Meeting of the Central Valley Flood Protection Board
August 24, 2012

Staff Report – Encroachment Permit

Chevron North America
Pipe Bridge, Kern County

1.0 – ITEM

Consider approval of Permit No. 18772 (Attachment B)

2.0 – APPLICANT

Chevron North America

3.0 – LOCATION

The project is located on the Kern River
(Kern River Designated Floodway, Kern County, see Attachment A)

4.0 – DESCRIPTION

Applicant proposes to construct a new pipe bridge containing six 10-inch pipelines spanning the Kern River, which would accommodate production handing and steam distribution pipelines.

5.0 – PROJECT ANALYSIS

It has been determined that two 48-inch-diameter, concrete with reinforcing steel supports (piers) would be required at each bridge abutment to sufficiently support the pipe bridge. The piers are projected to be 50 feet long, with approximately 45 feet being buried below the top of bank on the north and south sides of the Kern River.

Cast-in drilled-hole (CIDH) piers have been selected as the most appropriate method of pier construction for supporting the pipe bridge.

5.1 – Hydraulic Analysis

The FEMA has delineated the flood flow rate for the Kern River in this area at 10,200 cubic feet per second (cfs). However, the State of California Department of Water Resources Division of Flood Management uses a higher flood flow rate of 15,000 cfs in the same area. This higher flow rate was used to determine the maximum water surface elevation at the proposed bridge site. Both the FEMA and Water Resources Division of Flood Management flow rates were run in the preliminary model.

The preliminary (river hydraulics) model run indicated the maximum water surface elevation in the river at the bridge site would be approximately 444.1 feet (based upon the 15,000 cfs flood flow rate). For preliminary design, the bottom chord of the bridge was set at elevation n 447.1 msl, which results in three feet of clearance between the maximum probable water surface elevation and the bottom of the bridge.

5.2 – Geotechnical Analysis

The natural surface materials at the site are mapped as river sediments with a geologic age of Holocene. The profile depicted by the test borings of these river sediments overlying older (possibly Pleistocene Age) alluvial sediments, which are underlain by the Miocene Age Round Mountain Formation.

The more recent river sediments extended to about elevation 423 (depth of 17 to 19 feet) and were comprised of a surface horizon of slightly silty sand overlying relatively clean sand. The recent river sediments contain varying amounts of gravel and some scattered cobbles (estimated at diameters less than 6 inches).

Apparently older alluvial sediments were encountered between about elevation 423 and 401. These sediments consisted of fine to coarse relatively clean sand with gravel and scattered cobbles. The lower alluvial material had relative generally greater than 95%.

Below elevation 406 to 401, the earth material consisted of sandy siltstone and silty sandstone of the Round Mountain Formation. This material was dense to very dense, but easily excavated by the drill rig.

5.3 – Additional Staff Analysis

The simplified scour elevation estimated a design scour elevation of 423 feet. This design would be consistent with an intuitive scour elevation based on earth material encountered. The gravels below elevation423 to 421 feet would be resistant to the anticipated flood velocities. The gravels and cobbles in the river bank sediments above about elevation 430 would begin to develop a natural 1 to 2 foot thick armoring layer, as these heavier particles drop out of scoured sediment.

The simplified evaluation indicates lateral scour under the 100-year flood could cause bank erosion to a distance of about 40 feet north and south of the present channel. The bridge design has taken into account the potential maximum scour.

Based on the ground shaking which may be expected at this site, and the average relative density, soil type, and geologic age of the sediments, analysis utilizing Youd (2001) indicates liquefaction is unlikely in the saturated sediments. Random zones may exist between about elevation 423 and 432 which could experience seismically induced settlement. The analysis indicates the accumulative4 seismically induced settlement would range from about 0.4 to 1.7 inches. These susceptible zones are above the potential 100 year flood scour elevation. As such they will have no impact on design.

6.0 – AGENCY COMMENTS AND ENDORSEMENTS

The comments and endorsements associated with this project, from all pertinent agencies are shown below:

- There is no Local Maintaining Agency for the Kern River Designated Floodway
- The U.S. Army Corps of Engineers 208.10 comment letter has been received for this application. The USACE District Engineer has no objection to the project, subject to conditions. The letter is incorporated into the permit as Exhibit A.

7.0 – CEQA ANALYSIS

Board staff has prepared the following California Environmental Quality Act (CEQA) determination:

The Board has determined that the project is categorically exempt from CEQA under a Class 3 Categorical Exemption (CEQA Guidelines Section 15303) covering new construction of structures.

8.0 – SECTION 8610.5 CONSIDERATIONS

1. Evidence that the Board admits into its record from any party, State or local public agency, or nongovernmental organization with expertise in flood or flood plain management:

   The Board will make its decision based on the evidence in the permit application and attachments, this staff report, and any other evidence presented by any individual or group.

2. The best available science that related to the scientific issues presented by the executive officer, legal counsel, the Department or other parties that raise credible scientific issues.

   The accepted industry standards for the work proposed under this permit as regulated by Title 23 have been applied to the review of this permit.

3. Effects of the decision on the facilities of the State Plan of Flood Control, and consistency of the proposed project with the Central Valley Flood Control Plan as adopted by the Board Resolution 2012-25 on June 29, 2012.

   The project has no adverse effect on facilities of the State Plan of Flood Control and is consistent with the Central Valley Flood Protection Plan.

4. Effects of reasonable projected future events, including, but not limited to, changes in hydrology, climate, and development within the applicable watershed:

   There should be no effects to the proposed project by any reasonable projected future events.

9.0 – STAFF RECOMMENDATION

Staff recommends that the Board find the project exempt from CEQA, approve the permit, and direct staff to file a Notice of Exemption with the State Clearinghouse.

10.0 – LIST OF ATTACHMENTS

A. Location Maps and Photos
B. Draft Permit No. 18772
C. Project Drawings

Design Review:	Steve Dawson
Hydraulic Review:	Steve Dawson
Geotechnical Review:	Steve Dawson
Environmental Review:	James Herota/Andrea Mauro
Document Review:	Mitra Emami P.E./Len Marino P.E.

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CHEVRON

New Kern River Pipe Bridge
Site Vicinity Map

PROJECT LOCATION

Quad Knopf

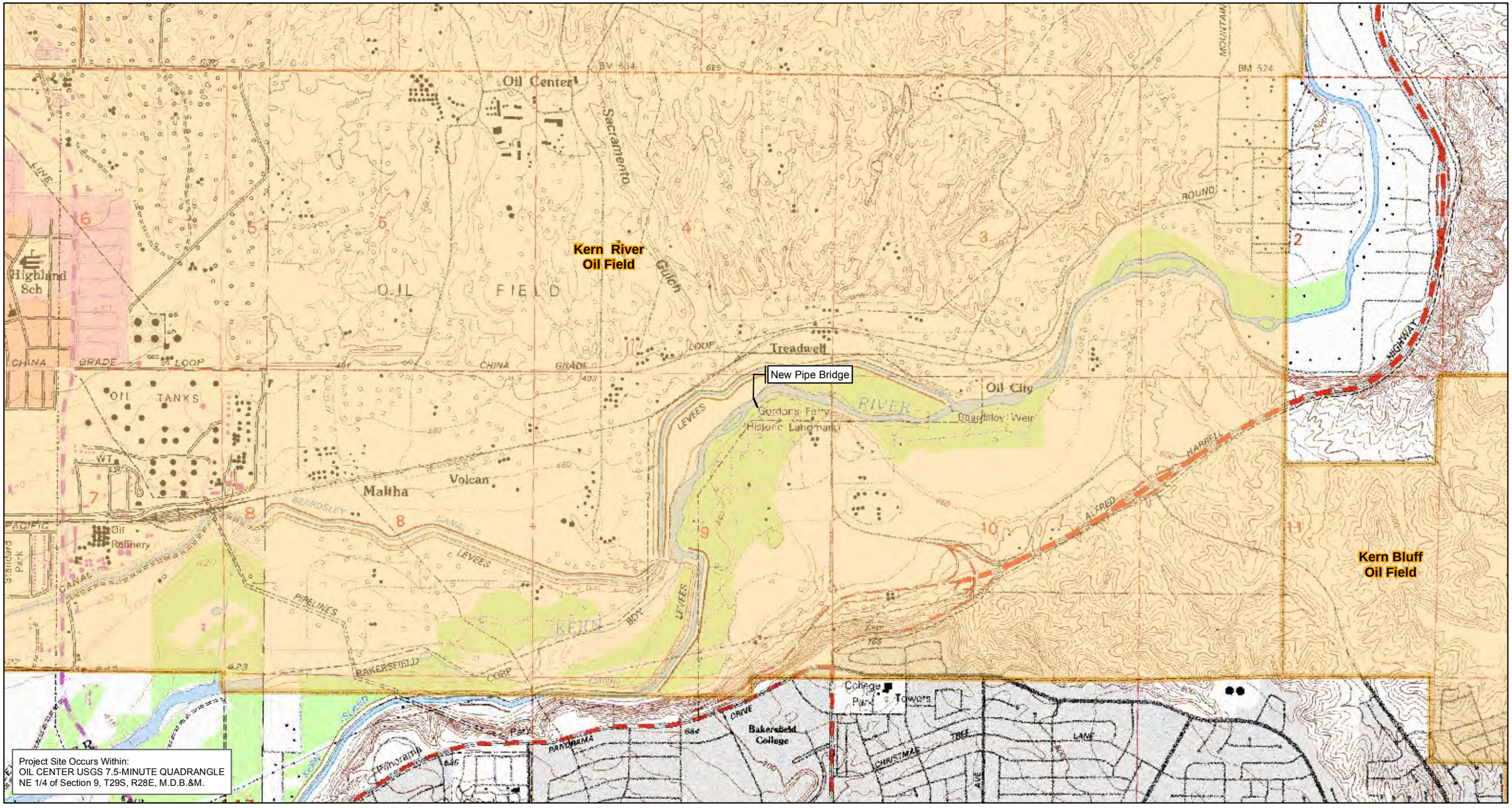
FIGURE 1

L:\Projects\2006\060150\2011 Projects\Phase 28\MAPS\MXD\Bridge_Fig1_Vicinity_081611.mxd

Source: Chevron/ESRI/County Of Kern

CHEVRON

New Kern River Pipe Bridge
USGS Topographic/DOGGR Administrative Boundary Map



0 900 1,800
Feet
1:20,000

DOGGR ADMINISTRATIVE BOUNDARY

Quad Knopf

FIGURE 2

L:\Projects\2006\060150\2011 Projects\Phase 28\MAPS\MXD\Bridge_Fig2_Topo_081611.mxd

Source: Chevron/USGS/DOGGR

Photo 1A: Overview of the project site on the north bank of the Kern River, facing northeast. Arrow indicates the approximate location of the northern bridge abutment. Picture taken on 8/11/2011.

Photo 1B: Project site on the north bank of the Kern River, facing southwest. Arrow indicates the approximate location of the northern bridge abutment. Drilling and setting of piers and bridge installation would occur in this area. Picture taken on 11/14/2011.

Photo 2A: Overview of the pipeline routing portion of the project site on the north bank of the Kern River, facing east-northeast. Arrow indicates the approximate location of the pipeline tie-in. Picture taken on 11/14/2011.

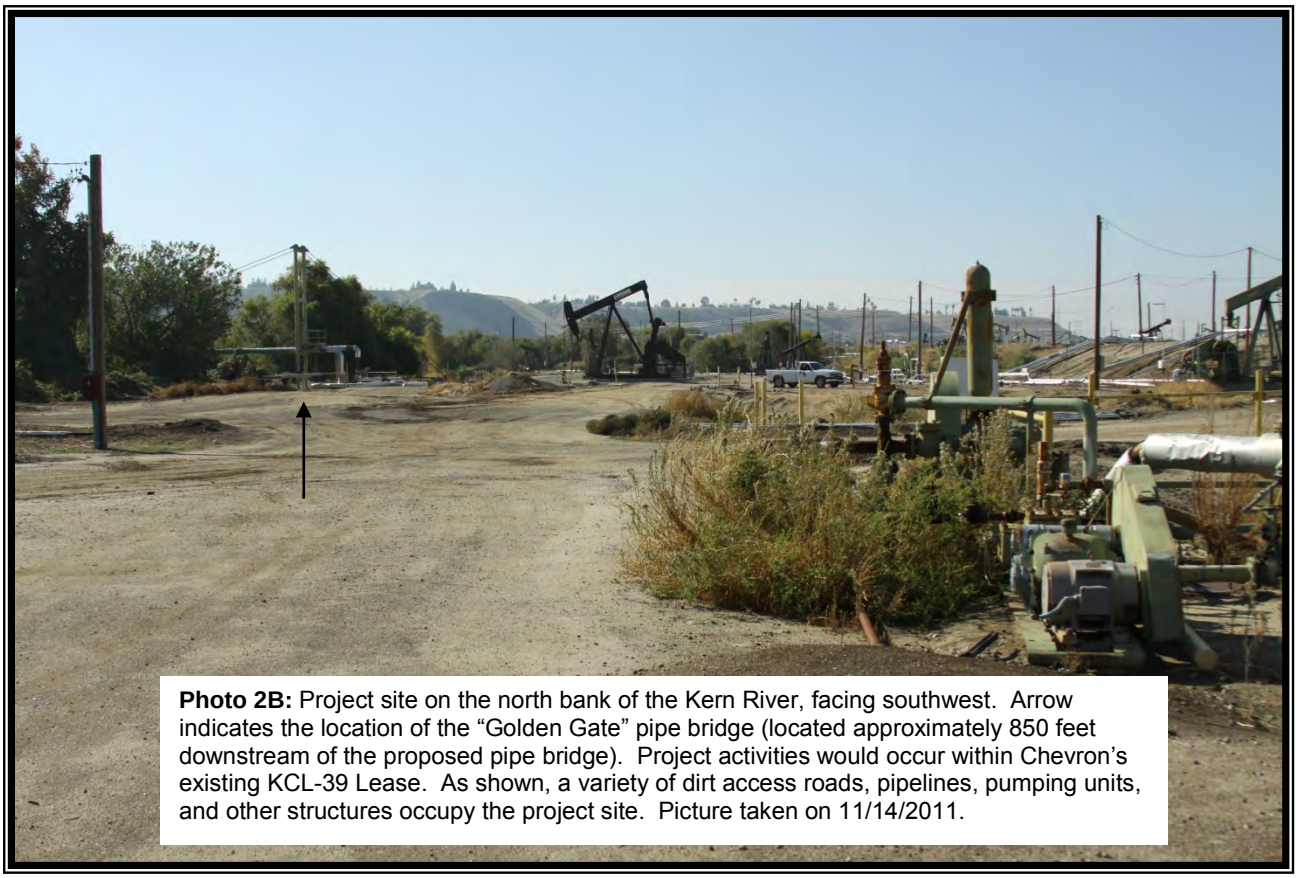


Photo 2B: Project site on the north bank of the Kern River, facing southwest. Arrow indicates the location of the "Golden Gate" pipe bridge (located approximately 850 feet downstream of the proposed pipe bridge). Project activities would occur within Chevron's existing KCL-39 Lease. As shown, a variety of dirt access roads, pipelines, pumping units, and other structures occupy the project site. Picture taken on 11/14/2011.

Photo 3A: Overview of the project site on the south bank of the Kern River, facing east-northeast. Arrow indicates the approximate location of the southern bridge abutment. Picture taken on 11/14/2011.

Photo 3B: Project site on the south bank of the Kern River, facing west-southwest. Arrow indicates the approximate location of the southern bridge abutment. Drilling and setting of piers and bridge installation would occur in this area. Picture taken on 11/14/2011.

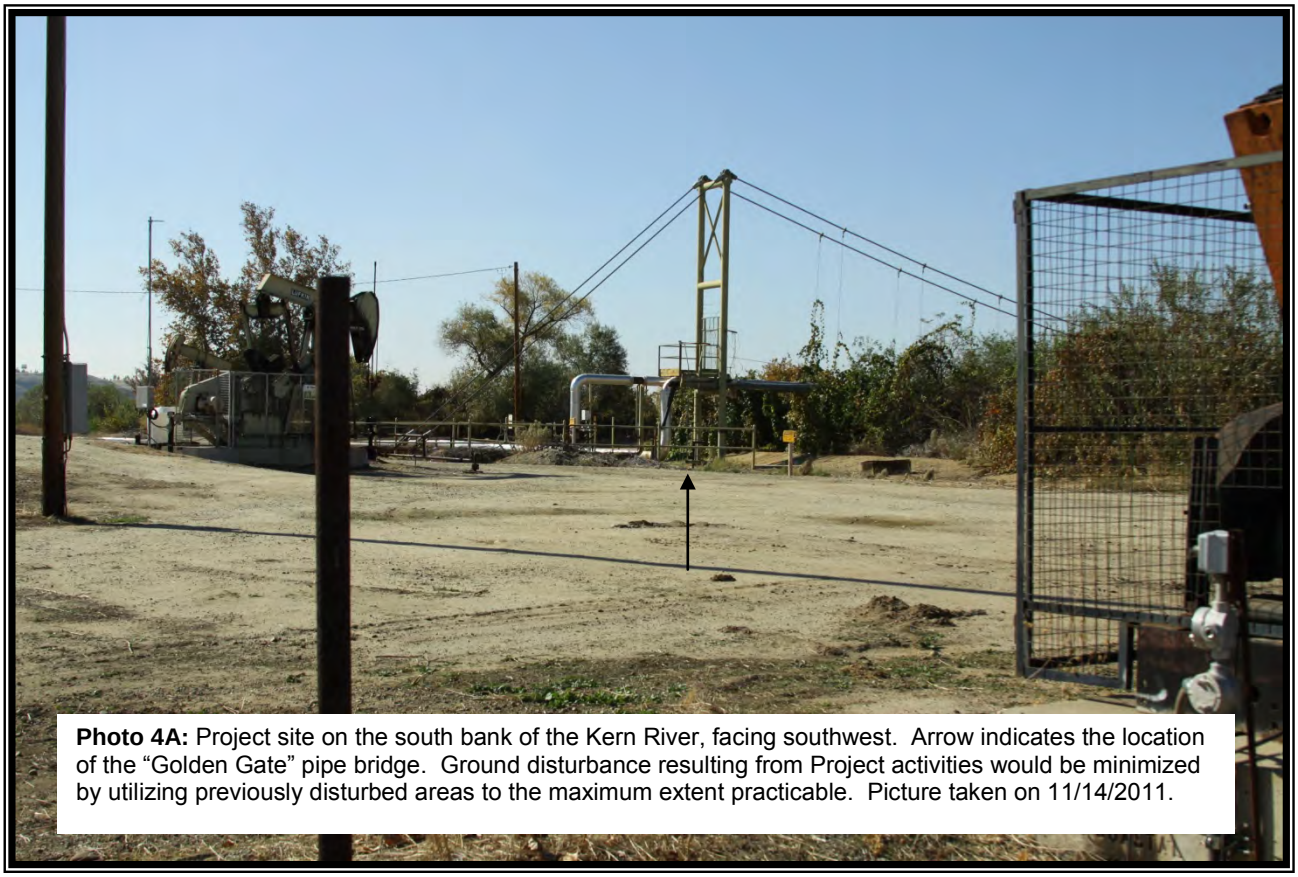


Photo 4A: Project site on the south bank of the Kern River, facing southwest. Arrow indicates the location of the "Golden Gate" pipe bridge. Ground disturbance resulting from Project activities would be minimized by utilizing previously disturbed areas to the maximum extent practicable. Picture taken on 11/14/2011.

Photo 4B: Overview of the pipeline routing portion of the project site on the south bank of the Kern River, facing east. As shown, pipelines are installed primarily above-grade on support structures consisting of concrete sleepers and/or steel supports within a common racking system. Picture taken on 11/14/2011.

Photo 1: Photo facing north from south side of river.

Photo 2: Photo facing northwest from the south bank of river.

Photo 1: Photo illustrates bank on the north end of proposed project area. Photo facing southwest.

Photo 2: Photo facing west, on the north bank of river at proposed project area.

Photo 1: Photo illustrates the south bank of proposed area. Photo taken from the north bank of proposed project area.

Photo 2: Photo depicts the southern bank of proposed project area.

Photo 1: Photo is facing north on the south end of proposed project area. Photo was taken on south side of the river bank.

Photo 2: Photo facing southwest taken from the north bank of proposed project area.

DRAFT

STATE OF CALIFORNIA
THE RESOURCES AGENCY

THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18772 BD

This Permit is issued to:

Chevron North America
1546 China Grade Loop, Room G-11
Bakersfield, California 93308

To construct a new pipe bridge containing six 10-inch pipelines spanning the Kern River, which would accommodate production handling and steam distribution pipelines. The project is located on the Kern River approximately 4.5 miles northeast of Bakersfield, in Kern County. (Section 9, T29S, R28E, MDB&M, Kern River, Kern County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: _____ _____
Executive Officer

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection Board.

SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15

days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 18772 BD

THIRTEEN: All work approved by this permit shall be in accordance with the submitted drawings and specifications except as modified by special permit conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval of the Central Valley Flood Protection Board.

FOURTEEN: The permittee shall maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of the Department of Water Resources or any other agency responsible for maintenance.

FIFTEEN: Upon receipt of a signed copy of the issued (not approved only) permit the permittee shall contact the Department of Water Resources by telephone, (916) 574-0609, and submit the enclosed postcard to schedule a preconstruction conference. Failure to do so at least 10 working days prior to start of work may result in delay of the project.

SIXTEEN: The Central Valley Flood Protection Board and Department of Water Resources shall not be held liable for any damages to the permitted encroachment(s) within the Kern River Designated Floodway resulting from flood fight, operation, maintenance, inspection, or emergency repair.

SEVENTEEN: The permittee may be required, at permittee's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted encroachment(s) if removal, alteration, relocation, or reconstruction is necessary as part of or in conjunction with any present or future flood control plan or project or if damaged by any cause. If the permittee does not comply, the Central Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

EIGHTEEN: The permittee should contact the U.S. Army Corps of Engineers, Sacramento District, Regulatory Branch, 1325 J Street, Sacramento, California 95814, telephone (916) 557-5250, as compliance with Section 10 of the Rivers and Harbors Act and/or Section 404 of the Clean Water Act may be required.

NINETEEN: The permittee shall be responsible for repair of any damages to the Kern River Designated Floodway and other flood control facilities due to construction, operation, or maintenance of the proposed project.

TWENTY: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California; including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

TWENTY-ONE: The permittee shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages related to the Central Valley Flood Protection Board's approval of this permit, including but not limited to claims filed pursuant to the California Environmental Quality Act. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

TWENTY-TWO: If the project, or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project under direction of the Central Valley Flood Protection Board and Department of Water Resources, at the permittee's or successor's cost and expense.

TWENTY-THREE: No construction work of any kind shall be done during the flood season from November 1 to July 15 without prior approval of the Central Valley Flood Protection Board.

TWENTY-FOUR: The Kern River Designated Floodway shall be restored to at least the condition that existed prior to commencement of work.

TWENTY-FIVE: All cleared trees and brush shall be completely burned or removed from the floodway, and downed trees or brush shall not remain in the floodway during the flood season from November 1 to July 15.

TWENTY-SIX: To allow passage of debris during periods of high water, the minimum bridge soffit elevation shall be 444.1 feet, NAV 88 Datum.

TWENTY-SEVEN: If erosion occurs adjacent to the permitted encroachment(s), the permittee shall repair the eroded areas and place adequate revetment on the affected areas to prevent further erosion.

TWENTY-EIGHT: Trees, brush, sediment, and other debris shall be kept cleared from the bridge site and disposed of outside the floodway to maintain the design flow capacity and flowage area.

TWENTY-NINE: If the bridge is damaged to the extent that it may impair the channel or floodway capacity, it shall be repaired or removed prior to the next flood season.

THIRTY: Any additional encroachment(s) in the Kern River Designated Floodway require an approved permit from the Central Valley Flood Protection Board and shall be in compliance with the Central Valley Flood Protection Board's regulations (Title 23 California Code of Regulations).

THIRTY-ONE: The letter from the Department of the Army dated July 26, 2012 is attached to this permit as Exhibit A in reference to this project.

Exhibit A

DEPARTMENT OF THE ARMY
U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

REPLY TO
ATTENTION OF

Flood Protection and Navigation Section (18772)

JUN 26 2012

Mr. Jay Punia, Executive Officer
Central Valley Flood Protection Board
3310 El Camino Avenue, Room 151
Sacramento, California 95821

Dear Mr. Punia:

We have reviewed a permit application by Chevron North America (application number 18772). This project includes constructing a new pipe bridge supporting six 10 inch pipelines spanning the Kern River. The project is located on the Kern River approximately 4.5 miles northeast of Bakersfield, CA, at 35.4256°N 118.9719°W NAD83, Kern County, California.

The proposed work does not affect a Federally constructed project, however, according to the Kern River Intertie Operation and Maintenance Manual, page 15, section 2, the capacity of the channels that existed prior to the construction of the Intertie Project is required for the Intertie project to function effectively. The channel capacity of the Kern River through Bakersfield is estimated at 8,000 cfs as shown in Table 1, Estimated Channel Capacities. This proposed project shall not affect the ability of the channel to pass the 8,000 cfs.

Based upon the information provided, no Section 10 or Section 404 permit is needed.

A copy of this letter is being furnished to Mr. Don Rasmussen, Chief, Flood Project Integrity and Inspection Branch, 3310 El Camino Avenue, Suite LL30, Sacramento, CA 95821.

Sincerely,

for Meegan G. Nagy, P.E.
Chief, Flood Protection and Navigation Section

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Attachment C

CHEVRON

New Kern River Pipe Bridge
Bridge Detail 1

0 45 90
Feet
1:1,000

48" PIER LOCATION (NOT TO SCALE)
PIPELINE ROUTING CONCEPT (APPROXIMATE)
PROJECT SITE (APPROXIMATE CONSTRUCTION FOOTPRINT)

Quad Knopf

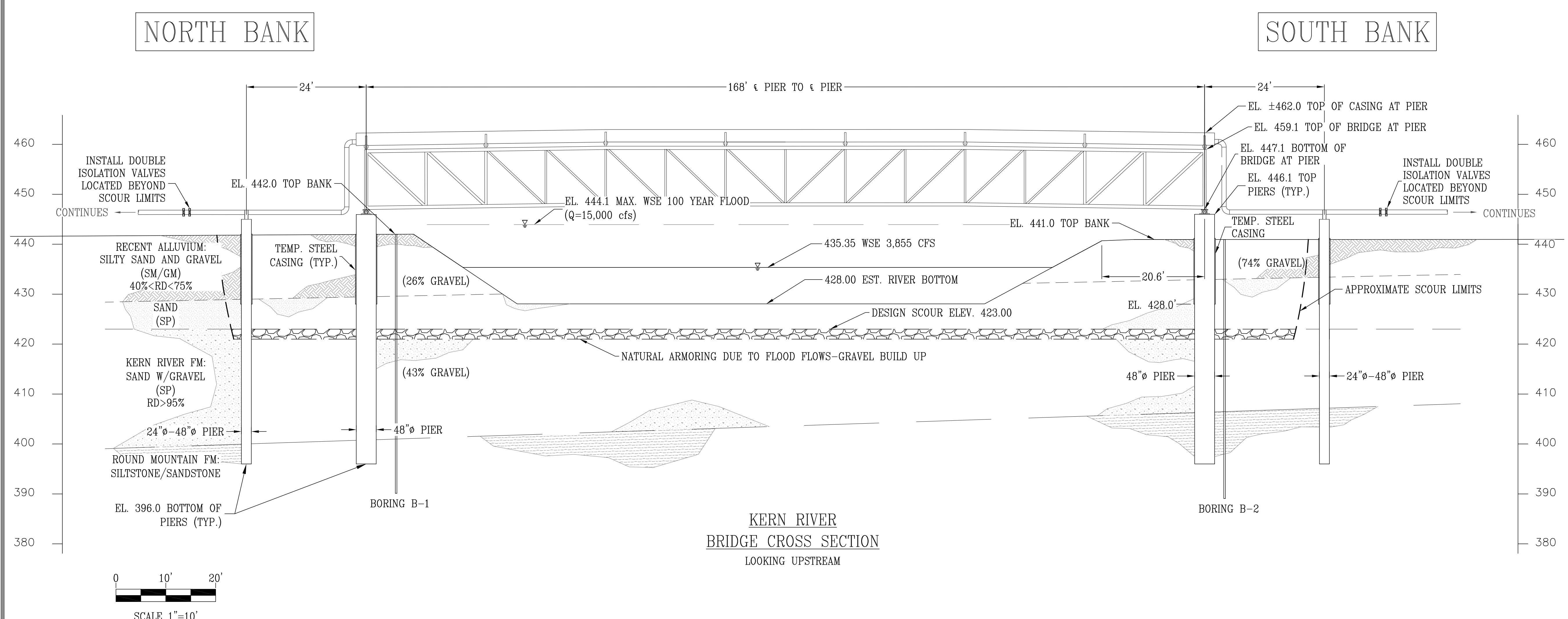
FIGURE 4A

L:\Projects\2006\060150\2011 Projects\Phase 28\MAPS\MXD\Bridge_Fig4A_Bridge_Detail_102811.mxd

Source: Chevron/County of Kern

Attachment C

REVISION	BY
12-12-11	DJ



KERN RIVER
BRIDGE CROSS SECTION
LOOKING UPSTREAM

BENCHMARK:
CHEVRON U.S.A. BRASS CAP SET IN CONCRETE PM-2, 1417.08 FEET NORTH AND 82.12 FEET WEST OF CENTER OF SECTION 7, T.29S.,R.28E., M.D.B.&M. ELEV. 478.89' (479.81' NAVD 88)

Revision 1:
Revised bottom of bridge elevation from 444.0 to 444.1 feet (local datum) to ensure three feet of clearance for bottom chord of bridge.

DEE JASPAR & ASSOCIATES, INC.
CIVIL • ENGINEERS
881 WEST MORTON AVENUE
PORTERVILLE, CALIFORNIA 93257
PHONE 559 781-0102
FAX 559 781-6840
3701 PEGASUS DRIVE, SUITE 121
BAKERSFIELD, CALIFORNIA 93308
PHONE 661 393-4796
FAX 661 393-4799

BRIDGE CROSS SECTION
CHEVRON, U.S.A.
POR NE/4 SECTION 9 29/28
KERN COUNTY, CALIFORNIA

DRAWN RDN
CHECKED DJ
DATE 1 JUL 2011
SCALE 1" = 10'
FILE
JOB NO.
SHEET 5
OF 6 SHEETS

S:\CHEVRON, INC\NEW KERN RIVER BRIDGE\DRAWINGS\KERN RIVER BRIDGE BASE- DESIGN - REV 1-11-12.DWG 1/17/2012 4:32 PM