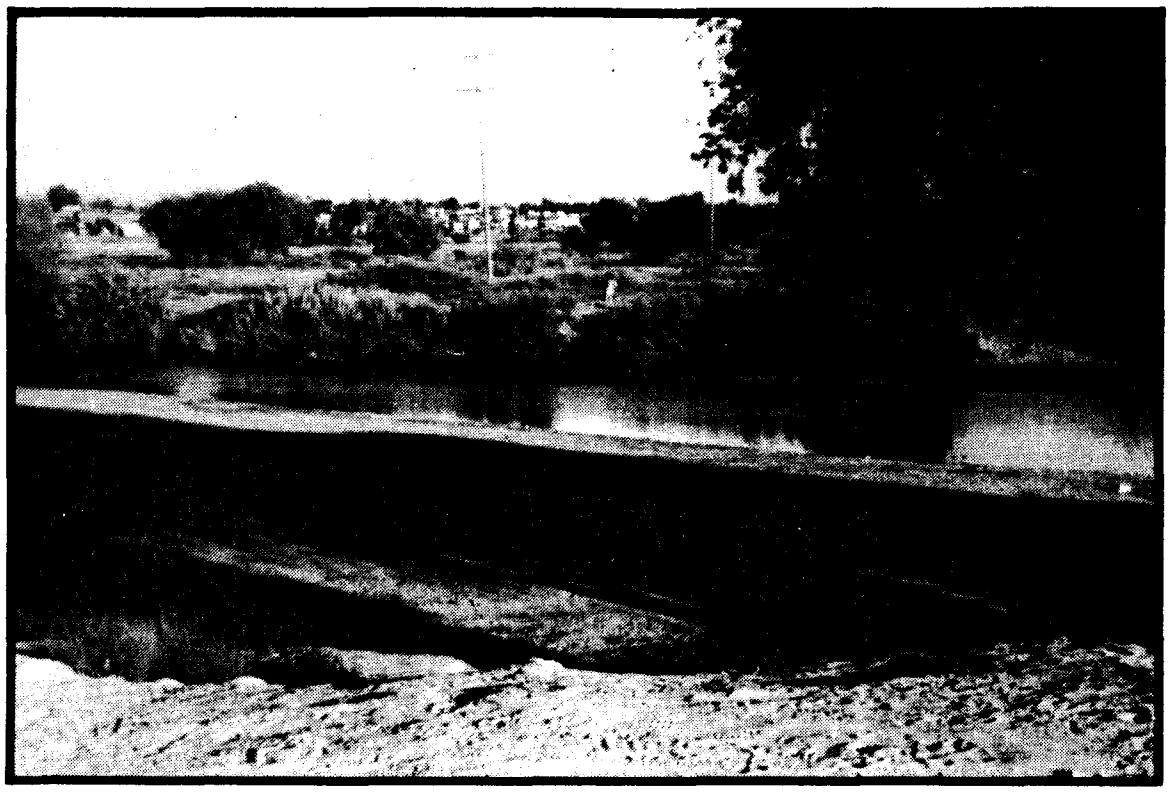
DRAFT ENVIRONMENTAL IMPACT REPORT



KERN RIVER CHANNEL MAINTENANCE PROGRAM

OCTOBER 1985

QUAD CONSULTANTS

DRAFT ENVIRONMENTAL IMPACT REPORT

KERN RIVER CHANNEL
MAINTENANCE PROGRAM
SCH. #85062409

Submitted to:
The City of Bakersfield

Prepared by:
QUAD Consultants
Bakersfield Visalia Fresno Sacramento

October 1985

TABLE OF CONTENTS

	Page
PREFACE	i
SUMMARY	ii
1.0 INTRODUCTION	1-1
1.1 Proposed Action	1-1
1.2 Procedures	1-1
1.3 Methodology; Scope of EIR	1-2
1.4 Initial Study Findings	1-2
2.0 PROJECT DESCRIPTION	2-1
2.1 Location	2-1
2.2 Project Area Characteristics	2-1
2.3 Channel Maintenance Program	2-4
3.0 SETTING, IMPACTS AND MITIGATION MEASURES	3-1
3.1 Physical Environment	3-1
3.1.1 River-adjacent and River-crossing facilities	3-1
3.1.2 Air Quality	3-2
3.1.3 Hydrology	3-3
3.1.4 Visual	3-4
3.2 Biological Environment	3-6
3.2.1 Flora	3-7
3.2.2 Fauna	3-8
3.3 Cultural Environment	3-9
3.3.1 Land Use Planning	3-9
3.3.2 Recreation	3-12
3.3.3 Noise	3-14
3.3.4 Archeological	3-17
3.3.5 Traffic	3-18

TABLE OF CONTENTS
(CONTINUED)

		Page
4.0	CONSEQUENCES OF PROJECT APPROVAL	4-1
4.1	Significant Environmental Effects Which Cannot be Avoided	4-1
4.2	Short-Term Uses and Long-Term Productivity	4-1
4.3	Significant Irreversible Environmental Changes	4-2
4.4	Growth-Inducing Impacts	4-2
5.0	PROJECT ALTERNATIVES	5-1
5.1	Purpose	5-1
5.2	"No-Project" Alternative	5-1
5.3	Increase in Height of Levees; Construction of Additional Levees - Alternative A	5-2
5.4	Concrete Channelization between Chester Avenue and Stockdale Highway - Alternative B	5-2
5.5	Stripping of all Vegetation from River Channel, and Maintenance in Cleared Condition - Alternative C	5-3
5.6	Comparative Environmental Superiority of Alternatives	5-3

APPENDICES

A. Initial Study

B. Persons and Organizations Consulted Responses to Initial Study Distribution

C. Sand Removal Agreement

D. Consulting Engineer's Analysis

E. Biologist's Report

F. Archaelogical Records Search

G. References

LIST OF FIGURES

NUMBER	TITLE	FOLLOWS PAGE
2-1	REGIONAL LOCATION	2-1
2-2	AREA MAP	2-1
2-3 Through 2-7	REACH I CHANNEL MAINTENANCE PROGRAM	2-4
2-8 Through 2-10	REACH II CHANNEL MAINTENANCE PROGRAM	2-4

LIST OF TABLES

NUMBER	TITLE	PAGE
3-1	APPROXIMATE SOUND LEVELS	3-17
3-2	ACCEPTABLE EXTERIOR NOISE EXPOSURE LEVELS	3-18

PREFACE

This Draft Environmental Impact Report (DEIR) has been prepared by QUAD Consultants on the potential effects of implementing the Kern River Channel Maintenance Program, a master plan for channel maintenance through phased river channel sand and soil removal, through continuing clearance of vegetation which would impede flood flows, and through appropriate operation of river diversion structures. The DEIR conforms to the requirements of the California Environmental Quality Act of 1970 (CEQA), as amended and the administrative procedures of the City of Bakersfield for the preparation and processing of EIR's. In accord with Sections 15050 et seq of the State CEQA Guideline, the City of Bakersfield is designated as the lead agency for this project.

An EIR is an informational document prepared to provide the general public and appropriate governmental agency decision-makers with a full understanding of the potential adverse environmental impacts of a proposed project. The CEQA process is intended to enable public agencies to evaluate a project for determination of the significance of its effect on the environment, to examine and institute methods of reducing adverse impacts, and to consider alternatives to the project as proposed.

SUMMARY

Proposed Action

The proposed action for which this draft environmental impact report (DEIR) has been prepared is the implementation of the Kern River Channel Maintenance Program. A master plan for phased sand and soil removal, for required removal of vegetation which would impede flood flows, and for operation of flow diversion structures, this program is intended to preserve the storm flow carrying capacity of the Kern River to handle intermediate regional flood flows. This maintenance program will be confined primarily to the Kern River designated floodway with limited excavation within the secondary floodway. The project encompasses two reaches of the River, a nine-mile section between Manor Street and Stockdale Highway and a three-mile section upstream from I-5. Total sand removal would involve about 1,200,000 cubic yards of sand; removal would be by private contractors at a minimum average rate, based on recent past history, of 70,000 cubic yards per year, and at locations dependent upon the demand for sand for construction projects.

Impacts and Mitigation Measures

- River-adjacent and River-crossing Facilities

  --- No negative impacts; no mitigation measures required.

- Air quality

  --- Dust emission potential; mitigation measures including operation water truck wet-down, compliance with vehicular emission controls and County burning regulations, excess-wind operation cessation, will mitigate to less than significant levels.

- Hydrology

  --- No negative impacts; no mitigation measures required.

- Visual

  --- Removal of vegetal cover; temporary light and glare during construction operations. Mitigation measures described under flora and fauna impacts, and appropriate restrictions on night operations, will mitigate to less than significant levels.

- Flora and fauna

  --- Loss of approximately 144 acres of riparian vegetal cover, including San Joaquin Kit Fox foraging habitat; potential impact on Slough Thistle habitat.

  The mitigation measures described below, if effected, will reduce flora and fauna impacts to less than significant levels.

  a. Review and consideration of, where feasible, possible changes in maintained channel alignment to preserve areas of significant vegetal growth.

  b. With the cooperation of River interests, development and implementation of a habitat rehabilitation program.

  c. An offsite habitat rehabilitation program in publicly owned areas along the bikepaths, utilizing native plant seeding procedures and native tree seedling plantings.

- Land Use Planning/Recreation

  Temporary interruption of recreational uses of the River channel areas in which sand or vegetation removal programs are actively in progress; continuing removal of vegetal cover.

  Mitigation measures described under flora and fauna impacts will mitigate vegetal cover loss to less than significant levels. The temporary interruption of recreational uses is not deemed a significant impact based upon past history.

- Noise

  Minimal adverse impacts (63 db (A) compared to 55 db (A) "acceptable") in River-adjacent residential area on the south side of the River between the Highway 58 Bridge and Golden State Highway.

  Mitigation measures (equipment fan-shrouding and prohibition of night operations) will reduce this impact to less than significant levels.

- Archaeological

  No significant impact; minimal and normal mitigation procedures designed to preserve any artifacts found during project operations.

- Traffic

  Potential significant impacts from sand-truck traffic through residential neighborhood (north of River between Golden State and Manor Street); mitigable by change in access routes to avoid neighborhood residential streets and/or restriction of traffic to daylight hours.

Environmental Analysis of Project Alternatives

In addition to the no-project alternative, three other alternative projects which would wholly or partially achieve project objectives were comparatively evaluated:

- Increase in Height of Levees; Construction of Additional Levees - Alternative A
- Concrete Channelization between Chester Avenue and Stockdale Highway - Alternative B
- Stripping of all Vegetation from River Channel, and Maintenance in Cleared Condition - Alternative C

It is evident that the no-project alternative is superior from the standpoint of maintenance of the natural environment within the River channel. It is, however, equally evident that the flooding hazards to the human environment do not permit the adoption of the no-project alternative; that either the project alternative or the alternative described in 5.3, the raising and construction of levees to contain maximum flood flows must be considered to achieve flood protection for the community. The concrete channelization and vegetal-stripping alternatives both only achieve partial project objectives, and are totally destructive of the River environment.

On balance, the project is, from the standpoint of protection of the human environment and partial retention of the River environment, environmentally superior to the project alternatives. This superiority can be enhanced by adoption of the mitigation measures described.

CHAPTER I

1.0 INTRODUCTION

1.1 Proposed Action

The proposed action for which this draft environmental impact report (DEIR) has been prepared is the implementation of the Kern River Channel Maintenance Program. A master plan for phased sand removal, for required removal of vegetation which would impede flood flows, and for operation of flow diversion structures, this program is intended to preserve the storm flow carrying capacity of the Kern River. This maintenance program will be confined primarily to the Kern River designated floodway with limited excavation within the secondary floodway.

1.2 Procedures

This document provides an evaluation of the environmental impact of the Kern River Channel Maintenance Program as proposed by the City of Bakersfield. In accord with regulations of the State of California and the City of Bakersfield, preparation of this DEIR included "early consultation" to identify specific areas of concern which the EIR should address.

The Environmental Checklist and Initial Study (see Appendix A) prepared by City staff disclosed sufficient areas of environmental concern to warrant consideration in an environmental impact report. Responses to the Notice of Preparation also identified the potential for significant impacts. This draft EIR will be circulated for review and written comment by interested public and private agencies and by individuals. A public hearing on the Draft EIR will be conducted before the City Planning Commission during which oral comments on the document will be received. Subsequently, responses will be prepared to all comments. The comments and responses will be appended to the Draft EIR, which, together, will form the Final EIR. The Planning Commission, upon making a finding of technical adequacy, will recommend to the City Council that the Final EIR be certified.

1.3 Methodology; Scope of EIR

This DEIR seeks to identify, both quantitatively and qualitatively, the existing condition of the environment in the project area as a frame of reference for evaluating the possible environmental impacts of implementing the project, and the environmental impacts of the proposed project.

The following chapters present, in order, a detailed description of the project; an outline and discussion of the environmental setting, impacts, and mitigation measures for the project; a discussion of potentially significant impacts and possible mitigation measures; an analysis and summary of the consequences of project approval, including a discussion of the significant environmental effects which cannot be avoided; a comparison of local short-term uses versus long-term productivity of the project area; a summary of potential significant irreversible environmental changes resulting from project implementation; an analysis of any growth-inducing impacts of the project; and, finally, an environmental analysis of alternatives to the proposed project, including consideration of a "no-project" alternative.

1.4 Initial Study Findings

A summary of the findings of the Initial Study indicates that there may be environmental impacts as a result of this project on soil, topography, geology, air, water, flora, ground, noise, light and glare, transportation, aesthetics and recreation.

The State CEQA Guidelines specify that the EIR should discuss environmental effects in proportion to their severity and probability of occurrence. Effects identified in the Initial Study as clearly insignificant and unlikely to occur will not, therefore, be discussed further in the DEIR. Environmental setting elements which do not have significant impacts are reviewed only in sufficient detail to disclose the basis for an "insignificant impact" conclusion. Those setting elements which are anticipated to be significantly impacted by the proposed project are reviewed in greater detail with the impacts quantified to the degree possible and mitigation measures recommended, where necessary.

CHAPTER 2

2.0 PROJECT DESCRIPTION

2.1 Location

The City of Bakersfield and its surrounding metropolitan area are located in the southern San Joaquin Valley portion of Kern County, about 100 miles north of the City of Los Angeles and approximately 290 miles southeast of San Francisco.

The project area addressed in this report is comprised of land area within the Kern River floodway. Reach I includes the section of the Kern River between Stockdale Highway and Manor Drive and Reach II covers the area northeast of Interstate 5 to State Reclamation Board mile point 110 (mile point 110 exists within the southeast quarter of the northeast quarter of Section 18, Township 30 south, Range 26 east). Figures 2-1 and 2-2 depict the regional and project area locations.

2.2 Project Area Characterisics

The Kern River enters the San Joaquin Valley through the Kern River Canyon. Beginning at the mouth of the Canyon, the alluvial fan of the River embraces an area of some 600 square miles on the valley floor. The present channel of the Kern River flows in a southwesterly direction to the Elk Hills on the western side of the valley. There the channel divides into two distributaries, one leading southeast to Buena Vista Lake Bed, and the other following a northwesterly course to the Tulare Lake bed.

Through the urban area of Bakersfield the channel of Kern River is defined by continuous levees, and in the downstream area by natural banks or low discontinuous levees. The channel has a sandy, shifting bottom and is crossed at various points by permanent diversion weirs directing water into major irrigation canals. Channel clearing and snag removal, and levee repair on the channel between Bakersfield and Buena Vista and Tulare Lakes is part of a continuing maintenance program.

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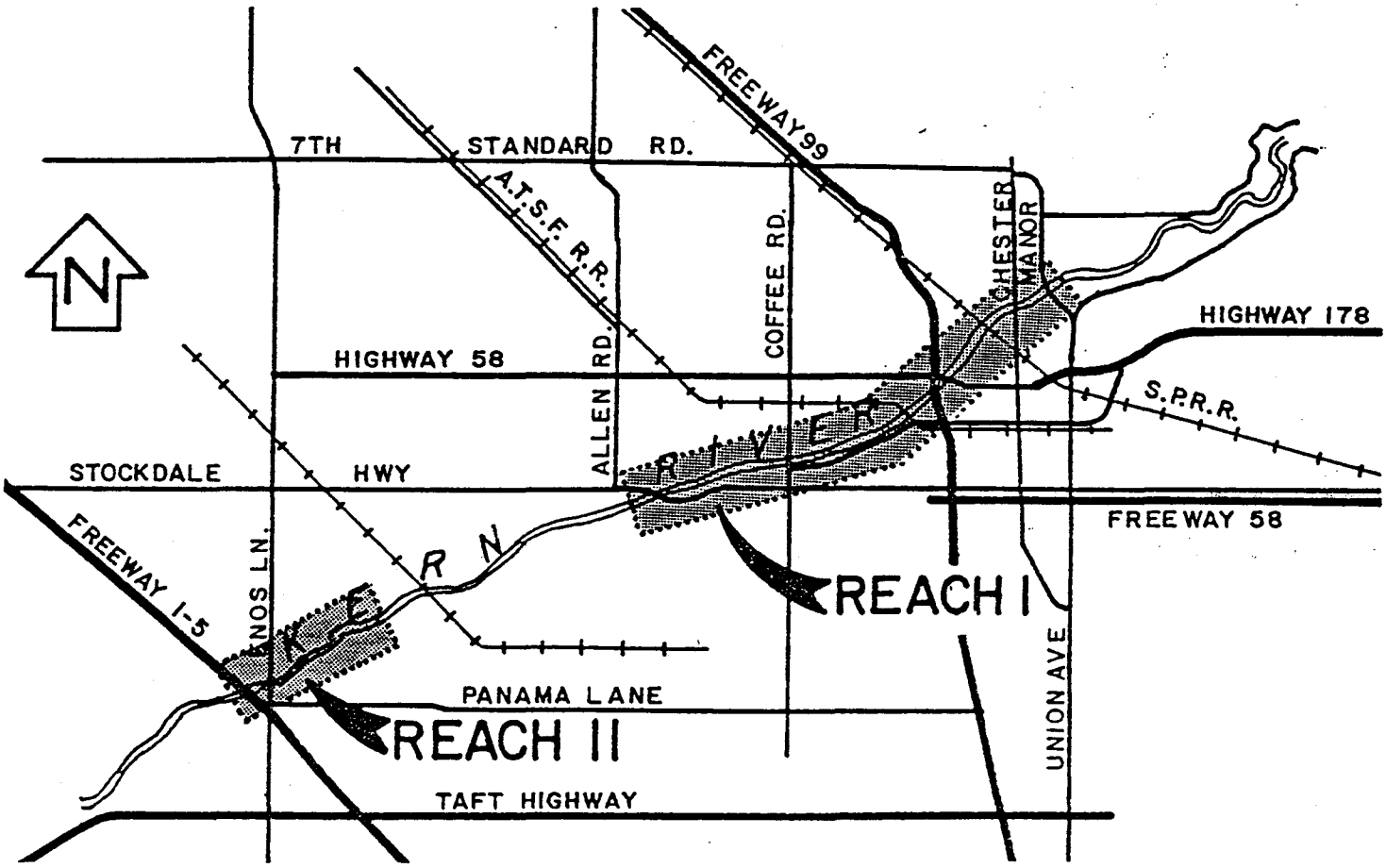
REGIONAL LOCATION

2·1

Reach I
Stockdale Hwy. to Manor St.

Reach II
I-5 to East Line of Sec. 18



QUAD CONSULTANTS

AREA MAP

2·2

The City of Bakersfield encompasses approximately 78 square miles, and had a population in 1984 of 138,518. The City lies within a greater metropolitan area, consisting of adjacent unincorporated communities and suburban development, with an estimated population of approximately 266,066.

Most of the urban Bakersfield population is situated south of Kern River with the unincorporated communities of Oildale and Rosedale along the northern bank.

2.3 CHANNEL MAINTENANCE PROGRAM

The Kern River Channel Maintenance Program is a proposed plan for removal of river run sand, soil and vegetal growth within the designated floodway, channel alignment within the designated and secondary floodway and maintenance and operations of designated river weirs and diversion structures. The purpose of this plan is the preservation of storm flow carrying capacity of the Kern River through Bakersfield and through City owned property along a three mile stretch east of Interstate Highway 5.

Removal of sand, soil and vegetation together with channel straightening will permit passage of an intermediate regional flood through the designated floodway. An intermediate regional flood is a flood having a probable frequency once in 100 years, although this flood may occur in any year.

The Kern River Channel Maintenance Program, as proposed by the City of Bakersfield, covers two designated portions of the river channel. Reach I begins at a point south of the Stockdale Highway bridge and continues northeasterly approximately 9 linear stream miles terminating north of Manor Street bridge. Reach II starts at Interstate Highway 5 bridge and extends approximately 3 linear stream miles to State Reclamation Board Mile Point 110. Mile point 110 is situated within the southeast quarter of the northeast quarter of Section 18, Township 30 South, Range 26 East.

Figures 2-3 through 2-10 show the Kern River Maintenance Program for both project areas and consists of title sheets together with plan sheets. Using aerial photographs, the designated floodway and secondary floodway lines together with the boundary limits for excavation are designated on the plan sheets. Proposed vehicle ingress and egress routes have also been depicted on these sheets. Included on these plan sheets are elevation profiles identifying the existing riverbed elevations, together with the proposed depth limits for excavation.

CITY OF BAKERSFIELD

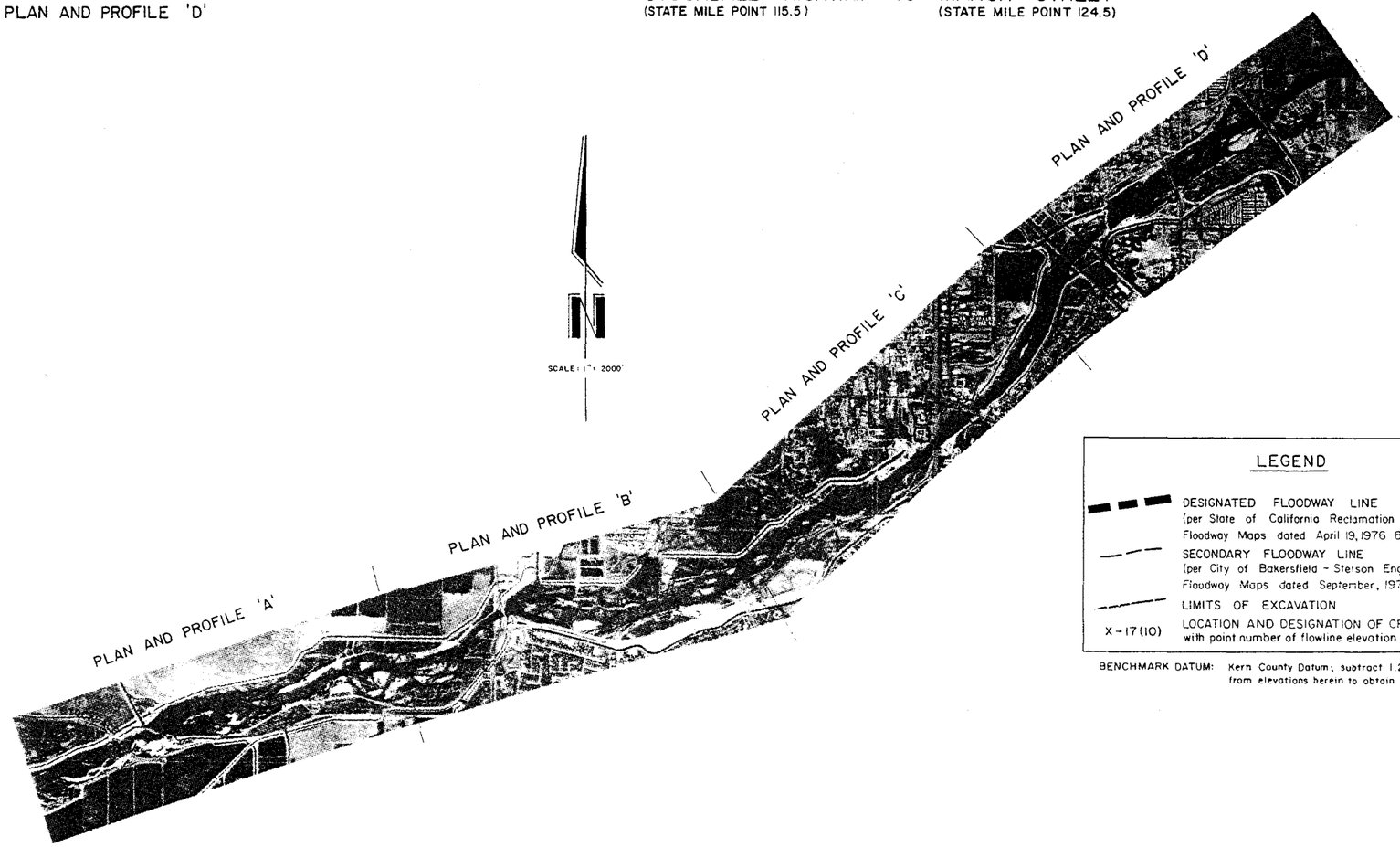
DEPARTMENT OF WATER RESOURCES

LIST OF DRAWINGS

SHEET NO.	DRAWING
2-3	TITLE SHEET
2-4	PLAN AND PROFILE 'A'
2-5	PLAN AND PROFILE 'B'
2-6	PLAN AND PROFILE 'C'
2-7	PLAN AND PROFILE 'D'

KERN RIVER CHANNEL MAINTENANCE PROGRAM
REACH I

STOCKDALE HIGHWAY (STATE MILE POINT 115.5) TO MANOR STREET (STATE MILE POINT 124.5)



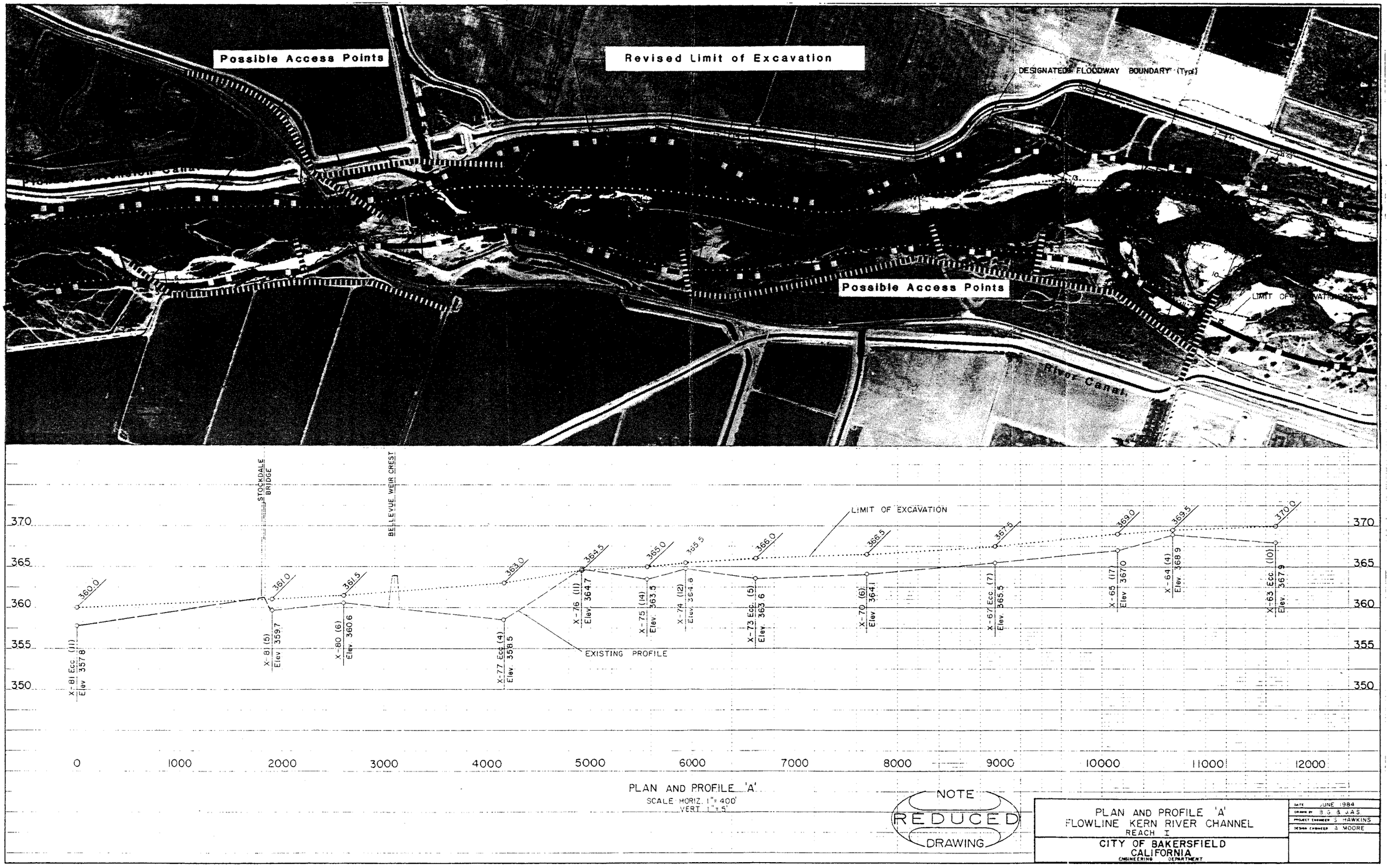
STATE OF CALIFORNIA

LEGEND

- DESIGNATED FLOODWAY LINE (per State of California Reclamation Board Floodway Maps dated April 19, 1976 & June 20, 1978)
- SECONDARY FLOODWAY LINE (per City of Bakersfield - Stetson Engineers Floodway Maps dated September, 1979)
- LIMITS OF EXCAVATION
- X-17(10) LOCATION AND DESIGNATION OF CROSS-SECTION with point number of flowline elevation in parenthesis

BENCHMARK DATUM: Kern County Datum; subtract 1.20 feet from elevations herein to obtain U.S.C. & G.S Datum.

Base Drawing by Ricks Taylor & Meyers Inc Consulting Engineers Bakersfield Ca



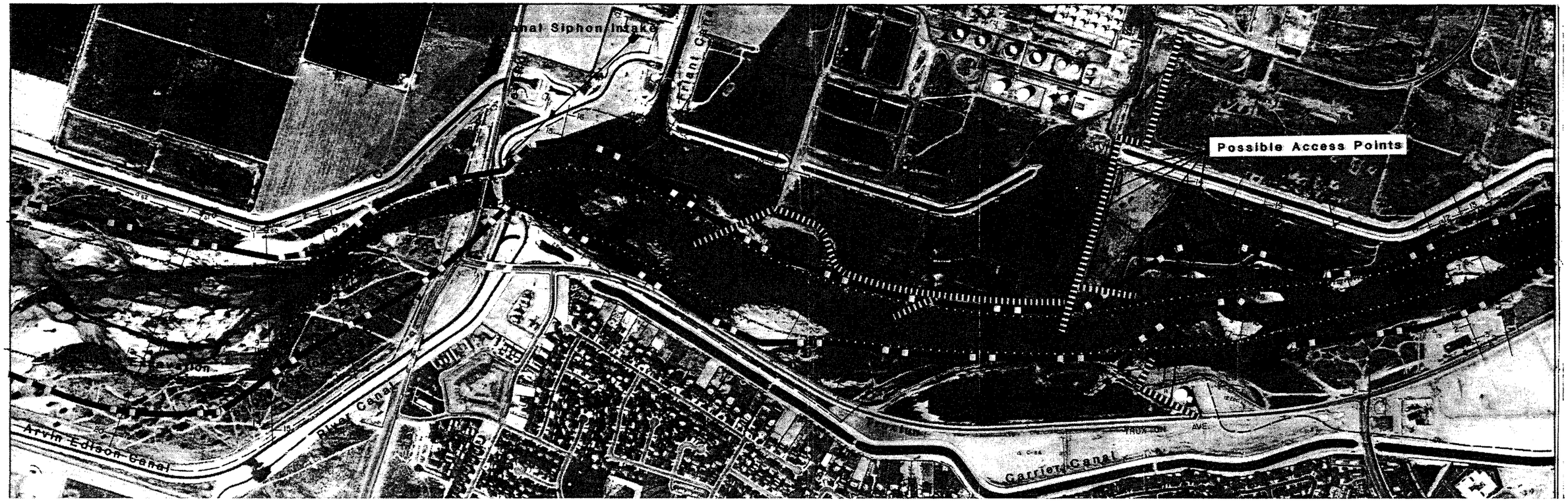
PLAN AND PROFILE 'A'
SCALE HORIZ. 1" = 400'
VERT. 1" = 5'

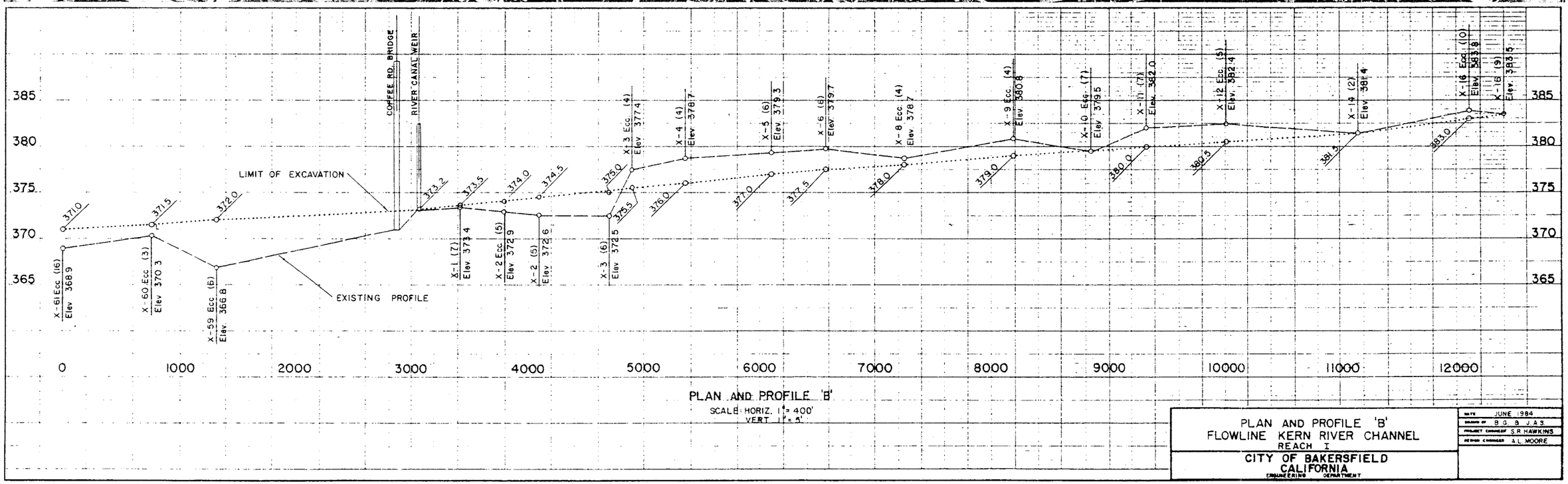
QUAD CONSULTANTS

PLAN AND PROFILE A

2·4

Base Drawing by Ricks Taylor and Meyers Inc Consulting Engineers Bakersfield Ca





PLAN AND PROFILE 'B'
SCALE: HORIZ. 1" = 400'
VERT. 1" = 5'

PLAN AND PROFILE 'B'
FLOWLINE KERN RIVER CHANNEL
REACH I
CITY OF BAKERSFIELD
CALIFORNIA
ENGINEERING DEPARTMENT

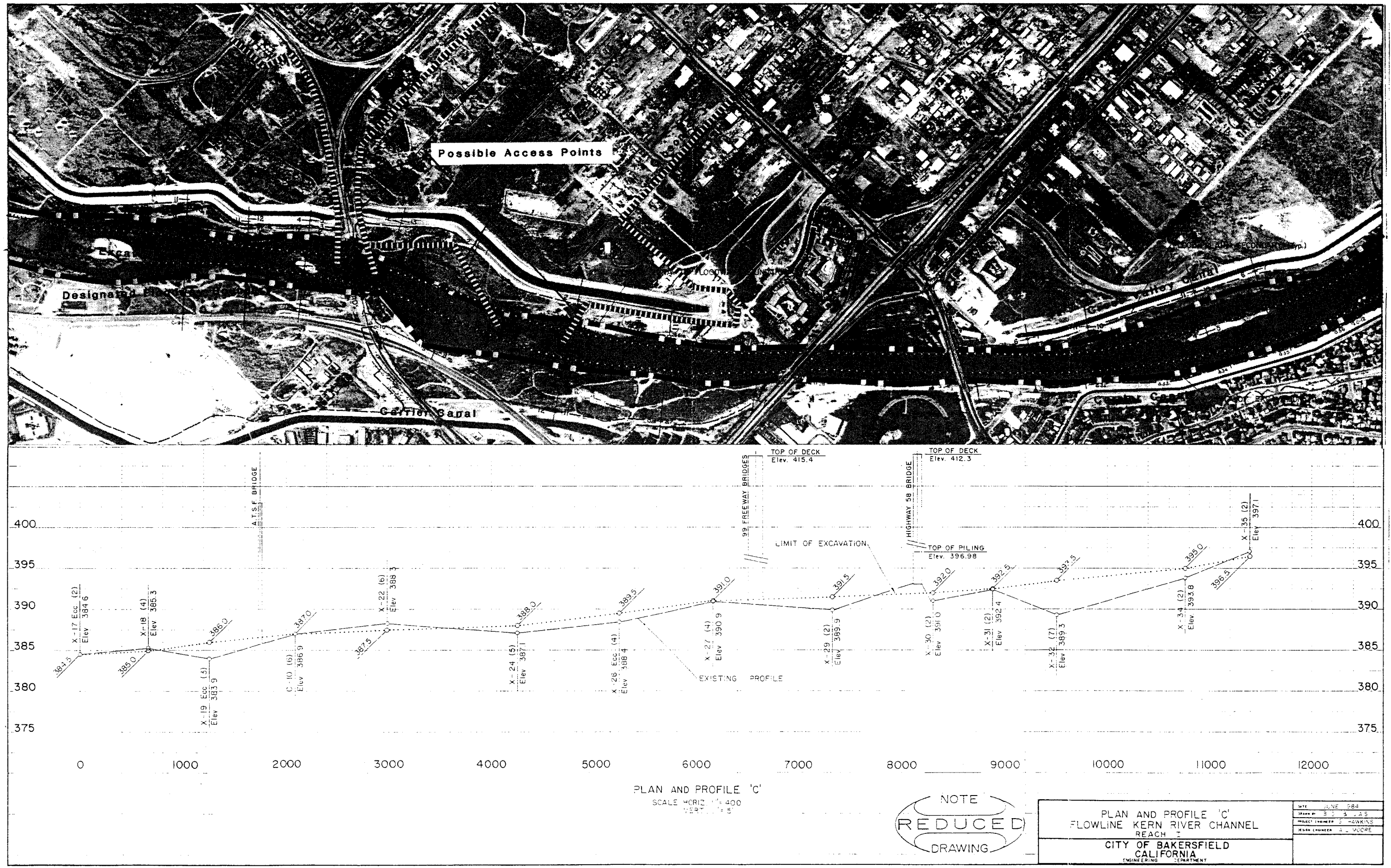
DATE JUNE 1984
DRAWN BY B.G. & J.A.S.
PROJECT ENGINEER S.R. HAWKINS
DESIGN ENGINEER A.L. MOORE

QUAD CONSULTANTS

PLAN AND PROFILE B

2·5

Base Drawing by Ricks Taylor and Meyers Inc Consulting Engineers Bakersfield Ca

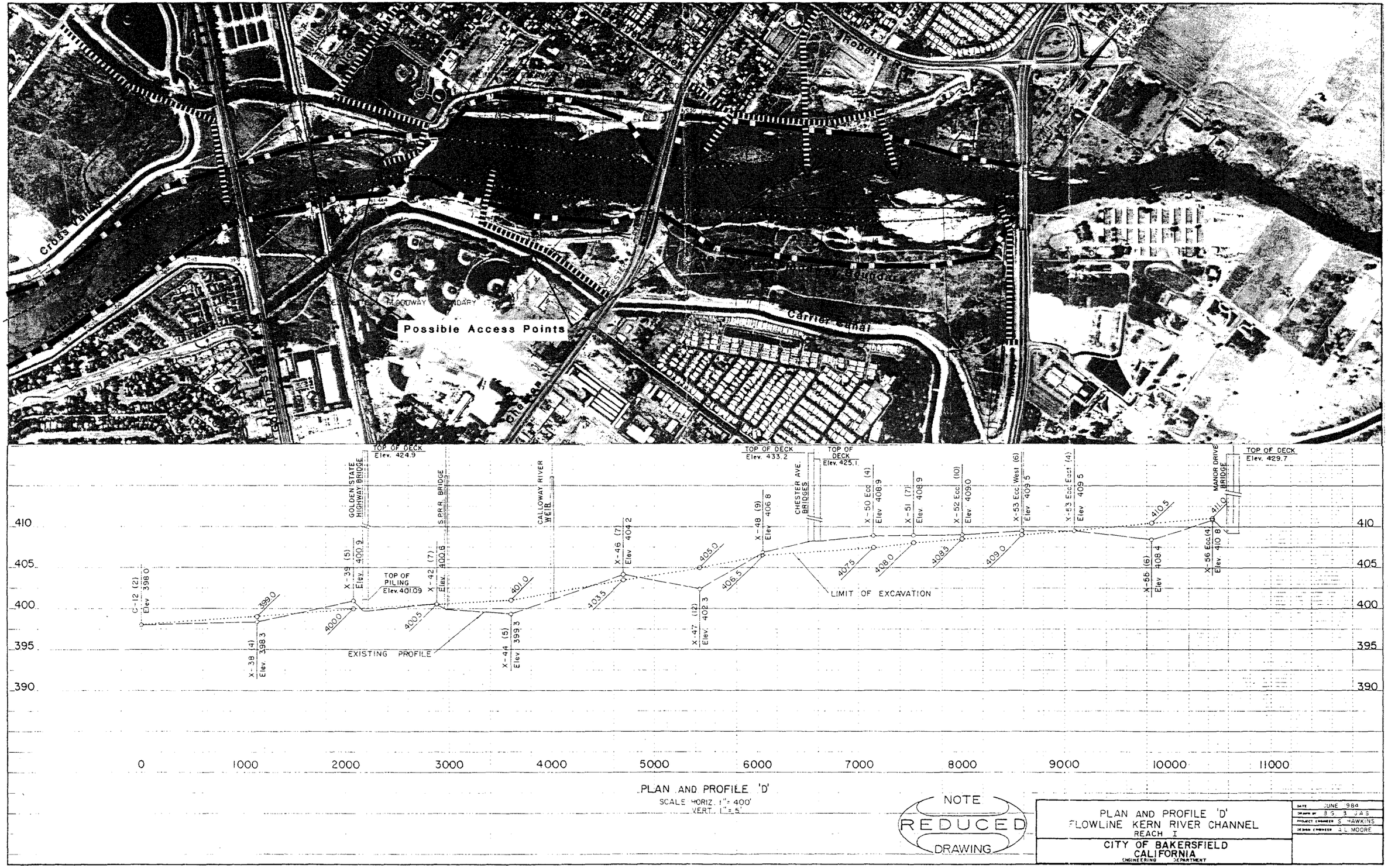


QUAD CONSULTANTS

PLAN AND PROFILE C

2·6

Base Drawings by Ricks Taylor and Meyers Inc Consulting Engineers Bakersfield Ca



PLAN AND PROFILE 'D'
SCALE HORIZ. 1" = 400'
VERT. 1" = 5'

NOTE
REDUCED
DRAWING

PLAN AND PROFILE 'D'
FLOWLINE KERN RIVER CHANNEL
REACH I
CITY OF BAKERSFIELD
CALIFORNIA
ENGINEERING DEPARTMENT

DATE JUNE 1984
DRAWN BY B.G. & J.A.S.
PROJECT ENGINEER S. HAWKINS
DESIGN ENGINEER J.L. MOORE

QUAD CONSULTANTS

PLAN AND PROFILE D

2·7

Base Drawing by Ricks Taylor and Meyers Inc Consulting Engineers Bakersfield Ca

CITY OF BAKERSFIELD

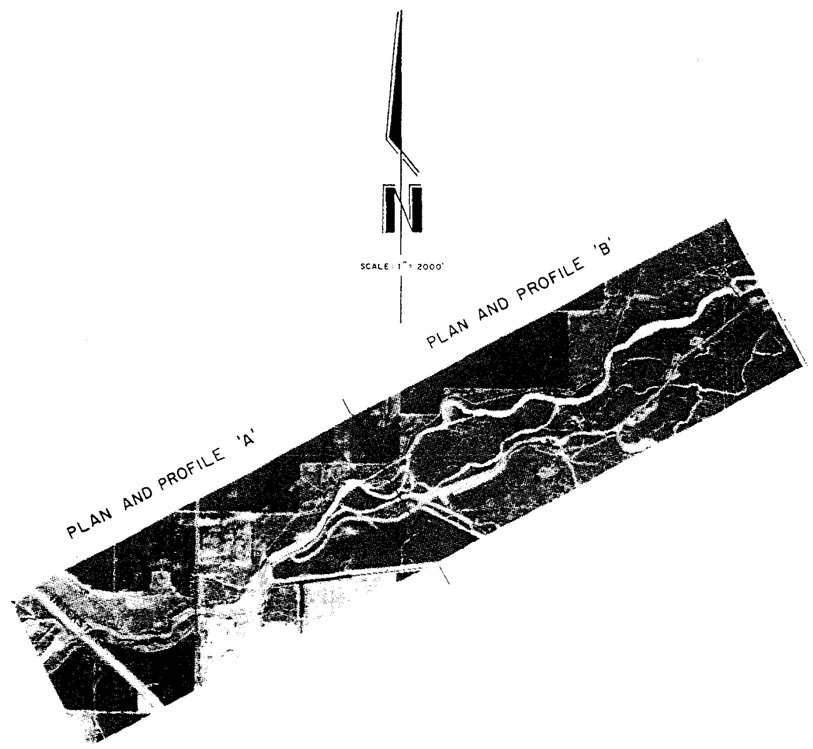
DEPARTMENT OF WATER RESOURCES

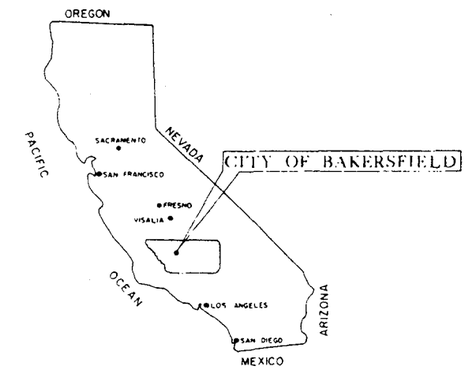
KERN RIVER CHANNEL MAINTENANCE PROGRAM
REACH II

FREEWAY I-5 TO EAST LINE OF SEC. 18, 30/26
(STATE MILE POINT 106.8) (STATE MILE POINT 110.0)

LIST OF DRAWINGS

SHEET NO.	DRAWING
2-8	TITLE SHEET
2-9	PLAN AND PROFILE 'A'
2-10	PLAN AND PROFILE 'B'





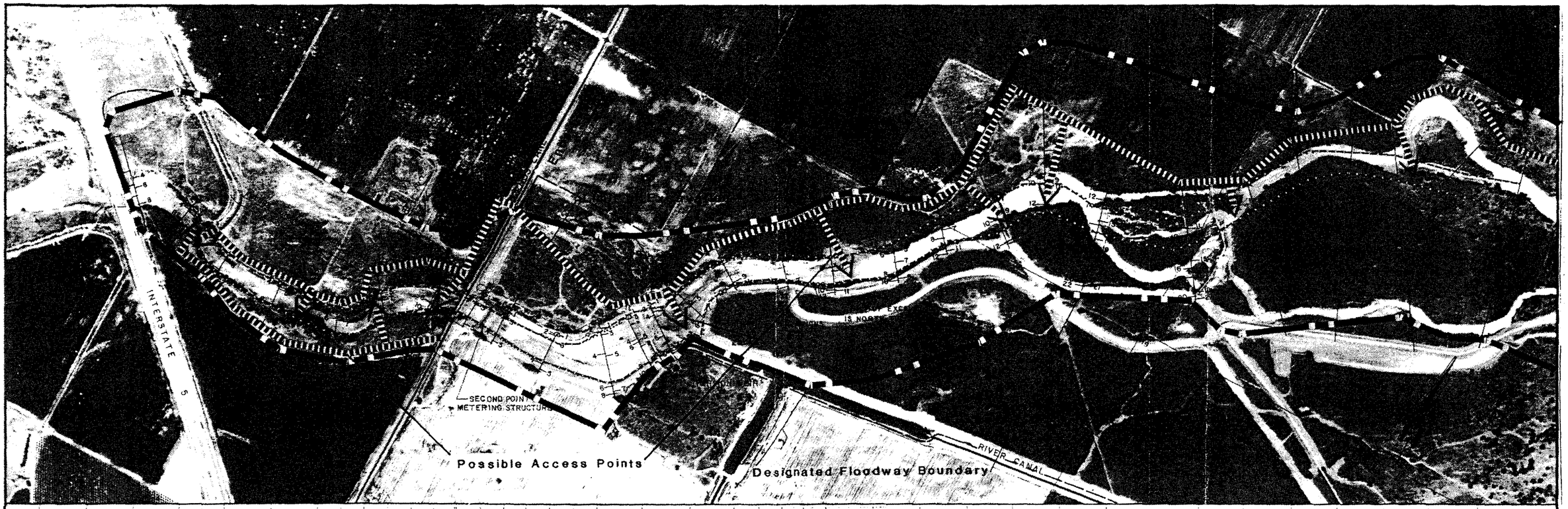
STATE OF CALIFORNIA

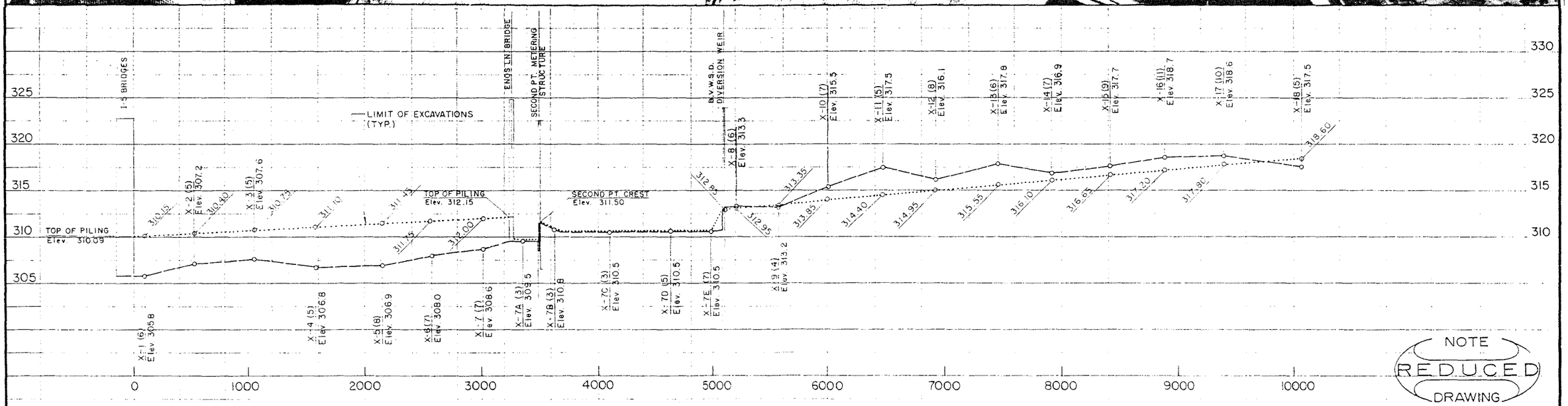
LEGEND

- DESIGNATED FLOODWAY LINE (per State of California Reclamation Board Floodway Maps dated April 19, 1976 & June 20, 1978)
- SECONDARY FLOODWAY LINE (per City of Bakersfield - Stetson Engineers Floodway Maps dated September, 1979)
- LIMITS OF EXCAVATION
- X-17 (10) LOCATION AND DESIGNATION OF CROSS-SECTION with point number of flowline elevation in parenthesis

BENCHMARK DATUM: Cross Valley Canal Datum; add 0.36 feet to elevations herein to obtain U.S.C.&G.S. Datum.

Base Drawing by Ricks Taylor & Meyers Inc Consulting Engineers Bakersfield Ca





NOTE
REDUCED
DRAWING

PLAN AND PROFILE 'A'
SCALE: HORIZ. 1" = 400'
VERT. 1" = 5'

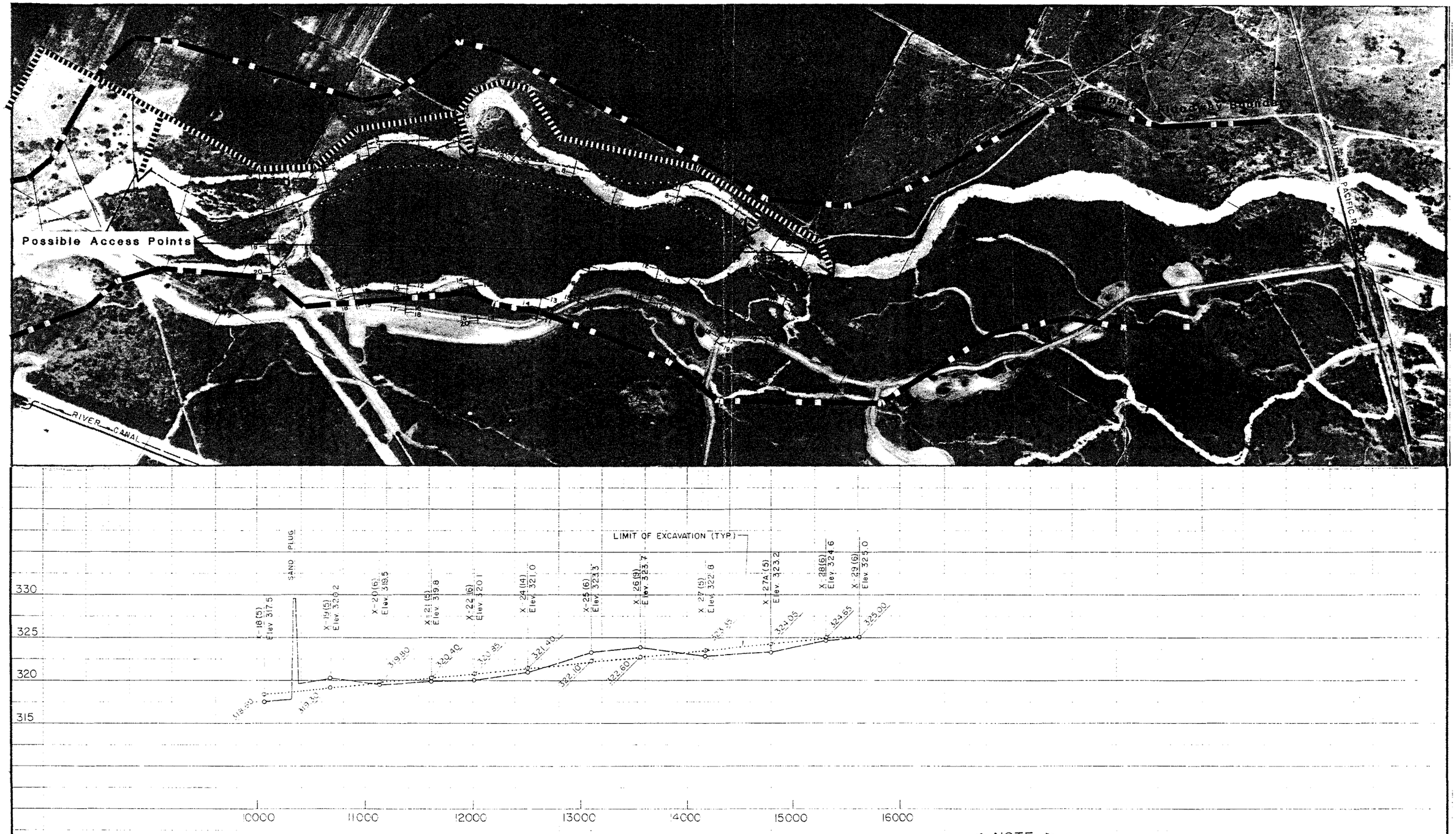
PLAN AND PROFILE 'A' FLOWLINE KERN RIVER CHANNEL REACH II	DATE AUGUST 9, 1985 DRAWN BY PROJECT ENGINEER S. A. R. DESIGN ENGINEER S. D. M.
CITY OF BAKERSFIELD CALIFORNIA	

QUAD CONSULTANTS

PLAN AND PROFILE A

2·9

Base Drawing by Ricks Taylor and Meyers Inc Consulting Engineers Bakersfield Ca



QUAD CONSULTANTS

PLAN AND PROFILE B

2·10

Base Drawing by Ricks Taylor and Meyers Inc Consulting Engineers Bakersfield Ca

The City's program engineers have prepared 75 cross sections of the river channel showing existing elevations, designated floodway boundaries and proposed limits for material excavation. These cross-sections are included in the Project Report which is on file at the City of Bakersfield Water Resources Division.

Sand Removal - Implementing the Kern River Channel Maintenance Program will assist in preserving the capacity of the river channel to transmit short duration flood flows of approximately 20,000 cubic feet per second (cfs) in Reach I. Total modification of the river channel to program specifications would require removal of approximately 1.2 million cubic yards of sand. Vegetation removal will be involved through island removal in the designated floodway. Channel alignment and sand removal will be required, in order to achieve required floodway capacity and levee protection, within the secondary floodway only in an area northwest of the intersection of Mohawk and Truxtun Avenue (Reach I Plan and Profile B, Figure 2-5), and in the area immediately upstream of the Santa Fe Railroad bridge (Reach I Plan and Profile C, Figure 2-6).

As noted in the Initial Study, (Appendix A) the demand for borrow material has averaged 70,000 cubic yards per year since 1977. With similar demands projected for future years, it is unlikely that material excavations within the river channel will ever reach the maintenance plan specifications. Benefits of sand extraction will be somewhat offset by the deposition rate of river sediments.

Location and phasing of material removal will be determined by the City of Bakersfield Water Resources Division in conformance with the Kern River Channel Maintenance Program. Access into the river channel will also be controlled by the City, and no oil or other permanent surfacing material will be used on access roads.

Removal of material from the river channel will be in compliance with the City's sand removal agreement. Included in Appendix C, the conditions of this agreement cover ingress and egress, excavation requirements and preservation of river habitat and channel structures.

Earth moving equipment including scrapers, bulldozers, and front-end loaders will complete most of the excavation work, with trucks used to transport material. Excavation will range from 0 to 7 feet (Section X2) below the existing river bed and have a maximum excavation width of 850 feet (Section X-76).

Vegetal Removal - As part of the on-going requirement to maintain the safe carrying capacity of the Kern River Channel, and to reduce the health problems associated with

mosquito populations occurring in the slower, stagnant sidewater areas of the natural stream, the Kern River Channel Maintenance Program will include cleanup of accumulated debris and removal of noxious weeds and vegetation from the main river channel. This operation has been conducted for many years by various public and private agencies as necessary to protect the public health and welfare of the community. The Kern River Levee District, the Kern Mosquito Abatement District and the City of Bakersfield have had a continuing program of channel cleanup when weather and water conditions allow access to the areas requiring maintenance.

The aerial photographs for Reach I of the Channel Maintenance Program show the condition of the Kern River Channel as of October, 1983. The areas designated for future cleanup lie within the dotted lines shown on the photos. Existing areas of the channel located outside of the dotted line that are clear of vegetation will be maintained in the same condition. This is essential since the criteria used to calculate the water surface occurring during the Intermediate Regional Flood (15,000 c.f.s.) through Bakersfield was based upon the design profile shown in the Kern River Channel Maintenance Program and the condition of channel vegetation at the time the aerial photographs were taken.

Where the channel is currently clear of debris, weeds and vegetation, it will be maintained in that condition in the future. Only the currently vegetated areas located between the dotted lines on the aerial photographs will be removed.

Operation of Weirs and Diversion Structures - The channel maintenance program includes, in addition to removing excess material and vegetal growth within the designated floodway, the operation of river weirs, measurement structures and diversion control structures in a manner designed to minimize sand deposition while achieving diversion and flood flow objectivity.

The Kern River, during normal water years, is completely controlled with all water being diverted to beneficial use. The major usage is for irrigation purposes, with some flows being diverted in the Bakersfield area for domestic use and groundwater recharge.

In the river reach between the Kern River Canyon on the east and Enos Lane on the west, there are two flow measurement structures and six major river diversion structures, which measure and control the flow of river water into the various irrigation canal distribution systems and groundwater recharge areas. During low to normal water years, river flows are usually completely diverted from the river channel through the first three diversion weirs loca-

ted upstream of Golden State Highway Bridge. During above normal water years and during flood periods, river flows at times continue downstream through all the structures to the Kern River Intertie Basin where flows are diverted to the Kern River Outlet Canal, the California Aqueduct or to storage cells in Buena Vista Lake.

During normal periods of operation (non flood-flows), the river weirs are operated with a combination of "overpour" and "pressure" openings in order to pass floating debris and provide for sand loads to be sluiced downstream of the river weirs. The operation of the riverweirs can and does change daily, depending upon the weir flow and canal diversion requirements.

Maintenance of the diversion weirs during flood operations will consist generally of removing weirboards, adjusting gates and removal of brush and debris that may collect on the structure members.

During past floods, the old wooden timber weirs were constructed with walkways only, so that debris had to be removed by men with hand held equipment. Removal of large trees or brush by equipment from the side of the channel usually resulted in damage to the structure. All of the new weirs, with the exception of the River Canal Weir, have been constructed with a road deck above high water, to allow men and equipment access to all sections of the weir for removal of trash and debris.

The First Point of Measurement Structure is located just downstream from Hart Park and measures Kern River flows entering the Bakersfield area. The structure was constructed in 1981 and consists of a reinforced concrete sill, 100 feet in width, with vertical concrete abutments and a walkway for current meter measurements. The structure was designed to measure river flows up to 10,000 cfs through the control section. As river flows exceed 10,000 cfs, a low level embankment on the south end of the structure will overtop and begin washing out. The 100 year flood flow of 15,000 cfs was designed to pass through the structure and the washout area without damage to the structure or causing backwater upstream.

The Second Point of Measurement Structure is located just upstream from Enos Lane Bridge and measures river flows leaving the Bakersfield area. The structure was constructed in 1985 and consists of a reinforced concrete sill, 150 feet in width, with concrete headwalls and a walkway for current meter measurements. The structure was designed to pass the 100 year flood flow of 12,000 cfs, without damage to the structure or causing backwater upstream.

The following diversion control structures on the Kern River have been reconstructed since 1975 and consist of reinforced concrete structures with weirboard control or a combination of gates and weirboard control. Each of the structures are designed to pass the normally controlled flows in the river through the structure. However, when uncontrolled flood flows occur which exceed the structure capacity, a washout sandplug section in the river channel will overtop and wash out, allowing 100 year flood flows to be carried downstream without overtopping containing river levees.

The Beardsley Diversion Weir, located one-half mile east of Gordons Ferry Bridge, was constructed in 1982 to divert flows into the Beardsley Canal and consists of a reinforced concrete structure with ten 5'0" weirboard bays alternating with five 9'0" radial gate controlled bays. The structure is designed to pass 9000 cfs before overtopping the washout sandplug, which is located in the old southerly channel of the river. After overtopping the washout levee, the combined capacity will increase to 15,000 cfs, with approximately 10,000 cfs passing through the structure and 5000 cfs through the washout section.

The Rocky Point Diversion Weir, located one mile downstream from the Gordons Ferry Bridge, was constructed in 1982 at the same time as the Beardsley Weir to divert river flows into the Carrier Canal. The structure is a duplicate of the Beardsley Weir with ten weirboard and five radial gate bays. Design flow of the structure is 9000 cfs prior to overtopping the washout sandplug located westerly of the structure in the river channel. Combined design flow of the structure and washout section is 15,000 cfs.

The gates at both Beardsley and Rocky Point Weirs are electrically operated with facilities for connecting a generator to operate gates during a power outage. These structures both passed flows in excess of 7000 cfs during their first year of operation.

The Calloway Diversion Weir, located between Chester Avenue and Golden State Highway Bridges was constructed in 1984 to divert flow into the Calloway and Carrier Canals. The reinforced concrete structure consists of fourteen 6'0" combination weir and door gate bays with a total design flow of 7000 cfs. When river flows increase above this flow the City would remove the sandplug in a portion of the old weir left buried in the washout embankment along with six 72" diameter pipes. This weir will increase the capacity of the

Calloway Weir to 10,000 cfs. Flows in excess of this amount would overtop the washout portion of the sandplug located just south of the weir, thereby increasing design capacity to 15,000 cfs.

The River Canal Weir, located just upstream from the Coffee Road Bridge, was constructed in 1979 to divert flows into the River Canal and consists of a reinforced concrete structure with ten 5'0" weirboard bays and two 5'0" doorgates. Flows in excess of 4,000 cfs were diverted through the weir in 1983. When river flows exceed the weir capacity, the sandplug located in the river channel north of the weir would be overtopped and the combined capacity will allow the 15,000 cfs intermediate regional flood to be contained between the existing river levees.

The completion of Calloway River Weir in 1984 has resulted in reducing the flow and diversion requirements of the River Canal Weir. Since the River Canal Weir is located where numerous bridge, siphon, oil pipelines and canal facilities converge, the operating criteria of the River Canal Weir will change.

The River Canal Weir sandplug will be removed in October of each year until the next April-July water supply forecast is available. If the forecasted runoff is below 90% of normal, or above 175% of normal, the sandplug would not be replaced. In years forecasted to be between 90% and 175% of normal, the sandplug would be replaced only if scheduled water routings determined that flows of 2,000 cfs or less would otherwise pass through the River Canal Weir.

The McClung Weir, located 3.5 miles west of Stockdale Bridge, was constructed in 1983 as part of the City's Groundwater Recharge Area, to divert river flows into the recharge basins. The reinforced concrete structure consists of twenty-four 5'0" weirboard bays with a design capacity of 4400 cfs. An additional 600 cfs would be diverted into the recharge basins, making total structure capacity 5000 cfs. If river flows exceed this amount, a 200 foot long washout sandplug, located northerly of the weir structure, would overtop and provide increased flow capacity past the weir.

The Kern River Diversion Weir, located one-half mile upstream of Enos Lane Bridge, was constructed in 1975 to divert river flows into the Alejandro Canal. The reinforced concrete structure consists of twelve 9'4" weirboard bays with a total capacity of 5000 cfs. A fixed crest overflow weir, located northerly of the diversion weir will overtop and increase total structure capacity to 6800 cfs.

CHAPTER 3

3.0 SETTING, IMPACTS, AND MITIGATION MEASURES

3.1 Physical Environment

3.1.1 River-adjacent and River-crossing Facilities

Setting - The River is bordered by continuous levees in its upper reaches through the urban area, by discontinuous levees and banks in its lower reaches, by the Cross Valley Canal along Coffee Road to Golden State Highway, and by intake facilities for the Arvin-Edison Canal siphon adjacent to Coffee Road. It is crossed by various buried public utilities facilities, as well as by nine road and highway bridges and two railroad bridges within and bounding the project area.

Impacts - The Channel Maintenance Program stipulates that no excavation for sand removal will take place within fifty feet of the base of any River levees. The Program is designed to provide unimpeded flow within the floodway, and thus to minimize potential levee damage.

An engineering analysis of the Program's proposed cross-sections and flow routing indicates that there will be no negative impact upon the Cross-Valley Canal installation adjacent to the River (See Appendix D).

The engineering analysis also indicated that the proposed floodway cross-sections and elevations would permit passage of the design flows through the various bridges without damage to such structures.

It has been determined that all of the utility pipeline crossings will be safely below the proposed floodway cross-sections.

Mitigation Measures - None are required.

3.1.2 Air Quality

Setting - The River channel bottom is principally composed of sand. The secondary flood plains and the bordering areas through which access to the River for sand removal must be made are composed in part of sand and in part of sandy and silty alluvium.

Impacts - The process of sand removal from the riverbed, and to a lesser extent, the periodic removal of vegetation within the primary floodway, will create localized emission of dust particles. To a greater degree, dust emission will also result from sand truck travel over unpaved access roads and as a result of spillage from trucks. The disposal of removed vegetation by burning will cause particulate emissions and visible smoke. Minimal emissions will occur from equipment and vehicles used for sand removal operations.

Mitigation Measures - The City's proposed draft sand removal agreement (Appendix C) provides for "dust control practices within the premises and on any roads constructed to minimize wind blown sand and soil to the greatest extent possible." Such practices have, in the past, included water truck-wetdown of sand removal areas, both to reduce dust emission and to permit riverbed truck operations, and water truck control of dust on access roads.

Excessive material spillage from transport trucks is prohibited by State law; equipment and vehicle emissions are the subject of appropriate State and Federal regulations. Burning of removed vegetation may be undertaken only by permit on approved "burn days" under County Air Pollution Control District regulations; discing may be a viable alternative for vegetation disposal in some cases. It may be appropriate to consider inclusion in the sand removal agreement a clause which would permit the City to require cessation of sand removal operations on those occasions when wind conditions create the potential for excessive dust migration or if the City determines that the Contractor's dust control operations are not being carried out in such manner as to minimize dust emission.

3.1.3 Hydrology

Setting - As described in Chapter 2 and in the Initial Study, the River's principal beneficial hydrologic uses are the carriage of flood flows through the community and, in the upper reaches of the project area, the transport of irrigation water. Supplemental hydrologic uses include the passage of flow to the City's groundwater recharge spreading basins downstream from the Stockdale Highway bridge, groundwater recharge within the River channel, and disposal of drainage from some River-abutting urban areas. The River is, because of sand deposition, currently less than satisfactory for flood carriage purposes; vegetal growth in the River has a less-than-beneficial, although probably not significant, impact due to transpiration on the amount of water which is percolated to groundwaters. Channel irregularities and vegetal growth which encourage shallow areas of standing water during minimum flow periods create the potential for mosquito breeding.

Impacts - The proposed Channel Maintenance Program does not negatively impact any of the hydrologic beneficial uses of the River.

Mitigation Measures - None are required.

3.1.4 Visual

Setting - Despite the channelization of the River which has, through the construction of levees and other constrictions, been required to maintain the River in its present channel within the alluvial fan, it is a visual asset to the City. River-adjacent vegetal growth and the minimal vegetal growth which lies within the River floodplains are positive visual supplements to the adjacent urban and agricultural landscapes. During the periods in which water flows through the River, it is particularly attractive from visual vantage points. (Mark Twain is reported to have commented, after viewing western ephemeral streams during the dry season, "Nothing improves the appearance of a river like water"!)

Impacts - The Channel Maintenance Program will have the continuing effect of removal of a portion of the vegetal growth within the River channel, although such removal is not planned to occur at a rate greater than that which has occurred, on average, since 1977. If the Program were to be implemented in its entirety, it has been estimated that a total of approximately 144 acres of River channel vegetation, including sparse grass and short-weed cover, would be removed over the twelve mile length of the project area, about 8% of the total area within the River channel.

Removal of sand during nighttime hours may cause temporary light or glare visual impacts in those areas of the River adjacent to residential development. Necessary access to the River channel for sand removal or vegetal clearance activities will, at some locations, require removal or destruction of vegetation for access roadways.

Mitigation Measures - The implementation of planned restrictions on the use of the River channel for off-road vehicle usage will have a positive impact on the maintenance of vegetal cover which does not restrict water passage within the River areas outside the primary floodway. The City should, additionally take positive steps to require maintenance of riverbank vegetal cover as it considers River-adjacent development proposals. If it is deemed appropriate, as suggested in the Biological Environment mitigation measures section of this Chapter, to encourage or provide for establishment or maintenance of supplemental River-related vegetal habitat, such mitigation measures would assist in mitigating visual impacts along key reaches of the River.

Night-time sand removal operations should be restricted to those essential to meet emergency or severely restricted construction schedule needs. When such night-time operations are essential adjacent to residential areas, the City's sand removal agreement should be modified to require restrictions on lighting which will minimize offsite impacts.

The City sand removal agreement regarding obliteration of access roads after cessation of sand removal operations should be strictly enforced to permit rapid revegetation of access road areas.

3.2 Biological Environment

A detailed analysis of biological impacts associated with the proposed project, concentrating on the flora and fauna characteristics of the project area, was undertaken in September, 1985 by a qualified natural resource consultant. The results of this analysis are presented in detail in Appendix E of this EIR document. A brief summary, however, of the biologist's description of the project's environmental setting, potential impacts, and proposed mitigation measures is provided in the following two sections of this EIR.

3.2.1 Flora

Setting - The area between the Manor Street Bridge and the Chester Avenue bridge shows significant development of riparian vegetation along the south bank. The main channel is diverted somewhat to the north immediately down stream from the Manor Street Bridge by a well-developed island which is densely covered by willows (*Salix* sp.). In areas where river flows are slowest, a small segment of freshwater marsh is developing. Several clumps of *Scirpus acutus* (Common Tule) and *Typha domingensis* (Cattails) were observed in the slow moving side channels. Further from the bank are mature shrubs of *Atriplex lentiformis* (Quailbush) and *Cephalamphas occidentalis* var. *californicus* (Buttonwillow). Cut banks, where the channel flows were greater, supported several common streambank herbs (*Artemisia doublasiana*, *Eleocharis macrostachya*, *Rumex violascens*, *Polygonum coccineum*, and *Xanthium spinosum*).

Commencing at the Highway 99 Bridge, the Kern River channel broadens and the riparian vegetation along its banks and in the channel are again better developed. Remnants of a once extensive riparian forest are seen from the old archery club facility down to the City of Bakersfield Water facility north of the Truxtun Avenue Extension. Some attempts are being made in this stretch of the channel to reestablish individuals of *Platanus racemosa* and *Populus fremontii* which may have formed an historical riparian woodland in this area.

Riparian vegetation within the actual channel is developing rapidly in the area immediately upstream from the Coffee Road Bridge and continues for several hundred feet upstream. In this area several islands are vegetated by a mixture of species typical of the Streambank and Freshwater Marsh Associations. Dense groups of Salix sp. have stabilized portions of these islands in many places. Most other vegetation is herbaceous.

The remaining portion of Reach I which lies downstream from the Coffee Road Bridge to approximately three thousand feet below the Stockdale Bridge shows significant development of riparian vegetation habitat, not only in the river channel, but also adjacent on the floodplain terraces. Substantial Riparian Streambank and Freshwater Marsh vegetation is well developed upstream from the Bellevue Weir. A second significant development of the Streambank and Freshwater Marsh Associations exists within the river channel immediately north of the entrance to California State University Bakersfield. These two areas are characterized by the early stabilization of islands and banks by Salix sp. and Populus fremontii. Such shrubs as Cephalanthus occidentalis Baccharis viminea, Atriplex lentiformis and Aapplopappus sp. also contribute to the significant development of this riparian vegetation.

Downstream from the Stockdale Highway Bridge, the vegetation shows a better development of the Saltbush scrub vegetation type and the Lower Sonoran Grassland Associations. This area also shows the upstream limit of the development of Mesquite Savannah.

Reach II begins at mile point 110 and continues down stream to the Interstate 5. This portion of the Kern River channel lies within the City of Bakersfield's Groundwater Recharge facility. All four of the common valley vegetation associations are present in this area. Over the past years the City of Bakersfield, in establishing a ground water recharge facility, has created a series of dikes and impoundment structures which have begun to modify the vegetation characteristics. The Mesquite Savannah which was once commonly spread

on the flood plain terraces between various channels and sloughs is being replaced by much thicker growth of Salix sp. Atriplex lentiformis, Baccharis viminea and various herbs common to the Streambank and Freshwater Marsh Associations (e.g. Artemisia douglasiana Elymus triticoides, Heterotheca grandiflora, Polygonum coccineum, Xanthium strumarium, Rumex salicifolius).

Impacts- Implementation of the proposed project will result in a significant loss of existing riparian vegetation within and adjacent to the Kern River channel. Approximately 110 acres of vegetation would be removed as a result of the project in Reach I; about 34 acres would be removed in Reach II. Significant riparian vegetation for the purposes of this analysis was determined to be those areas where vegetation cover by the various vegetation associations identified to exist within the floodway, and requiring this proximity to the Kern River for development, was approximately 50 percent or more. Therefore, these figures do not consider the loss of individual trees or shrubs that may exist within the excavation limits.

It should be noted that the significant impact to existing riparian vegetation is not distributed evenly throughout the proposed project area. Implementation of the proposed project in that portion of Reach I downstream from the Chester Avenue Bridge to appproximately that point in the channel immediately north of the Mohawk Street/Truxtun Extension intersection would not result in a significant loss of existing riparian vegetation.

In addition to impacts directly associated with vegetation removal, project implementation will contribute to a significant cumulative impact as a result of past development projects, habitat conversion in the City of Bakersfield's groundwater recharge facility, and approval for the development of a golf course currently proposed for the area north of California State College at Bakersfield. Significant concern exists for the continued loss of savannah type habitats as a result of these projects. In particular, the Mesquite Savannah will be subject to significant cumulative impact.

Much of the extensive Mesquite Savannah that existed in the floodway of the lower Kern River is being converted to Freshwater Marsh or Streambank vegetation types as a result of periodic water impoundment in the City of Bakersfield Groundwater Recharge Facility. The proposed project will result in the further loss of the vegetation type in the area of Reach I below the Stockdale Highway Bridge and at various points of channel realignment in Reach II. Not only has this vegetation type been recognized by both the California Natural Diversity Data Base and the Nature Conservancy as the most threatened Southern San Joaquin Valley plant association, but, the Mesquite Savannah also provides suitable habitat for several rare or endangered animal species as will be discussed in the next section of this report.

Mitigation Measures - The referenced biologist's report recommends the following mitigation measures to reduce project-related impacts on flora resources to below levels of significance:

- As a prelude to initial excavation operations, and as a component of continuing program operation, the City should review vegetal cover in the river channel to determine if changes in alignment at any point would save major vegetal growth without reducing hydraulic capacity or endangering channel-adjacent or channel-crossing structures.

- The development and implementation of an onsite habitat rehabilitation program in those areas where significant loss of riparian vegetation occurs would partially mitigate the project-related significant impacts to flora. Such a program should include revegetation of access ways and all other impacted areas outside of the channel proper; reestablishment of woody vegetation along new channels and adjacent to areas where woody vegetation has been removed; and stabilization of new channel banks to control erosion. The recommended program would encompass reseeding of non-critical secondary flood plain areas with native plants and/or planting of fifty-foot levee protection and bank areas with native tree seedlings.

- Significant areas along the Kern River corridor are in need of habitat rehabilitation or improvement. Significant past impacts have resulted from off-road vehicle use and other unauthorized uses. A program to reestablish riparian vegetation in areas where the habitat has been significantly degraded as a result of other activity or in areas of significant aesthetic or community benefit (along the Kern River Bike Path or major roadway viewsheds) could be developed and implemented with these objectives to reduce significant impacts to flora associated with the channel maintenance program. Such a program might include tree and shrub plantings, the reintroduction of endangered species (e.i. Circisum crassicaule) into areas of suitable habitat, and development of community awareness by contributing lands for a riparian studies program in cooperation with local colleges and school districts.

3.2.2 Fauna

Setting - Wildlife in this area is abundant. The following species were specifically observed in the project during the biologist's field work preparatory to this EIR:

Belted Kingfisher	Megaceryle alcyon
Western Kingbird	Tyrannus verticalis
House Finch	Carpodacus mexicanus
Fox Sparrow	Passerella iliaca
American Coot	Fulica americana
Marsh Hawk	Circus cyaneus
Great Blue Heron	Ardea herodius
Black-crowned Night Heron	Nycticorax nycticorax

Red Winged Blackbird	Agelaius phoeniceus
Bullfrog	Rana cetesbeiana
Western Toad	Bufo boreas

In addition to those wildlife observed in the area, tracks, burrows, and scat, suggest the presence of many small mammals and birds.

Downstream from the Chester Avenue Bridge to the Highway 99 crossing the Kern River is significantly channelized by parallel canal levees. Limited vegetation is found along the banks. The limited vegetation, strong channel control, and extensive urban development adjacent to the river reduces the available wildlife habitat.

Wildlife populations in the lower part of Reach I are well-established and diverse. Two sensitive species described were observed in the area south of the Kern River channel near the entrance to California State College at Bakersfield. Two San Joaquin Kit Foxes were seen during nocturnal spotlighting and three Burrowing Owls were observed in the same area during daylight field analysis. Since this area has been reviewed in the past and good descriptions of the existing wildlife communities exist, no further census was made during the analysis done for this EIR. It can be assumed that the wildlife community is typical and that those species listed in attachments to the biologist's report occur in the area. (Appendix E)

Wildlife populations in Reach II are diverse and species typical of each of the four vegetation associations identified previously are anticipated to be present. Since significant wildlife data exists for this area, no attempt was made as part of this EIR to survey the various vegetation types present. However, given the number of historical sighting of San Joaquin Kit Foxes in the area, nocturnal spotlighting was conducted to establish the present relative abundance of foxes over the proposed project area and surrounding vicinity.

The spotlighting failed to locate any foxes in the proposed area or immediately adjacent surroundings. Given the historical occurences known in the area, this data was surprising. Two possible explanations are (1) the limited ability of spotlights to penetrate the developing dense shrub thickets, and (2) historic habitat conversion in this area may have created conditions less favorable to foxes, who prefer more open habitats.

Impacts - Concomittant with the significant loss of riparian vegetation associated with the proposed project is the significant loss of wildlife habitat. As noted previously several rare and/or endangered species are known to occur in this area, therefore, this loss of suitable habitat will significantly impact these species.

Moreover, maintaining a vegetation-free channel may limit the development of an aquatic ecosystem at such times as continous river flows occur. The loss of diversity of cover and substrate for attachment of benthic aquatic organisms may limit the development of river fisheries.

The significance of this impact to the potential development of an aquatic ecosystem in the affected portion of the Kern River is difficult to assess. During periods of sustained flows, the impact may be significant. Conversely, without sustained flows, the impact may be significant. Conversely, without sustained flows, neither significant aquatic ecosystems nor fisheries will develop; therefore vegetation removal from the channel may not significantly impact their development.

Mitigation Measures - The mitigation measures described in the preceding section of this EIR for flora would serve to reestablish and maintain important wildlife habitat, and may be regarded as sufficient to also reduce project-related impacts on fauna to below levels of significance.

3.3 Cultural Environment

3.3.1 Land Use Planning

Setting - Reach I of the channel maintenance program begins approximately 1,800 feet southwest of the Stockdale Highway Bridge and terminates at the Manor Street Bridge, and is approximately 9 linear miles in length. Land uses bordering the River channel include agricultural, residential, commercial, industrial and recreational developments.

In the first three miles, from Stockdale Highway to the Coffee Road Bridge, land uses to the north include the Cross-Valley Canal and intensive agricultural development. To the south Stockdale Highway, the Arvin-Edison Canal and intensive agricultural uses exist along with the Bakersfield State College Campus.

From Coffee Road to the Freeway 99 Bridge the Cross-Valley Canal and industrial uses are located to the North, with Truxtun Avenue, Carrier Canal, City of Bakersfield Corporation Yard and vacant commercial land adjacent to the south.

Between Freeway 99 and the Golden State Highway Bridge, the Cross-Valley Canal, together with commercial land uses and undeveloped land are adjacent to the north boundary of the Kern River channel. Beach Park is situated between the Freeway 99 and Highway 178 bridges; commercial uses have developed to the east of Oak Street with the remaining area south of the river occupied by the Carrier canal and residential subdivisions.

The area from Golden State Highway to Manor Street Bridge area includes the Riverview Park and residential developments to the north; south of the river channel is the Metropolitan Recreation Center, the Carrier Canal and a large mobile home park.

Reach II begins at Freeway I-5 and continues northeasterly to the east line of Section 18, Range 30 East, Township 26 South. Land use along this stretch of the Kern River Channel includes intensive and extensive agriculture and oil extraction.

The principal land uses in the River channel, other than its basic purposes of transport of flood and irrigation waters and groundwater recharge, are recreational; these uses are discussed in Section 3.3.3 of this DEIR.

Land uses in the primary and secondary floodplains of Reach I of the River and immediately abutting the river are the subject of the Kern River Plan Element of the Bakersfield Metropolitan Area General Plan and Kern County General Plan. The River's abutting urban and residential land uses are governed by the Kern County Year 2000 General Plan, and the land use element of the Bakersfield Metropolitan Area General Plan and the zoning ordinances of Kern County and the City of Bakersfield.

Impacts - Removing sand, and vegetation within the designated floodway, channel alignment within the designated and secondary floodway, and maintenance and operation of river weirs and diversion structures will not have a significant impact on agricultural, residential, commercial, and industrial uses. Channel maintenance programs have been in operation for many years and are necessary for protection of these adjacent land uses.

Project related impacts will be the temporary interruption of recreational uses within the designated floodway and operation of excavation equipment and trucks within the urban area. These impacts are addressed in the following sections 3.3.2, Recreation; 3.3.3, Noise; and 3.3.4, Traffic.

The maintenance program relates to the Kern River Plan Element of the Bakersfield Metropolitan Area General Plan and Kern County General Plan in that it responds to the following floodplain management issue, goal, and policies (as excerpted from the Kern River Plan Element):

"Issue - From a safety and resource management standpoint, floodplain management is a major priority issue. Activities related to groundwater recharge, channel maintenance, levee maintenance and construction, and diversion structures have a direct relationship to public safety and environmental quality."

"Goal - To maintain the integrity of the river channel so as to facilitate a floodway for Kern River waters for the health and safety of the community."

"Policies - The primary floodway shall be primarily devoted to the safe and controlled passage and percolation of water and shall be maintained in a manner to adequately achieve this purpose. This shall be carried out through proper and necessary maintenance of the River channel through appropriate deepening of the channel when necessary, and maintenance of levees and dikes.

Sand and gravel removal by temporary portable equipment is allowed in the primary and secondary floodways.

Resource extraction activities, such as sand and gravel removal, shall comply with the "California Surface Mining and Reclamation Act of 1975".

A channel maintenance program shall be developed by the City Water Resources Department and Kern County for their respective jurisdictions. The plans shall be considered for inclusion by General Plan Amendment as appendices to this Element upon their approval by the Reclamation Board of the State of California."

Mitigation Measures - Mitigation measures outlined in air quality, visual, recreational and traffic sections of this DEIR address the identified impacts on adjacent land uses.

3.3.2 Recreation

Setting - The Kern River is a major recreational resource in the Bakersfield urban area and attracts a variety of activities and passive recreational uses, including horseback riding, hiking, picnicking, bicycling, swimming, "tubing", fishing and off road motorcycling. With urbanization of the Bakersfield area, and extensive surrounding agricultural development, the Kern River channel is one of the few remaining, nearby, open space areas available for these recreational uses.

The Kern River Plan Element set forth the following recreation-related use policies:

- "Riding and hiking trails shall be located in the general areas indicated on the plan map. Variations in location of actual trails, as they are developed, would be allowed in order to make best use of physical features, public land ownerships, easements, and the like."

- "Hiking trails and equestrian trails shall be separated if it is demonstrated that joint use of trails would present a threat to public health and safety."

- "Parking should be provided in the general location of areas indicated on the Kern River Plan Map. It is intended that major access points for River users would have improved parking areas."

- "Other public uses, such as recreation areas and picnic grounds, should be encouraged to develop in areas generally located on the Kern River Plan Map."

- "Privately developed public recreation areas shall be encouraged in the Plan area as consistent with all other goals and policies of this plan."

- "Construction of a bikeway, currently planned along the River, shall take place as planned and as public or private funding is available."

- "Foot access along the River shall be allowed for uses such as fishing, nature study, and photography. Developed trails would not be required in these areas in order to minimize any disturbance to naturally occurring conditions, except as may be in violation of any existing laws or ordinances."

Impacts - Sand removal operations and River maintenance programs over the years have provided an opportunity to observe possible conflicts with recreational activities. Sand removal excavations generally last between a week and two weeks and cover an area approximately 200 to 500 feet wide and 1,000 to 2,000 feet in length. Although some of the recreational uses will be restricted within this temporary excavation area, the remaining river bed remains available.

The City of Bakersfield has not received any complaints from persons using the river for recreational uses during sand removal. The only complaints have been from the Contractors experiencing vehicle vandalism.

The continuance of the sand removal and vegetal clearance programs at the approximate rate proposed will have no significant adverse effect on any of the recreational activities currently carried out in the River channel in terms of topographic change or modification of recreational areas, with the exception of the vegetal loss described in Section 3.2.1 which could conceivably impact picnicking and hiking experiences.

Mitigation Measures - Enforcement of the policies of the Kern River Channel Maintenance Program and the provisions of the Sand Removal Agreement (Appendix C) will adequately address any impacts associated with potential conflicts between the project and long-term recreational uses of the River.

Mitigation measures for the potential vegetal loss in the Channel are outlined in Section 3.2.1 of the DEIR.

3.3.3 Noise

Setting - Relative intensity of sound is usually measured in decibels of sound pressure (db(A)). Audible sound ranges from zero decibels, the threshold of hearing, to 140 decibels, corresponding to the threshold of pain. Table 3-1 illustrates typical environmental conditions associated with various sound pressure levels and compares these levels with those created by typical construction equipment used in sand removal operations within the Kern River channel.

TABLE 3-1
APPROXIMATE SOUND LEVELS

INDOORS	DECIBELS - db(A)	OUTDOORS
Threshold of Hearing	-0-	
Library	-35-	Quiet Suburban Nighttime
Dishwasher, next room	-50-	Light Traffic at 100 ft and quiet urban area
Normal Speech at 3 ft.	-65-	Commercial Area
Garbage Disposal at 3 ft	-80-	Noise, Urban Daytime
Shouting at 3 ft	-80-	Noise, Urban Daytime
Food Blender at 3 ft.	-85-	Diesel Truck/ Equipment at 50 ft.
	-90-	Motorcycle at at 50 ft.
	-95-	Farm tractor or Power Mower at 3 ft
Rock and Roll Band	-110-	Jet Takeoff at 1000 ft.
	-140-	Threshold of Pain

With the exception of off-road vehicles, the ambient noise level within the Kern River channel can be expected to be at or below 50 decibels. Daytime sound levels within the urban areas adjacent to the river can be expected to range between 50 and 85 decibels with 50, or lower, decibel readings in agricultural areas adjacent to both Reach I and Reach II.

The City of Bakersfield Noise Element and the Kern County Noise Element prescribe maximum exterior and interior noise levels for various land uses in their respective jurisdictions. Table 3-2, below, indicates the acceptable exterior noise exposure range for land use categories as specified in the Noise Elements. In addition to the standards contained in Table 3-1, the Bakersfield Noise Element specifies that the noise exposure in any habitable area of a residential dwelling shall not exceed 45 db(A).

TABLE 3-2
ACCEPTABLE EXTERIOR NOISE EXPOSURE LEVEL db(A)

LAND USE	CITY	COUNTY
Multi-Family Residential	50-65	55
Single-Family Residential	50-60	55
Hotel/Motel	50-65	60
Schools, Nursing Homes	50-70	50
Theaters	50-70	65
Sports Arenas or fields	50-75	65
Neighborhood Parks	50-70	65
Other Parks & Outdoor Recreation	50-75	65
Offices and Commercial Uses	50-70	65
Industry and Agriculture	50-75	70

Impacts - Equipment and vehicles used in material removal from the River channel include scrapers, loaders and 20 yard dump trucks. These diesel powered vehicles produce noise levels of approximately 85 decibels at 50 feet; at 100, 200, 400, 800 and 1600 feet the respective decibel readings are 84, 78, 72, 66, and 60. Barriers such as the Kern River levees will reduce the impact of noise emanating from excavation operations within the River channel.

The excavation limit line depicted on the plan and profile Figures in Chapter 2, together with the excavation elevations shown on the Kern River channel sections show that material excavations will be confined to the designated primary flood plain. Between Highway 178 Bridge and the Golden State Highway, the narrowest point in the channel and the worst-case situation, residential dwellings along the south levee are within 200 feet of the excavation boundary (see plan and profile Figures 2-6 and 2-7) which would assume excavation related noise levels of 78 decibels. However, the existing river bed along this portion of the river averages 15 feet below the top of the levee, which lowers the expected noise impacts to adjacent residences by approximately 15 db(A) to 63 db(A), slightly above the City Standard for single-family uses.

Mitigation Measures - Equipment using the Plan-designated possible access locations along the north bank of the River between the Golden State Highway and Manor Drive should be equipped with enclosed fan shrouds and sand removal and hauling operations should be limited to a 7 am to 7 pm schedule except in case of emergency needs. No other mitigation measures will be required to maintain noise levels for the closest residential areas to the River within acceptable limits.

3.3.4 Archaeological

Setting - The Kern River may be considered a major resource area for archaeological materials. The cultural group occupying this part of Kern County were the Yowlumne subdivision of the Yokuts Indians, whose many villages were located along the River. There is no reliable estimate of the population, though Father Garces recorded that there were many Indians living on both sides of the River.

Impacts - The Kern River channel has been extensively disturbed in recent years with construction of continuous levees through the urban area of Bakersfield and by low discontinuous levees near the Interstate 5 Bridge. The channel has a sandy, shifting bottom and is crossed at intervals by permanent diversion weirs. The channel has been maintained by local interests over past decades. This maintenance work has included channel clearing, vegetation removal and levee repair.

The extensive channel maintenance programs over the years have reduced the probability of finding archaeological resources within proposed project areas. The archaeological records search, attached as Appendix H, indicates no recorded archaeological sites or historical landmarks are located within Reach I and II of the Kern River Channel Maintenance Program.

Mitigation Measures - Contractors removing material within the project area be required to notify the City of any archaeological artifacts or remnants unearthed during excavation activities. Any cultural resource finding shall require that excavation immediately cease until competent cultural resource authorities have examined the site. The City may wish to authorize additional archaeological investigations in the River Channel at a later date, but such investigations are not a prerequisite for this project since the project is almost totally confined to the much-disturbed primary flood plain.

3.3.5 Traffic

Setting - Kern River forms the current northern boundary of the City of Bakersfield with north-south traffic flow restricted to eight bridge crossings. These crossings are: Stockdale Highway, Coffee Road, Freeway 99, Golden State Highway (204), Chester Avenue, Manor Street and China Grade Loop. All but the China Grade Loop are within the project area (Reach I). Major traffic routes paralleling portions of the River are: Stockdale Highway and Truxtun Avenue west of Freeway 99, and Panorama Drive east of Manor Drive. In Reach II Interstate 5 and Enos Lane (State Highway 43) cross the Kern River.

Although vehicular access to the River channel is restricted throughout most of the Bakersfield urban area, there are many dirt access roads and unimproved parking lots used by a large number of recreationalists. Crossing of the dry river bed and travel within the designated floodway channel is limited to off road or 4-wheel drive vehicles.

Impacts - Figures 2-3 through 2-10 show possible access routes to be used by contractors to haul sand from the River channel. Some of these proposed routes are open to the public, with the remaining dirt roads controlled through locked gates.

The impacts associated with project-related traffic include increased dust and noise, disruption of recreational activities and the introduction of heavy equipment on residential streets.

Impacts and mitigation measures relating to dust (air quality) noise and recreation have been previously covered. (See Sections 3.1.2, 3.3.2 and 3.3.3)

The possible access routes along the north levee bank between Golden State Highway and Manor Drive require truck routing through residential streets. Project related truck traffic will use South Oildale next to Riverview Park and Beardsley Avenue and Hart Street east of the Chester Avenue Bridge.

Mitigation Measures - Modification of the subject access routes (between Golden State and Manor Street) along the north levee bank and/or restricting sand excavation operations to daylight hours (7 am to 7 pm) will reduce the impact of large 20 yard trucks traveling residential areas.

CHAPTER 4

4.0 CONSEQUENCES OF PROJECT APPROVAL

4.1 Significant Environmental Effects Which Cannot Be Avoided

The significant environmental effects of the project which cannot be avoided or mitigated to less than significant levels may be considered to be the following:

- The periodic loss of approximately 144 acres of in-channel vegetation, with its attendant loss of faunal habitat, as a result of sand removal operations.
- The recurrent loss of channel habitat to essential vegetal clearance operations within the primary flood channel.

It may justifiably be argued that the mitigation measures for these impacts described in Section 3.2 of the DEIR reduce such impacts to less than significant levels. It would nevertheless, be appropriate to consider the adoption of a Statement of Overriding Considerations based on the projects objective, flood control, with regard to these impacts if the City decides to proceed with the project.

4.2 Short-Term Uses and Long-Term Productivity

The long-term benefit of the project is the protection of the River-affected human environment, the urban and agricultural development subject to flooding if the flood-carrying capacity of the River is not maintained. (As much as 30 square miles of the urban area could be flooded if the River's flood capacity were exceeded) The long-term viability of the River environment as habitat area will be essentially the same as has been the case during the past several decades when River sand removal has been carried out, and may be somewhat improved as a result of the environmental constraints and mitigation measures to be considered with respect to the current, planned, channel maintenance program. The short-term uses of the River will be essentially unchanged from those which have taken place in recent years as sand removal and vegetal clearance has occurred under a less planned and strictured program.

4.3 Significant Irreversible Environmental Changes

There are not significant irreversible environmental changes involved in the project. If the project were to be terminated at any time, regrowth of River channel vegetation would, based on past regrowth activity, occur.

4.4 Growth-Inducing Impacts

The successful implementation of the channel maintenance program will permit the continued occupancy and development of the Bakersfield metropolitan area without excessive flood hazard. To this extent, the project may be considered to have a growth-maintenance, if not a growth-inducing, impact.

CHAPTER 5

5.0 PROJECT ALTERNATIVES

5.1 Purpose

It is the purpose of the analysis in this Chapter to briefly outline other alternative projects which would accomplish, wholly or in part, the objectives of the Kern River Channel Maintenance Program, and to compare, to the extent possible, the environmental effects of such projects and the Program. It is further required by CEQA that the environmental effects of not undertaking the project (the Channel Maintenance Program) be similarly analyzed and compared.

The no-project alternative, and three alternative projects identified by the City staff as being able to wholly or partially achieve the project objectives, are described as follows:

5.2 The No-Project Alternative

Under this alternative, no further sand removals would be undertaken from the River; natural growth would be allowed to occur in both the secondary flood plain and primary flood channel without periodic removal or reduction; diversion structures would be operated without regard for sand deposition rates.

Impacts

The comparative environmental impacts of the no project alternative may be summarized as follows:

A long-term buildup of sand in the River channel would have the unacceptable effect of reducing the River's flood-flow capacity below safe levels, resulting in potential levee and bank overflow into adjacent urban and agricultural levels, absent major levee construction and alteration. The liklihood of damage to the Cross-Valley Canal and to Arvin-Edison's River-adjacent facilities would ultimately exist.

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Absent sand-removal and vegetal control activities, there would be no impacts on air quality, visual, flora and fauna, recreational, noise, archaeological, or traffic aspects of the River environment. Land use planning would be negatively impacted by the flood potential of the River; the no-project alternative is not in accord with the adopted Kern River Plan.

5.3 Increase in Height of Levees; Construction of Additional Levees. (Alternative A)

This alternative varies from the no-project alternative by the construction of new levees, where none now exist, and the raising of the elevations of existing levees, to contain maximum flood flows within the Kern River Channel.

Impacts

If it is assumed that the raised and additional levees will be sufficient to contain maximum flood flows, the water level of such flows will ultimately exceed the elevation of the surrounding city by constantly increasing amounts. The potential for major damage in case of a levee break will exist. Major River-adjacent facilities such as the Cross-Valley Canal and the Arvin-Edison intake, as well as the existing River diversion structures below Manor Drive will require major reconstruction or replacement. Levee construction will involve some degree of levee-area habitat destruction.

5.4 Concrete Channelization between Chester Avenue and Stockdale Highway. (Alternative B)

This alternative, which will only partially achieve project objectives because of insufficient gradient to totally prevent sand buildup, is nevertheless worthy of environmental evaluation.

Impacts

The implementation of this alternative would have the effect of destruction of the majority of the natural habitat within the existing River Channel. It would permit the encroachment of urban development into portions of the present channel area. The recreational opportunities currently existing in the

River channel would be eliminated, and the visual aspects of the River would be adversely affected. During concrete channel construction, significant temporary noise, dust, and traffic impacts would be created.

5.5 Stripping of all Vegetation from River Channel, and Maintenance in Cleared Condition. (Alternative C)

This alternative, like that of concrete channelization, would be only partially effective in maintaining capacity for maximum flood flow capacity on a long term basis; removal will ultimately be required.

Impacts

This alternative would, obviously be totally destructive of the natural habitat within the River Channel. It would negatively impact the passive recreational use of the River.

5.6 Comparative Environmental Superiority of Alternatives

It is difficult to define the comparative superiority of the alternatives which will wholly or partially achieve project objectives. It is evident that the no-project alternative is superior from the standpoint of maintenance of the natural environment within the River channel. It is, however, equally evident that the flooding hazards to the human environment do not permit the adoption of the no-project alternative; that either the project alternative or the alternative described in 5.3, the raising and construction of levees to contain maximum flood flows must be considered to achieve acceptable flood protection for the community. The concrete channelization and vegetal-stripping alternatives both only achieve partial project objectives, and are totally destructive of the River environment.

On balance, the project is, from the standpoint of protection of the human environment and partial retention of the River environment, environmentally superior to the project alternatives. This superiority can be enhanced by adoption of the mitigation measures described in Chapter 3.

APPENDIX A

INITIAL STUDY

APPENDIX B

PERSONS AND ORGANIZATIONS CONSULTED

RESPONSES TO INITIAL STUDY DISTRIBUTION

APPENDIX C

SAND REMOVAL AGREEMENT

APPENDIX D

CONSULTING ENGINEER'S ANALYSIS

APPENDIX E

BIOLOGIST'S REPORT

APPENDIX F

ARCHAEOLOGICAL RECORDS SEARCH

APPENDIX A

INITIAL STUDY

INITIAL STUDY

Project Title - Kern River Channel Maintenance Program

Location - Reach I - Within the Kern River, between Stockdale Highway and Manor Street. (Approximately 9 linear stream miles.)

- Reach II - Within the Kern River, northeast of Interstate 5 to State Reclamation Board mile point 110. Mile point 110 exists within the southeast quarter of the northeast quarter of Section 18, Township 30 south, Range 26 east. (Approximately 3 linear stream miles.)

Availability of Plans: Plans for The Kern River Channel Maintenance Program, Reach One are available and included as part of the Initial Study. Plans for Reach 2 are being developed and will be available for review as part of the Draft Environmental Impact Report.

Applicant - City of Bakersfield

Lead Agency - City of Bakersfield

Necessary Approvals: Permit must be obtained from the State of California Reclamation Board.

Purpose: The Kern River Channel Maintenance Program proposes to establish a master plan for phased sand removal and channel maintenance in order to preserve the storm flow carrying capacity of the Kern River through Bakersfield (Reach I) and through nearby City owned property (Reach II).

The maintenance program would allow for the removal of sand primarily from the Kern river designated floodway (per State Reclamation Board) although removal from the secondary floodway (Stetson Engineers) would be allowed northwest of the intersection of Mohawk Avenue and Truxtun Avenue, and northeast of the Atchison, Topeka and Santa Fe Railroad crossing to straighten the channel. The attached maps show floodways and proposed limits of excavation with relation to floodways in Reach I.

Sand removal and channel straightening would be designed to allow passage of an intermediate regional flood through the designated floodway.

An <u>intermediate regional flood</u> is a flood having an average frequency of occurence in the order of once in 100 years although the flood may occur in any year. It is based on statistical analysis of stream flow records available for the watershed and analysis of rainfall and run-off characteristics in the general region of the watershed. The Corps of Engineers in their 1969 report calculated the intermediate regional flood in the vicinity of Bakersfield (Reach I) from the uncontrolled watershed between Isabella Dam and the City to be 15,000 cubic feet per second (CFS). Reach II would require a 5,000 C.F.S. capacity.

Implementation of the program would also preserve the capacity of the entire river channel between levees to transmit short duration flood flows of approximately 20,000 CFS in Reach I. Modification of the river channel to program specifications would require removal of approximately 1,200,000 cubic yards of sand under the current condition of the river. In some areas vegetation removal would also be necessary such as in island removal and channel straightening.

Since 1977, the demand for borrow material has averaged approximately 70,000 cubic yards per year.

With similar demands projected for the future, it is unlikely that the river channel would ever be completely modified to meet maintenance plan specifications. Depending on the deposition rate of river sediments in a given year, the benefits of sand extraction are somewhat off set. Borrow sites will be influenced by the location of the project requiring fill material and the need for obstruction removal along a given reach of river channel. Actual borrow site locations and phasing would be determined by the City of Bakersfield Water Resources Division in conformance with the Channel Maintenance Program.

Removal of material would take place in compliance with a city borrow agreement which, among other work related items, addresses dust control and ingress/egress roads. Access must be designated by the City, and no oil or other permanent surfacing material may be used on access roads. The contractor would be required to obliterate roads when operations are terminated. Dust control practices would be required to minimize impacts on air quality. Earth moving equipment including scrapers, bulldozers and front-end loaders would complete most of the excavation work. Trucks would be used to transport material where needed. Excavation would vary in depth between 0 and 7 feet (Section X-2) below the existing channel profile. The maximum width of excavation would be approximately 850 feet (Section X-76).

The resulting project area would be a clear channel for water transport, devoid of islands and vegetation which inhibit water flow and catch debris.

The maintenance program relates to the Kern River Plan Element of the Bakersfield Metropolitan Area General Plan and Kern County General Plan in that it responds to the following floodplain management issue, goal, and policies (as selectively excerpted from the Final Draft of the Kern River Plan Element).

Issue

From a safety and resource management standpoint, floodplain management is a major priority issue. Activities related to groundwater recharge, channel maintenance, levee maintenance and construction, and diversion structures have a direct relationship to public safety and environmental quality.

Goal

To maintain the integrity of the river channel so as to facilitate a floodway for Kern River waters for the health and safety of the community.

Policies

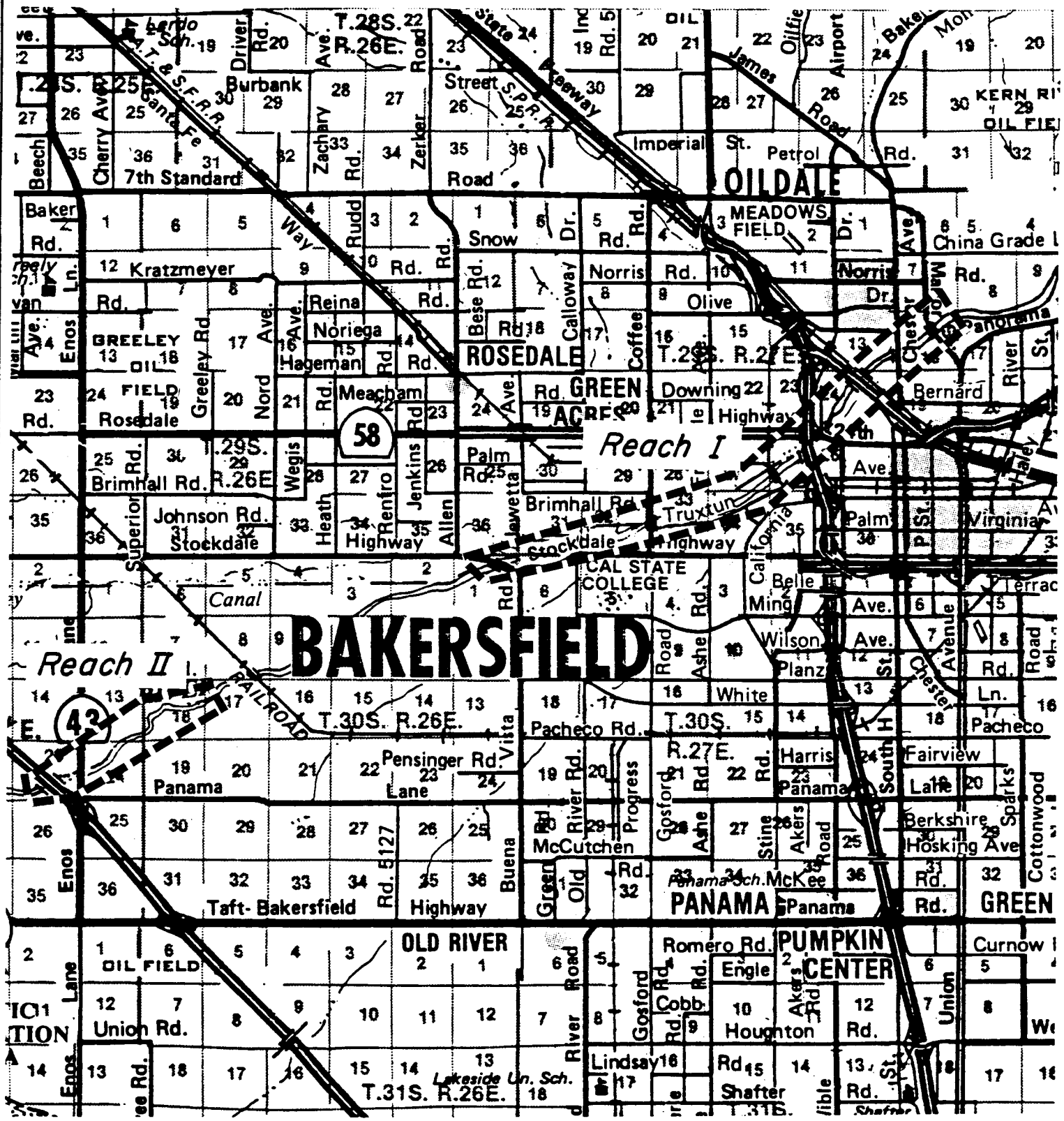
The primary floodway shall be primarily devoted to the safe and controlled passage and percolation of water and shall be maintained in a manner to adequately achieve this purpose. This shall be carried out through proper and necessary maintenance of the River channel through appropriate deepening of the channel when necessary, and maintenance of levees and dikes.

Sand and gravel removal by temporary portable equipment is allowed in the primary and secondary floodways.

Resource extraction activities, such as sand and gravel removal, shall comply with the "California Surface Mining and Reclamation Act of 1975".

A channel maintenance program shall be developed by the City Water Resources Department and Kern County for their respective jurisdictions. The plans shall be considered for inclusion by General Plan Amendment as appendices to this Element upon their approval by the Reclamation Board of the State of California.

KERN RIVER CHANNEL MAINTENANCE PROGRAM



PREPARED BY BAKERSFIELD CITY PLANNING DEPT.

APPENDIX I

ENVIRONMENTAL CHECKLIST FORM
(To be completed by Lead Agency)

I BACKGROUND

1. Name of Proponent: CITY OF BAKERSFIELD
2. Address and Phone Number of Proponent:
   1501 Truxtun Avenue
   Bakersfield, CA 93301
   (805) 326-3715 Contact Gene Bogart
3. Date of Checklist Submittal: 11/12/84
4. Agency Requiring Checklist: _____
5. Name of Proposal, if applicable: Kern River Channel Maintenance Program

II ENVIRONMENTAL IMPACTS
(Explanations of all "yes" and "maybe" answers are required on attached sheets.)

	YES	MAYBE	NO
1. Earth Will the proposal result in:			
a. Unstable earth conditions or in changes in geologic substructures?			X
b. Disruptions, displacements, compaction, or overcovering of the soil?	X		
c. Change in topography or ground surface relief features?	X		
d. The destruction, covering, or modification of any unique geologic or physical features?	X		
e. Any increase in wind or water erosion of soils, either on or off the site?			X
f. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	X		
g. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?			X

	YES	MAYBE	NO
2. Air Will the proposal result in:			
a. Substantial air emissions or deterioration of ambient air quality?		X	
b. The creation of objectionable odors?			X
c. Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?			X
3. Water Will the proposal result in:			
a. Changes in currents, or the course or direction of water movements, in either marine or fresh water?	X		
b. Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff?		X	
c. Alterations to the course or flow of flood waters?	X		
d. Change in the amount of surface water in any water body?			X
e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?			X
f. Alteration of the direction or rate of flow of ground waters?			X
g. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?			X
h. Substantial reduction in the amount of water otherwise available for public water supplies?			X
i. Exposure of people or property to water related hazards such as flooding or tidal waves?	SEE COMMENT		X
j. Will the proposal result in water service from any public or private entity?			X
4. Plant Life Will the proposal result in:			
a. Change in the diversity of species or number of any species of plants (including trees, shrubs, grass, crops, microflora and aquatic plants)?			X

	YES	MAYBE	NO
4. Plant Life (continued)			
b. Reduction of the numbers of any unique, rare or endangered species of plants?			X
c. Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?	X		
d. Reduction in acreage of any agricultural crop?			X
5. Animal Life Will the proposal result in:			
a. Change in the diversity of species or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects or microfauna)?			X
b. Reduction of the numbers of any unique, rare or endangered species of animals?			X
c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?		X	
d. Deterioration to existing fish or wildlife habitat?		X	
6. Noise Will the proposal result in:			
a. Increases in existing noise levels?		X	
b. Exposure of people to severe noise levels?			X
7. Light and Glare Will the proposal produce new light or glare?		X	
8. Land Use Will the proposal result in a substantial alteration of the present or planned land use of an area?			X
9. Natural Resources Will the proposal result in:			
a. Increases in the rate of use of any natural resources?			X
b. Substantial depletion of any nonrenewable natural resource?			X
10. Risk of Upset Does the proposal involve a risk of an explosion or the release of hazardous substances (inculding, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?			X

	YES	MAYBE	NO
11. Population Will the proposal alter the location, distribution, density or growth rate of the human population of an area?			X
12. Housing Will the proposal affect existing housing, or create a demand for additional housing?			X
13. Transportation/Circulation Will the proposal result in:			
a. Generation of substantial additional vehicular movement?			X
b. Effects on existing parking facilities, or demand for new parking?			X
c. Substantial impact upon existing transportation systems?			X
d. Alterations to present patterns of circulation or movement of people and/or goods?		X	
e. Alterations to waterborne, rail or air traffic?			X
f. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?			X
14. Public Services Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Fire protection?			X
b. Police protection?			X
c. Schools?			X
d. Parks or other recreational facilities?			X
e. Maintenance of public facilities, including roads?			X
f. Other governmental services?			X
15. Energy Will the proposal result in:			
a. Use of substantial amounts of fuel or energy?			X
b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?			X

	YES	MAYBE	NO
16. Utilities Will the proposal result in a need for new systems, or substantial alterations to the following utilities:			
a. Power or natural gas?			X
b. Communications systems?			X
c. Water?			X
d. Sewer or septic tanks?			X
e. Storm water drainage?			X
f. Solid waste and disposal?			X
17. Human Health Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?			X
b. Exposure of people to potential health hazards?			X
18. Aesthetics Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?		X	
19. Recreation Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?		X	
20. Archeological/Historical Will the proposal result in an alteration of a significant archeological or historical site, structure, object or building?			X
21. Mandatory Findings of Significance			
(a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X	

	YES	MAYBE	NO
21. Mandatory Findings of Significance (continued)			
(b) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one of which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future).	____	____	X
(c) Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)	____	____	X
(d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	____	____	X

III. DISCUSSION OF ENVIRONMENTAL EVALUATION See Attached

IV. DETERMINATION
(To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find the proposed project COULD NOT have a significant effect on the environment, and a Negative Declaration will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project plans or proposals made by or agreed to by the applicant before the proposed negative declaration is released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and there is no substantial evidence before the city that the project as revised may have a significant effect on the environment and that a NEGATIVE DECLARATION WILL BE PREPARED.

☒ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Date 12/6/84

James D. Morin
(Signature)

For DEWEY SCEALES

II. ENVIRONMENTAL IMPACTS

1. Earth

b. Yes - The project proposes to maintain the discharge capacity of the Kern River channel by vegetation removal, and stream bed deepening, widening and realignment or straightening. A deeper channel allows flood discharges to pass through without rising to levels that would overtop the banks and possibly erode levees. Embankments intruding into the Designated Floodway would be removed or straightened to facilitate water flow and to decrease undermining and erosion of levees.

The above tasks would require excavation and removal of sand from the Kern River. Sand removal areas or borrow sites would provide fill material for development as needed. The location of borrow sites would be determined by the City of Bakersfield Water Resources Division of the City Community Services Department.

c. Yes - priority areas of sand removal include some existing islands within the project area and portions of stream meanders which inhibit the passage of water and may accumulate debris during critical periods of high run off. Elimination of these obstacles, channel deepening and channel widening would result in a change in topography and surface relief features within the limits of excavation lines shown on the attached maps for Reach I.

d. Yes - The maintenance program would require modification of the Kern River, a unique physical feature consisting of a major California river flowing through a major metropolitan area in the southern San Joaquin Valley. The river has undergone constant man-made modification in the past with the construction of levees and extraction of sand.

Modification proposed in the maintenance program would consist of the deepening, widening, and cleaning of the river channel (see channel profiles and sections) through the removal of sand and vegetation.

f. Yes - The lower reaches of the Kern River, which pass through Bakersfield (the project area) are areas of deposition. The river gradient is reduced to a point where the river is unable to move its debris load so that sand and other particles settle out, causing a constant upgrading of the river channel. As deposition occurs, the capacity of the river channel is reduced. If no levees were present, during flood stage the river could dump its sediment load over a large area as it spreads out over the valley floor. With the construction of the levee system which now exists, all sedimentation occurs in the area between

f. (continued)

levees. Without constant removal of sand, the only alternative would be to periodically raise the levee system to preserve the discharge capacity. This alternative is not feasible.

The existing design of the lower Kern River is such that flows over 15,000 CSF are able to deposit their sediment loads within the secondary floodway primarily defined by the levee system. Under full development of the maintenance program (unlikely because of insufficient demands for fill material) sediment loads of flows up to 15,000 CFS would be deposited within the designated floodway which would periodically be maintained within the limits of excavation to preserve the capacity of the system and decrease the likelihood of levee exposure to erosive forces of the river.

2. Air

a. Maybe - The possibility for an increase in dust around the project site exists because of the operation of heavy equipment on fine grained soil particals. The borrow agreement required by the city for contractors wishing to acquire fill material from the river requires dust control practices to minimize wind-blown sand and soil to the greatest practicable extent.

3. Water

a. Yes - Fresh water movements in the Kern River would be altered. Full development of the maintenance program would limit flows of 15,000 CSF or less (Reach I) to the area depicted as the designated floodway on the attached maps. The path of stream flow would be straightened with the removal of some existing meanders.

b. Maybe - Absorption rates may increase as a result of channel widening and cleaning.

c. Yes - Alterations to the course or flow of flood waters would result from channel straightening and island removal.

i. Comment - The purpose of the proposed channel maintenance program is to preserve the water carrying capacity of the Kern River through the removal of sand which causes constant upgrading and capacity decrease of the river channel between levees. The project will have a positive effect on flood management and may reduce the likelihood of flooding through a reduction of stress on the levee system during high flows.

4. Plant Life

c. Using the base aerial photography (flown October, 1983) which depicts plan lines of Reach I of the proposed project, it appears that approximately 80 acres of riparian vegetation exists within the designated floodway except for approximately 1 acre within the secondary floodway just east of the AT & SF Railroad crossing. Approximately nine acres of vegetation exists on islands within the river.

With the implementation of the proposed plan, there would be a phased removal of vegetation and sand to specifications described on the attached maps. The plan may allow some areas now void of vegetation to become revegetated as water is able to move along the improved river channel and recedes from areas now flooded due to the deflection of water from obstacles which will be removed.

Areas within the designated floodway which are now vegetated are temporary and/or transitory, depending on (among other stream processes) the volume and speed of water in the river.

Some vegetation would also be removed during road construction to and from borrow sites. Access roads would revegetate after vacated as a result of terms in the borrow agreement which prohibit permanent road surfacing and require obliteration after use.

5. Animal Life

c. Maybe - Human activity associated with sand removal may present a temporary barrier to the movement of animals within the designated floodway. Excavation projects should not seriously inhibit the movement of animals because of the limited areas of disturbance. Ample room for movement around excavation disturbances will exist between the limits of excavation and levees.

d. Maybe - The project would require the removal of brush and clearing of the river channel which may decrease fish and wildlife habitat. Much or all of the habitat for wildlife which would be removed is now temporary in nature because of its existence within the constantly changing main river channel in the designated floodway.

Evidence provided by biological investigations for previously completed environmental impact reports (DEIR, 2,800-Acre Groundwater Recharge Facility along the Kern River for the City of Bakersfield SCH NO. 82090305, (1983)). The Gannon-Wattenbarger General Plan Amendment SCH NO. 80091859, (1981) and the State College area General Plan Amendment SCH. NO. 79121905, (1980) suggest that habitat within the project area may be frequented by one or more endangered animal species, the most publicized of which is the San Joaquin Kit Fox.

Note: The above referenced documents may be inspected at the City of Bakersfield, Planning Department, 1501 Truxtun Avenue, Bakersfield, California, or at the Beale Memorial Library, Main Branch, 1315 Truxtun Avenue, Bakersfield, California.

The proposed project may provide wildlife habitat in some areas as a result of deepening of the river channel which would allow some areas now flooded due to river upgrade to revegetate as waters recede in favor of an improved river channel. Habitat for fish may also improve behind major diversion points as a result of sand removal. These areas typically fill with sand rapidly as a result of a decrease in the river's velocity (therefore sediment transport ability) behind diversion points.

6. Noise

a. Maybe - Noise levels could temporarily increase in areas of excavation during the period of time sand removal is taking place. Excavation equipment would be similar to earth moving equipment used for grading prior to construction projects.

The nearest residential structures to the limits of excavation currently exist south of the river, between 24th Street and Golden State Avenue. Single family homes in this area are approximately 200 feet from the project area. Some noise mitigation would result from the river channel depression within which the noise would emanate. Canal banks which act as levees along this portion of the river will assist in containing noise within the channel.

7. Light and Glare

Maybe - Operations which require fill material immediately may require night operations which could produce temporary increases in light and glare in the project area.

13. Transportation/Circulation

d. Maybe - Truck movements to and from borrow sites may impact existing circulation flows because of slower acceleration rates and longer turning radii.

18. Aesthetics

Maybe - The project will result in the clearing, cleaning and straightening of the river channel in order to maintain the capacity of the designated floodway. The project, as a result of these actions, may result in portions of the river becoming less aesthetically pleasing than they now are for some people. Times when excavation is occurring and earthmoving equipment is in the river channel may be especially offensive to some, although the operation would be temporary.

The aesthetic impacts of the project are most likely to be objectionable because it could reduce the environmental and visual diversity of a "natural" system which may hold intrinsic values for some.

The importance of these values is an individual subjective determination dependent on many complex variables. For some, the project may improve the aesthetic appeal of the river because full buildout would result in a clean main river channel with vegetation on both sides.

19. Recreation

Maybe - During periods of excavation, temporary inconvenience may be caused to hikers or equestrians utilizing the riverbed although the inconvenience is not considered significant.

21. Mandatory Findings Of Significance

a. The proposed project, through stream modification and the removal of approximately 80 acres of riparian habitat (Reach I) may have an impact on available habitat for fish and wildlife. Some of the areas which would be disturbed may be within the foraging range of rare or endangered animal species such as the San Joaquin Kit Fox.

III. DISCUSSION OF ENVIRONMENTAL EVALUATION

The Kern River in the vicinity of the project area is not a natural system. The construction of levees to contain flood flow has effectively eliminated the river's potential to spread its sediment load over a wide area (including the central and southwest portions of Bakersfield) which would otherwise become an alluvial fan. Alluvial fans are typically formed where a stream suddenly emerges from a steep mountain front onto a flat plain. It is commonly held that deposition occurs because the gradient is drastically reduced. Deposition also occurs as a result of change in channel width and loss of volume as the stream flows over the fan. Although a decrease in depth causes an increase in velocity, this is offset by volume reduction. The overall effect is a loss of transportive power.

Without the ability to spread out over an alluvial fan, the Kern River eventually slows and deposits its sediment load in a channel confined by levees. Deposition raises the river bottom and decreases the overall water carrying capacity of the river. Under this unnatural system, alternatives for preserving the carrying capacity of the river include continuous raising of the levee system or continuous removal of sand from the river bottom. Without one or both of these actions, the threat of flooding would increase as the river capacity decreased. Eventual flooding would be inevitable. The project would allow sand removal to continue as it has in the past only under the proposed master plan with given specifications to control the location and depth of grading. No borrow pits would be permitted.

Impacts identified in the initial study which could affect people include a temporary increase in noise and lighting, and potential aesthetic impacts. Impacts on the natural environment could include alteration to the "natural" morphological processes existing within the river, and modification of existing fish and wildlife habitat.

The California Environmental Quality Act (CEQA) in Section 15064(2)(e) Appendix G, describes consequences which may be deemed significant. Among potentially "significant effects" are the following impacts:

1. A substantial, demonstrable negative aesthetic effect.

2. Substantially affect a rare or endangered species of animal or plant or the habitat of the species.

3. Interfere substantially with the movement of any resident or migratory fish or wildlife species.

4. Substantially diminish habitat for fish, wildlife or plants.

Section 15065 of CEQA addresses "mandatory findings of significance" and states that "a lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project when the project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory."

Because buildout of the project area would necessitate the removal of habitat within the ranging areas of rare and endangered animal species (San Joaquin Kit Fox), an Environmental Impact Report must be prepared for the project.

The following discussion is provided to assist in focusing the environmental impacts identified as significant in the initial study (per CEQA Section 15143). The following recommended focus does not limit the EIR to those subjects identified below as consultation with other state and local agencies may add to the number or complexity of issues to be addressed.

Plant Life

The EIR should provide an estimate of the number of acres of vegetation which would be impacted either directly through excavation and road building or indirectly through dust, vibration, or other externalities. An inventory of plant species within the impact area should be completed to determine if any rare or endangered plant species exist, and the location of such species if identified. Mitigation for protecting sensitive areas should be suggested.

Discussion should also include an estimate of the amount of acreage which may revegetate as a result of the improvement of the water carrying capacity of the river channel and channel straightening. Areas now inundated due to the deflection of the rivers course away from islands and other obstructions which would be allowed to revegetate if outside of the limits of excavation should be documented.

Animal Life

An inventory of animal species within the impact area should be completed to determine the existence of rare or endangered animal species. If evidence of rare or endangered animal species is found, the carrying capacity of the river corridor should be stated in terms of the number of animals per linear stream mile (or other appropriate factor). The impact of the project on that carrying capacity should be discussed and any loss of animals should be quantified. Habitat consideration should include the potential for an increase in habitat for those areas outside of the limits of excavation which are now inundated and void of vegetation which are likely to revegetate if the program is implemented.

Noise and Lighting

Noise impacts on residential areas should be estimated with the consideration of "natural" mitigation which exists in the form of existing levees and the river channel depression. Noise impacts should consider the possibility of nighttime operations and appropriate weighting factors should be assigned.

Lighting impacts resulting from nighttime operations should also be discussed.

Mitigation (if necessary) should include the possibility of limiting the operations near residential areas to daytime hours or normal working hours. Areas of impact to residential areas should be displayed in map form.

Recreation

The EIR should address temporary or permanent impacts on recreational opportunities as they now exist and are proposed in the Kern River Plan Element of the Bakersfield Metropolitan Area General Plan and the Kern County General Plan.

Aesthetics

The EIR should include a discussion of any temporary or permanent impacts on aesthetics resulting from the maintenance program.

Transportation/Circulation

A discussion of potential impacts on Circulation resulting from truck movements to and from borrow sites should be discussed. The possible need for inclusion of circulation approval in the Borrow Agreement should be discussed if deemed appropriate.

Maintenance plans for Reach II will be available soon for consideration in the Environmental Impact Report. Impacts resulting from the project in Reach II will be simi lar to those in Reach I, however noise and lighting impact would be considered insignificant because of the lack of any receptors.

Few levees now exist in the vicinity of Reach II and the purposes for preserving river capacity are to protect city property adjacent to the river and valuable agricultural crops and land adjacent to City property while providing fill material.

APPENDIX B

PERSONS AND ORGANIZATIONS CONSULTED

RESPONSES TO INITIAL STUDY DISTRIBUTION

PLANNING
DEPARTMENT

DEWEY SCEALES
PLANNING DIRECTOR

CITY of BAKERSFIELD

June 25, 1985

v1

SUBJECT: Initial Study for proposed Kern River Channel Maintenance Program for the City of Bakersfield.

Dear v2

Enclosed is the Initial Study of the above project for your review and comment. On the basis of the enclosed documents, City staff has found that the project could have a significant effect on the environment and an Environmental Impact Report (EIR) is required. QUAD consultants will be preparing the EIR for public hearing to be scheduled in the fall (1985).

In accordance with the California Environmental Quality Act (CEQA), similar material has been sent to the State Clearinghouse and the appropriate state agencies. The normal review period for NOP comment is 30 days. We would appreciate receiving your comments, in writing, as early as possible in the review period.

If additional information is needed, please contact Jim Movius or Barry Hand at (805) 326-3786.

Sincerely,

Jim Movius
Principal Planner

JM:pjt
Enclosure

1501 TRUXTUN AVENUE • BAKERSFIELD, CALIFORNIA 93301

The following received a copy of the
attached letter

Kern River Parkway Committee
P.O. Box 1861
Bakersfield, Ca. 93303

Sierra Club, Kern-Kaweatt Chapter
5805 Dagget Ave.
Bakersfield, Ca. 93309

John McFadzean
P.G. and E.
1918 "H" Street
Bakersfield, Ca. 93301

Kern County Air Pollution Control District
1601 "H" Street, Suite 250
Bakersfield, Ca. 93301-5199

Bill Thiessen
Environmental Health Division
Kern County Health Dept.
1700 Flower Street
Bakersfield, Ca. 93305

Kern County Council of Comments
1401 - 19th Street
Bakersfield, Ca. 93301

Robert Whittemore
Local Agency Formation Commission
1110 - 26th Street
Bakersfield, Ca. 93301

Kern County Public Works Department
2601 "O" Street
Bakersfield, Ca. 93301

Native Plant Society
P.O. Box 2181
Bakersfield, Ca. 93303

Irene Heath
Kern County Audaubon Society
P.O. Box 3581
Bakersfield, Ca. 93385

The following received a copy of the attached letter

Rosedale-Rio Bravo Water Storage District
Attention: Mary Callup
P.O. Box 867
Bakersfield, Ca. 93302

North Kern Water Storage District
Attention: C. H. Williams
P.O. Box 1195
Bakersfield, Ca. 93382

James Pioneer Improvement District
Attention: C. H. Williams
P.O. Box 1195
Bakersfield, Ca. 93382

Buena Vista Water Storage District
Attention: Harold Russell
P.O. Box 10478
Bakersfield, Ca. 93389

West Kern County Water District
Attention: Jon Sansing
P.O. Box MM
Taft, Ca. 93268

Kern Delta Water District
Attention: Gilbert Castle
Del Kern Station
P.O. Box 155
Bakersfield, Ca. 93307

Wheeler Ridge - Maricopa Water Storage District
Attention: Arnold Rummelsburg
P.O. Box 9429
Bakersfield, Ca. 93389

Berenda Mesa Water District
Attention: Ronald Lampson
1415 - 18th Street, Room 306
Bakersfield, Ca. 93301

Kern County Water Agency
4114 Arrow Street
P.O. Box 58
Bakersfield, Ca. 93382

PLANNING
DEPARTMENT

CITY of
BAKERSFIELD

DEWEY SCEALES
PLANNING DIRECTOR

June 25, 1985

v1

SUBJECT: Enclosed Initial Study, for proposed Kern River Channel Maintenance Program for the City of Bakersfield.

Dear v2

The City of Bakersfield is proposing a Kern River Channel Maintenance Program as described in the enclosed Initial Study. On the basis of the Initial Study, City staff has determined that the project could have a significant effect on the environment and an Environmental Impact Report (EIR) is required. QUAD consultants will be preparing the EIR for public hearing in the fall (1985).

Enclosed is your copy of the Initial Study and associated maps. A normal 30-day review period for the N.O.P. is requested, however we would appreciate receiving comments from state agencies as early as possible in the review period. The appropriate documents have been sent to the State Clearinghouse.

In addition, we are planning an EIR scoping session on Tuesday, July 30, 1985 at 2 p.m. for interested state and local agencies. We would appreciate your input at this scoping session and you are invited to attend. If you are unable to attend or do not wish to attend, please let me know as soon as possible. The meeting place for the scoping session will be the City of Bakersfield, Corporation Yard, 4101 Truxtun Avenue, Bakersfield, California, 93309. The purpose of the meeting will be to familiarize agencies with the proposed project, and to identify the range of actions, alternatives, mitigation measures and significant effects to be analyzed in the EIR.

If you need additional information, please contact Jim Movius or Barry Hand at (805) 326-3786.

Sincerely,

Jim Movius
Principal Planner

JM:pjt
Enclosures

1501 TRUXTUN AVENUE • BAKERSFIELD, CALIFORNIA 93301 • (805) 326-3733

Mr. Robert Manning, Chief Engineer
Department of Water Resources
The Reclamation Board
1416 - 19th Street, Room 335-18
Sacramento, Ca. 95814

Harmon Clement
Kern Mosquito Abatement District
4705 Allen Road
Bakersfield, Ca. 93309

Department of Fish and Game
Region 4
1234 East Shaw Avenue
Fresno, Ca. 93710

Louis Brandt
Kern River Levee District
4705 Allen Road
Bakersfield, Ca. 93309

Randall Abbott
Kern County Planning Department
1103 Golden State Avenue
Bakersfield, Ca. 93301

MR. TED FUKUSHIMA
STATE LAND COMMISSION
1807 - 13th STREET
SACRAMENTO, CA. 95814

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL
BOARD -CENTRAL VALLEY REGION
3374 East Shields Ave., Rm. 18
Fresno, Ca. 93726

STATE OF CALIFORNIA—OFFICE OF THE GOVERNOR

GEORGE DEUKMEJIAN, *Governor*

OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO, CA 95814

RECEIVED
AUG 7 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

916/445-0613

Jim Moviuq, Principal Planner
Planning Department
City of Bakersfield
1501 Truxtun Avenue
Bakersfield, CA 93301

Subject: Kern River Channel Maintenance Program - Sch# 85062409

Dear Mr.Moviuq

The enclosed comments on your draft environmental documents were received by the State Clearinghouse after the end of the state review period. We are forwarding these comments to you because they provide information or raise issues which may assist you in project review.

To ensure the adequacy of the final document you may wish to incorporate these additional comments into the preparation of your final environmental document.

Please contact Peggy Osborn at 916/445-0613 if you have any questions concerning the review process. When you contact the Clearinghouse in this matter, please use the eight digit State Clearinghouse number so that we may respond promptly.

Sincerely,

John B. Chanian
Chief Deputy Director

Enclosure

cc: Resources Agency

STATE OF CALIFORNIA—RESOURCES AGENCY

GEORGE DEUKMEJIAN, *Governor*

DEPARTMENT OF WATER RESOURCES
THE RECLAMATION BOARD
1416 – 9th Street, Room 455-6
Sacramento, CA 95814
(916) 445-9454

JUL 25 1985

RECEIVED
JUL 29 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Mr. Jim Movius, Principal Planner
Planning Department
City of Bakersfield
1501 Truxtun Avenue
Bakersfield, CA 93301

Dear Mr. Movius:

Staff for The Reclamation Board has reviewed the City's Initial Study for the proposed Kern River channel maintenance program and has the following comments:

The Initial Study is well prepared and identifies the potential impacts that the project may cause--a loss or change in bank vegetation, an altered flow regimen, and a reduction in wildlife habitat. The determination that an Environmental Impact Report (EIR) will be required is noted along with the outline of issues to be discussed in the EIR.

The Board, as a Responsible Agency, with jurisdiction for the Kern River Designated Floodway, will be reviewing the forthcoming EIR as it pertains to flood control and for consistency with the Board's Riparian Vegetation Management Policy, a copy of which is enclosed. Plans for the maintenance program, including any alteration of the channel and the included vegetation within the Kern River Designated Floodway, must be reviewed and approved by the Board before the start of work.

For further information, contact Mr. Ted Allen, Encroachment Control Section, Department of Water Resources, 1416 Ninth Street, Room 455-8, Sacramento, California, 95814, telephone (916) 445-9225.

Thank you for the opportunity to review this Initial Study.

Sincerely,

Robert L. Manning

ROBERT L. MANNING
Chief Engineer

Enclosure

cc: State Clearinghouse
1400 Tenth Street
Sacramento, CA

THE RECLAMATION BOARD

RIPARIAN VEGETATION MANAGEMENT POLICY*

A. **Intent and Objective.** It is the intent of The Reclamation Board to protect floodways of the Central Valley from damage caused by inappropriate changes in riparian vegetation within the floodways. The objective of The Reclamation Board is to reduce the likelihood of changes in channel location or changes in the direction or velocity of flows.

B. **Background.** The Board has statutory responsibility for preservation of all floodways in the Central Valley. In carrying out this responsibility, the Board controls encroachments within project floodways and designated floodways. The Board's jurisdictional limits in project floodways are defined by federally constructed levees or overflow areas otherwise delineated as part of congressionally authorized flood control projects. Designated floodways generally are found outside of project floodways and are formally adopted plans of flood control which delimit the Board's floodway jurisdictional area.

Until about twenty years ago, the Board's principal concern with vegetation in floodways was that the riparian forests restricted the flood-carrying capacity of channels in the Central Valley and required periodic clearing. During the last twenty years, many factors have caused landowners to convert riparian forests to agricultural and other uses. There have been a number of instances where the removal of vegetation has caused a change in the flood-carrying characteristics of a stream channel--resulting in increased erosion and/or sedimentation and threatening to change the location of the stream channel itself. Removal of riparian vegetation is a form of encroachment that can adversely change a floodway. In other cases, retention of riparian vegetation can adversely influence a floodway. Because of its statutory responsibility to preserve floodways in the Central Valley, The Reclamation Board must control the removal of riparian vegetation.

C. **Policy.** It is the policy of the Board that removal of riparian vegetation in project floodways and designated floodways shall require a permit from the Board before any work starts. Permits will not be required for the removal of vegetation that is done by authorized agencies for the purpose of maintaining the flood-carrying capacity or characteristics of stream channels--provided the work conforms to flood control regulations administered by the Board. The Board has identified areas where riparian vegetation is a significant factor in preserving the integrity of floodways, and may identify similar areas in the future. Those areas shall henceforth be known as "areas of special concern". The Board will work with each owner within such areas to develop a plan for the management of riparian vegetation within the area. Depending on how the riparian vegetation affects the floodway, such plans may involve retention, removal, or other appropriate treatment. Work done in accordance with the plan will not require permits. In other than areas of special concern, the landowners also may enter into riparian vegetation management plans and eliminate the permit requirement. In granting permits and approving plans involving removal of riparian vegetation, the Board will give favorable consideration to those proposals which have no significant effect on flood control characteristics of the floodway subject to the provisions of the California Environmental Quality Act (CEQA).

In carrying out this policy, the staff of The Reclamation Board will be guided by a document entitled, "Implementation of The Reclamation Board's Riparian Vegetation Management Policy". That document, including possible future amendments, shall be part of this policy.

---

*Adopted by The Reclamation Board on February 20, 1981 and amended March 20, 1981.

00060407

STATE OF CALIFORNIA—RESOURCES AGENCY

GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF WATER RESOURCES
THE RECLAMATION BOARD
1416 – 9th Street, Room 455-6
Sacramento, CA 95814
(916) 445-9454

JUL 25 1985

RECEIVED
AUG 7 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Mr. Jim Movius, Principal Planner
Planning Department
City of Bakersfield
1501 Truxtun Avenue
Bakersfield, CA 93301

Dear Mr. Movius:

Staff for The Reclamation Board has reviewed the City's Initial Study for the proposed Kern River channel maintenance program and has the following comments:

The Initial Study is well prepared and identifies the potential impacts that the project may cause--a loss or change in bank vegetation, an altered flow regimen, and a reduction in wildlife habitat. The determination that an Environmental Impact Report (EIR) will be required is noted along with the outline of issues to be discussed in the EIR.

The Board, as a Responsible Agency, with jurisdiction for the Kern River Designated Floodway, will be reviewing the forthcoming EIR as it pertains to flood control and for consistency with the Board's Riparian Vegetation Management Policy, a copy of which is enclosed. Plans for the maintenance program, including any alteration of the channel and the included vegetation within the Kern River Designated Floodway, must be reviewed and approved by the Board before the start of work.

For further information, contact Mr. Ted Allen, Encroachment Control Section, Department of Water Resources, 1416 Ninth Street, Room 455-8, Sacramento, California, 95814, telephone (916) 445-9225.

Thank you for the opportunity to review this Initial Study.

Sincerely,

Original signed by
Robert L. Manning
ROBERT L. MANNING
Chief Engineer

RECEIVED
JUL 29 1985
State Clearinghouse

Enclosure

cc: State Clearinghouse
1400 Tenth Street
Sacramento, CA

STATE OF CALIFORNIA—THE RESOURCES AGENCY GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF FISH AND GAME
REGION 4
1234 E. Shaw Avenue
Fresno, CA 93710
(209) 222-3761

July 19, 1985

RECEIVED
JUL 23 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Tim Movius, Principal Planner
City of Bakersfield Planning Department
1501 Truxtun Avenue
Bakersfield, CA 93301

Subject: Initial Study - Kern River Channel Maintenance Program
City of Bakersfield

Dear Mr. Movius:

We have reviewed the Initial Study for the Kern River Channel Maintenance Program and agree with your determination that an EIR is required. This project will result in significant and substantial impacts on both terrestrial and aquatic resources within the Kern River Floodway.

Impacts should be discussed in relation to those items included in the project and environmental description sections. Generally, concerns of the California Department of Fish and Game relate to effects on fish and wildlife and associated aquatic and terrestrial habitat. Program activities, as well as the effects of the project, must be discussed. Impact discussions should include descriptions of direct and indirect effects of normal and worst case situations (e.g., impacts at full buildout) and anticipated durations of impacts.

Direct and indirect impacts on the following should be addressed in the EIR.

1. Aquatic and terrestrial habitats, especially vitally needed riparian habitats.
2. Aquatic and terrestrial flora and fauna, especially the San Joaquin kit fox which inhabit this area.
3. Changes in hydrology - flows - velocity.
4. Recreation, especially fishing.
5. Water quality, sedimentation, ground water.
6. Downstream and other off-site impacts on plant and fish and wildlife resources.

All project alternatives, including the no project alternative, must be described in the EIR. Include such things as the relationship to the environment, potential significant impacts, and reasons for rejecting or accepting each alternative. In addition, future options associated with each alternative should be discussed (e.g., expansion, reclamation, etc.).

Compensation and/or mitigation measures for adverse impacts (methods to eliminate or minimize impacts, the levels to which impacts would be reduced, and/or compensated for the basis for selecting levels as acceptable) should be identified. Where alternative compensation or mitigations are available, each should be discussed and the basis for selection of a specific alternative should be given. Mitigation or compensation should be discussed in relation to specific binding measures to ensure their implementation as part of the project, and reasons for not implementing proposed mitigation or compensation measures should also be given.

Diversion of the natural flow or alteration of the bed, channel, or bank of any river, stream, or lake will require notification (with fee) to the Department of Fish and Game as required by Section 1603 of the Fish and Game Code. This notification and the subsequent agreement must be completed before the start of the river alteration.

If you have further questions, please contact Robert Ehlers at 1234 E. Shaw Avenue, Fresno, CA 93710, phone (209) 222-3761.

Sincerely,

for Robert Ehlers

George D. Nokes
Regional Manager

STATE OF CALIFORNIA

GEORGE DEUKMEJIAN, *Governor*

STATE LANDS COMMISSION

KENNETH CORY, *Controller*
LEO T. McCARTHY, *Lieutenant Governor*
JESSE R. HUFF, *Director of Finance*

EXECUTIVE OFFICE
1807 - 13th Street
Sacramento, California 95814

CLAIRE T. DEDRICK
Executive Officer

RECEIVED
JUL 25 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

July 18, 1985

File Ref: SD 85-07-02
PN CE SAC 83-8383

Jim Movius/Barry Hand
City of Bakersfield
1501 Truxtun Avenue
Bakersfield, California 93301

Gentlemen:

The State Lands Commission staff has received the City of Bakersfield's Notice of Preparation and Initial Study, SCH No. 85062409, relative to the Kern River Maintenance Program.

The water-covered lands, in which your project will extend, are subject to a public navigational easement. This easement provides that members of the public have the right to navigate and exercise the incidences of navigation (which may include, but are not limited to, boating, rafting, sailing, rowing, fishing, fowling, bathing, skiing, and other water-related public uses) in a lawful manner on waters within the State that are capable of being physically navigated by oar or motor-propelled small craft.

The project, as described in the information submitted, does not appear to constitute a nuisance or substantial obstruction at this time. However, the State of California reserves the right to take any action necessary if, in the future, said structures do become unlawful interferences with the public easement.

This action does not constitute, nor shall it be construed as, a waiver of any right, title, or interest by the State of California in any lands under its jurisdiction.

If you should have any questions or need any assistance, please give me a call at (916) 322-7803.

Sincerely,

Georgia Lipphardt

GEORGIA L. LIPPHARDT
Land Agent

cc: Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814

Ted Fukushima
Environmental Section

20441

KERN COUNTY WATER AGENCY
Bakersfield, California 93308

Directors:

Fred L. Starrh	Division 1
J. Elliott Fox	Division 2
John L. Willis	Division 3
Michael Radon	Division 4
Robert E. McCarthy President	Division 5
Henry C. Garnett	Division 6
Gene A. Lundquist	Division 7

Telephone: (805) 393-6200
Stuart T. Pyle
Engineer-Manager
George E. Ribble
Assistant Engineer-Manager
Pam Schilling
Secretary
Address mail to:
P.O. Box 58
93302-0058

July 29, 1985

8.7
9.2.9.2
500-9.1
Area 2

RECEIVED
JUL 2 9 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

City of Bakersfield
Planning Department
1501 Truxtun Avenue
Bakersfield, California 93301

Attention: Barry Hand

RE: Review of the Initial Study determining potential Environmental Impacts caused by the proposed Kern River Channel Maintenance Program, Manor Street to I-5, City of Bakersfield.
Request Received: June 27, 1985
Review Date: July 27, 1985

Gentlemen:

We have reviewed the above-referenced Initial Study and concur that an Environmental Impact Report is warranted. Generally, we agree that the Kern River channel bottom must be maintained at an elevation that will enhance flood conveyance capacities, and we applaud your effort to take on this task. However, the Kern River Channel Maintenance Program, as presented in this study, could significantly impact the environment by causing damage to adjacent, upstream and downstream properties in the event of high river flows. Enclosed is a copy of your Environmental Check List showing our opinion of the Environmental Impacts caused by this program. In particular, this program could create the following adverse impacts which should be addressed in the Environmental Impact Report:

1. Removal of the vegetation from the channel banks will allow water erosion of the banks, (see Exhibit A). While at first glance the photographs in Exhibit "A" do not reveal dramatic impacts, ground inspection of the "after" condition will show loose sand embankments along the northerly low water channel. The significant change from the before condition is the lack of riparian vegetation and the existance of new and potentially

damaging meander patterns toward non-slope protected river and canal levees, (Exhibit "B"), which would cause failure of levees and added expense for levee maintenance, even during low flows. These meander patterns will also be present during high flows creating an even more hazardous condition than evident on Exhibit "B".

2. Removal of islands and meanders tends to increase the overall channel slope, causing increases in flow velocities, resulting in shifting of channel bedload deposition and scour. Upstream properties could have increases in scour and bank erosion, while downstream properties could have increases in deposition and peak flow rates, both resulting in changed flood hazard conditions. Speeding up the water in this manner could also decrease the amount of groundwater recharge that occurs in the portion of the river addressed by this program.

3. Bedload deposition and scour are also affected by river weir operations. Past operations of the River Canal Weir caused significant deposition upstream of the weir and significant scour downstream of the weir (ie, Coffee Road Bridge). Therefore, a weir operations plan must be included as part of the channel maintenance program, for both snow melt and rain flood conditions.

4. Piece-meal sand removal could result in a series of borrow pits that would impound river water. Impounded water allows silts to drop out of the water and form a barrier that slows down and may even stop percolation, reducing the ability of the river to act as a groundwater recharge facility.

5. Removal of plant and wildlife habitats will destroy natural flood control buffers between the river channel and the river and canal levees. This could also lead to shifting channelized flows as stated in "1" above.

There is much activity in connection with operation of the river on the Kern fan, and it is often done with little real knowledge of the results. River morphology and sediment transport are highly specialized fields of engineering. We propose that, prior to implementation of this channel maintenance program, a study of the Kern River channel be made by a consultant who

specializes in these fields. Proposed uses of the river should be addressed, such as sand and gravel operations, weir operations and groundwater recharge. Concerns about possible impacts should be addressed, such as deposition and scour, shifting of the channel, erosion of canal banks and levees, damages to bridges and weirs, and diminution of recharge capability.

Thank you for the opportunity to review your Initial Study of the channel maintenance program. If you have any questions or need additional information, please contact Rick Iger of our staff.

Yours very truly,

Stuart T. Pyle
Engineer-Manager

RBI:wl

Enclosure

xc: The Reclamation Board
City of Bakersfield, Dept. of Water
Kern County Planning & Development Services
Kern County Public Works Dept.
CVC Participants
Boyle Engineering, Attn: Randy Poole
Buena Vista Water Storage Dist.

APPENDIX I

ENVIRONMENTAL CHECKLIST FORM
(To be completed by Lead Agency)

I BACKGROUND

1. Name of Proponent: CITY OF BAKERSFIELD
2. Address and Phone Number of Proponent:
   1501 Truxtun Avenue
   Bakersfield, CA 93301
   (805) 326-3715 Contact Gene Bogart
3. Date of Checklist Submittal: 11/12/84
4. Agency Requiring Checklist: _____
5. Name of Proposal, if applicable: Kern River Channel Maintenance Program

II ENVIRONMENTAL IMPACTS [redacted] -KCWA opinion

(Explanations of all "yes" and "maybe" answers are required on attached sheets.)

	YES	MAYBE	NO
1. Earth Will the proposal result in:			
a. Unstable earth conditions or in changes in geologic substructures?	[redacted]	[redacted]	X
b. Disruptions, displacements, compaction, or overcovering of the soil?	X		
c. Change in topography or ground surface relief features?	X		
d. The destruction, covering, or modification of any unique geologic or physical features?	X		
e. Any increase in wind or water erosion of soils, either on or off the site?	[redacted]		X
f. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	X		
g. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards? (Flood)		[redacted]	X

	YES	MAYBE	NO
2. Air Will the proposal result in:			
a. Substantial air emissions or deterioration of ambient air quality?		X	
b. The creation of objectionable odors?			X
c. Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?		[redacted]	X
3. Water Will the proposal result in:			
a. Changes in currents, or the course or direction of water movements, in either marine or fresh water?	X		
b. Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff?		X	
c. Alterations to the course or flow of flood waters?	X		
d. Change in the amount of surface water in any water body?		[redacted]	X
e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?		[redacted]	X
f. Alteration of the direction or rate of flow of ground waters?			X
g. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?		?	X
h. Substantial reduction in the amount of water otherwise available for public water supplies?			X
i. Exposure of people or property to water related hazards such as flooding or tidal waves?	SEE COMMEN[redacted]		X
j. Will the proposal result in water service from any public or private entity?			X
4. Plant Life Will the proposal result in:			
a. Change in the diversity of species or number of any species of plants (including trees, shrubs, grass, crops, microflora and aquatic plants)?	[redacted]		X

	YES	MAYBE	NO
4. Plant Life (continued)			
b. Reduction of the numbers of any unique, rare or endangered species of plants?			X
c. Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?	X		
d. Reduction in acreage of any agricultural crop?			X
5. Animal Life Will the proposal result in:			
a. Change in the diversity of species or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects or microfauna)?			X
b. Reduction of the numbers of any unique, rare or endangered species of animals?			X
c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?		X	
d. Deterioration to existing fish or wildlife habitat?		X	
6. Noise Will the proposal result in:			
a. Increases in existing noise levels?		X	
b. Exposure of people to severe noise levels?			X
7. Light and Glare Will the proposal produce new light or glare?		X	
8. Land Use Will the proposal result in a substantial alteration of the present or planned land use of an area?			X
9. Natural Resources Will the proposal result in:			
a. Increases in the rate of use of any natural resources?			X
b. Substantial depletion of any nonrenewable natural resource?			X
10. Risk of Upset Does the proposal involve a risk of an explosion or the release of hazardous substances (inculding, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?			X

	YES	MAYBE	NO
11. Population Will the proposal alter the location, distribution, density or growth rate of the human population of an area?			X
12. Housing Will the proposal affect existing housing, or create a demand for additional housing?			X
13. Transportation/Circulation Will the proposal result in:			
a. Generation of substantial additional vehicular movement?			X
b. Effects on existing parking facilities, or demand for new parking?			X
c. Substantial impact upon existing transportation systems?			X
d. Alterations to present patterns of circulation or movement of people and/or goods?		X	
e. Alterations to waterborne, rail or air traffic?			X
f. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?			X
14. Public Services Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Fire protection?			X
b. Police protection?			X
c. Schools?			X
d. Parks or other recreational facilities?			X
e. Maintenance of public facilities, including roads?			X
f. Other governmental services?			X
15. Energy Will the proposal result in:			
a. Use of substantial amounts of fuel or energy?			X
b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?			X

	YES	MAYBE	NO
16. Utilities Will the proposal result in a need for new systems, or substantial alterations to the following utilities:			
a. Power or natural gas?			X
b. Communications systems?			X
c. Water?			X
d. Sewer or septic tanks?			X
e. Storm water drainage?			X
f. Solid waste and disposal?			X
17. Human Health Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?			X
b. Exposure of people to potential health hazards?			X
18. Aesthetics Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?		X	
19. Recreation Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?		X	
20. Archeological/Historical Will the proposal result in an alteration of a significant archeological or historical site, structure, object or building?			X
21. Mandatory Findings of Significance			
(a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X	

	YES	MAYBE	NO
21. Mandatory Findings of Significance (continued)			
(b) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one of which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future).			X
(c) Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)			X
(d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X

III. DISCUSSION OF ENVIRONMENTAL EVALUATION See Attached

IV. DETERMINATION
(To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find the proposed project COULD NOT have a significant effect on the environment, and a Negative Declaration will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project plans or proposals made by or agreed to by the applicant before the proposed negative declaration is released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and there is no substantial evidence before the city that the project as revised may have a significant effect on the environment and that a NEGATIVE DECLARATION WILL BE PREPARED.

☒ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Date 12/6/84

James D. Moir
(Signature)

For DEWEY SCEALES

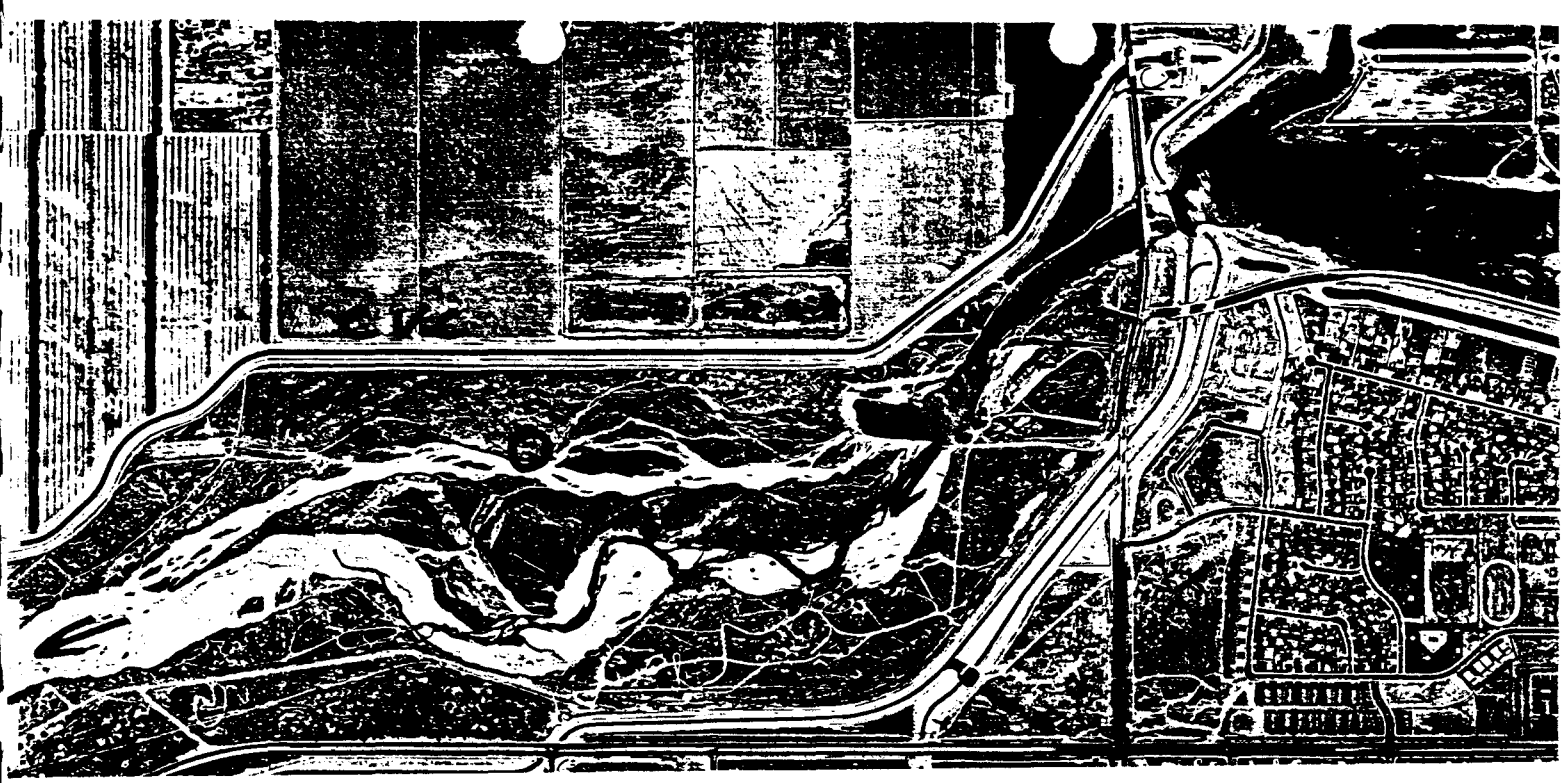


EXHIBIT "A"

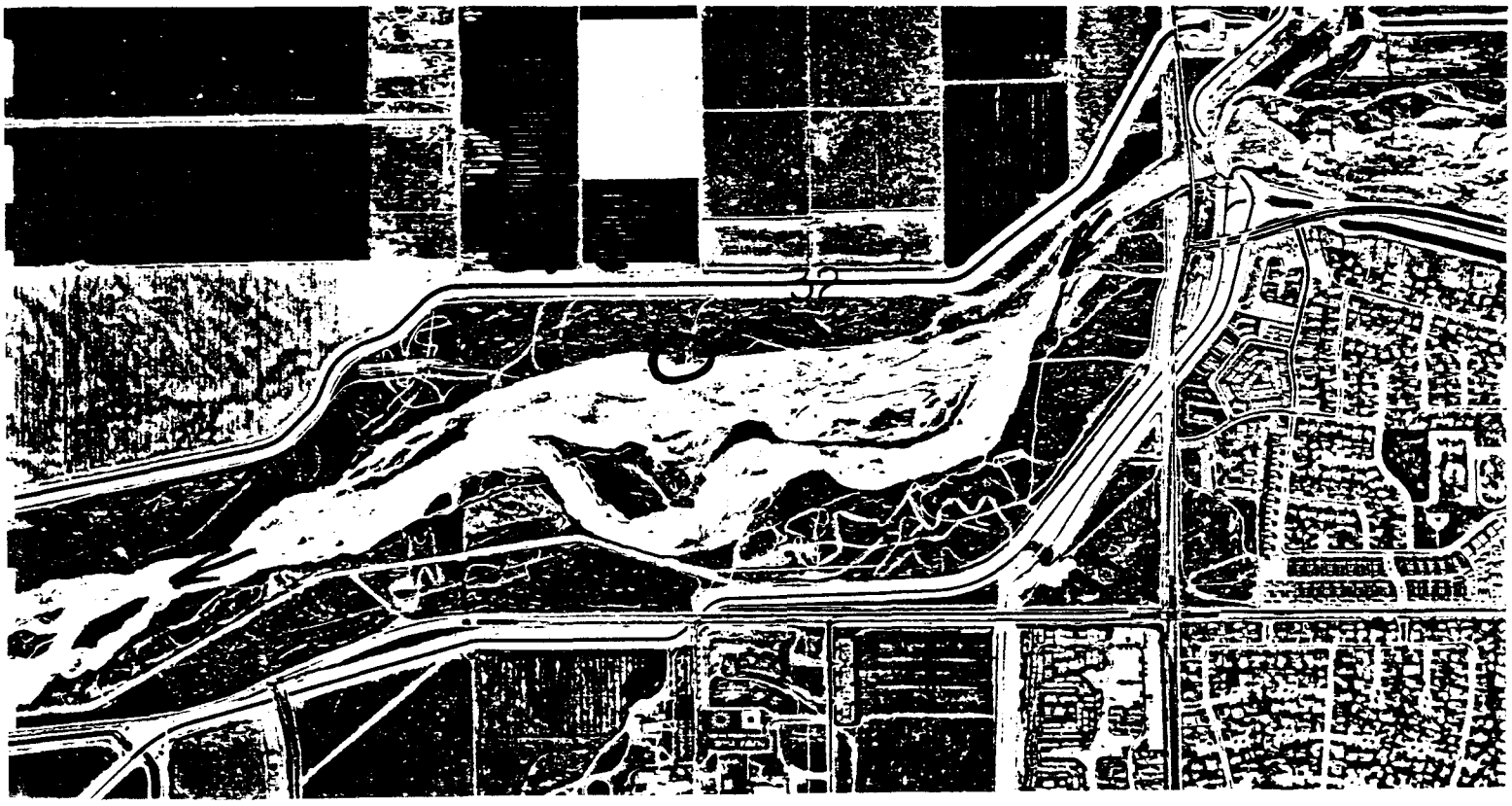
KERN RIVER CHANNEL BELOW COFFEE ROAD BRIDGE

Above: Before Excavation of Banks

Below: After Excavation of Banks

-N-

Note Erosion on North Bank Behind Tree (inside blue circle)



8-2-83

EXHIBIT "B"

KERN COUNTY PLANNING DEPARTMENT

RANDALL L. ABBOTT
PLANNING DIRECTOR

1103 GOLDEN STATE AVENUE
BAKERSFIELD, CALIFORNIA 93301-2499
TELEPHONE (805) 861-2615

July 16, 1985

File: City of Bakersfield
Kern River Maint. EIR

RECEIVED
JUL 18 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

City of Bakersfield Planning Department
Attention: Jim Movius
1501 Truxtun Ave.
Bakersfield, CA 93301

Re: Notice of Preparation of Draft EIR for Kern River Maintenance Program

Gentlemen:

Thank you for the opportunity to review and provide comments on the above noted material. We concur that an EIR is necessary to assess potential impacts and mitigation to this project.

The City's project consists of removing 1,200,000 c.y. of sand from the bottom of a 9 mile length of the Kern River passing through the City, Reach I, and a 3 mile length of the River, near I-5, Reach II, inorder to maintain storm flow capacity. The material will be completely removed from the river area and used for local development. The study states that it is not feasible to increase the flow capacity by using the material to build up the levees.

The City proposes to enter into a borrow agreement to have the material removed. The estimated borrow rate since 1977 has been 70,000 c.y. per year. The natural deposit rate was not stated.

The City does not state what the capacity of the river is now and whether the time to complete the project is of major concern. Construction plans for Reach I were included with the study. Plans for Reach II will be made available for review as part of the Draft E.I.R.

In addition the following concerns need to be addressed.

1. The NOP notes that 1.2 million cubic yards of sand would be removed. To where would material be delivered and used? Will material be removed only as needed? If not, where would material be stockpiled and what impacts would occur from such stockpiling? If vegetation (branches, leaves, trunks, roots) is included in removed material, Will fill be usable for construction purposes?

2. The DEIR needs to address the age of the islands to be removed. If the islands have historically existed, then their removal will not expedite flow.

3. Explain the basis for the "Maybe" responses to question 3.b. What properties of unvegetated soil or scoured river bed could result in a more rapid absorption rate?

4. It is noted that portions of the channel will be straightened out; all benefits and impacts as a result of such removal need to be discussed.

5. An historical analysis of river flow during periods of high sediment buildup and, alternately following removal of buildup needs to be included in the DEIR.

6. It is noted (4.b and 5.d) that the project will not result in a reduction of any unique, rare or endangered plant or animal species. How can this be determined without a biota survey? The Draft EIR needs to assess biota impacts. Island removal may be especially significant because unique "close system" communities may have become established on these islands. The documents needs to discuss accessibility to the "mainland". Vegetation removal must be consistent with the Kern River Plan. As a potential mitigation measure, the DEIR needs to discuss a habitat improvement program using revenues from sale of sand resources to improve bank habitat. Statements made under remarks 4.c and 5.d are confusing; plants and animal life are noted as "temporary in nature". How can this statement be made without a biota report to substantiate the remark?

7. Why is the "inconvenience" to hikers or equestrians not considered significant?

8. How will the project effect existing facilities along the river, such as the Rosedale-Rio Bravo out flow at Jerry (Goose Lake) slouga, on the Cross Valley Canal?

We hope this information and these concerns will be of value in the writing of the DEIR. Should you have any questions please contact us at the above number.

Very truly yours,

RANDALL L. ABBOTT, Director
Planning and Development Services

By: Fred Simon
Principal Planner

FS:clm

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

1601 "H" Street, Suite 150
Bakersfield, California 93301-5199
Telephone: (805) 861-3682

LEON M HEBERTSON, M.D.
Director of Public Health
Air Pollution Control Officer

RECEIVED
JUL 5 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

July 1, 1985

Mr. Dewey Sceales, Planning Director
Planning Department
City of Bakersfield
Bakersfield, California 93301

Dear Mr. Sceales:

ATTENTION: Mr. Jim Movius

Subject: Kern River Channel Maintenance Program
City of Bakersfield

Thank you for the opportunity to comment on the above proposed project. The following comments are limited only to the air quality impacts of the proposed project:

Proposed Project:

The proposed project includes the establishment of a master plan for phased sand removal and channel maintenance. This act will preserve the storm flow carrying capacity of the Kern River through Bakersfield and adjacent property. Program implementation would result in the removal of approximately 1,200,000 cubic yards of sand including the removal of vegetation, island removal, and channel straightening.

General Comments:

The Rules and Regulations of the Kern County Air Pollution Control District (APCD) are so structured as to require the acquisition of permits from the District prior to the initiation of construction. These permits are required of equipment, the operation of which will either emit, reduce, or control, the discharge of air contaminants as described in Rule 201(a) of the Rules and Regulations of the Kern County APCD.

Kern County APCD Rule 210.1 (Standards for Authority to Construct) as amended April 5, 1983, provides the criteria for approving the permits. The objective of this rule is to insure any new equipment, or modification of equipment, will not interfere with the attainment or maintenance of applicable ambient air quality standards. Projects which receive approval are deemed to have no adverse air quality impacts.

Specified Comments:

Should a Draft Environmental Impact Report (DEIR) be prepared for this project, the air quality discussion should address the following concerns:

1. The air quality discussion should also include the current air quality in the proposed project location. This should include topography, meteorology, and similar variables which may effect pollutant concentrations.

2. The DEIR should also include identification of all expected emissions associated with the project, including stationary source, fugitive sources, and mobile sources.

3. Emissions such as hydrocarbons, oxides of nitrogen, oxides of sulfur, carbon monoxide, and particulates, should be expressed in tons per day or tons per year.

4. The discussion should also include mitigation measures to be implemented with estimated air contaminant reductions associated with implementation of each measure.

5. A summary chart should be developed for discussion which contains the expected project emissions for each air contaminant; air contaminant reductions for each mitigation measure to be implemented; and total net emissions changes (increases or decreases) for each air contaminant following mitigation. This type of chart will permit decision-makers to identify the air quality impacts associated with the proposed project.

6. The DEIR should also include a discussion of any potential nuisance which may result from construction or eventual usage of the completed project. Mitigation measures should also be included to address any potential nuisance conditions which may exist.

Again, we thank you for the opportunity to comment on the proposed project. Should you or your staff have any questions, please telephone our office at (805) 861-3682.

Sincerely,

LEON M HEBERTSON, M.D.
AIR POLLUTION CONTROL OFFICER

Clif Calderwood
Assistant Chief Air Sanitation Officer

CC/cn

KERN RIVER WATERMASTER
ROOM 705, 1415 - 18th STREET
P.O. BOX 1195
BAKERSFIELD, CALIFORNIA 93302
(805) 325-3116

August 30, 1985

RECEIVED
SEP 04 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Mr. Dewey Sceales
Planning Director
City of Bakersfield
1501 Truxtun Avenue
Bakersfield, CA 93301

RE: KERN RIVER CHANNEL MAINTENANCE

Dear Mr. Sceales:

Professionally, I am a California registered Civil Engineer having received a B.S. in Civil Engineering and an M.S. in Engineering majoring in Hydraulics and Hydrology. I have worked with, on and about the Kern River for the last twenty-nine years. I am familiar with the Isabella Dam Project of the Corps of Engineers and beyond knowing what it can do, I know what it cannot do. I am very familiar with the several floods which have occurred on Kern River within the last 29 years as well as knowledgeable of those which have occurred over the last 100 years. I have been the Assistant Kern River Watermaster and/or Watermaster since 1964. I believe, therefore, I am qualified to respond to many of the wild charges which have been made against the Kern River Channel Maintenance Program and Study.

The Kern River Channel Maintenance Program is absolutely essential for the long-term well-being of the local community. If the present Channel is not maintained it is necessary within the near future that a new Kern River Channel be chosen, designed and located. There is not another choice unless we wish to merely sit back and permit nature do what has been done over the eons of time during the development of this alluvial fan which we live upon and that is to allow the physical laws of nature to take over and have the new River Channel establish itself where it wishes without our assistance.

We, the community of Bakersfield, are the intruders upon nature. In recent times, we have seen the Kern River in three different locations. The town of Old River just didn't happen but it's namesake was adjacent to the second of the three. Our predecessors have determined the present location of the Kern River by building and maintaining levees since the turn of the century in order to insure the present location as where we want it to be ad infinitum.

The Kern River unloads in the order of 100,000 cubic yards of sand on average every year in the vicinity of Bakersfield. This may not sound like much but unless that material is removed--material which nature has dictated through its physical laws to be dumped in the bed of Kern River, thus elevating that bed inches each year until the levees are rendered useless--then it is just a matter of time before the "new" Kern River location is established. Or, we can choose to remove that new, aggrading material through an orderly, steady, year-in-year-out Channel Maintenance Program and thereby retain the River in its present location. The choice is ours and I bet that the citizens of the community will choose a channel maintenance program once they know what the facts really are.

Those who are expressing themselves so eloquently in the press are not being realistic. The letter presented to you by the Kern Audubon Society as an example of a "public watchdog" group fails at each and every point in their letter to understand what the objectives of the Kern River Channel Maintenance Program are.

Similarly, as indicated in the Letters To The Editor that 12" to 14" of rain has never fallen on Bakersfield in a three-day period. In the memory of man, that is probably true but these folk fail to appreciate that the floods came from rain falling in the 250 square miles--(160,000 acres) between Bakersfield and Isabella Dam. There are mountains in excess of 7,000 ft. high where the 12" to 14" of rain in a 3-day storm are not unheard of in periods of occurrence of much less than once every 100 years. Further, it would be interesting to find the source of that data which has been repeated several times.

I have had direct dealings with the Corps of Engineers technical staff over the years concerning these hydrologic facts. These people are very competent. I would uphold their expertise and would suggest strongly that opinions of environmental groups who have taken issue with the Corps in other areas of the country for other reasons are not looking at the facts but are being swept up by their own propaganda which downgrades the Corps as an environmental villain. That, however, is not the issue here.

I am also aware that the California Reclamation Board has established Flood Zones which restrict incompatible development within the flood plain. Compatible development such as parks, golf courses or other types which would not be destroyed when occasionally flooded is compatible. But merely leaving the area to be overgrown indiscriminately with "wildlife habitat" and thereby jeopardizing the whole community is just as irresponsible as permitting the flood plain to be paved over with homes.

Finally, the issue of public costs. It is my opinion, that the proposed Kern River Channel Maintenance program will pay for itself. There is a proven demand for the material removed in a routine and orderly manner. What is needed is a plan to follow and the Kern River Channel Maintenance Program is that plan. I would suggest that an "action line" which is 2 feet above the "excavation line" be adopted as part of the plan. It would be for purpose of setting priorities for areas of removal of material. At any time an area defined by the plan accumulated more than 2 feet of material, a priority should be assigned for its near-term removal. I would also suggest establishing zones for short term over excavation not to exceed 18 inches below the "excavation line" for the purpose of permitting bed load to flow from aggraded portions of the channel upstream which may be isolated from practical access or is environmentally sensitive, to pass downstream.

If I can be of any further assistance with regards to this matter, please give me a call.

Very truly yours,

C H Williams

C. H. Williams
Kern River Watermaster

CHW:ak

BUENA VISTA WATER STORAGE DISTRICT
1400 EASTON DRIVE - SUITE 140 A
P.O. BOX 10478
BAKERSFIELD, CALIFORNIA 93389
PHONE (805) 395-0733

FIELD OFFICE:
525 N. Main • P.O. Box 756
Buttonwillow, CA 93206
Phone (805) 764-5510

HAROLD K. RUSSELL
ENGINEER-MANAGER
BETTY HARDEN
ADM. ASST. & TREAS.

July 8, 1985

RECEIVED
JUL 10 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

City of Bakersfield
Mr. Jim Movius
1501 Truxtun Avenue
Bakersfield, CA 93301

Dear Mr. Movius:

In response to your letter concerning the proposed City's "Kern River Channel Maintenance Program", this District is concerned about improvements along the Kern River channel and their affects on downstream flood flows. We will thus be interested in reviewing the EIR and commenting on its contents.

Yours very truly,
BUENA VISTA WATER STORAGE DISTRICT

Martin N. Milobar

Martin N. Milobar
Assistant Engineer-Manager

MNM:clb

ARVIN-EDISON WATER STORAGE DISTRICT

20401 BEAR MOUNTAIN BOULEVARD
MAILING ADDRESS: P. O. BOX 175
ARVIN, CALIFORNIA 93203-0175
TELEPHONE (805) 854-5573

PRESIDENT
DAVID L. MOORE
VICE PRESIDENT
SAL GIUMARRA
SECRETARY-TREASURER
JOHN W. SLIKKER
ENGINEER-MANAGER
C. E. TROTTER
ASSISTANT SEC.-TREAS.
DAVID D. PACKER
STAFF ENGINEER
C. W. BOWERS

DIRECTORS
DIVISION 1
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HOWARD R. FRICK
DIVISION 4
DONALD M. JOHNSTON
DIVISION 5
DAVID L. MOORE
DIVISION 6
ARNOLD T. CATTANI, JR.
DIVISION 7
JOSEPH E. KURTZ
DIVISION 8
JOHN VALPREDO
DIVISION 9
L. JACK HUNT

July 31, 1985

RECEIVED
AUG 5 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

FILE NO.

City of Bakersfield
Planning Dept.
1501 Truxtun Ave.
Bakersfield, CA 93301

Attention: Barry Hand, Principal Planner

Subject: Initial Study for Proposed Kern River Channel Maintenance

The District recognizes the need for a channel maintenance program that provides for the removal of material from the Kern River channel. By letter dated November 5, 1984, the District previously furnished comments to the Reclamation Board on the subject study.

The District believes that any study on the River chanel must recognize all physical facilities which could be adversely effected by the channel maintenance program and address in what manner these facilities will be protected. The Coffee Road Bridge area is of major concern to the District as this is the approximate location of the District's Intake Canal siphon. The design of the siphon and its protective dikes were based on conditions which prevailed in 1964. The District by its letter, which was previously submitted to the Reclamation Board, furnished drawings of the design and location of the siphon. The District desires that a minimum floodway channel elevation, that will provide adequate cover for its facility be established and maintained and that the channel be maintained so that neither its cross section nor slope will cause velocities that would result in scour that will threaten existing facilities. Further, that a channel section be maintained that will prevent any overtopping of the existing dikes. It is possible that if the dike in the vicinity of the Arvin-Edison siphon were overtopped, water would enter the Arvin-Edison Canal and would then be transported under the River and through southwest Bakersfield. Under these conditions ArvinEdisons Intake Canal would not be able to contain such flows and this could result in some flooding in Southwest Bakersfield.

The District is pleased that a channel maintenance program is being studied and supports an on-going channel maintenance program. Because of the aforementioned concerns, however the District requests that very thorough studies involving channel hydraulics and channel sedimentation be conducted prior to acceptance of the program and that these studies should include operational procedures during various types of years.

Sincerely,

for C. W. Bowers, Jr.

C. E. Trotter
Engineer-Manager

TRUSTEES

DONALD BARKLEY
LOUIS BRANDT
JOHN CHAFIN
JACK FREY
RALPH HADLOCK
ROY JOHNSON
JOHN WILLIS
JOHN B. SILL

MANAGER
HARMON CLEMENT

SUPERINTENDENT
TOM BLANTON

KERN MOSQUITO ABATEMENT DISTRICT

DISTRICT OFFICE
4705 ALLEN ROAD PHONE 589-2744
P.O. BOX 9428
BAKERSFIELD, CALIFORNIA 93389

RECEIVED
JUL 17 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

July 15, 1985

Dewey Sceales, Planning Director
City of Bakersfield Planning Department
1501 Truxtun Avenue
Bakersfield, California 93301

SUBJECT: Initial Study - Proposed Kern River Channel Maintenance Program for the City of Bakersfield.

Dear Mr. Sceales:

The Kern Mosquito Abatement District, after having reviewed the Kern River Channel Maintenance Program, endorses the adoption of the plan. However, we feel it is too conservative.

The Mosquito Abatement historically since 1917 carried on source reduction programs to reduce the mosquito breeding areas in the channels caused by some of the same situations the maintenance program is aimed at to remove.

I would strongly suggest, after removal of the areas, the plan contain a provision for control of unwanted vegetation, in years of low river flow, such as 1985 because of the following:

a) The low flow causes water to meander back and forth in the channel and creates the beginning of islands and eventually become breeding sites for Culex tarsalis and Anapholes freeborni Mosquitoes vectors of WEE Encephalitis and Malaria respectively.

b) Reach I river water is diverted to Kern County Water Agency domestic water plant making it essential to control mosquitoes biologically or through source reduction rather than the use of pesticides.

The use of pesticides in areas such as these are limited in areas where domestic water supplies, fish and wildlife are involved.

It is imperative that the Mosquito Abatement District have the opportunity, in health threatening situations, to abate these nuisances as they arise, without having to wait for a lengthly permit process to evolve. I realize that there will be opposition to this type of plan but we feel it is long overdue and well worth any necessary sacrifice.

Sincerely,

Harmon L. Clement

Harmon L. Clement
District Manager

HLC/wa

ROSEDALE - RIO BRAVO
WATER STORAGE DISTRICT
849 Allen Road • P.O. Box 867 • Bakersfield, California 93309 • 589-6045

CITY OF BAKERSFIELD
1501 Truxtun Avenue
Bakersfield, CA 93301

July 30, 1985

Attention Mr. Barry Hand
Principal Planner

Initial Study for Proposed Kern River Channel
Maintenance Program for the City of Bakersfield

Pursuant to our receipt and review of the above described document, the Rosedale-Rio Bravo Water Storage District has several concerns with this project.

This sand removal and channel straightening project could present several significant problems. Sand removal operations generally occur in pits with faces much steeper than the rivers gradient. This steeper gradient increases the stream's transport capacity which often results in significant degradation upstream of the pit (head cutting). As the pits fill with water, they begin to fill with sediment because the average flow velocity has been reduced. Filling with water much sooner than sediment, the flows then spill from the pits with increasing velocity. These accelerating flows satisfy the transport capacity by scouring the downstream pit face and riverbed. These conditions can cause severe problems including erosion, loss of natural habitat, unwanted sand depositions, undermining of bridges and river structures significantly endangering the public and many major facilities including the Rosedale Headworks and the Cross Valley Canal.

The Rosedale-Rio Bravo Water Storage District believes a modeling study should be undertaken addressing these potential problems as part of the Environmental Impact Report. This study should address these issues under various flows within the River as part of the long term maintenance program and not just the short term plan of 10-15 years.

ROSEDALE-RIO BRAVO
WATER STORAGE DISTRICT

Mary E. Collup

Mary E. Collup
Manager

mgm

BK-R01-002-85

California State College, Bakersfield
School of Arts & Sciences
BIOLOGY DEPARTMENT (805) 833-3089
9001 Stockdale Highway
Bakersfield, CA 93309

March 13, 1985

The Council of the City of Bakersfield
c/o The Honorable Tom Payne, Mayor
City of Bakersfield
1501 Truxtun Avenue
Bakersfield, California 93301

RECEIVED
MAY 15 1985

Dear Mayor Payne:

On behalf of the California State College, Bakersfield and Dr. Tomas Arciniega, President, I would like to request that the City of Bakersfield consider a proposal to enter into an agreement with either California State College, Bakersfield or the college's Foundation to preserve, for the purposes of natural history study and preservation of unique wildlife species, that portion of the Kern River channel lying between the flood levees and between the bridges crossing the river at Coffee Road on the east and Stockdale Highway on the west.

We propose that this area be designated as the "California State College, Bakersfield Riparian Studies Area" and dedicated to the educational, enriching and non-destructive use by the citizens of our region. It would be our intent that the area not be altered, but rather left as a refuge for living things, a place to visit by the many students of natural history and other members of our community. We feel that it is extremely important that a certain amount of open, natural space be preserved for further study by generations of students to come.

We will be happy to provide a justification of this proposal and supporting documents for your information at such time as you desire and indicate.

On behalf of the college, we appreciate your consideration and will welcome an opportunity for a meeting between representatives of the City of Bakersfield, Cal State Bakersfield, and the Foundation for the purpose of more fully exploring this proposal and to determine the specific arrangements that might be made between the city, CSB and the Foundation.

Thank you for your attention to this matter.

Sincerely yours,

Ted D. Murphy

Ted D. Murphy, Chair
Department of Biology

THE NATURE CONSERVANCY

KERN RIVER PRESERVE
P.O. Box 1662 Weldon, CA 93283 (619) 378-2531

'85 MAR 27 PM 3:03

March 25, 1985

CITY CLERK

Mr. Ted D. Murphy, Chair
Department of Biology
California State College, Bakersfield
9001 Stockdale Hwy.
Bakersfield, CA 93309

Dear Mr. Murphy:

I am writing in full and complete support for the proposed "California State College, Bakersfield Riparian Studies Area". I have read articles and talked to several knowledgeable people about this issue. The City of Bakersfield could make a lasting and significant contribution to the educational, scenic, and recreational quality for not only the students and faculty at CSB, but for the general public as well.

As a manager of a riparian forest sanctuary along the South Fork, Kern River near Lake Isabella, I can speak from first-hand experience about the value and use that this proposed Study Area could have. Even up here in our somewhat remote location, we have a large volume of of educational research projects and public tours that are conducted. Graduate students from as far away as University of California @ Berkeley use the preserve for research. School groups ranging from pre-schoolers up to college classes also utilize this unique area for its obvious benefits.

Our world already has plenty of concrete, cows, corn, and cars. What we need more of is natural habitats where man can find refuge, scientific challenge, and environmental wholeness.

I heartily recommend that the CSB Foundation support this proposal and that the City of Bakersfield vote to designate the area of concern as the "California State College, Bakersfield Riparian Studies Area".

Yours sincerely,

Richard P. Hewett

Richard P. Hewett
Preserve Manager

cc: Bakersfield City Council

SIERRA CLUB

NATIONAL MEMBERSHIP COMMITTEE

City Planning Department
City of Bakersfield
1501 Truxtun Ave.
Bakersfield, Ca 93301

RECEIVED
JUL 3 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

July 1, 1985

Dear Mr. Movius:

Subject: Initial Study for proposed Kern River Channel Maintenance Program for the City of Bakersfield

On behalf of the Sierra Club's Conservation Committee, I would like to offer comments regarding the proposed project. The Kern-Kaweah Chapter is opposed to the initial project based on remarks found in the study document. We believe that the project will have the detrimental effect of channelizing and urbanizing the Kern River.

Therefore we would like the D.E.I.R. to address the following topics in detail:

1. study of flora and fauna to be affected
2. growth-inducing effects of the project especially with respect to the adjoining properties
3. effect of project on recreational activities and potential of the river in this area
4. alternatives to removal of sand and islands
5. compatibility of project with Kern River General Plan as adopted by the city and county
6. disposal methods for the removed sand
7. possibility of adding rip-rap
8. effects of project on propsoed Cal-State College environmental study area

We hope that the D.E.I.R. will address these issues in depth. The study should also make reference to other river systems in the state (e.g. American) which pass through an urban area and have not been altered in the manner proposed.

Please continue to keep the Chapter informed of all future meetings and time-lines for this project.

Sincerely,

Harry Love

Harry Love
Conservation Chairman
5805 Daggett Ave.
Bakersfield, CA 93309

Tenneco West
A Tenneco Company

P.O. Box 9380
Bakersfield, California 93389-9380
(805) 835-6000

August 8, 1985

Mr. Dewey Sceales
City of Bakersfield
Planning Department
1501 Truxtun Avenue
Bakersfield, CA 93301

RECEIVED
AUG 9 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Dear Mr. Sceales:

Re: Kern River Channel Maintenance Program

As a landowner along the Kern River, we wish to comment on the proposed Kern River Channel Maintenance Program.

We are concerned that if such a plan is not soon implemented, that adjacent and surrounding property will be exposed to a growing risk of flooding due to continued channel sedimentation. Without a continuing channel maintenance program sedimentation raises the channel bed and increases the water elevation of flows in the channel. This, in turn, generates the need to raise the height of the levee system, to maintain adequate channel capacity, which will eventually lead to the water level of flows within the channel to exceed the elevation of the ground surface outside of the levee system. Such a condition would require: increasing the height of the levee system, and rigorous levee monitoring and surveillance to minimize the increased potential danger to all property adjacent to the channel.

Obviously, your plan to maintain the channel by removal of sedimentation is the most cost effective and reasonable means to maintain proper channel capacity. We support he City's proposed program for channel maintenance.

Sincerely,

TENNECO WEST

Melvin Jans

Melvin Jans
Senior Vice President
Land Division

/pb

cc: Paul Dow, Director of Water Resources, City of Bakersfield

August 18, 1985

Dear Councilman Moore:

The Kern River Channel deepening project, is hopefully going to be just as well planted as when the natural trees and shrubs are removed.

Hope a plan will be adopted to maintain the river, for years to come, that will make Bakersfield proud. I know we can count on you.

Sincerely,

Mrs. Roselee Wilcox

RECEIVED
SEP 03 1985
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

RECEIVED
SEP 20 1985
CITY OF BAKERSFIELD
Community Services Department

Mr. Gene Bogart
City of Bakersfield
4101 Truxtun Ave.
Bakersfield, CA 93309

RE: KERN RIVER MAINTENANCE PROGRAM

GENTLEMEN:

Gannon and Wattenbarger are the owners of property in and adjacent to the Kern River, between Chester Avenue and Manor Street. We have submitted to the City and the State Reclamation Board a proposal to widen the channel in this reach of the Kern River. We request that the City consider our proposal in the Kern River Maintenance Program Plans, Text and EIR.

We are aware that the Maintenance Program proposed to leave islands in the center of the channel in this reach, some of which are on our property, and we agree with leaving the islands. Widening the channel to the south will help to divert river flows around the islands and protect them and their habitat.

Without increasing the channel to the south, the islands will push flood flows up against the levee on the north side of the river and increase the north levee to exposure to flood flows.

We would appreciate an opportunity to review the plan and EIR that is now in preparation and having notice of subsequent hearings.

We are long time residents of the City and have been active in business and civic affairs, and we recognize that with the growth and development of our City and Community, a Kern River Maintenance Program is necessary and commend your efforts to establish such a program.

We hereby request that our proposal be considered at this time.

Very truly yours,

GANNON AND WATTENBARGER

Tim G

APPENDIX C

SAND REMOVAL AGREEMENT

SAND REMOVAL AGREEMENT NO._____ W.B.

THIS AGREEMENT, dated _____, 1985, between the City of Bakersfield, a municipal corporation (City), and

_____

(Contractor).

RECITALS

For valuable consideration, the receipt of which is hereby acknowledged, and in consideration of the agreements of Contractor set forth in this document, City gives to Contractor a nonexclusive license, revokable and terminable as provided in this Agreement to use for the purpose of excavation and subject to the provisions set forth in this Agreement, that certain real property, referred to as "premises" in this Agreement, situated in Kern County, California, more fully described in Exhibit A. Exhibit A is incorporated as part of this document as though fully set forth.

The Kern River deposits sand in its channel as a natural result of its flow. City desires the removal of this sand in order to protect the river levees and to maintain the efficient flow of the river. The City has available aerial photos, profiles and cross-sections which show the desired river gradient, slope, and other physical features to be maintained. Contractor has access to such information during regular business hours at the Department of Water Resources for the City of Bakersfield.

Contractor acknowledges that a certain slope and gradient are required to be maintained on the Kern River bed. Contractor has been given adequate information concerning the slope and gradient to be maintained in the area of allowed excavation under this Agreement. Contractor will endeavor to maintain the slope and gradient as set forth in the following documents:

1. Joint Kern County and City of Bakersfield "Kern River Plan" dated July 1985.

2. City of Bakersfield's adopted "Kern River Channel Maintenance Program" dated September 1985.

Contractor acknowledges that he is fully aware of the City's "Kern River Channel Maintenance Program" and the necessity for protecting the environment in accordance with that program. Contractor understands that unnecessary or unreasonable destruction of plant and animal life, or unreasonable noise and pollution, are prohibited by said program and by this Agreement.

AGREEMENT

This license is and shall be subject to the following provisions, to each and all of which City and Contractor agree:

1. Contractor to Obtain Governmental Approvals: Contractor shall, at its sole cost and expense, secure all necessary governmental approvals not already obtained as a precondition to the use of the premises for the purposes set forth in this Agreement, including without limitation any required grading permits, and shall have provided copies of each to the City prior to Contractor's exercise of its rights under this Agreement.

2. Excavation of Materials: Provided Contractor has fully complied with the requirements of paragraph 1, Contractor may use the premises from time to time during the period set forth in Exhibit A for the purpose of removing not more than the amount of materials, defined as river run sand and soil, set forth in Exhibit A. All such excavation and removal shall be accomplished in full compliance with the terms and conditions set forth in this Agreement. Contractor will furnish, at his own expense, all materials, equipment, and personnel necessary to carry out the terms of this Agreement.

3. Ingress and Egress: During the term of this Agreement only, City gives to Contractor a right-of-way for ingress and egress from the premises over such routes and at such access points as City may designate. Contractor assumes all responsibility and all liability for traffic control on or about

the project or steming from the activities set forth in this Agreement including, but not limited to, traffic control along the roads at access points. No oil or other permanent road surfacing material shall be used on said right-of-way, and any roads constructed on the right-of-way shall be obliterated at the Contractor's sole expense upon termination of this Agreement. Contractor shall, however, establish and maintain dust control practices within the premises and on any roads constructed to minimize wind blown sand and soil to the greatest extent possible.

4. Excavation Requirements: Contractor agrees that the premises shall be excavated and the materials removed to a depth not greater than those elevations designated in the "Kern River Channel Maintenance Program," that the sides of the excavated areas shall be cut to a slope not steeper than six-to-one (6:1), and that the bottoms of the excavated areas shall be left in a level condition consistent with the grading slope charts at the completion of Contractor's removal operations.

5. Payment: As payment for the removal of materials from the premises as set forth in Exhibit A, Contractor shall pay to City at 4101 Truxtun Avenue, Bakersfield, California, 93301, without deduction or offset, the following sums of money: $_____, representing a price of $0.50 per cubic yard of material removed.

6. Additional Taxes and Assessments: Should the removal of the material from the premises be determined to be subject to sales or use taxes or should Contractor's operations on the premises result in any assessment or tax based upon the premise that the operations constitute a mining of materials or that a mineral reserve has been established upon the premises, Contractor agrees to pay such taxes or to reimburse City, upon demand, for all such taxes paid by City on account of such charges or fees. This provision shall survive this Agreement and remain in full force and

indirectly out of the performance or nonperformance of Contractor hereunder, excepting only claims arising out of accidents resulting from the sole negligence of City. Contractor further agrees to investigate, handle, respond to, provide defense for and defend any such claim, demand or suit at its cost and expense and agrees to bear all other costs and expenses related thereto, even if such claim, demand or suit is groundless, false or fraudulent.

11. Insurance: Contractor covenants and agrees fully to perform and observe at its own risk, cost and expense, each and all of the provisions hereof which are to be performed or observed by the Contractor. Contractor shall keep the premises free of liens and charges of workmen and materialmen, and shall at all times during its use of said premises, at its expense, carry:

(a) Workmen's compensation insurance;

(b) Public liability limits of such reasonable amounts as may be required from time to time by City, but in no event less than $500,000 for the injury to or death of one person and $1,000,000 for the injury to or death of more than one person in any one accident; and

(c) Property damage insurance with liability limits of not less than $500,000.

All such insurance shall be carried with insurance companies satisfactory to City, and shall cover not only the liability of Contractor for bodily injury to or death of persons and property damage, but also such liability which has been assumed by Contractor under the indemnity agreement of this license. Contractor shall forthwith procure and cause to be furnished to City certificates from Contractor's insurers stating that such insurance is in full force and effect, that the premiums have been paid and that the insurers will give City at least thirty (30) days prior written notice of any termination, cancellation or modification of the terms of such insurance.

effect for so long as any such assessment or tax shall be levied upon the premises.

7. Preserve Fences: Contractor agrees to preserve the integrity of the existing fence or fences on or in the vicinity of the premises, if any, and Contractor further agrees that whenever any opening is made in any such fence, Contractor shall immediately install and maintain in such opening a gate or cattleguard of a type approved by the City. Contractor shall not authorize or permit anyone claiming under it to enter or leave the premises or any other property of City except through openings protected by gates. All gates and fences shall be kept closed at all times except when necessarily opened for passage.

8. Preserve Habitat: Contractor agrees to use its best efforts to reasonably preserve and protect the river habitat including, but not limited to, vegetation and wildlife. In order to further the requirements of habitat protection, Contractor agrees that no excavation or other work shall take place within fifty (50) feet of all primary river levees as set forth in the "Kern River Channel Maintenance Program."

9. Preserve Structures: Contractor agrees to protect levees, diversion works, pipelines and all other structures along the River, and assumes all responsibility and liability for damage to such structures.

10. Contractor Indemnifies City: Contractor agrees to protect, defend, indemnify and hold City, its employees and officers harmless from and against any and all losses, claims, liens, demands and causes of action of every kind and character, including the amount of judgment, penalties, interest, court costs and legal fees incurred by City in defense thereof, arising in favor of any party, governmental agencies or bodies on account of taxes, claims, liens, debts, personal injuries to or death of persons, including employees of City and without limitation by enumeration, all other claims or demands of every character occurring or in anyway incident to, in connection with or arising directly or

12. Limitation of Rights: This license is subject to all rights with respect to the premises that City or its predecessors have previously granted or given to others, or that City reserves to itself, and Contractor, at its own expense, shall so use the premises and comply with and observe all reasonable and lawful limitations or requirements prescribed by the holder of any of said rights for the protection of those rights.

13. Title Defects: Contractor accepts as satisfactory to itself the title of City to the premises, each as to its respective ownership, and agrees that City shall not be liable or responsible to Contractor in damages or otherwise by reason of any defects in or liens or encumbrances on City's title or any want of title in City to the premises, or any portion of the premises.

14. Assignment: Contractor shall have no right to assign or transfer this Agreement or any interest in this Agreement, without the prior written consent of City, except that Contractor may, at any time and from time to time, exercise the license herein given through a subcontractor, but in such event Contractor shall remain primarily liable to City under this contract.

15. Unexpected Water in Kern River Channel: Contractor acknowledges that the Kern River Channel is subject to a flow of water at any time which would interfere with the ability of Contractor to exercise its rights under this Agreement. Contractor agrees that City shall have no responsibility or liability to Contractor in any manner whatever as a result, directly or indirectly, of the presence of water in said channel.

16. Performance Bond: To guarantee the full and complete performance by Contractor of the payments and other monetary obligations of Contractor, and the manner of the removal, restoration and remedial work required of Contractor in paragraphs 3 and 4, Contractor agrees, at its expense, to provide City with a performance bond in the sum of $_____ naming City as

obligee, and guaranteeing that the surety shall, if Contractor fails to do so, make such payment and complete such removal, restoration and remedial work within ~~three (3) months~~ one (1) month after the expiration or earlier termination of this Agreement. Such performance bond shall be purchased from a surety company doing business in California and in a form satisfactory to City for such purposes.

17. Independent Contractor: The parties intend that Contractor, in performing the specified work, shall act as an independent Contractor and shall have control of his work and the manner in which it is performed. Contractor is not to be considered an agent or employee of City and is not entitled to participate in any City benefits. Contractor shall take all precautions necessary for the safety of and prevention of damage to property on or adjacent to the work site, and for the safety and prevention of injury to persons, including City's employees, Contractor's employees, and third persons on or adjacent to the work site.

18. Inspection Rights: The City reserves the right to inspect the premises at any time to insure conformance with this Agreement.

19. Waiver of Default: The failure of any party to enforce against another a provision of this Agreement shall not constitute a waiver of that party's right to enforce such a provision at a later time, and shall not serve to vary the terms of this Agreement.

20. Forum: No lawsuit pertaining to any matter arising under or growing out of this contract shall be instituted in any state other than California.

21. Time: Time is of the essence in this Agreement.

22. Headings: All paragraph or section captions are for reference only, and shall not be considered in construing this Agreement.

has constructed works on the north side of the Kern River between Highway 99 and upstream of Rosedale Highway that act as levees. The levees and canal as described above now define the area that is presently available to accommodate flood flows. This EIR has not analyzed the impacts of any other uses within this area.

ANALYSIS

The Kern River between Manor Street and Stockdale Highway, a distance of 43,000 feet, has a fall of 50 feet. Using 7 feet as the additional head that is required for flood flows to pass through areas of restriction and sturctures, leaves 43 feet of fall for the general hydraulic gradient. This gives a hydraulic slope of 1 foot per 1000 feet or an s = 0.001.

The material in the bottom of a maintained channel for the Kern River produces a coefficient of roughness (n) of n = 0.030, as a reasonable general number.

Table I is a graphic representation of the average depth of water in a maintained channel of the Kern River as compared to average widths of a maintained channel for flood flows of 15,000 cubic feet per second, a 100 - Year Flood, and 29,000 cubic feet per second, a Standard Project Flood.

Using the criteria set forth by Table I and applying it to each cross-section in Reach I, it is my opinion that this Kern River Channel Maintenance Program, when augmented, will allow a flood flow of 15,000 cubic feet per second to pass through Reach I, with no significant adverse impacts on lands outside the Kern River Channel or on structures, such as bridges crossing the river, and adjoining facilities, such as the Cross Valley Canal and the Arvin Edison Canal.

Very truly yours,

RICKETT, WARD & DELMARTER

Wilbur Rickett

Wilbur Rickett

WR:jh

TELEPHONE
(805) 327-1486

2901 H STREET
BAKERSFIELD, CALIFORNIA 93301

RICKETT, WARD & DELMARTER
2901 H STREET BAKERSFIELD CALIFORNIA 327-1486
ENGINEERS SURVEYORS

Job #11833

September 17, 1985

Mr. Gene Bogart
City of Bakersfield
4101 Truxtun Avenue
Bakersfield, CA 93301

RE: Kern River Maintenance Program

Gentlemen:

SETTING AND EIR SCOPE

The intent of the EIR for the Kern River Channel Maintenance Program is to address channel maintenance and operations to accommodate flows, both normal flows and flood flows. The Program in text and plans addresses channel excavation limits, channel clearing within the dotted lines shown on plans, channel clearing in areas outside the dotted lines, the Designated Flood Way Line of the State of California Reclamation Board and the Secondary Flood Way as designated by Stetson Engineers for the City of Bakersfield. It also in text addresses operational programs. It is not the intent of this EIR to have addressed other possible uses within the areas that are now available to accommodate flood flows. In Reach I, the Kern River Levee District has a levee on the south side of the Kern River from Stockdale Highway to Manor Street and on the north side of the Kern River from about Golden State Highway, and adjacent Southern Pacific Railroad, to Manor Street. Also, the Cross Valley Canal generally acts as a levee on the north side of the Kern River from Stockdale Highway to Golden State Highway. Also, Caltrans

APPENDIX D

CONSULTING ENGINEER'S ANALYSIS

CITY OF BAKERSFIELD

SAND REMOVAL AGREEMENT _____ W. B.

CONTRACTOR: _____

STARTING DATE: _____ ENDING DATE: _____

CUBIC YARDS TO BE REMOVED: _____

LOCATION OF SAND REMOVAL SITE:

STATE MILE POINT: _____ TO _____

DESCRIPTION OF LOCATION: _____

_____

_____

Contractor agrees that the premises shall be excavated and the materials removed to a depth not greater than those elevations designated in the "Kern River Channel Maintenance Program," dated September 1985, that the sides of the excavated area shall be cut to a slope not steeper than six-to-one (6:1), and that bottoms of excavated areas shall be left in a level condition consistent with the grading slope charts at the completion of Contractor's removal operations.

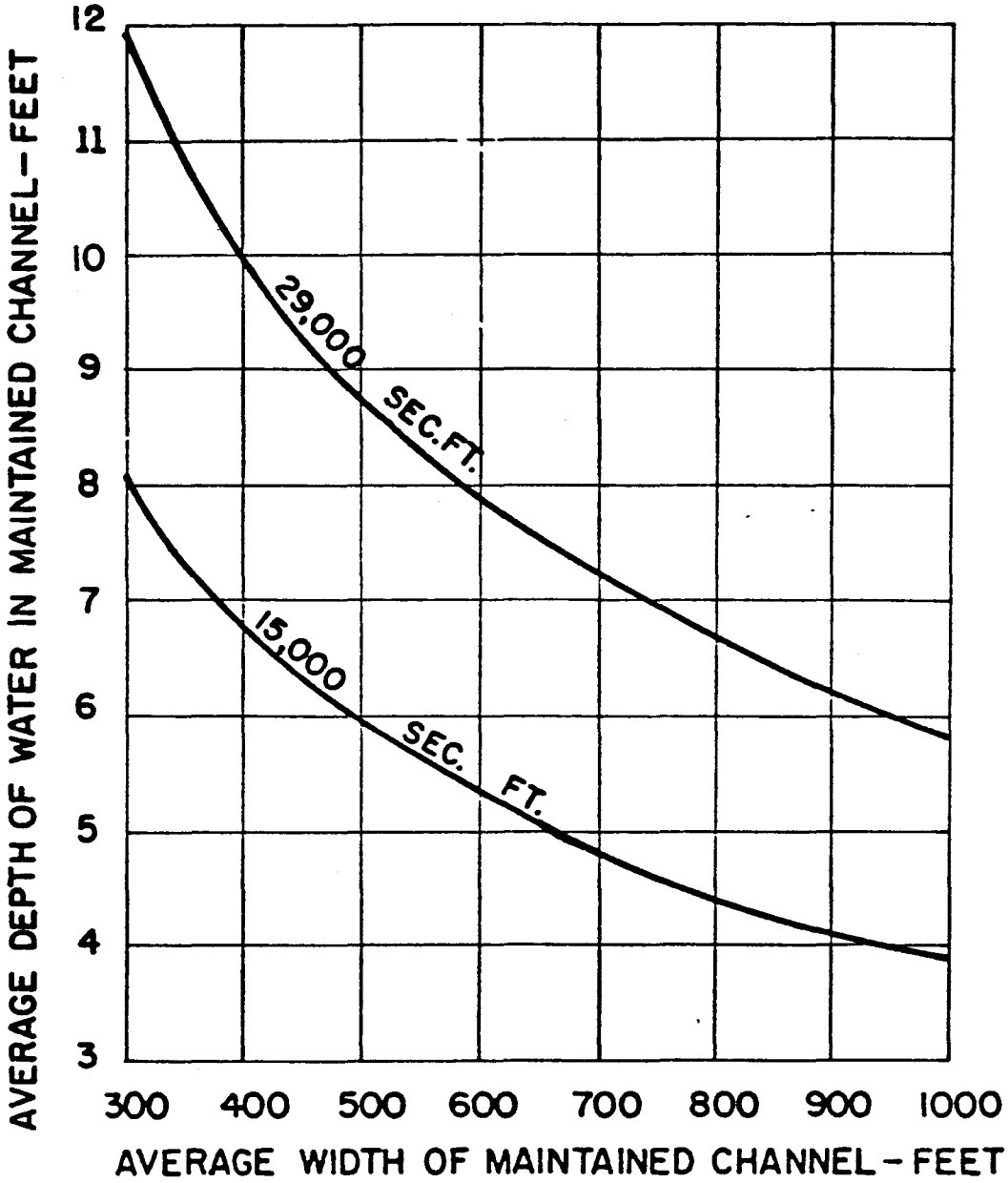
Contractor shall use its best efforts to reasonably preserve and protect the river habitat including, but not limited to, vegetation and wildlife, and that no excavation or other work shall take place within fifty (50) feet of all primary river levees as set forth in the "Kern River Channel Maintenance Program." All provisions of the Sand Removal Agreement signed by Contractor are incorporated herein by reference.

EXHIBIT 'A'

cc: State of California
The Reclamation Board
1416 9th Street, Room 335-18
Sacramento, CA 95814

RE: State Reclamation Board
Permit No. _____

TABLE I



KERN RIVER CHANNEL MAINTENANCE PROGRAM

REACH I
s= 0.001
n= 0.030

APPENDIX E

BIOLOGIST'S REPORT

ANALYSIS OF BIOLOGICAL IMPACTS ASSOCIATED WITH THE KERN RIVER CHANNEL MAINTENANCE PROGRAM

Submitted to QUAD Consultants

September 1985

Prepared by: Ty Stillman

Natural Resource Consultant

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Proposed Project
1.2 Project Location
1.3 Project Implementation

2.0 DESCRIPTION OF FLORA AND FAUNA

2.1 Historical Review
2.2 Description of Regional Flora & Fauna
2.3 Description of Project Site Flora & Fauna

3.0 ANALYSIS OF PROJECT IMPACTS

4.0 PROPOSED MITIGATION MEASURES

5.0 SUMMARY

6.0 APPENDICES

A. Flora of Project Site Vegetation Associations
B. Fauna of Project Site Vegetation Associations
C. References

CHAPTER 1: INTRODUCTION

1.1 Project Description

The City of Bakersfield has prepared a master plan for the phased removal of sand and channel realignment in order to preserve the storm flow carrying capacity of the Kern River through the greater Bakersfield Metropolitan area and from I-5 easterly to the City's groundwater recharge area. If approved, the Kern River Channel Maintenance Program would allow the removal of sand and vegetation primarily from the Kern River designated floodway. Some removal of sand and vegetation is also designated to occur within the secondary floodway so that the existing channel may be straightened and realigned.

The Kern River Channel Maintenance Program is designed to assure the passage of an intermediate regional flood through the designated floodway. The U.S. Army Corps of Engineers has calculated the flow in the vicinity of Bakersfield from the uncontrolled watershed downstream from Isabella Dam to be 15,000 cubic feet per second during an intermediate regional flood. The designated floodway capacity required to contain an intermediate regional flood within the designated floodway further downstream near the City of Bakersfield groundwater recharge facility is 5,000 cubic feet per second. Implementation of the program will preserve the between levee channel capacity of 20,000 cubic feet per second required to transmit short duration flood flows through the greater Bakersfield Metropolitan area.

Modification of the river channel as programmed will require the removal of approximately 1,200,000 cubic yards of sand, provided current channel conditions exist. In addition, significant vegetation removal will be necessary for full implementation of the program.

The channel maintenance program is anticipated to be implemented via an incremental response to local demand for borrow material. Historical borrow demand has averaged 70,000 cubic yards per year. Provided that future demands do not exceed the present historical demand rate, it is not likely that full implementation of the proposed program will be realized. Actual borrow sites will be influenced by the location of the project requiring fill material. Depending on future annual depositions, the program benefits in terms of improvement of channel flood capacity may be less than anticipated.

1.2 Project Location

The Kern River is the southerlymost major drainage system of the Sierra Nevada Mountains. Its headwaters start at the southwestern flanks of Mt. Whitney. Much of the river above Isabella is unrestricted by major diversion structures and flows through several Southern Sierra Wilderness Areas. Isabella Dam forms the single major impoundment on the Kern River. Built in 1953, Isabella Dam provides major flood control protection for the southern San Joaquin Valley.

Downstream from Lake Isabella, the Kern River winds down a steep canyon and enters the San Joaquin Valley northeast of Bakersfield. As it enters the San Joaquin Valley, the Kern River forms an alluvial fan of some 600 square miles. The present course of the Kern River flows southwesterly across the valley floor to the base of the Elk Hills. The channel then divides into two drainageways which travel to the Buena Vista and Tulare Lake basins.

The Kern River Channel in the vicinity of the Metropolitan Bakersfield area is often strictly defined by continuous levees. Downstream from Bakersfield the channel tends to meander more yet remains fairly well defined by low banks or levees.

The Kern River Channel Maintenance Program proposes channel improvements in two separate reaches. Reach I lies downstream from the Manor Street Bridge to the Stockdale Highway Bridge (approximately nine linear miles) and Reach II lies from the Interstate 5 siphon upstream to mile point 110 in the northeast quarter of Section 18 of Township 30 South and Range 26 East. In general Reach I includes that portion of the Kern River channel which travels through the Metropolitan Bakersfield Area.

1.3 Project Implementation

As noted above, the implementation of the proposed project will be on an incremental basis depending on local development demand for borrow material. The average demand is estimated to be 70,000 cubic yards based on historic demands. Based on that rate, the project will take approximately 17 years to complete. This implementation schedule does not take into account that further sedimentation will occur during the course of the project. In fact, the project may never be fully implemented or may take much longer than a pure arithmetic projection.

CHAPTER 2: DESCRIPTION OF FLORA & FAUNA

2.1 Historical Review

The southern San Joaquin Valley is the geographic and economic heartland of Kern County. Prehistorically the southern San Joaquin Valley was a region of broad arid plains sloping generally to the south and west. In the central portion, a large wetland developed as a result of three main basins, the Kern Lake Basin, Buena Vista Lake Basin, and the Tulare Lake Basin. These three basins collected runoff from the Kern River and several lesser streams.

Although various Indian tribes were common throughout the valley, the first historic visit to Kern County came in 1772. Settlement of the southern San Joaquin Valley was much slower than other coastal areas. Kern County was first recognized as a political unit in 1866. However, general settlement of the valley did not occur until the mid 1880's.

Early land use in the San Joaquin Valley was primarily devoted to stock grazing (principally sheep on the Valley floor). Herdsmen were originally migratory, moving their flocks through the valley in winter and spring on through the foothills of the Tehachapi Mountains to the meadows of the Southern Sierra Nevada's in the late summer. However, by the late 1880's when general settlement of the valley was taking place, use of the valley for its forage value to migratory herds of domestic animals was giving way to the initial development of irrigated agriculture.

The development of widespread irrigated agriculture was especially rapid following World War II. Concurrent with the rapid spread of irrigated agriculture was an equally rapid decline in the native valley habitats and wildlife.

Originally the valley floor probably appeared as a mixture of perennial and annual grasses and herbs interspersed with semi-arid saltbush scrub vegetation. Along water courses limited riparian vegetation developed with several recognizeable associations represented. Bordering these riparian associations in areas where ground waters were reasonably close to the surface, a distinctive Mesquite savannah occasionally developed. Certain low lying areas, where drainage was poor due to local soil conditions, developed a distinctive vegetation adapted to highly alkaline and/or saline soils.

The wildlife communities which evolved in these broad plains with their localized wetlands were also distinct. Large herds of *Ceruus nannodes* (Tule Elk), *Antelocarpa americana* (San Joaquin Antelope), and *Odocoileus columbianus* (Black-tailed Deer) roamed uninhibited throughout the valley. Several of these dominant grazers developed in taxonomically distinguishable forms which suggests an evolutionarily significant association between the dominant faunal species, the native vegetation associations, and the local climatic and edaphic conditions.

In addition to the larger grazing species, the San Joaquin Valley developed its own group of distinctive smaller fauna. Many of these species were restricted to Valley habitat (i.e. Vulpes macrotis ssp. mutica, Ammospermophilus nelsoni, Dipodomys ingens, Gymnogyps californianus, Gambelia silus, Gilia crassicauda, and Coccyzus americanus occidentalis) and their numbers were significantly reduced by the expansion of irrigated agriculture. Those species referred to above are presently considered rare or endangered by the California State Department of Fish and Game.

In addition to those fauna listed above, several plant species found in the same valley habitats are now considered rare and/or endangered (i.e. Cirsium crassicaule, Atriplex vallicola, Atriplex tularensis and Eriogonum gossypinum).

2.2 Description of Regional Flora & Fauna

The southern San Joaquin Valley presently supports several native vegetation associations. Their current distribution is significantly reduced from their historic ranges. Floristic descriptions of these associations are limited in nature. Twisselman's A Flora and Kern County is most frequently used by experts when discussing Valley vegetation. It is probable that Twisselman's descriptions are very broad and that several distinct vegetation units are lumped into his association descriptions. However, for the purposes of this analysis, the associations described by Twisselman are adequate in terms of identifying common vegetation types occuring in the Valley portion of Kern County.

The following Associations occur in the general region of the proposed project:

The Alkali Sink Association
The Lower Sonoran Grassland Association
The Fresh Water Marsh Association
The Streambank Association

Appendix A contains a list of those flora common to the above reference valley vegetation associations.

The Alkali Sink Association is best developed in a long drainage basin between Buena Vista Lake and Tulare Lake. This area once supported a broad system of sloughs, playas, and marshes which were seasonally flooded. Historically, these areas would dry out during the long hot summers and the soils in these low areas became highly mineralized. The degree of soil mineraliztion is responsible for some florist separation among the various phases found in this association.

The traditional alkali sink occurs in areas in which the soil is fully mineralized even when wet. Sharp vegetation changes occur when these highly mineral soils occur next to less mineralized soils. Flora adapted to the most mineralized "sinks" are typically perennial, markedly halophytic, and highly specialized. Among the most common indicators of these highly mineralized soils are Nitrophila occidentalis, Kochia californica, Suaeda fruticosa, Salicornia subterminalis, and Allenrolfea occidentalis.

Less mineralized soils have a much broader distribution, yet still are considered to belong in the Alkali Sink Association. The literature suggests that the flora that exists on the less mineralized soils are perhaps poor competitors on the unmineralized soils of the Lower Sonoran Grassland Association. This group of "poorer" competitors includes Atriplex polycarpa, A. spinifera, A. lentiformis, Sida hederacea, and Heliotropium curassavicum var. oculatum. In addition to these species, many annuals found in the Lower Sonoran Grassland Association commonly occur in these less mineralized soils.

Unpublished data collected by Jack Zaninovich, an accepted Kern County botanical authority, suggests that several subunits exist in the Alkali Sink Association. Most notable among these subunits is the Mesquite Savannah vegetation type. This vegetation can be easily identified by the occurence of Prosopis juliflora var. torreyana (Valley Mesquite) in an open savannah on light wind blown soils which are only modestly mineralized. Historically this vegetation type covered 25,000 acres stretching from the Kern River channel to Buena Vista Lake. However, the lowering of the ground water table due to an overdraft condition associated with the rapid expansion of irrigated agriculture and the conversion of native vegetation to irrigated crop lands has led to the significant loss of this vegetation type.

The Mesquite Savannah of the Southern San Joaquin Valley is currently recognized as the most endangered plant association in the San Joaquin Valley.

The Lower Sonoran Grassland exists in the southern San Joaquin Valley as broad treeless plains that encircle the Buena Vista Lake-Tulare Lake drainage system. These plains are arid and often shrubless. Vegetation is dominated by annual herbs and grasses. The only perennial shrub that is common throughout this association is Atriplex polycarpa. The annual flora is quite distinct in normal years, however, during years of above normal precipitation, species more commonly found in the Upper Sonoran Grassland Association may be common in many areas.

This association because of its dominance by annual species, can be floristically different from year to year or even month to month depending on the distribution of precipitation. In very dry years few plants reach maturity. The most successful species in years of limited precipitation are those which flower earliest (Festuca microstachys var. simulans, Lepidium dictyotum, Lasthenia chrysostoma, Schismus arabicus, Erodium cicutarium, Bromus rubens and Hordum glaucum). In years of non-typical precipitation, patterns which result in late spring rains, Salsola Kali var. tenuifolia may be abundant.

The Freshwater Marsh Association once occupied vast areas in the Buena Vista Lake-Tulare Lake drainage system. As noted previously, these areas were once connected by numerous sloughs, playas, and marshes. The areal extent of the marsh lands associated with this basin was to a great extent cyclical. Historic accounts of the size of Tulare Lake for example estimate that it was approximately 600 square miles in 1873 and almost 1200 square miles after the great flood of 1868. However, even during the periods when the lake surface area was quite large, depths were shallow in the southern portion (3-5 feet).

As the vast lakes receded, great tule marshes developed along the lower sloughs and playas. Scirpus acutus and Typha domingensis (Common tule and Cattail respectively) were clearly dominant in the deeper portions of this association while a variety of other aquatic plants were found in the open waterways or along the island and slough banks.

As the valley was settled, this vegetation association was reclaimed in vast quantities. Some of today's most productive farmlands are found in the Tulare Lake, Buena Vista Lake, and Kern Lake basins. Consequently, little or no evidence of the once broad fresh water marsh vegetation exists today. Isolated examples of these marshlands are found in canals and low lying places where irrigation waters collect. Perhaps the best example of these once common marshlands can be found at the Kern National Wildlife refuge where sixteen square miles of remnant sloughs and playas have been restored for the benefit of migratory waterfowl.

The Streambank Association is found along the banks of the Kern River and other scattered perennial streams in Kern County. The common and conspicuous indicators of the Streambank Association are Populus fremontii, Salix lasiandra, Salix laevigata, and Fraxinus latifolia. Mixed with these three species may be a variety of shrubs and herbs typical of the surrounding vegetation (i.e. Lower Sonoran Grassland and Alkali Sink in Valley situation) or the Freshwater Marsh Association.

These above described vegetation associations support a broad variety of wildlife. Appendix B of this report lists those wildlife commonly found in each of these vegetation associations. In addition to those species listed in Appendix "B" there exists in the Kern River a separate aquatic community. Little qualitative data exists which provides any meaningful description of the aquatic fauna.

It is important to review at this point those wildlife species which occur in the region and are considered rare or endangered.

Gymnogyps californianus (California Condor) is the largest North American land bird having a wingspan of 2.7m (9 feet). The California Condor can be easily distinguished from other carrion birds by its large size, bare orange head, and distinctive black and white underwing.

The California Condor is considered a Pliostocene relict and is now restricted to a very small portion of its original range which covered much of western North America from British Columbia to Baja California. Presently six birds exist in the wild while 21 are maintained in captivity. The California Condor is considered endangered by both the U.S. Fish and Wildlife Service and the California State Department of Fish and Game.

Population declines are due to low reproduction of young, loss of habitat, and human disturbance. Condors do not breed until 5-6 years old. Even when reproductive, females lay but one egg every two years and incubation brooding and fledging may take up to 6 months. Nest sites are now restricted to a very small area in northern Santa Barbara County.

Management of the remaining population is the joint responsibility of the U.S. Fish and Wildlife Service and the California State Department of Fish and Game. Presently these two agencies are evaluating the viability of removing the California Condor from the wild entirely so that the percentage reproduction of young can be improved and so that those adults presently reproductive may be protected from non-age and disease related mortality.

Gambelia silus (Blunt-nosed Leopard Lizard) is a robust lizard with a long round tail. Dorsal coloration ranges between dirty gray to brown with whitish crossbars, and ventral coloration is somewhat lighter. The most distinctive coloration is found on breeding females whose sides are variously spotted with orange or reddish spots. Length from snout to vent is 89-127mm (3.5-5 inches).

This species was originally found throughout suitable habitat in the San Joaquin Valley southward from San Joaquin County to southern Kern County and through the foothills on the western and eastern perimeters of the valley into San Luis Obispo County. The present distribution is limited to widely scattered locations on the valley floor and surrounding foothills in Kern and Tulare Counties and in the eastern foothills of San Benito and San Luis Obispo Counties which line the Carrizo Plain. Suitable habitat in these areas consists of sparsely vegetated plains, alkali flats, low foothill arroyos, and canyon floors. Foraging habits of the Blunt-nosed Leopard Lizard restrict its occurence to areas where bare ground occurs on gentle slopes. The Blunt-nosed Leopard Lizard is currently listed as endangered by the U.S. Fish and Wildlife Service and the California State Department of Fish and Game.

The principal threat to the long term survival of the Blunt-nosed Leopard Lizard is the urbanization and agricultural development of vast areas of once suitable habitat in the San Joaquin Valley. In 1976, 228,000 acres of suitable habitat were identified by resource agency inventory. A similar inventory in 1977 showed a decrease of 11.4% to 192,000 acres. As a result of this alarming rate of habitat conversion, several state wide management areas have been established. The Tupman management area exists just south of the City of Bakersfield groundwater recharge facility.

Gila crassicauda (Thicktail chub) is a stocky chub with a very deep and thick caudal peduncle. The head is short and conical. Just behind the head is a pronounced hump in the dorsal outline. Dorsal color is dark grading to silver on the lateral and ventral surfaces. The scales occur in 49-60 per lateral series and are quite large.

This fish was formerly common but not abundant in the lowland waterways of the central valley portion of California from Redding to Bakersfield. Historically the Thicktail Chub also occurred in Clear Lake and the Coyote Creek drainage, a south San Francisco Bay tributary. Archaeological data demonstrates that this fish was quite important as a food source to aboriginal fishermen in the Sacramento Valley.

Currently, the Thicktail Chub is considered endangered by the California State Department of Fish and Game and the U.S. Fish and Wildlife Service. Fish samples from Clear Lake failed to show any populations in that waterbody beyond 1940. That last known collection in California was in 1957 and taken from Steamboat Slough in the Sacramento River Delta. This species may now be extinct since substantial samplings in the central California Valley waterways have failed to demonstrate its presence since the above noted last historical collection.

The principal source of this significant decrease in population numbers is the reclamation of valley wetlands and the concurrent realignment and management of perennial waterways throughout the Sacramento and San Joaquin Valleys.

Vulpes macrotis ssp. mutica (San Joaquin Kit Fox) is a small grizzled gray fox with large ears, long slender legs, and a round black tipped tail. These small predators usually weigh in the range of 1.8-2.7kg (4-6 lbs.).

The San Joaquin Kit Fox is actually a subspecies of the Kit Fox which is common throughout the desert southwest from the Mojave desert east and south through Arizona and New Mexico. Present distribution is restricted to the Tehachapi Mountain Foothills surrounding the head of the southern San Joaquin Valley north through the western foothills of the Caliente, Panoche and other mounains and hills bounding the western edge of the San Joaquin Valley north to Byron in Contra Costa County. In the eastern foothills of the San Joaquin Valley, the San Joaquin Kit Fox occurs as far north as Visalia.

Throughout the present range of the San Joaquin Kit Fox, it is considered rare. Population data from 1974-75 suggested that approximately 10,000 individuals remained in the historical range. Conversion of valley and foothill areas to irrigated agriculture has been primarily responsible for drastic reductions in the Kit Fix population. Since the 1974-75 census, further significant losses of suitable habitat have occurred. Today, valley populations of San Joaquin Kit Fox are restricted to limited "islands" of native habitat such as exist in the Kern River corridor and surrounding lands below the Stockdale Highway bridge.

Coccyzus americanus ssp. occidentalis (California Yellow-billed Cuckoo) is a robin sized brown bird with white to cream undersides, cinnamon colored outspread wings, and a long tail with white spots. This bird is an apparent obligate dweller of thick streamside riparian forests.

Although the California Yellow-billed Cuckoo was probably never numerous in California, it has historically nested along streams and rivers from Shasta County south to southern California and along the Colorado river.

Presently, sparse breeding populations are known to occur along the Sacramento, Feather, South Fork Kern, Santa Ana, Amargosa, and Colorado Rivers. These birds are migratory, using the above named areas for nesting and fledging young from May to September.

The California Yellow-billed Cuckoo is considered rare by the California State Department of Fish and Game. As noted above, this rare bird utilizes dense streamside vegetation for its nesting habitat. As will be noted later in this report, the statewide loss of riparian forests has been significant and the preservation and reestablishment of the vegetation associate is a high priority of various natural resource management agencies. The accelerated water management efforts of the last twenty years is primarily responsible for this dramatic decrease.

2.3 Description of Project Site Flora & Fauna

Several past analyses have reported on the floral and faunal composition of the Kern River Corridor especially in the Metropolitan Bakersfield area and the 2800 acres in which the City of Bakersfield's Groundwater Recharge facility is located. Appendices A & B provide tables which list the most common species found in each of the valley vegetations sited above.

The concentration of this analysis shall be to describe the area falling within the proposed project implementation area as well as note the existence of any significant floral or faunal features adjacent to the proposed project area.

Ammospermophilus nelsoni (San Joaquin Antelope Ground Squirrel) was initially discovered at a site northeast of Bakersfield. Suitable habitat requirements involve dry sandy to medium fine soils with moderate shrub and herb cover. This small distinctively striped squirrel lives in small colonies of burrows. It forages for food during the daytime hours and appears to be most active on the warmer days of spring, summer, and fall.

The San Joaquin Antelope Ground Squirrel is considered rare by the California State Department of Fish & Game. This status is mainly the result of significant loss of suitable habitat, due primarily to the conversion of native valley vegetation to irrigated cropland.

Dipodomys ingens (Giant Kangaroo Rat) is known from collections in Kern County near Buena Vista Lake and Buttonwillow. Suitable habitat for the Giant Kangaroo Rat seems to include the Saltbush scrub type which falls within the Alkali Sink Association described herein.

The Giant Kangaroo Rat is nocturnal and colonial, living in areas of sandy to moderately fine soils where reasonable forage opportunities exist. Natural history studies of the San Joaquin Kit Fox have shown the Giant Kangaroo Rat to be a significant, if not preferred, prey species in areas where they are sympatric. This close association between the two species makes them both vulnerable to the same principal threat of loss of habitat due to conversion to urban or agricultural uses.

The Giant Kangaroo Rat is currently considered endangered by the California State Department of Fish and Game.

Athene cunicalaria (Burrowing Owl) is not typical in its foraging habits when compared to most other owls. Instead of flying silently through the night as do most owls, the Burrowing Owl forages during the day by pursuing various rodents, lizards, and insects in underground burrow systems. Once common throughout the San Joaquin Valley in open grasslands and alkali sink areas, the massive conversion of native vegetation in the valley has limited habitat available for nesting and foraging. Presently the Burrowing Owl is considered rare in the San Joaquin Valley although it commonly occupies the islands of native vegetation in the lower Kern River Corridor area.

Accipiter cooperi (Cooper's Hawk) is a swift, low flying raptor which is characterized by its round tipped, barred tail. Although this hawk is cited federally as endangered, the evidence suggests that the Cooper's Hawk is an effective predator on small birds and mammals and may pose a threat to some of its prey species. The Cooper's Hawk may have been more extensively distributed in the lower San Joaquin Valley than it is presently. It nests in trees and preys upon small birds in broken woodlands such as those that exist along the lower Kern River Corridor. Loss of riparian woodlands throughout the San Joaquin Valley has contributed to a significant reduction in the Cooper's Hawk population.

Haliaetus leucocephalus (Southern Bald Eagle) reaches the southern end of its distribution in Kern County. This fishing eagle requires large rivers and lakes within its foraging range. The recent reduction in the population of the Southern Bald Eagle is attributed to several causes. Most significant among these is the cumulative effect of exposure to chlorinated hydrocarbon insecticides, illegal shooting by farmers and ranchers, and habitat loss. This habitat loss in the San Joaquin Valley is attributed to the strict channelization of perennial waterways and the reclamation of the broad freshwater marsh lands of the Kern, Tulare, and Buena Vista Lake Basins.

Reach I and II were reviewed during early September 1985. The channel and both the north and south banks were reviewed. A summary of the condition of the vegetation and wildlife habitat found in the area is provided below.

The area between the Manor Street Bridge and the Chester Avenue bridge shows significant development of riparian vegetation along the south bank. The main channel is diverted somewhat to the north immediately down stream from the Manor Street Bridge by a well developed island which is densely covered by willows (Salix sp.). In areas where the river flows are slowest, a small segment of freshwater marsh is developing. Several clumps of Scirpus acutus (Common Tule) and Typha domingensis (Cattails) were observed in the slow moving side channels. Further from the bank are mature shrubs of Atriplex lentiformis (Quailbush) and Cephalamphas occidentalis var. californicus (Buttonwillow). Cut banks, where the channel flows were greater supported several common streambank herbs (Artemisia douglasiana, Eleocharis macrostachya, Rumex violascens, Polygonum coccineum, and Xanthium spinosum).

Wildlife in this area was abundant. The following species were specifically observed in this area:

Belted Kingfisher	Megaceryle alcyon
Western Kingbird	Tyrannus verticalis
House Finch	Carpodacus mexicanus
Fox Sparrow	Passerella iliaca
American Coot	Fulica americana
Marsh Hawk	Circus cyaneus
Great Blue Heron	Ardea herodius

Black-crowned Night Heron	Nycticorax nycticorax
Red-winged Blackbird	Agelaius phoeniceus
Bullfrog	Rana cetesbeiana
Western Toad	Bufo boreas

In addition to those wildlife observed in the area, tracks, burrows, and scat, suggest the presence of many small mammals and birds.

Downstream from the Chester Avenue Bridge to the Highway 99 crossing the Kern River is significantly channelized by parallel canal levees. Limited vegetation is found along the banks. The limited vegetation, strong channel control, and extensive urban development adjacent to the river reduces the available wildlife habitat.

Commencing at the Highway 99 Bridge, the Kern River channel broadens and the riparian vegetation along its banks and in the channel are again better developed. Remnants of a once extensive riparian forest are seen from the old archery club facility down to the City of Bakersfield Water facility north of the Truxtun Avenue Extension. Some attempts are being made in this stretch of the channel to reestablish individuals of Platanus racemosa and Populus fremontii which may have formed a historical riparian woodland in this area.

Riparian vegetation within the actual channel is developing rapidly in the area immediately upstream from the Coffee Road Bridge and continues for several hundred feet upstream. In this area several islands are vegetated by a mixture of species typical of the Streambank and Freshwater Marsh Associations. Dense groups of Salix sp. have stabilized portions of these islands in many places. Most other vegetation is herbaceous.

The remaining portion of Reach I which lies downstream from the Coffee Road Bridge to approximately three thousand feet below the Stockdale Bridge shows significant development of riparian vegetation habitat, not only in the river channel, but also adjacent on the floodplain terraces. Substantial Riparian Streambank and Freshwater Marsh vegetation is well developed upstream from the Bellevue Weir. A second significant development of the Streambank and Freshwater Marsh Associations exists within the river channel immediately north of the entrance to California State University Bakersfield. These two areas are characterized by the early stabilization of islands and banks by Salix sp. and Populus fremontii. Such shrubs as Cephalanthus occidentalis Baccharis viminea, Atriplex lentiformis and Aapplopappus sp. also contribute to the significant development of this riparian vegetation.

Downstream from the Stockdale Highway Bridge, the vegetation shows a better development of the Saltbush scrub vegetation type and the Lower Sonoran Grassland Associations. This area also shows the upstream limit of the development of Mesquite Savannah.

Wildlife populations in the lower part of Reach I are well established and diverse. Two of the sensitive species described in

Section 2.2 were observed in the area south of the Kern River channel near the entrance to California State College at Bakersfield. Two San Joaquin Kit Foxes were seen during nocturnal spotlighting and three Burrowing Owls were observed in the same area during the daylight field analysis. Since this area was reviewed in the past and good descriptions of the existing wildlife communities exist, no further census was made during this analysis. It can be assumed that the wildlife community is typical and that those species listed in Appendix B occur in the area.

Reach II begins at mile point 110 and continues down stream to the Interstate 5. This portion of the Kern River channel lies within the City of Bakersfield's Groundwater Recharge facility. All four of the common valley vegetation associations are present in this area. Over the past years the City of Bakersfield, in establishing a ground water recharge facility, has created a series of dikes and impoundment structures which have begun to modify the vegetation characteristics. The Mesquite Savannah which was once commonly spread on the flood plain terraces between various channels and sloughs is being replaced by much thicker growth of Salix sp. Atriplex lentiformis, Baccharis viminea and various herbs common to the Streambank and Freshwater Marsh Associations (e.g. Artemisia douglasiana Elymus triticoides, Heterotheca grandiflora, Polygonum coccineum, Xanthium strumarium, and Rumex salicifolius).

Wildlife populations in Reach II are diverse and species typical of each of the four vegetation associations are anticipated to be present. Since significant wildlife data exists for this area no attempt was made to survey the various vegetation types present. Appendix B lists those species typical of the habitats present as reported by these previous studies. However, given the number of historical sighting of San Joaquin Kit Foxes in the area, nocturnal spotlighting was conducted to establish the present relative abundance of foxes over the proposed project and surrounding areas.

The spotlighting failed to locate any foxes in the proposed project area or immediately adjacent. Given the historical occurences known in the area, this data was surprising. Two possible explanations are the limited ability of spot lights to penetrate the developing dense shrub thickets and the habitat conversion referred to above may be less favorable to foxes who prefer more open habitats.

CHAPTER 3: ANALYSIS OF PROJECT IMPACTS

Implementation of the proposed project will result in a significant loss of existing riparian vegetation and habitat within and adjacent to the Kern River channel. Statewide loss of riparian vegetation has reached a critical limit. It is estimated that of the historical 775,000 acres of riparian vegetation present in the valley portions of California in 1848, only 12,000 acres remain today. The remaining acreage has been variously disturbed by wood cutting, river channelization and other types of urban and agricultural developments.

Riparian vegetation as such is a complex system where several major subunits provide a broader variety of habitats, and support more diverse wildlife communities than any other habitat type in California.

Concern for the preservation of riparian vegetation as well as a better understanding of the community dynamics of riparian habitats throughout California has been the subject of two recent symposia (1976 & 1981) held at the University of California at Davis. It is generally accepted that no other natural landscape in California has been so significantly altered (Bakker, 1977). Ernest Twisslemann, long recognized as a leading authority on southern San Joaquin Valley native flora has indicated an urgent need exists to conserve and preserve bottom land riparian habitats. Indeed the California Critical Areas Program developed by the Nature Conservancy to preserve representative examples of threatened ecosystems has specifically recommended the inclusion of riparian woodlands in the eleven most critical habitats to be preserved.

It is estimated by using plans and profiles for the proposed project, along with field checks and analysis, that approximately 144 acres of well developed riparian vegetation will be removed when the proposed project is completed. Approximately 110 acres will be removed in Reach I and approximately 34 acres will be removed in Reach II.

Significant riparian vegetation for the purposes of this analysis was determined to be those areas where vegetation cover by the various vegetation associations identified to exist within the floodway, and requiring this proximity to the Kern River for development, was approximately 50% or more. Therefore, these figures do not consider the loss of individual trees or shrubs that may exist within the excavation limits.

It should be noted that the significant impact to existing riparian vegetation is not distributed evenly throughout the proposed project area. Implementation of the proposed project in that portion of Reach I downstream from the Chester Avenue Bridge to approximately that point in the channel immediately north of the Mohawk Street/Truxtun Extension intersection would not result in a significant loss of existing riparian vegetation. However, maintaining a vegetation free channel may limit the development of an aquatic ecosystem at such times as continuous flows occur. The loss of diversity of cover and substrate for attachment of benthic aquatic organisms may limit the development of river fisheries.

The significance of the impact to the potential development of an aquatic ecosystem in this portion of the Kern River is difficult to assess. During periods of sustained flows the impact may be significant. Conversely, without sustained flows neither significant aquatic ecosystems or fisheries will develop, therefore vegetation removal from the channel may not signficantly impact their development.

Concomittant with the significant loss of riparian vegetation associated with the proposed project is the significant loss of wildlife habitat. As noted in Section 2.2, several rare and/or endangered species are known to occur in this area, therefore, this loss of suitable habitat will significantly impact these species.

In addition to impacts directly associated with vegetation removal, project implementation will contribute to a significant cumulative impact as a result of past development projects, habitat conversion in the City of Bakersfield's groundwater recharge facility, and approval for the development of a golf course currently proposed for the area north of California State College at Bakersfield. Significant concern exists for the continued loss of savannah type habitats as a result of these projects. In particular, the Mesquite Savannah will be subject to significant cumulative impact. Much of the extensive Mesquite Savannah that existed in the floodway of the lower Kern River is being converted to Freshwater Marsh or Streambank vegetation types as a result of periodic water impoundment in the City of Bakersfield Groundwater Recharge Facility. The proposed project will result in the further loss of the vegetation type in the area of Reach I below the Stockdale Highway Bridge and at various points of channel realignment in Reach II.

Not only has this vegetation type been recognized by both the California Natural Diversity Data Base and the Nature Conservancy as the most threatened Southern San Joaquin Valley plant association, but the Mesquite Savannah also provides suitable habitat for several of the rare and endangered species discussed in Section 2.2 which prefer grassland valley habitats rather than woodland habitats (e.g. San Joaquin Kit Fox, Blunt-nosed Leopard Lizard, Nelson's Antelope Ground Squirrel, Burrowing Owl, and Giant Kangaroo Rat).

3. Comprehensive Habitat Rehabilitation Program; Offsite Alternative: Significant areas along the Kern River Corridor are in need of habitat rehabilitation or improvement. Significant past impacts have resulted from off-road vehicle use and other unauthorized uses. A program to reestablish riparian vegetation in areas where the habitat has been significantly degraded as a result of other activity or in areas of signficant aesthetic or community benefit (along the Kern River Bike Path or major roadway viewsheds) could be developed and implemented with these objectives to reduce significant impacts to flora and fauna associated with the channel maintenance program. Such a program might include tree and shrub plantings, the reintroduction of endangered species (e.i. Circisum crassicaule) into areas of suitable habitat, and development of community awareness by contributing lands for a riparian studies program in cooperation with local colleges and school districts.

These mitigation alternatives either separately or combined may mitigate the potential signficant impacts to flora and fauna associated with the proposed project. However, mitigation efforts need not be restricted to the above measures. Rather these three alternatives may act as guidelines or models for others. Mitigation plans are suggested here for consideration by the lead agency, should it elect to mitigate the significant impacts associated with the proposed project

CHAPTER 5: SUMMARY

The Kern River Channel Maintenance Program proposes the removal of 1.2 million cubic yards of sand from the Kern River Channel. Included in the program are certain channel realigments. Implementation of the program is proposed to be on an as needed basis and subject to local development demands for fill material.

Native vegetation and many of the wildlife species common to those habitats have been dramatically reduced through conversion of the natural landscape to irrigated agricultural land or urban development. Presently several species of plants and wildlife are listed by either state or federal natural resource management agencies as rare or endangered. In addition, riparian woodlands and mesquite savannah vegetation types are considered critically threatened by continued development in the San Joaquin Valley.

The proposed project vicinity contains four major vegetation associations: Streambank Association, Freshwater Marsh Association, Lower Sonoran Grassland Association, and Alkali Sink Association. In addition, the project area contains some of the few remaining acres of Mesquite Savannah vegetation type left in the Southern San Joaquin Valley. These associations provide suitable habitat for several rare and endangered wildlife species. Two of these species, the San Joaquin Kit Fox and the Burrowing Owl, were observed in the vicinity of the proposed project.

Implementation of the channel maintenance program will result in the loss of approximately 144 acres of riparian vegetation and the habitat it provides to wildlife including those species considered rare or endangered which may utilize such habitats. In addition to direct project related impacts, the proposed program will contribute to the cumulative impact and loss of Mesquite Savannah.

The Kern River Channel Maintenance program is designed to protect the community from flood innundation during a 100 year storm flow of 15,000 cubic feet per second. The lead agency need not mitigate significant impacts if it makes the necessary findings of overriding social and economic concerns. However, in the event the City of Bakersfield chooses to mitigate the potentially significant impacts to flora and fauna as a result of this project it may elect to consider either separately or collectively (1) reviewing vegetal cover which could possibly be saved by alignment corrections; (2) prepare and implement a comprehensive onsite habitat rehabilitation plan; or (3) prepare and implement on offsite riparian habitat rehabilitation program, concentrating ts improvements in areas of specific public concern.

The above mitigation alternatives may not be the only viable choices, they do however, explore three functional mitigation strategies.

APPENDIX A

Common or Sensitive Vascular Plant Species of the Lower Kern River Corridor

Abronia pogonantha
Achillea gigantea
Allenrolfea occidentalis
Allium howellii
A. peninsulare
Amsinckia intermedia
Ascelopias erosa
Aster intricatus
Astragalus didymocarpus
A. hornii
A. lentiginosus var. nigricalycis
A. oxyphysus
Atriplex coronata
A. fruticosa
A. lentiformis
A. polycarpa
A. rosea
A. spinifera
A. tularensis*
A. vallicola*
Avena barbata

Brodiaea coronaria var. kernensis
B. elegans
B. pulchella
Bromus mollis
B. rubens

Calandrinia ciliata var. menziesii
Calochortus venustus
Camissonia campestris
Caulanthus californicus
C. coulteri
C. inflatus
C. lemmonii
Chaenactis fremontii
C. glabriscula
Chorizanthe uniaristata
Cirsium crassicaule*
Collinsia bartsiaefolia
Coreopsis calliopsidea

Dephinium gypsophilum
D. recurvatum
Distichilis spicata

*Cited as rare and endangered by the California Native Plant Society.

Eastwoodsia elegans
Encelia virginensis ssp. actoni
Ephedra californica
Eremalache parryi
Eriogonum baileyi
E. fasciculatum ssp. polifolium
E. gossypium*
E. gracillium
E. temblorensis
Erodium cicutarium
Eschscholzia californica
E. caespitosa ssp. kernensis
E. lemmonii
E. minutiflora
Euphorbia occellata

Festuca megalura
F. microstachys var. simulans
F. reflexa
F. pacifica

Gilia tricolor ssp. diffusa
Gatierrezia bracteata

Haplopappus acradenius ssp. bracteosus
H. linearifolius
Hemizonia heermanii
H. pallida
H. pungens
Heliotropium curassavicum var. oculatum
Hordeum curassavicum
Hordeum glaucum

Isomeris arborea var. globosa

Juncus balticus

Lasthenia californica
L. crysostoma
L. debilis
L. ferrisae
L. fremontii
L. minor
Layia munzi
L. pentachaeta ssp. albida
Lepidium dictyotum
Lessingia nemaclada var. albiflora
Linanthus dichotomus
Loeflingia squarrosa
Lotus subpinnatus
Lupinus bicolor
L. densiflora
L. horizontalis
L. nanus var. menkerae

*Cited as rare and endangered by the California Native Plant Society.

L. subvexus
L. succulentus

Malacothrix coulteri
M. glabrata
Malva parviflora
Mentzelia pectinata
Mirabilis laevis
Monolopia lanceolata
M. stricta
Muilla maritime

Nemophila menziesii
Nicotiana bigelorii

Opuntia treleasei*
Orthocarpus attenuatus
O. erianthus
O. purpurascens

Pectocarya penicillata
Phacelia ciliata
P. distans
P. tanacetifolia
Plagiobothrys arizonicus
P. canescens
Platystemon californicus
Poa scabrella
Polygonum coccinem
Populus fremontii
Prosopis juliflora var. Torreyana
Puccinellia simplex

Rorippa islandica var. occidentalis
Rumey violascens

Salix gooddingii
Salsola kali var. tenuifolia
Salvia carduacea
S. colombariae
Schismus arabicus
Scirpus acutus
Sida hederacea
Spergularia atrosperma
Spirodella polyrhiza
Sporogolus airoides
Stephanomeria pauciflora
S. vigata
Streptanthus californica
Stylomecon heterophylla var. micropetala
Suaeda fruticosa

Tillaea erecta
Trichostema Tanceolatum

*Cited as rare and endangered by the California Native Plant Society.

T. ovatum
Typha domingensis

Xanthium spinosum

*Cited as rare and endangered by the California Native Plant Society.

APPENDIX B

Common or Sensitive Fauna Found Along the Lower Kern River Corridor

Scientific Name	Common Name
MAMMALS	
Ondatra zibethica	Muskrat
Microtis californicus	Meadow Mouse
Mus musculus	House Mouse
Taxidea taxus	Badger
Canis latrans	Coyote
Vulpes macrotis ssp. *mutica*	* San Joaquin Kit Fox
Sylvilaqus audubonii	Desert Cottontail
Lepus californicus	Jackrabbit
Dipodomys ingens	* Giant Kangaroo Rat
Dipodomys nitrafoides	San Joaquin Kangaroo Rat
Ammospermophilus nelsoni	* Antelope Ground Squirrel
Citellus beecheyi	California Ground Squirrel
Mustela frenata	Long-tailed Weasel
Perognathus inornatus	Pocket Mouse
Peromyscus maniculatus	White-footed Mouse
Thomomys bottae	Pocket Gopher
Didelphis marsopialis	Opossum
Scapanus latimanus	California Mole
Mephitis mephitis	Striped Skunk
Myotis californicus	California Myotis Bat
Neotoma lepida	Desert Wood Rat
Procyon lotor	Raccoon
Sorex vagrans	Shrew
Reithrodontomys megalotis	Western Harvest Mouse
Pipistrellus hesperas	Western Pipistrelle Bat

*Denotes Federal or State listed rare or endangered species.

Scientific Name	Common Name
BIRDS	
Hirundo rustica	Barn Swallow
Vireo bellii	Bell's Vireo
Pheocticus melanocephalus	Black-headed Grossbeak
Archilochus alexandri	Black-chinned Hummingbird
Pipilo fuscus	Brown Towhee
Euphagus cyanocephalus	Brewsers Blackbird
Athene cunicularia	* Burrowing Owl
Lophortyx californicus	California Quail
Petrochelidon pyrrhonota	Cliff Swallow
Corvus caurinus	Crow
Eremophila alpestris	Horned Lark
Carposocus mexicanus	House Finch
Charadrius vociferus	Killdeer
Lanius ludovicianus	Loggerheaded Shrike
Mimus polyglottos	Mockingbird
Zenaidura macroura	Mourning Dove
Haliaetus leucocephalus	* Southern Bald Eagle
Falco mexicanus	Prairie Falcon
Carpodacus purpureus	Purple Finch
Corvus corax	Raven
Buteo jamaicensis	Red-tailed Hawk
Accipiter cooperi	* Cooper's Hawk
Geococcyx californianus	Roadrunner
Pipio erythrophthalmus	Rufus-sided Towhee
Sayornis saya	Says Phoebe
Aphelocoma coerulescens	Scrub Jay
Sturnvs vulgaris	Starling
Carthartes aura	Turkey Vulture
Tyrannus verticalis	Western Kingbird
Sturnella neglecta	Western Meadow Lark
Zonotrichia leucophyrys	White Crowned Sparrow
Elanus leucurus	White-tailed Kite
Nycticorax nycticorax	Black-crowned Night Heron
Botaurus lentiginosus	American Bittern
Fulica americana	American Coot or Mudhen
Oxyura jamaicensis	Ruddy Duck
Anas cyanoptera	Cinnamon Teal
Circus cyaneus	Marsh Hawk
Falco sparverius	Sparrow Hawk
Tyto alba	Barn Owl
Gymnogyps californicus	* California Condor
Recurvirostra americana	American Avocet
Himantopus mexicanus	Black-necked Stilt
Telmatodytes palustris	Long-billed Marsh Wren
Agelaius phoenicius	Red-winged Blackbird
Amphispiza belli	Sage Sparrow

*Denotes Federal or State listed rare or endangered species.

Scientific Name	Common Name
REPTILES	
Gambelia silus	* Blunt-nosed Leopard Lizard
Sceloporus occidentalis	Western Fence Lizard
Uta stansburiana	Side-blotched Lizard
Chemidophorus tigris	Western Whiptail Lizard
Gerrhonotus multicarinatus	Southern Alligator Lizard
Pituophis melanoleucus	Gopher Snake
Lampropeltus getulus	King Snake
Coluber constrictor	Racer
Crotalus viridis	Pacific Rattlesnake
Cnemidophorus tigris	California Whiptail Lizard
Phrynosoma coronatum	Horned Lizard
Masticophis lateralis	California Rcer
Rhinocheilus leconti	Long-nosed Snake
Crotalus atrox	Western Rattlesnake
Pituophis melanoleucus	Gophersnake or Bullsnake
Masticophis flagellum	San Joaquin Whipsnake
AMPHIBIANS	
Scaphiopus hammondi	Spadefoot Toad
Bufo boreus	Western Toad
Rana catesbeiana	Bullfrog

*Denotes Federal or State listed rare or endangered species.

APPENDIX C

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APPENDIX F

ARCHAEOLOGICAL RECORDS SEARCH

California Archaeological Inventory

Information Center Kern Tulare

Bakersfield College
1801 Panorama Dri
Bakersfield, CA 93
(805) 395-4391

ARCHAEOLOGICAL RECORDS SEARCH

Project: Kern River Channel Maintenance Program

Location: T. _____ **R.** _____ **Sections:** _____

U.S.G.S. Quads.: Gosford, Stevens, Oildale, Oil Center

Requested by: Quad Consultants
P.O.Box 3699
Visalia, Calif. 93278 **Phone** 209-733-0440

Environmental Setting:
X **Valley Floor** ____ **Foothills** ____ **Mountains** ____ **Desert** ____ **Other**

Previous Studies: There are three studies, Wallace, William 1971- Arch. Investigation at Buttonwillow Water Management Project. Lewis, Schiffman 1980- Arch. Investigation for Wattenberger/Gannon EIR. Schiffman, R.A. 1980- Arch. Investigation of Proposed Industrial Park.

Recorded Archaeological Sites: None within project boundary, however there is a recorded site one mile east of Manor Street. This site consist of lithic scatter and handtools.

Archaeological Sensitivity: ____ **High** x **Moderate** x **Low**

Reason: Due to known sites along the Kern River.

The Following Actions Are Recommended:

____ **No additional action is necessary unless cultural materials are located during any construction or development of area.**

XX **Whether or not an EIR is required, a field survey is required to determine if any cultural resources are present.**

Additional Comments and Recommendations: As there are known recorded sites along the river it is advised that a survey be recommended for, selected areas on and within project boundary that have not been studied and before they are impacted.

Robert A. Schiffman, Coordinator
South Central Information Center

By: Evelyn Brown
Title: Staff Assistant

Date: 9-18-85

APPENDIX G

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REFERENCES

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