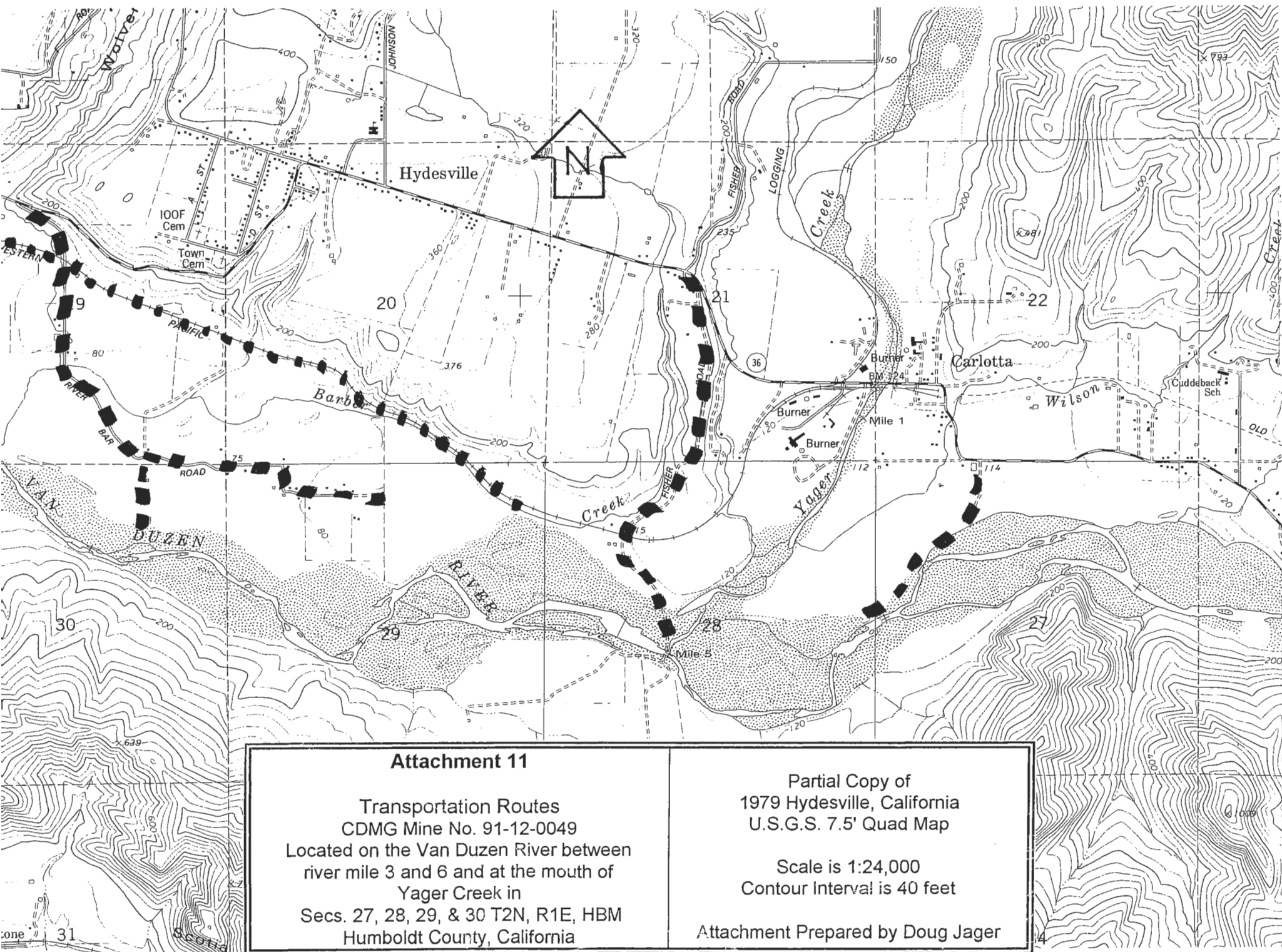
TYPICAL TEMPORARY STOCKPILE CROSS SECTION

TEMPORARY STOCKPILES MAY BE LOCATED IN EXCAVATED AREAS

Horizontal and Vertical Scale 1:120

1-inch = 10 feet

Van Duzen River Ranch
Commercial Gravel Extraction Project
CDMG Mine No. 91-12-0049
Located on the Van Duzen River between mile 3 and 6
and at the mouth of Yager Creek
in Secs. 27, 28, 29, & 30 T2N, R1E, HBM
Humboldt County, California

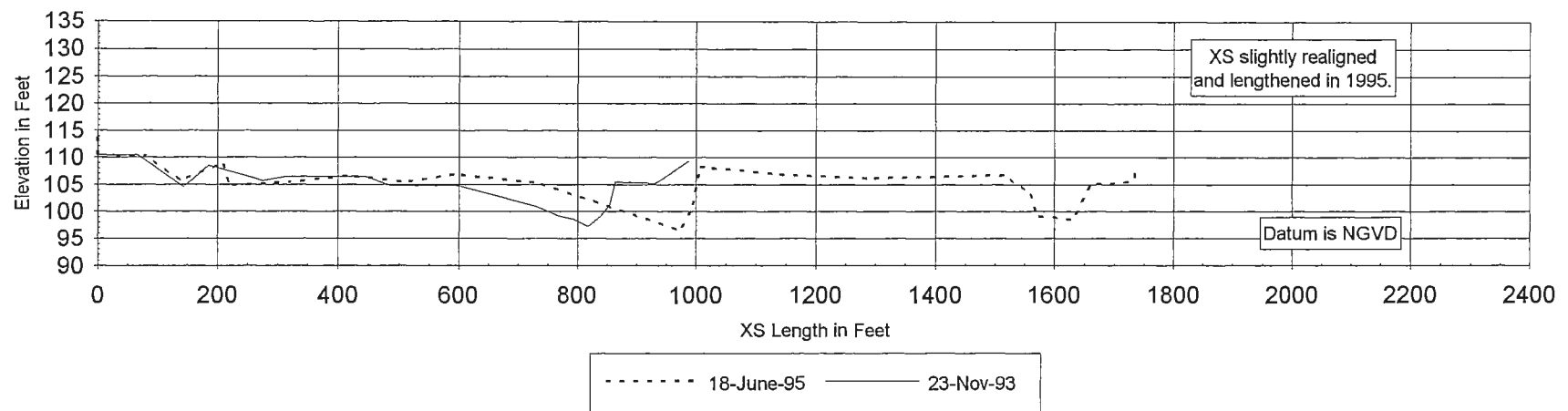


Attachment 12
Adjacent Properties/Owners

Parcel Numbers	Owners
204-071-03 plus others	Simpson Redwood Company P.O. Box 1169 Arcata, CA 95521
204-101-24 plus others	Barnum Timber Company P.O. Box 1365 Eureka, CA 95502
204-072-03 plus others	Tom Bess 5798 Hwy 36 Carlotta, CA 95528
204-111-02 plus others	A.L. Fearrien P.O. Box 371 Hydesville, CA 95547
204-091-12	T.M. & S. A. Holt P.O. Box 232 Hydesville, CA 95547
204-331-20	Ezra Borntrager P.o. Box 323 Fortuna, CA 95540
204-331-33	Deana Drummond 1823 River Bar Road Fortuna, CA 95540
204-331-29	Robert Cranston 1828 River Bar Road Fortuna, CA 95540
204-331-19	C.J. Quilez & Jessica Puccinelli 1002 Kiser Dr. San Jose, CA 95120
204-101-08	Dwight Jenings 1522 River Bar Road Fortuna, CA 95540
204-101-02	Philip Nyberg 105 N. Main St Fortuna, CA 95540
204-231-05	Thomas Byram 24151 Valyermd Mission Viejo, CA 92691
204-331-01	Raymond Delaney 1442 River Bar Road Fortuna, Ca 95540

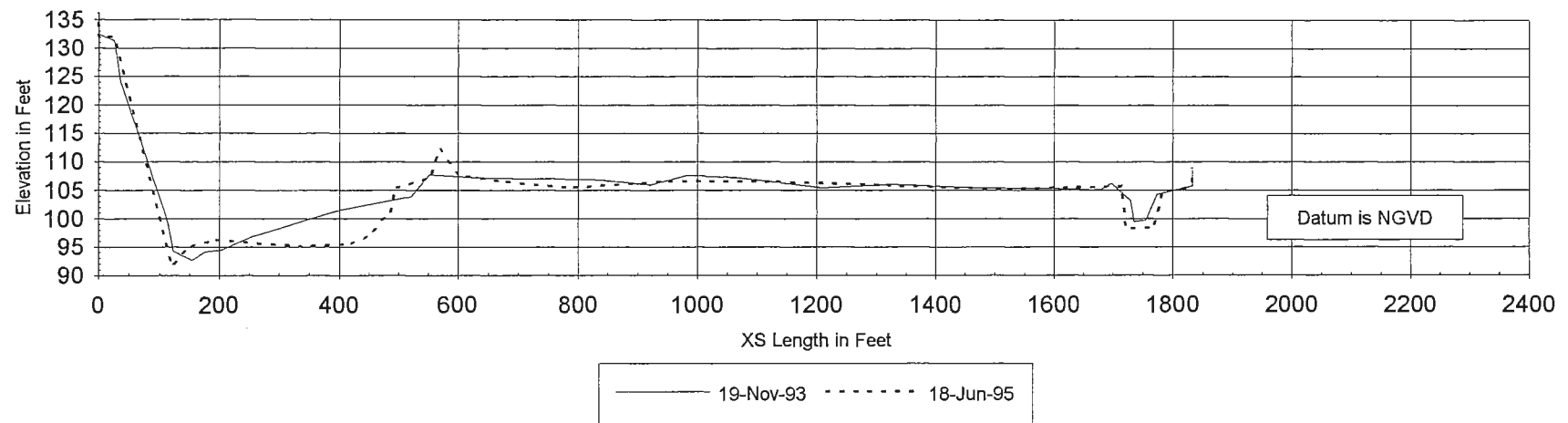
Attachment 13 has been omitted.

Attachment 14
Van Duzen River Ranch
Van Duzen River XS - 1

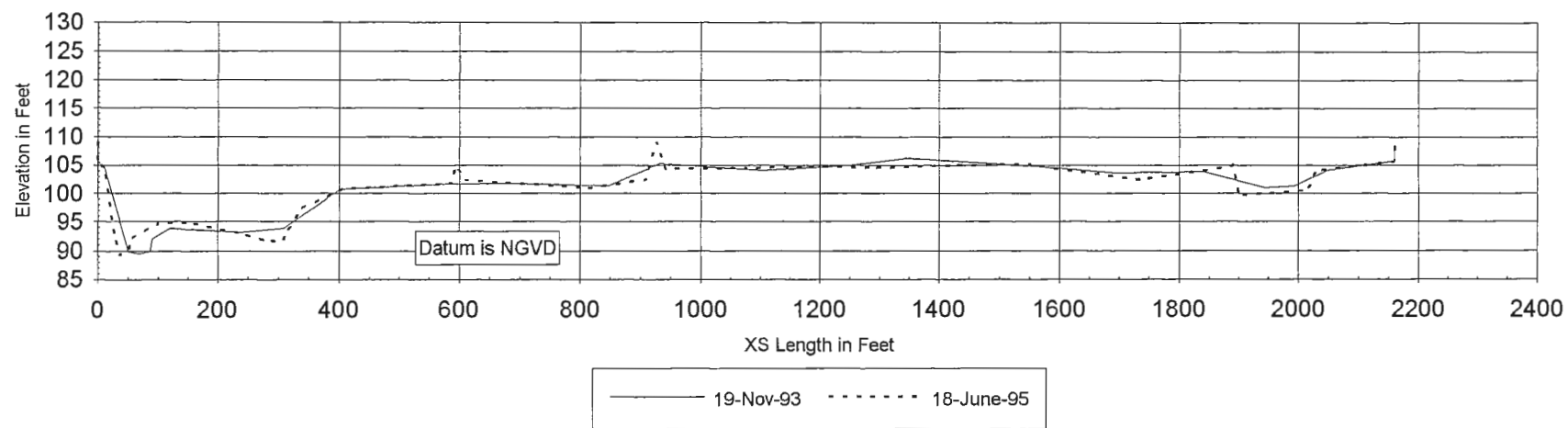


Note: Right monument lost following 150 feet of bank erosion during winter of 1995. XS slightly realigned and lengthened in June, 1995.

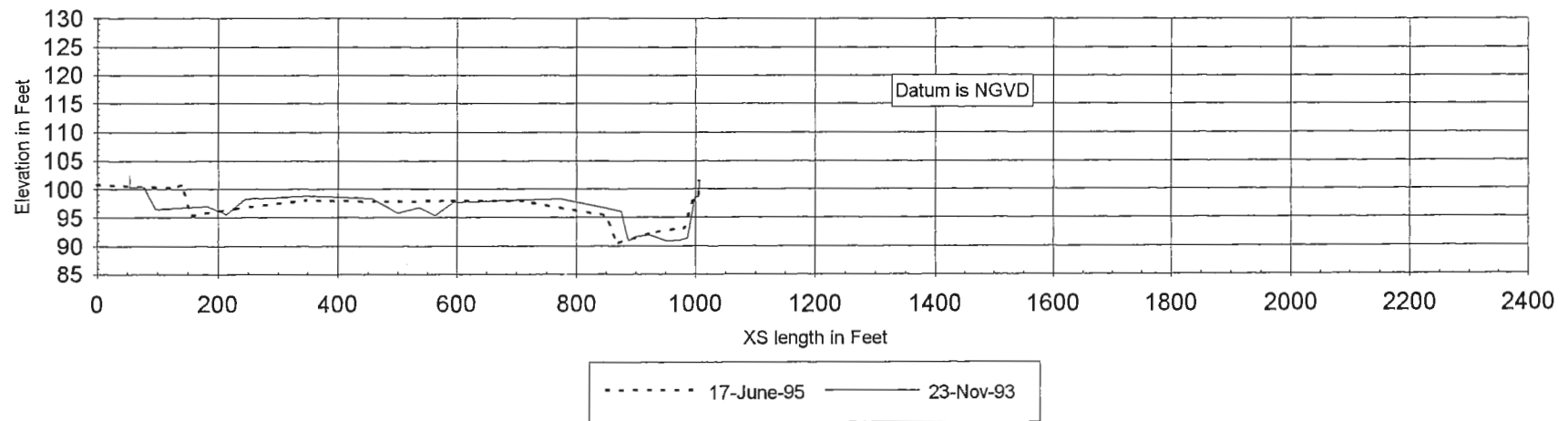
Attachment 15
Van Duzen River Ranch
Van Duzen River XS - 2



Attachment 16
Van Duzen River Ranch
Van Duzen River XS - 3

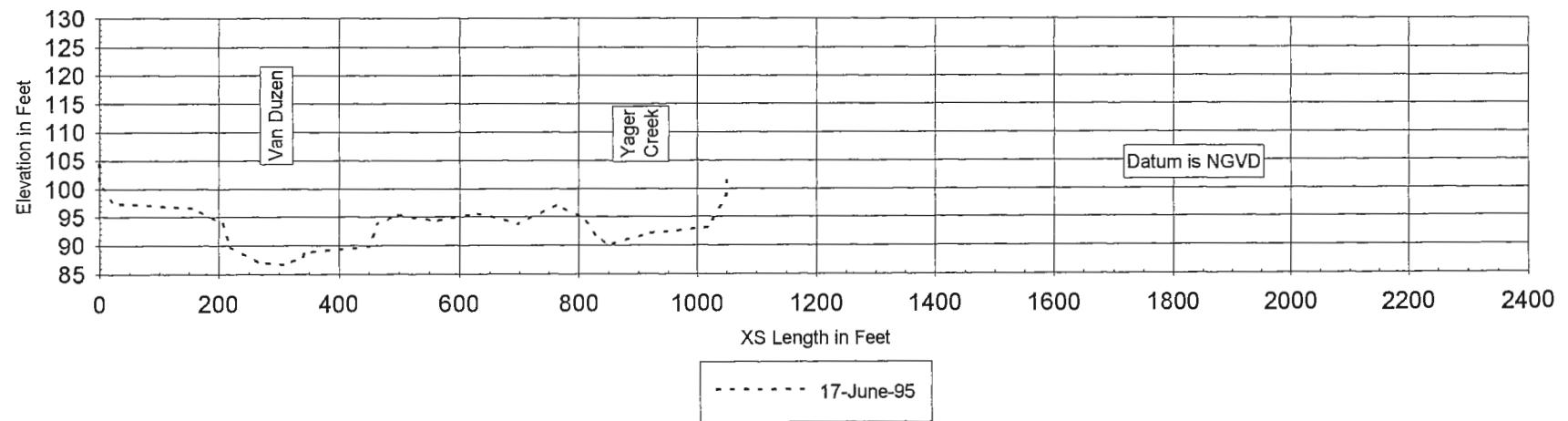


Attachment 17
Van Duzen River Ranch
Yager Creek XS - 4

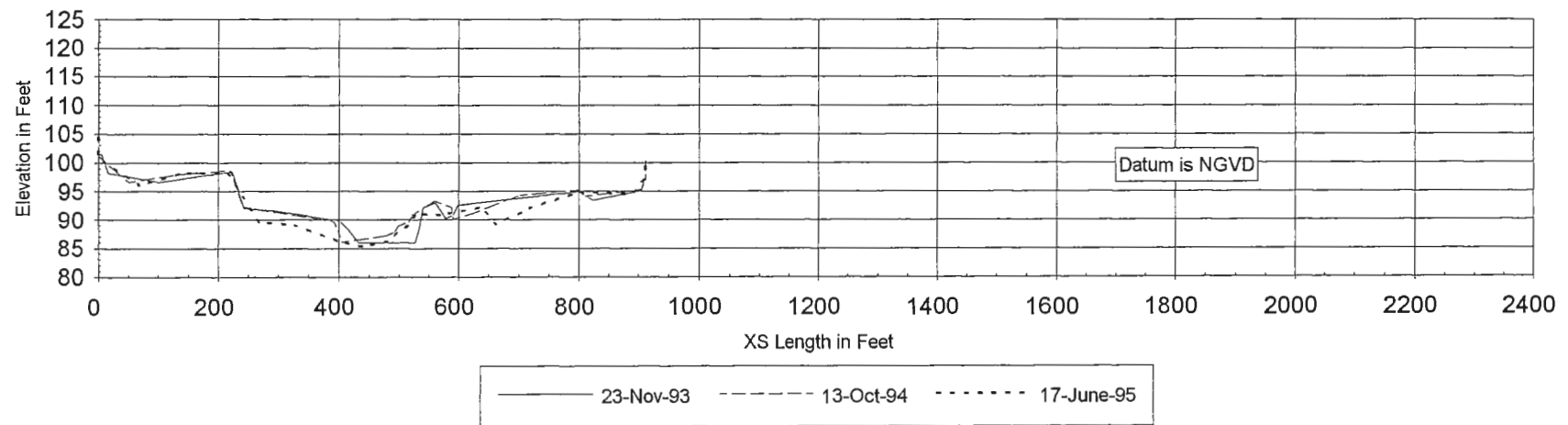


Note: Left monument moved 54 feet to left in June 1995

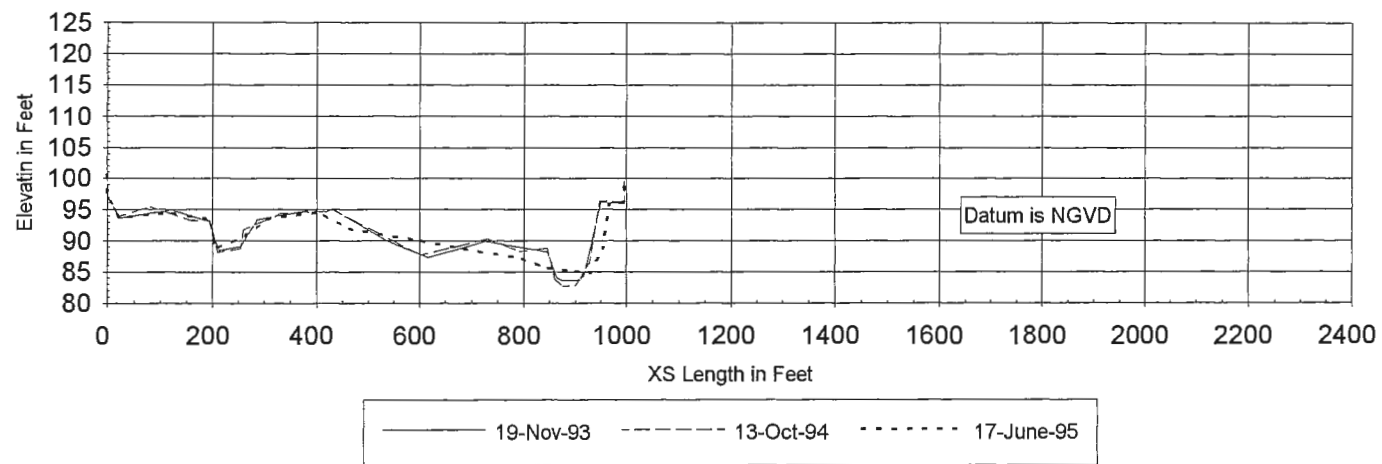
Attachment 18
Van Duzen River Ranch
Van Duzen River at Yager Creek XS-5



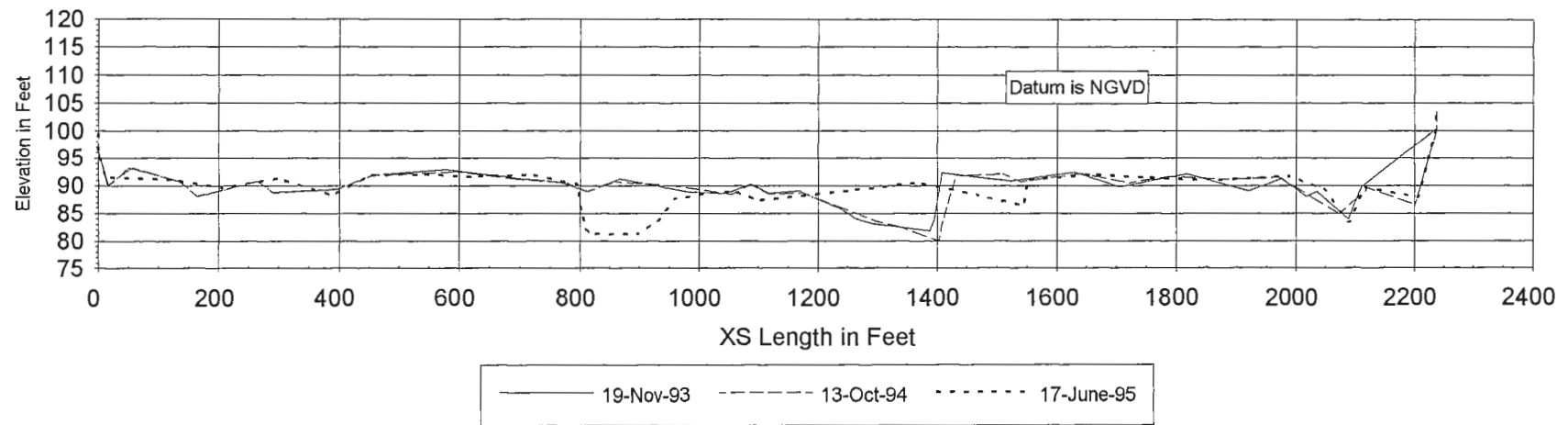
Attachment 19
Van Duzen River Ranch
Van Duzen River XS - 6



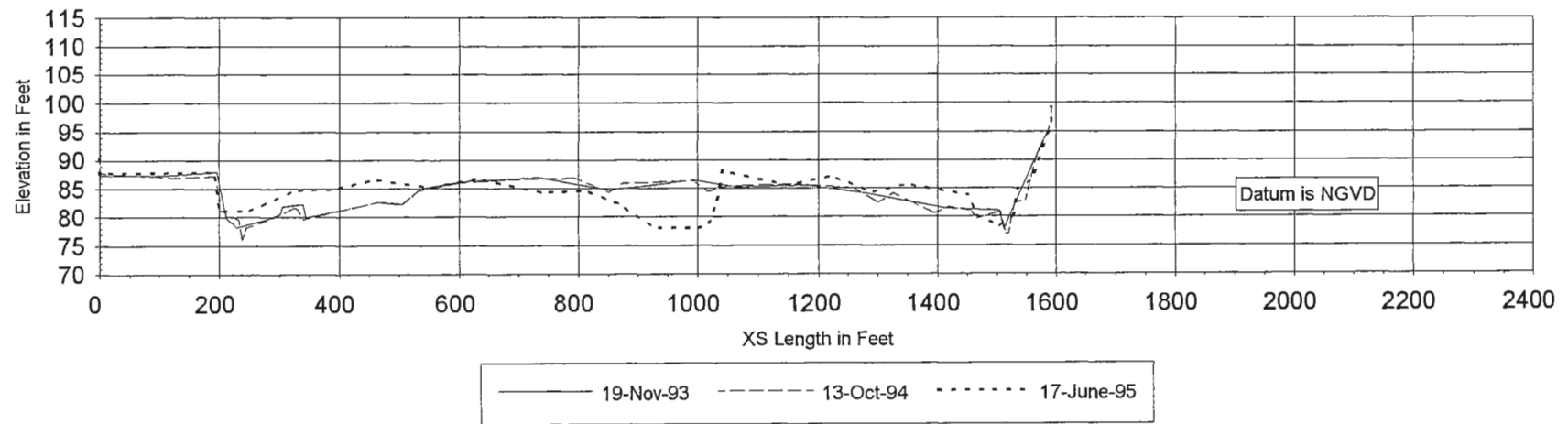
Attachment 20
Van Duzen River Ranch
Van Duzen River XS - 7



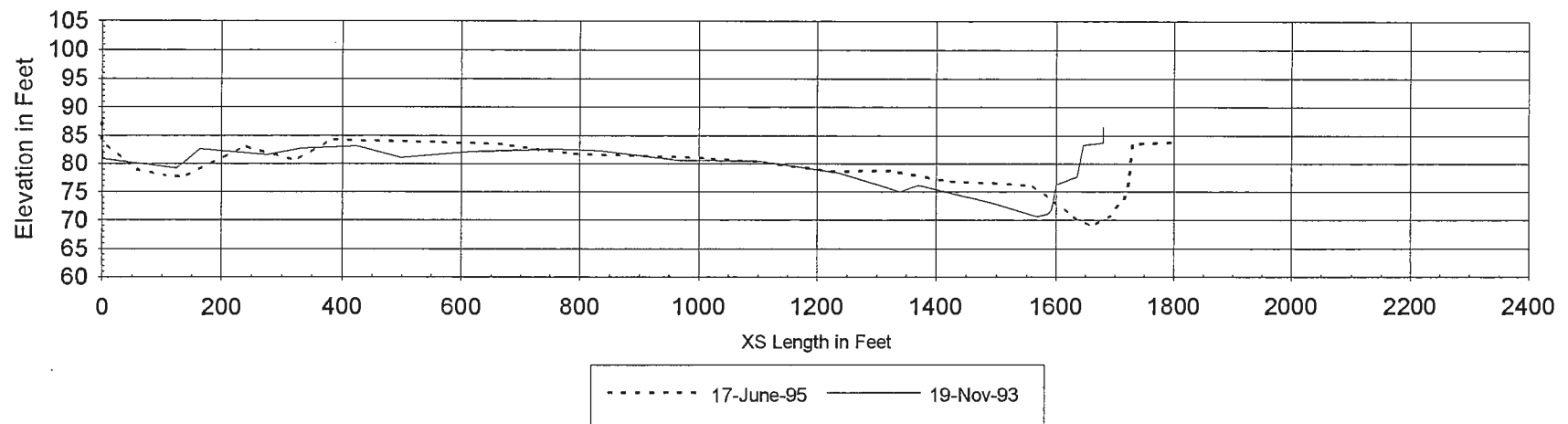
Attachment 21
Van Duzen River Ranch
Van Duzen River XS - 8



Attachment 22
Van Duzen River Ranch
Van Duzen River XS - 9



Attachment 23
Van Duzen River Ranch
Van Duzen River XS - 10



Note: Right monument lost following 90 feet of bank erosion during winter of 1995. XS lengthened in June 1995.

ATTACHMENT B-2
PROPOSED ERRATA

SECTION I APPLICABLE GENERAL INFORMATION

1.0 Project Description

This is a cooperative commercial gravel extraction project among neighbors. The applicants expect that gravel extraction will produce a degree of protection from flood and stream bank erosion in an aggraded reach of the lower Van Duzen River.

This mine consists of instream river-run aggregate extraction from exposed gravel bars located in 14 parcels along the Van Duzen River and at the mouth of Yager Creek. The 14 parcels are located between river mile 3.2 and river mile 6.0 on the Van Duzen River and at the mouth of Yager Creek (at river mile 5.0 on the Van Duzen). This project may excavate up to ~~200,000~~ **100,000** cubic yards of aggregate per year. The applicants expect that one benefit of this extraction will be flood-protection relief and stream bank protection

Five stockpile sites will be located on six parcels located adjacent to the river. Gravel may be sorted onsite. No other aggregate processing is included under this application. Aggregate will be shipped from the ranch by truck and by rail.

1.1 State Division of Mines and Geology Identification Number

The Van Duzen River Ranch commercial gravel extraction is ongoing under a good faith agreement between the operator and the California Division of Mines and Geology while the operator pursues Humboldt County approval of this reclamation plan and its related conditional use permit application. This operation is identified by the California State Division of Mines and Geology as Mine Number 91-12-0049.

1.2 Project Location

The VanDuzen River Ranch and mine is located near the communities of Carlotta and Hydesville at:

1919 River Bar Road Fortuna, CA 95540
--

Primary access to the ranch is via River Bar Road which joins State Highway 36 west of Hydesville, in the NW 1/4 Sec. 19, T2N, R1E, HBM. The general vicinity of the ranch and mine is shown on a regional vicinity map (Attachment 1). A portion of the local U.S. Geological Survey 7.5 minute Hydesville quadrangle map shows the location more specifically (Attachment 2).

1.3 Project Applicants

Jack and Mary L. Noble P.O. Box 365 Fortuna, Ca 95540 (707)768-3739
--

1.4 Designated Agent for Applicants:

Dr. Douglas Jager 349 Stagecoach Road Trinidad, CA 95570 (707) 677 0604	Benchmark Resources 2515 East Bidwell Street Folsom, CA 95630 (916)983-9193
--	--

1.5 Mineral Right Property Owners

The 14 extraction parcels are owned by ^{four}~~three~~ parties. They are:

Jack & Mary L. Noble P.O. Box 365 Fortuna, Ca 95540	Les Fearrien P.O. Box 371 Hydesville, CA 95547	Dwight & Dorthy Jennings. 1522 River Bar Road Fortuna, CA 95540	Dwight, Dorothy, Joelle, and Brian Jennings
	Kelly Patton P.O. Box 452 Scotia, CA 95565	Add: Orion Riggs P.O. Box 392 Scotia, CA 95565	

1.6 Stockpile Area Owners

There are five year-round stockpile areas located on six parcels. Five of these parcels belong to the applicants. One parcel (Stockpile 1) belongs to Phillip NyBerg.

Jack Noble P.O. Box 365 Fortuna, CA 95540	Phillip NyBerg. 105 North Main Fortuna, CA 95540
---	--

1.7 Railway Ownership

This project will use the North Coast Railroad to ship some aggregate to market and in order to do so will have access to the rail line adjacent to Stockpile area four.

North Coast Railroad Authority 4 West 2nd St Eureka, CA 95501

1.8 Lead Agency and Contact

Lead Agency	Lead Agency Contact	
Humboldt County Planning Department 3015 "H" Street Eureka, CA 95501-4484 Phone: (707) 445-7541 FAX: (707) 445-7446	Ginerva Chandler Deputy County Counsel 825 5 th Street Eureka, CA 95501 Phone: (707) 445-7357 FAX: (707) 445-6297	Michael Wheeler Senior Planner 3015 H Street Phone: (707) 268-3730 FAX: (707) 445-7446

1.9 County Assessor's Parcel Numbers:

Van Duzen River Ranch Parcels

The Van Duzen River Ranch property contains 23 parcels (Table 1.9-1).. Refer to Attachment 3 for parcel locations. Assessor's parcel numbers have been assigned map reference numbers (MRN 1, MRN 2, etc.). The map reference number/Assessor's Parcel Numbers are assigned in Table 1.9-1. Some of the ranch parcels are upland areas and are not included in extraction or stockpile activities.

Extraction Parcels

Gravel will be intermittently extracted for flood and streambank protection from exposed gravel bars located in the 14 parcels shown in Tables 1.9-2 and 1.9-3. The parcels listed in Table 1.9-2 are owned by the applicants. The parcels listed in Table 1.9-3 are owned by participating neighbors. The parcels listed in Tables 1.9-2 and 1.9-3 extend upstream from the westerly end of the project area (river mile 3.2) to the easterly end (river mile 6.0). Stockpile parcels and the instream portions of extraction parcels are visible in photo-maps (Attachments 4, 5, 6, and 7).

Table 1.9-1. Van Duzen River Ranch County Assessor's Parcel Numbers

Map Reference No.	APN	Map Reference No.	APN	All APN numbers include an additional zero before the last hyphen (e.g., -05 is -005).
1	204-041-19	13	204-071-05	
2	204-041-20	14	204-071-06	
3	204-041-21	15	204-071-08 011	
4	204-051-05	16	204-071-09 010	
5	204-051-06	17	205-072-06	
6	204-051-07	18	204-101-03	
7	204-051-08	19	204-101-26	
8	204-063-09	20	204-111-08	
9	204-063-10	21	204-111-09	
10	204-063-11	22	204-111-11	
11	204-063-13	23	204-241-06	
12	204-063-14			

Van Duzen River Ranch Surface Mining Reclamation Plan
July 3, 1997

Table 1.9-2. Van Duzen River Ranch Extraction Parcels

Map Reference No.	APN	Map Reference No.	APN
19	204-101-26	13	204-071-05
11	204-063-13	14	204-071-06
22	204-111-11	16	204-071-09 010
12	204-063-14	15	204-071-08 011
10	204-063-11	17	204-072-06

Table 1.9-3. Extraction Parcels Belonging to Other Parties

Map Reference No.	APN	Owner
25	204-101-07 331-006	Jennings
25	204-101-08	Jennings Riggs
26	204-111-05	Fearrien Patton
27	204-111-06	Fearrien Patton

Stockpile Parcels

Gravel will be intermittently stockpiled at five sites (Table 1.9-4). The list in Table 1.9-4 starts at the westerly end of the project and goes upstream.

Table 1.9-4. Stockpile Parcels.

APN	Stockpile Number	MRN	Owner	Comments
204-101-02	1	24	NyBerg	A 1.25-acre portion along the western edge of this 34-acre parcel will be used as Stockpile Area 1 and as a transport route to River Bar Road. The rest of this parcel will be retained as pasture and woodland riparian habitat.
204-101-03	2	18	Noble	Stockpile Area 2 will be located in the southern portion of this triangular parcel. The rest of this parcel will be retained as pasture and woodland riparian habitat.
204-063-11 & 204-071-05	3	10 & 13	Noble	Stockpile area 3 will be located on an upland terrace south of the river in these parcels.
204-111-09	4	21	Noble	Stockpile Area 4 and the proposed railroad loading area is in the eastern portion of this parcel.
204-071-09 010	5	16	Noble	Stockpile Area 5 is located in the pasture on the north side of the river in this parcel.

SECTION III MINING OPERATION

3.0 Project Summary

This mine consists of instream river-run aggregate extraction from exposed gravel bars along the Van Duzen River and at the mouth of Yager Creek. Some bars will be harvested more frequently than others. The exposed gravel bar extraction areas are located between river mile 3.2 and river mile 6.0 on the Van Duzen River and at the mouth of Yager Creek (at river mile 5.0 on the Van Duzen). This project may excavate up to ~~200,000~~ cubic yards of aggregate per year. One benefit of this extraction may be flood-protection relief and stream bank protection.

100,000

Five stockpile sites will be located adjacent to the river. Gravel may be sorted onsite. No other aggregate processing is included under this application. Aggregate will be shipped from the ranch by truck and by rail.

3.1 Project Starting Date

The project is ongoing and is identified as California State Division of Mines and Geology Mine Number 91-12-0049.

3.2 Period of Activity

Extraction of instream river-run aggregate normally occurs during the low-flow season. Extraction outside of the normal low-flow season window may occur under a Department of Fish and Game 1603 agreement. Aggregate may be shipped from stockpile areas year-round.

The project has no planned termination date. It will continue, intermittently, when and for as long as aggradation threatens ranch resources, aggregate materials and capital are available and market and regulatory conditions are favorable. However, this reclamation plan will terminate in 15 years on December 31, ~~2012~~.

2030

3.3 Quantity to be Extracted

In many upland surface mining operations there is a limited physical quantity of ore and the total quantity to be extracted can be reasonably estimated. Instream aggregate mining is different. The Van Duzen River Ranch considers river aggradation to be a continuing problem along the lower Van Duzen River. Erosional processes within the upper watershed produce bedload sediment. The river system transports and modifies the bedload material until it reaches the lower river system where it settles out and replenishes the extraction areas.

The processes of erosion, transportation, replenishment and aggradation are episodic; they do not occur at uniform annual rates. Hence, extraction will not occur at equal annual rates. Regardless, annual extraction along the entire project reach will not exceed ~~200,000~~ cubic yards during any one year. Periodic replenishment of the gravel bars in this reach will require this mining activity to continue indefinitely. Therefore, there is no limit to the total amount of material that to be excavated.

100,000