

KERN RIVER-CALIFORNIA AQUEDUCT

INTERTIE

Kern County, California

OPERATION & MAINTENANCE MANUAL

JANUARY 1978

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA



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SECTION I

INTRODUCTION

1. Authorization.

The Kern River - California Aqueduct Intertie Project was authorized under the provisions of the Flood Control Act of 1948, as amended by Section 205 of the Flood Control Act of 1962 and by Section 61 of the Water Resources Development Act of 1974, which states in part as follows:

"The Secretary of the Army is hereby authorized to allot from any appropriations heretofore or hereafter made for flood control, not to exceed \$30,000,000 for any one fiscal year, for the construction of small projects for flood control and related purposes not specifically authorized by Congress, which come within the provisions of Section I of the Flood Control Act of June 22, 1936, when in the opinion of the Chief of Engineers such work is advisable. The amount allotted for a project shall be sufficient to complete Federal participation in the project. Not more than \$1,000,000 shall be allotted under this section for a project at any single locality except that not more than \$2,000,000 shall be allotted under this section for a project at a single locality if such project protects an area which has been declared to be a major disaster area pursuant to the Disaster Relief Act of 1966 or the Disaster Relief Act of 1970 in the five-year period immediately preceding the date that Chief of Engineers deems such work advisable. The provisions of local cooperation specified in Section 3 of the Flood Control Act of June 22, 1936, as amended, shall apply. The work shall be complete in itself and not commit the United States to any additional improvement to insure its successful operation, except as may result from the normal procedure applying to projects authorized after submission of preliminary examination and survey reports. . ."

2. Location. - The Kern River - California Aqueduct Intertie Project is located in Kern County, about 17 miles southwest of Bakersfield in the lower valley portion of Kern River Basin. It is situated on the north side of California Highway 119 about four miles west of Interstate 5.

3. Project Description. - The Kern River - California Aqueduct Intertie consists essentially of a gated gravity connection between the Kern River and the California Aqueduct for diverting ~~snowmelt floodflows~~ from the Kern River. The main features of the project are:

a. A sedimentation basin to remove suspended material from the flood waters.

b. A U-shaped concrete chute spanning Buena Vista Outlet Canal and connecting the sedimentation basin with the California Aqueduct.

c. A trashrack at the chute entrance to prevent floating debris from entering the California Aqueduct.

d. Five 12-foot by 8-foot motor operated slide gates at the downstream end of the chute.

e. One bulkhead gate for maintenance of the slide gates.

f. An access bridge over the chute adjacent to the gates. It provides access from State Highway 119 to the primary operating road along the California Aqueduct.

g. Four eight-foot diameter reinforced concrete pipe culverts under the chute to assure uninterrupted flow in the Buena Vista Outlet Canal.

h. An emergency bypass channel to divert water into Buena Vista Outlet Canal should the Intertie gates have to be closed suddenly.

i. A 20-foot by 20-foot fenced enclosure for the electrical panel.

4. Related Non-Project Facilities. - Two control weirs, the Buena Vista Inlet Weir and the Buena Vista Outlet Canal Weir, and the Kern River levees in the vicinity of the Intertie structure are not part of the project; however, they are essential to the proper operation of the Intertie. Also essential to its operation is maintenance of the channel capacities along Kern River from Bakersfield to Buena Vista and Tulare Lakes.

5. Protection Provided. - The project provides flood protection in the basin area of Tulare Lake, preventing damage to crops and agricultural facilities during years of large snowmelt runoff.

6. Construction Data. - Construction of the project was initiated in June 1976, and completed in June 1977, by Rodon, Inc. of Oxnard, California. The total construction cost was \$1,191,758.

SECTION II

LOCAL COOPERATION REQUIREMENTS

1. Requirement for Local Cooperation. - Existing policy for small flood control projects and the provisions of Section 205 of the 1948 Flood Control Act, as amended, require that prior to construction local interests give assurances that they will:

a. Provide without cost to the United States all lands, easements, and rights-of-way, including spoil disposal areas, and relocations necessary for construction and maintenance of the project, with adherence to the provisions of Public Law 91-646.

b. Hold and save the United States free from damages due to the construction, operation and maintenance of the project, except for damages due to the fault of the Government or its contractors.

c. Maintain and operate the completed works in accordance with regulations prescribed by the Secretary of the Army.

d. Reimburse the United States for any Federal first cost in connection with planning and construction of the project, including preauthorization study cost, in excess of \$2,000,000, in accordance with Section 61 of the Water Resources Development Act of 1974.

e. Prevent encroachments of any type that would impair the effectiveness of the Kern River channel from Bakersfield* to Buena Vista and Tulare Lakes and maintain the existing channel capacities, as indicated on Table I of this manual.

f. Obtain assurances satisfactory to the Corps of Engineers that the State of California would accept Kern River snowmelt floodwaters into the California Aqueduct. These assurances are evidenced by the "Agreement Among the State of California, the Kern County Water Agency, and the Buena Vista Water Storage District for Operation and Maintenance of Kern River - California Aqueduct Intertie", dated 18 November 1975. (A copy of the agreement is included as Exhibit E). The Corps of Engineers Operation and Maintenance Manual shall be consistent with the operational

* For the purposes of this manual, Bakersfield is defined as the downstream limit of Kern River levees located opposite the NE corner of Section 1, T30S, R26E, which is approximately 1,200 feet north of the intersection of Buena Vista Road and Stockdale Highway. Kern River levees upstream from this location through the city of Bakersfield are maintained by the Kern River Levee District.

provisions contained in the above agreement. If the operational criteria contained in the above agreement are found to be inadequate, they may be revised as appropriate by the parties to that agreement, with the approval of the Corps of Engineers, which shall then make corresponding modifications in the Operations Manual.

g. Hold the United States harmless for any claims for water rights pertaining to diversion of Kern River waters into the California Aqueduct.

2. Assurances Provided by Local Interests. - Kern County Water Agency is the local sponsor of this project. An agreement to this effect was entered into between the Agency and the Federal Government on 18 November 1975. A copy of the agreement is included as Exhibit D.

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3. Diversion Agreement. - In order to help facilitate the diversion of damaging floodwater into the California Aqueduct, the State of California has entered into an agreement with the Kern River interests who assert they hold all the water rights to the waters of the Kern River. A copy of this agreement is included as Exhibit F.

SECTION III

MAINTENANCE AND OPERATION - GENERAL PROCEDURE

1. Reference to Approved Regulations. - This manual has been prepared in accordance with provisions of Title 33 - Navigation and Navigable Waters, as of 1 January 1962, Chapter II, Corps of Engineers, Department of the Army, Part 208 - Flood Control Regulations, Maintenance and Operation of Flood Control Works, a copy of which is included as Exhibit A, sheets 1 and 2.
2. Intent of Regulations. - The general intent of the regulations approved by the Secretary of the Army is stated in paragraph 208.10(a)(1) as follows: "The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such periods as may be necessary to obtain the maximum benefits."

The principal mission of the Corps of Engineers, during flood emergencies, is to insure that flood control works are properly operated and maintained and to offer technical advice to enable local interests to obtain maximum flood protection. All other matters become secondary and will yield precedence to the accomplishment of the above-stated missions. During flood periods local interests shall maintain close liaison with the office of the District Engineer, Corps of Engineers. However, in the event it is evident that all available county and local resources are insufficient to cope with the situation and the necessity for an emergency proclamation is anticipated, requests for State assistance in flood fighting should properly be made directly to the Department of Water Resources, which is the agency designated by the State Legislature, to receive requests from local agencies for assistance in flood fighting. This agency is authorized to request Federal assistance from the Corps of Engineers when State and Local resources are insufficient to cope with the situation. Therefore, it is desired to emphasize that requests for Federal assistance in flood fighting should be made only when it is evident that County, State and/or other local equipment and manpower will be exhausted and local resources are insufficient to cope with the flood emergency situation.

3. Purpose of this Manual. - In view of the large number of local flood protection projects authorized by Congress and the repetitious nature of regulations to govern maintenance and operation of each individual project and in order that local interests may be fully aware of the extent of the obligations assumed by them in furnishing assurances of local cooperation for projects to be constructed in the future, the general regulations described above were established by the Secretary of the Army. The general regulations approved by the Secretary of the Army,

August 1944, were intended to be sufficiently broad in scope and general in nature as to be applicable to all flood protection projects for which such regulations are required by law.

Section 208.10(a)(10) of the regulations reads as follows: "The Department of the Army will furnish local interests with an Operation and Maintenance Manual for each completed project, or separate useful part thereof, to assist them in carrying out their obligations under this part." This manual has, therefore, been prepared to furnish local interests with information on the project works and advice as to the details of the operation and maintenance requirements applicable to this particular project, to state procedure required by the Department of the Army, and to indicate satisfactory methods of floodfighting operations and emergency repairs. The project works are to be maintained and operated in accordance with the Flood Control Regulations referred to above and interpretations thereof contained herein.

4. Definitions. - Kern County Water Agency, also referred to as KCWA, is the local agency which provided assurances for the project. The KCWA shall designate a local agent to act for the assurer and implement the instructions contained herein; this agent shall hereinafter be designated as the "Superintendent". The term "District Engineer" means the District Engineer of the US Army Engineer District, Sacramento, or his authorized representative.

5. General Provisions of Regulation. - In addition to that quoted in paragraph 3 above, the general provisions of the Flood Control Regulations, contained in paragraphs 208.10(1)(1), to 208.10(a)(9), both inclusive, are quoted as follows:

"(a) General. (1) The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for such periods as may be necessary to obtain the maximum benefits.

(2) The State, political subdivision thereof, or other responsible local agency, which furnished assurance that it will maintain and operate flood control works in accordance with the regulations prescribed by the Secretary of the Army, as required by law, shall appoint a permanent committee consisting of, or headed by an official hereinafter called the "Superintendent", who shall be responsible for the development and maintenance of, and directly in charge of an organization responsible for structures and facilities during flood periods and for continuous inspection and maintenance of the project works during periods of low water, all without cost to the United States.

(3) A reserve supply of materials needed during a flood emergency shall be kept on hand at all times.

(4) No encroachment or trespass which will adversely affect the efficient operation of maintenance of the project works shall be permitted upon the rights-of-way for the protective facilities.

(5) No improvement shall be passed over, under or through the walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project boundaries, nor shall any change be made in any feature of the works without prior determination by the District Engineer of the Department of the Army or his authorized representative that such improvements, excavation, construction, or alteration will not adversely affect the functioning of the protective facilities. Such improvements or alterations as may be found to be desirable shall be constructed in accordance with standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice shall be obtained from the District Engineer, or, if otherwise obtained, shall be submitted for his approval. Drawings or prints showing such improvements or alterations as finally constructed shall be furnished the District Engineer after completion of the works.

(6) It shall be the duty of the Superintendent to submit a semi-annual* report to the District Engineer covering inspection, maintenance, and operation of the protective works.

(7) The District Engineer or his authorized representative shall have access at all times to all portions of the protective works.

(8) Maintenance measures or repairs which the District Engineer deems necessary, shall be promptly taken or made.

(9) Appropriate measures shall be taken by local authorities to insure that the activities of all local organizations operating public or private facilities connected with the protective works are coordinated with those of the Superintendent's organization during flood periods."

6. Assistance to be Furnished by the District Engineer. - The District Engineer will:

a. Furnish Kern County Water Agency "As Constructed" drawings of the project works.

b. Make periodic inspections of the project works and notify KCWA of any repairs or maintenance measures which the District Engineer deems necessary in addition to measures taken by the Superintendent.

* Only annual reports are required.

c. Submit to the Office, Chief, of Engineers, all cases of noncompliance with full details thereof for determination of corrective measures to be taken.

d. Make prior determination that any proposed encroachment, improvement, excavation, or construction within the right-of-way, or alteration of the project works, will not adversely affect the functioning of the protective facilities.

e. Provide local interests with up-to-date information concerning current and future operation of Isabella Dam and on estimated local inflows below the dam. In the event of an emergency, he may also assist local interests in assembling flood-fighting forces and materials to the extent permitted by existing laws and regulations.

f. Participate in the annual inspection with local interests to determine if the channel capacities are at least equal to those prevailing in 1975, and if they are not, to determine what improvements should be made.

7. Responsibilities of the Superintendent. - In accordance with the intent and provisions of the Flood Control Regulations, the general duties of the Superintendent include the following:

a. Training of Key Personnel. - Key personnel shall be trained in regular maintenance work and be prepared for unusual problems related to flood control. The Superintendent shall maintain an up-to-date roster containing the names, addresses, and telephone numbers of all his key men and a reasonable number of substitutes. These key men should, in turn, have similar data on all of the men who will assist them in the discharge of their duties. The organization of key men should include the following:

(1) An assistant to act in the place of the Superintendent in case of his absence or indisposition.

(2) Sector foremen to lead maintenance patrol work of the levees, and to inspect the channel during flood periods. High qualities of leadership and responsibility are necessary for their positions.

b. Files and Records. - The Superintendent shall maintain a file of reports, records, and drawings concerning the project works, readily available at all times to the District Engineer.

c. Encroachment or Trespass on Right-of-Way. - In accordance with provisions of Flood Control Regulations 208.10(a)(4), no encroachment or trespass which will adversely affect the efficient operation or maintenance of the project works shall be permitted on the rights-of-way. The Superintendent will, therefore, cause notices to be posted at conspicuous places along the project right-of-way directing public attention to this

regulation. The Superintendent shall take whatever action is necessary under his own authority to remove any unauthorized encroachment or to prosecute the trespassers.

d. Permits for Right-of-Entry or Use of Portion of Right-of-Way. - Permits for temporary right-of-entry or use of portion of the right-of-way shall not be issued without prior determination by KCWA sufficiently in advance of issuance to permit adequate study and consideration and determination of conditions to be embodied in the permit document.

e. Permits for Improvements or Construction Within the Project Right-of-Way. - All requests for permits for construction of any improvements of any nature within the limits of the project right-of-way shall be referred to the District Engineer through KCWA for determination that such construction will not adversely affect the stability, safety, and functioning of the project works, and for definition of conditions under which permit should be granted. These conditions will include, among others, the following items:

(1) Drawings of proposed improvements or alterations to the Intertie structure or its appurtenances must be submitted to the District Engineer for review and approval. All drawings should be in accordance with standard engineering practice and should be submitted sufficiently in advance of the proposed construction to permit adequate study.

(2) After completion of the work, "As Constructed" drawings of prints, in duplicate, showing such improvements as finally constructed shall be furnished the District Engineer.

f. Coordination of Local Activities. - In accordance with the provisions of Flood Control Regulations, paragraph 208.10(a)(9), the Superintendent will, during periods of floodflow, coordinate the functions of all agencies, both public and private, that are connected with the project works. Arrangements shall be made with the local agencies to develop a coordinated flood-fighting program; and an outline of this program shall be filed with the District Engineer.

g. Inspection. -

(1) Flood Control Regulations, paragraph 208.10(b)(1) are quoted in part as follows:

"(b)(1) Maintenance . . . Periodic inspections shall be made by the Superintendent to insure that . . . maintenance measures are being effectively carried out . . . Such inspections shall be made immediately prior to the beginning of the flood season, immediately following each major high water period, and otherwise at intervals not exceeding 90 days and such intermediate times as may be necessary to insure the best possible care . . ."

(2) The suggested check lists and instructions shown in Exhibit B, sheets 1 to 10 inclusive, are to be followed in each inspection to insure that no features of the project works are overlooked. Copies of the inspector's original field notes as recorded on the check list shall be transmitted to the District Engineer immediately following each inspection, and one copy included as an inclosure to the annual report as provided in paragraph 3 of this section.

h. Maintenance. -

(1) Flood Control Regulations, paragraph 208.10(b)(1) are quoted in part as follows:

"(b)(1) Maintenance. The Superintendent shall provide at all times such maintenance as may be required to insure serviceability of the structures in time of flood . . . Immediate steps will be taken to correct dangerous conditions disclosed by such inspections. Regular maintenance repair measures shall be accomplished during the appropriate season as scheduled by the Superintendent."

(2) Full responsibility for making the repairs and the methods used is placed on the Superintendent but the experience and facilities of the District Engineer will be available to him for advice and consultation.

(3) All repairs shall be made in accordance with standard engineering practice, to line and grade and in accordance with details shown on the construction drawings for the project works. No change or alteration shall be made in any feature of the project works without prior determination by the District Engineer that such alteration will not adversely affect the stability and functioning of the project works. Plans and specifications of all changes or alterations that may be proposed by the Superintendent shall be submitted to the District Engineer for investigation and approval before prosecution of the work.

1. Reports. -

(1) Annual Report. - In accordance with the provisions of the Flood Control Regulations, paragraph 208.10(a)(6) the local agency providing the assurances (KCWA) shall submit an annual report to the District Engineer prior to 1 October of each year, covering inspection, maintenance, and operation of the project works. This report will present a statement of:

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(a) The physical conditions of the project work as summarized from the logs of inspection.

- (b) Flood occurrences and behavior of the project works, and flood-fighting activities during the period.
- (c) Prosecutions for encroachment or trespass.
- (d) Permits issued for right-of-way or use of right-of-way.
- (e) Permits issued for improvements or construction within the project right-of-way.
- (f) Maintenance measures taken; nature, date of construction, and date of removal of temporary repairs; date of permanent repairs.
- (g) Fiscal statement of cost of maintenance and operation for the period.

A suggested form for submission of the annual report is included as Exhibit C, sheets 1 and 2.

8. Environment Protection. - All material excavated from the sedimentation basin not hauled from the site will be disposed on the easterly side of the sedimentation basin in an area immediately north of State Highway 119 or other designated or available areas. Disposal areas for channel excavation will be located adjacent or contiguous to existing levees or other available areas. All material so disposed will be shaped to conform with the surrounding terrain. Seeding in disposal areas and revegetation of disturbed areas will be accomplished under a planting program designed to include native vegetation and other plant species that are advantageous to existing wildlife as well as beneficial to the reduction of erosion. Riparian vegetation will be maintained in its existing state to the maximum extent possible in accomplishing any channel maintenance.

SECTION IV

OPERATING PROCEDURES

1. Objectives. - The operational objective of the project is to prevent flooding in the basin areas of Tulare Lake by large runoffs from Kern River (primarily from snowmelt). This is accomplished by diversion of excessive floodwaters in the Kern River into the California Aqueduct of the Department of Water Resources, when the Kern River water meets the water quality requirements for such diversion. General operational responsibility for the Intertie project lies with the Kern County Water Agency acting through the Superintendent. However, in order to facilitate an effective operational plan involving facilities under the control of Buena Vista Water Storage District and the California Department of Water Resources, KCWA has entered into an agreement with these two organizations for operation of the Intertie. This agreement is contained in Exhibit E. It is recognized that this agreement is an appropriate means by which to achieve the intended effective operation of the project, and the following subparagraphs contain the normal and emergency operational procedures of the agreement. These procedures are hereby prescribed as appropriate for the Intertie. Nothing in the Operating Procedures should be construed as being in conflict with the statutory duties and responsibilities of the water master.

a. Normal operation. - Upon notice by the Superintendent to the State Control Center that floodflows will become available for diversion into the California Aqueduct, the State shall initiate changes in the operation of the Aqueduct such that the floodflows can be accepted. The State Control Center is the San Joaquin Area Control Center near Wind Gap Pumping Plant, telephone (805) 858-2001. The State may from time to time change the location of the State Control Center. Normally seven days notice must be given to the State Control Center prior to operation of the Intertie. The State shall then operate the Intertie gates as required to accept floodflows not in excess of 3,500 cubic feet per second and as nearly as practicable at a uniform flow rate. Diversion of floodflows shall continue until such time as the threat of flooding has passed or the operation of the Intertie is interrupted by an emergency.

b. Emergency Operation. - A shutdown of the Intertie may be required due to emergency conditions as contemplated in Exhibit E. All emergencies will be coordinated with the State Control Center, and the Sacramento District office of the Corps of Engineers will be notified. Close cooperation will be maintained with the Isabella Dam Project and the Buena Vista Water Storage District throughout the emergency. An emergency bypass channel has been provided for diversion of floodwater into the Buena Vista Outlet Canal so that closing the Intertie gates will automatically divert flows away from the Aqueduct. Upon correction of the problem, and if water quality is satisfactory, flows would again be diverted into the Aqueduct after receiving approval from the State Control Center.

2. Procedures.

a. Pre-Operation. -

(1) Prior to 1 September, all necessary maintenance as outlined in Section V of this manual shall be completed.

(2) Two copies of the annual report (see Exhibit C) shall be sent to the California Department of Water Resources and two copies to the Sacramento District office of the Corps of Engineers.

(3) The Intertie gates shall be closed.

(4) Stoplogs shall be placed in the Buena Vista Inlet Weir and Buena Vista Outlet Canal Weir as determined by the Superintendent in cooperation with the Buena Vista Water Storage District.

b. Normal Operation. - When predicted flows exceed the irrigation and other demands and a threat of flood damage from Kern River floodwaters exists the following steps will be taken:

(1) Notify the "State Control Center" seven days in advance of intended diversion.

(2) Upon approval from State Control Center, the Superintendent will inform the Buena Vista Water Storage District to place stoplogs in the Buena Vista Outlet Canal Weir and Buena Vista Inlet Weir to El. 299.2.

(3) The water elevation in the sedimentation basin will be allowed to rise to operating elevation of 299.2 feet.

(4) As the water level approaches operating level the State Department of Water Resources shall determine whether the quality of the water to be diverted into the California Aqueduct meets the established quality standards. The initial standards set for acceptable water are: under normal operating conditions, the floodflows shall be accepted into the Aqueduct when the quality of water is such that the suspended solids content is less than 200 ppm and maximum particle size is less than 62 microns in diameter and the water contains no deleterious substances, such as oil or floating debris. If water quality is unsatisfactory, releases will not be made into the California Aqueduct.

(5) Intertie gates will be opened by the State to allow up to a maximum flow of 3,500 cfs in accordance with the provisions of Exhibit E, paragraph 7a.

(6) The amount of flow into the Aqueduct shall be reported daily to the Sacramento District office of the Corps of Engineers.

(7) As peak flows recede and the water surface elevation in the Intertie chute drops below the minimum operating elevation of the California Aqueduct, the State will close the Intertie gates.

(8) Stoplogs will be removed by the Owner from the Buena Vista Inlet Weir and Buena Vista Outlet Weir as required for irrigation purposes or for storage at the project site or other location as determined by the Buena Vista Water Storage District in cooperation with the Superintendent.

c. Emergency Operation. - Should an emergency condition exist as described in paragraph 1b. of this section, the State shall take the initiative to implement the following steps:

(1) Close the Intertie gates.

(2) Notify the "Superintendent", the Engineer-Manager of Buena Vista Water Storage District and Sacramento District Office of the Corps of Engineers.

(3) Superintendent shall take steps necessary to correct the emergency.

(4) After the emergency is corrected the Intertie gates may again be opened if approved by the State Control Center.

SECTION V

MAINTENANCE PROCEDURES

1. General. - Proper functioning of the Kern River - California Aqueduct Intertie depends on the adequate operation of equipment, controls and appurtenances, which shall be maintained in good operating condition. The subject of maintenance procedures can only be briefly dealt with here and should be expanded and improved upon as continued experience is gained in operation of the equipment, and new methods are developed to expeditiously and efficiently handle special problems which may arise. All damaged or unserviceable parts shall be repaired or replaced, without delay. Before attempting major repair, the applicable as-constructed drawings (see Exhibit G), shop drawings, specifications, as well as catalogs, descriptive data and operating procedures supplied by the manufacturers of the equipment installed should be carefully reviewed. Certain specific points as pertains to the principal units are discussed below; however, full use shall be made of all pertinent technical data furnished with the respective units. For special points requiring maintenance, refer to the periodic inspection reports. Use high grade lubricants which are suitable for the service. In all instances lubricant specifications shall be in accordance with the equipment manufacturer's recommendations. If no recommendations are available then it should be in accordance with best practice for the service. Before ordering lubricants for standard manufacturer's assemblies such as motors and gear reducers, a check should be made as to equipment and lubricant suppliers' recommendations, not only to insure selection of the right type and grade, but also to take advantage of the most recent developments. Painting required should be performed in accordance with the original contract specifications. All necessary maintenance work shall be performed by skilled mechanics and electricians; where replacements are made the replacement parts shall be equal in quality to those originally installed or if suitable later improved design. Exhibits included as part of this manual will serve as guides and check lists for conducting the inspections, maintenance and preparation of reports.

2. Channels and Levees. - The estimated capacities of the channels from Bakersfield to Buena Vista and Tulare Lakes as indicated on Table I, are for conditions prior to construction of the Intertie Project. They are the basis for design of the project, and the effectiveness of the Intertie is dependent upon maintenance of those capacities. It will be the duty of the Superintendent to perform such maintenance as is necessary to retain these capacities.

3. Sedimentation Basin. - The basin is provided to ensure quality of floodwater entering the California Aqueduct.

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a. Bedload deposits in the sedimentation basin should be removed when sediment accumulation reaches 10% of storage capacity below the chute invert, (El. 291.35) or approximately 25,000 cubic yards. Excavation of sediment should be completed as soon as the basin is dry enough for operation of earth moving equipment. Sedimentation material excavated will be deposited in an area located on the easterly side of the basin north of State Highway 119 or at other designated or available areas.

b. The basin should be kept reasonably free of debris and vegetation. The side slopes should be consistent and graded to design slope.

4. Trashrack. - A trashrack with removable sections has been placed on an arc at the entrance to the Intertie chute to prevent floating debris from entering the California Aqueduct. The maximum size opening is 8.5 inches and the upstream face has a slight slope to facilitate debris removal during normal and emergency operations. A catwalk is provided at the top of the trashrack for access when debris removal is required. Sufficient space has been provided on the catwalk for temporary placement of debris during removal operations. Steps shall be taken to correct any major cracks or spalls in the support structure. Trashrack members and other metal parts shall be kept free of rust and corrosion. Any evidence of such should be thoroughly cleaned and painted with a galvanizing paint.

5. Chute. - A U-shaped reinforced concrete structure approximately 300 feet long by 68 feet wide with zero slope and invert elevation of 291.35 feet conveys flows through the Intertie to the California Aqueduct. At the downstream end five electrically operated 12-foot wide by 8-foot high slide gates regulate flows.

a. Because of very low velocity flows, erosion is not expected to be significant; however, when required, all eroded concrete shall be repaired when erosion reaches a depth of 1-inch or whenever any reinforcing steel is exposed. It is recommended that the repair be made by thoroughly cleaning the surface by sandblasting and building up the concrete to its original section finish with pneumatically placed Portland cement mortar, epoxy, lummite, or other suitable material. All evidence of settlement, uplift, or failure of concrete should be referred to the State Department of Water Resources for analysis and recommendation of remedial measures.

b. Any sediment deposited in the chute should be removed prior to its operation.

6. Upstream Transition. - The upstream transition is a flared section of the chute containing the trashrack. The concrete floor slab is 64 feet long on centerline and 135 feet wide at the entrance. The invert elevation is the same as the chute.

Same maintenance requirements as listed under 5(a) and 5(b) of the chute maintenance.

7. Slide Gates. - Five electrically-operated slide gates 12 feet wide by 8 feet high control flows into the California Aqueduct.

a. Rust spots disclosed by the inspection shall be thoroughly cleaned with a wire brush and painted.

b. Refer to the inspection reports for other points requiring maintenance; also, refer to the contract plans and specifications and pertinent shop drawings, especially where relatively major maintenance operations are involved.

c. Before attempting any major maintenance work as pertains to the gates and appurtenances, first carefully review the equipment manufacturer's descriptive data and maintenance recommendation. Major overhaul of standard units of equipment should be performed by the equipment manufacturer whenever practical. Replacement of seals and gaskets can usually be accomplished by less experienced mechanics. For those operations requiring the use of a crane or other hoisting equipment to handle heavy units of the assemblies, first check capacity of the bridge, and other supporting structural members to determine that the proposed hoisting equipment plus the proposed load will not exceed the capacity of the supporting structure. Where a crane is to be employed, especially for those operations requiring the crane boom to extend, for example, beyond the side edge of the bridge, first check the rated capacity of the crane for the boom hoisting radius required to determine that the selected equipment has adequate capacity. Before initiating painting operations on the gate assembly, take proper precautionary measures as required to fully protect the maintenance personnel from possible injury due to falling objects, toxic fumes, or other causes. All necessary maintenance work shall be performed by skilled mechanics and electricians. Where replacements are made, the parts shall be equal in quality to those originally specified.

8. Access Bridge. - The access bridge crosses the chute just upstream of the gates. Constructed of reinforced concrete rigidly connected to the chute walls and four support piers, the bridge is designed to withstand the loading of a 25 ton crane (P&H Model 325-TC) lifting 23,000 pounds. There are no restrictions on the location of the crane or placement of its outriggers. This exceeds HS-20 loading requirements.

Steps shall be taken to correct any major cracks or spalls which affect the structural integrity of the bridge deck or support piers. Any evidence of corrosion or rust spots on the guard railings should be thoroughly cleaned and painted with a galvanizing paint.

9. Emergency Bypass Channel. - An emergency bypass channel located on the northeast levee adjoining the Buena Vista Outlet Canal Weir provides relief against excess flows. The sill length is about 350 feet and crest elevation is 299.2 feet. Should the Intertie gates be closed in an emergency, floodwaters would enter Buena Vista Outlet Canal and flow toward Tulare Lake.

The approach, crest and discharge areas shall be kept free of debris and excessive vegetation. Slopes should be consistent and graded to design grade.

SECTION VI

INSPECTION PROCEDURES AND RECORDS

1. Inspection.

a. General. - Periodic inspections are required to detect incipient faults before serious damage takes place; therefore, the importance of making these inspections cannot be over emphasized. The frequency and extent of inspection required will be influenced by the conditions under which the equipment is required to operate including whether or not the particular operation is relatively continuous or periodic for the period concerned. Each year before the annual report the entire mechanical and electrical installation shall be given a thorough detailed inspection. Regular, more frequent, inspections should be made to ascertain that all parts of the equipment including controls are in operable condition and properly lubricated; that no parts are missing; that all painted surfaces are covered with adequate coats of protective paints; that there is no evidence of rust; and that the entire project is in a clean and presentable condition. In order that no items of inspection will be overlooked, an inspection schedule listing all items requiring inspection shall be carried during the inspection as guide, check list and record. Exhibit B, included as part of this manual, will serve as a guide and check list for conducting the inspections and preparation of reports.

b. Channel and Levees. - The stream channels of Kern River and the associated levees from Bakersfield to Buena Vista and Tulare Lakes shall be inspected to insure that their capacities are at least equal to those indicated on Table I. To insure capacities are maintained, attention shall be given to changes in condition such as slides, erosion, silting or vegetation which reduce capacity.

c. Sedimentation Basin. - The purpose of the inspection is to insure that conditions which affect the capacity will remain the same, as far as possible, as those considered in the design assumptions. At each inspection required by paragraph 208.10(g)(1) of the Flood Control Regulations, the following shall receive special attention:

- (1) Location, extent and size of vegetal growth.
- (2) Rubbish and industrial waste disposal.
- (3) Changes in the channel bed such as aggradation or degradation, which would interfere with free-flow from side drainage or induce local meanders that would scour the banks.
- (4) Operations of any nature upstream from the project that would affect flow conditions within the limits of the flood control project.

d. Trashrack. - Check the metal work and note any rust spots, need for painting or other maintenance. The condition of the catwalk and railing as regards to safety should also be noted. Note the presence of debris including rags, weeds, etc., which may be clogging the openings through the vertical bars.

e. Chute. - The following shall receive special attention:

- (1) Deviation from alignment and grade.
- (2) Development of cracks and spalls.
- (3) Erosion of concrete.
- (4) Separation or erosion of backfill.
- (5) Condition of hand railing.
- (6) Any sediment or debris.

f. Slide Gates. -

(1) Inspect the metal work and seals and note any need for maintenance.

(2) Note any improper functionings of the gate, including indications of leakage when closed, limited or sluggish travel when operating as well as any debris which may be present to foul the movement of the gate in opening and closing.

(3) Note need for painting or lubrication.

(4) With the bulkhead gate in place operate each gate through one cycle.

g. Access Bridge. - Cracks, spalls and chipping of concrete shall be noted. Also inspect condition of the guard railings and approach railings.

h. Control Weirs. - The two control weirs, Buena Vista Inlet Weir and Buena Vista Outlet Control Weir, should be inspected to insure they are adequate for the proper operation of the Intertie Project.

2. Records.

a. Procedures for inspection, maintenance, and testing of equipment shall include requirements set forth in this manual. Inspection Check List (Exhibit B) and other descriptive material contained in Section III of this manual will serve as a guide in meeting these requirements, and in the maintenance of required records and logs.

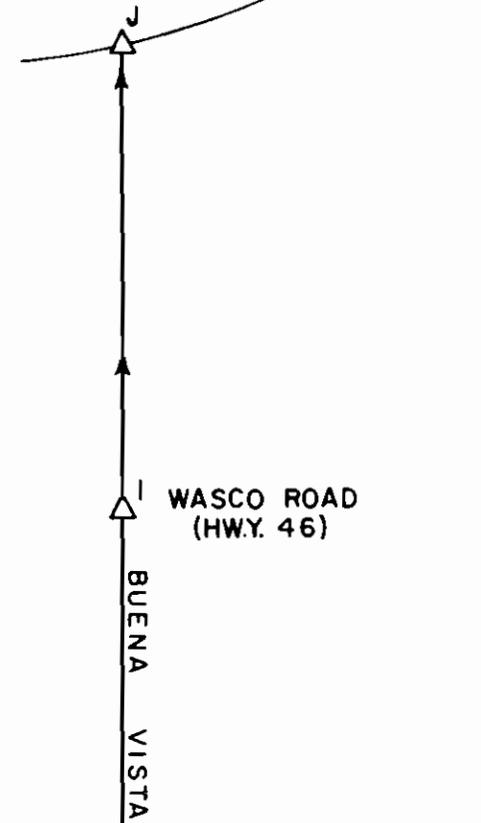
b. Maintenance cards will be kept for each major piece of equipment for recording a summary of test results, inspection and repairs, and any pertinent comments regarding the condition of the equipment. Such cards should be kept up-to-date and filed at an approved location so as to be readily available to those responsible for inspection, testing and maintenance. A data card should be prepared for each piece of equipment or component thereof consistent with the maintenance program breakdown to provide a record of project equipment. The data card records should indicate, but not necessarily be limited to, source of manufacture, physical characteristics, date of purchase, cost of procurement and list of spare parts available.

c. Copies of the inspection and maintenance records shall be filed with the State Department of Water Resources.

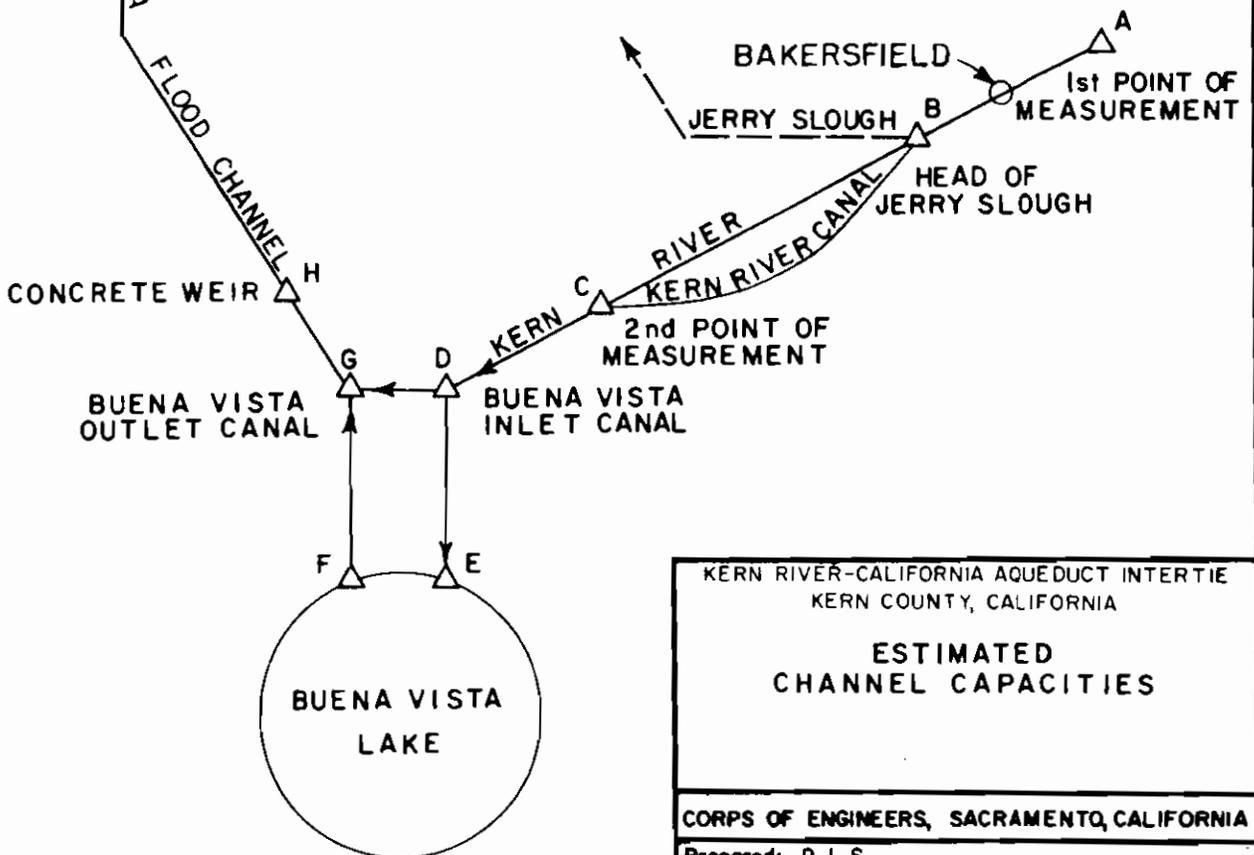
TABLE I
ESTIMATED CHANNEL CAPACITIES

TABLE I

TULARE LAKE



KERN RIVER CHANNEL CAPACITIES		
REACH	DESCRIPTION	FLOW (c.f.s)
AB	1st Point to Head of Jerry Slough	8,000
BC	Head of Jerry Slough to 2nd Point	4,600
CD	2nd Point to Buena Vista Inlet Canal	5,000
DE	Buena Vista Inlet Canal	1,000
DGH	Buena Vista Inlet Canal to Concrete Weir	4,000
FG	Buena Vista Outlet Canal	750
HI	Concrete Weir to Wasco Road (Hwy. 46)	3,000
IJ	Wasco Road to Tulare Lake	2,500



KERN RIVER-CALIFORNIA AQUEDUCT INTERTIE
KERN COUNTY, CALIFORNIA

**ESTIMATED
CHANNEL CAPACITIES**

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: D. I. S.

Date: May 1975

Drawn: D. J. E.

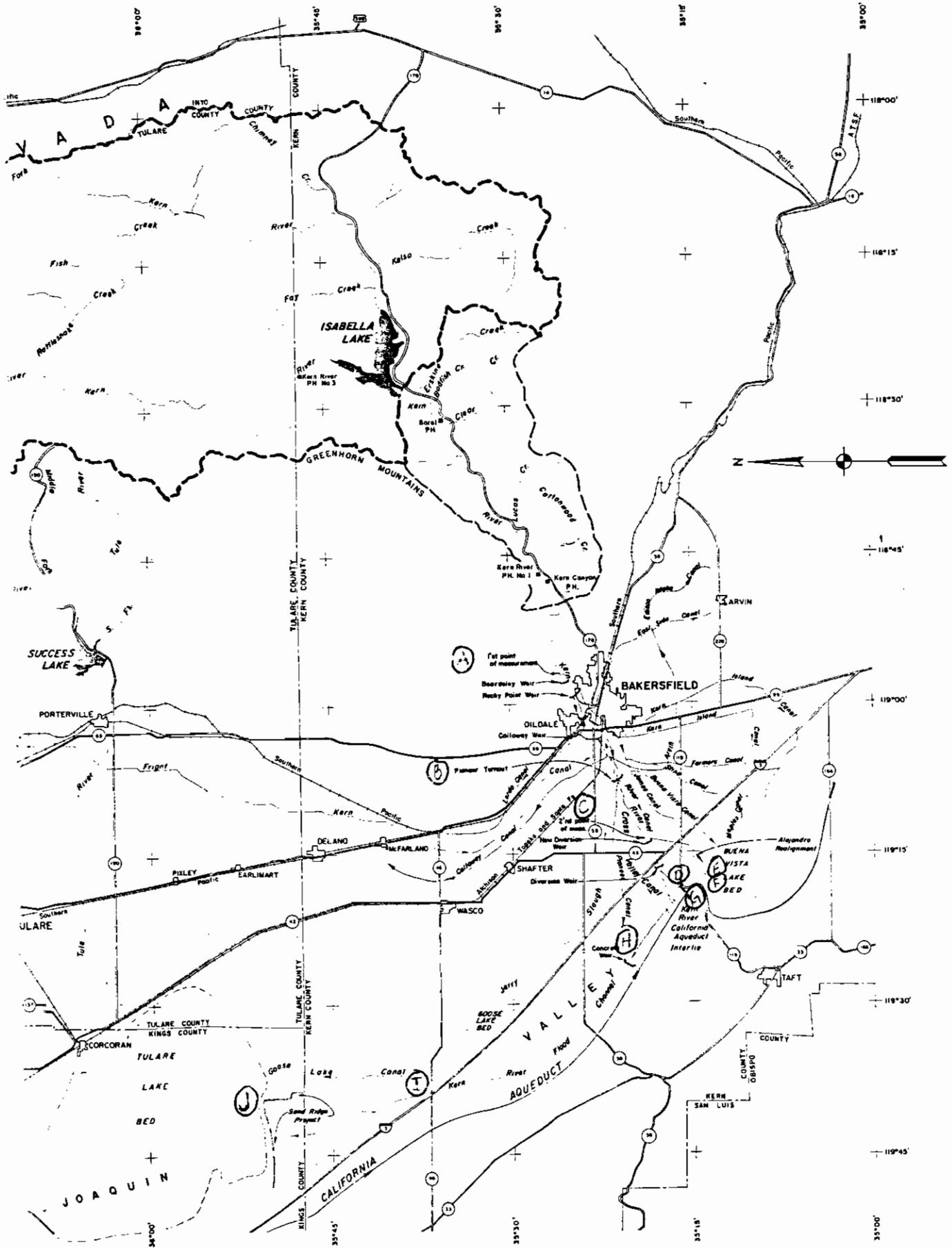


TABLE II
PERTINENT DATA

TABLE II

KERN RIVER-CALIFORNIA AQUEDUCT

INTERTIE

OPERATIONS & MAINTENANCE MANUAL

PERTINENT DATA

1. Location 17 miles west of Bakersfield near the intersection of Highway 119 and the California Aqueduct. The connection with the California Aqueduct corresponds with Station 3803+00 of the Aqueduct in the South San Joaquin Division.

2. General data

Maximum design flow	3500 c.f.s.
Operating pool elevation	299.2 ft.
Storage capacity, El. 299.2	403 ac. ft.
Maximum sediment storage (below El. 291.35)	250,000 C.Y.

3. Intertie chute

Invert elevation	291.35 ft.
Elevation of walls	303.35 ft.
Width of chute	68 ft.
Length (along ϕ)	411 ft. (includes flared intake and exit structures).

4. Gates

Sluice: (5)	Rodney Hunt Co., HY-Q-140 12'-0" x 8'-0"
Bulkhead: (1)	12'-8" x 10'-0"

EXHIBIT A

FEDERAL FLOOD CONTROL REGULATION

EXHIBIT A

**TITLE 33—NAVIGATION AND
NAVIGABLE WATERS**

**Chapter II—Corps of Engineers,
Department of the Army**

PART 208—FLOOD CONTROL REGULATIONS

Authority: § 208.10 issued under Sec. 7, 58 Stat. 890; 33 U.S.C. 709.

§ 208.10 *Local flood protection works; maintenance and operation of structures and facilities—(a) General.* (1) The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for such periods as may be necessary to obtain the maximum benefits.

(2) The State, political subdivision thereof, or other responsible local agency, which furnished assurance that it will maintain and operate flood control works in accordance with regulations prescribed by the Secretary of the Army, as required by law, shall appoint a permanent committee consisting of or headed by an official hereinafter called the "Superintendent," who shall be responsible for the development and maintenance of, and directly in charge of, an organization responsible for the efficient operation and maintenance of all of the structures and facilities during flood periods and for continuous inspection and maintenance of the project works during periods of low water, all without cost to the United States.

(3) A reserve supply of materials needed during a flood emergency shall be kept on hand at all times.

(4) No encroachment or trespass which will adversely affect the efficient operation or maintenance of the project works shall be permitted upon the rights-of-way for the protective facilities.

(5) No improvement shall be passed over, under, or through the walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in any feature of the works without prior determination by the District Engineer of the Department of the Army or his authorized representative that such improvement, excavation, construction, or alteration will not adversely affect the functioning of the protective facilities. Such improvements or alterations as may be found to be desirable and permissible under the above determination shall be constructed in accordance with standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice shall be obtained from the District Engineer or, if otherwise obtained, shall be submitted for his approval. Drawings or prints showing such improvements or alterations as finally constructed shall be furnished the District Engineer after completion of the work.

(6) It shall be the duty of the Superintendent to submit a semiannual report to the District Engineer covering inspection, maintenance, and operation of the protective works.

(7) The District Engineer or his authorized representatives shall have ac-

cess at all times to all portions of the protective works.

(8) Maintenance measures or repairs which the District Engineer deems necessary shall be promptly taken or made.

(9) Appropriate measures shall be taken by local authorities to insure that the activities of all local organizations operating public or private facilities connected with the protective works are coordinated with those of the Superintendent's organization during flood periods.

(10) The Department of the Army will furnish local interests with an Operation and Maintenance Manual for each completed project, or separate useful part thereof, to assist them in carrying out their obligations under this part.

(b) *Levees—(1) Maintenance.* The Superintendent shall provide at all times such maintenance as may be required to insure serviceability of the structures in time of flood. Measures shall be taken to promote the growth of sod, exterminate burrowing animals, and to provide for routine mowing of the grass and weeds, removal of wild growth and drift deposits, and repair of damage caused by erosion or other forces. Where practicable, measures shall be taken to retard bank erosion by planting of willows or other suitable growth on areas riverward of the levees. Periodic inspections shall be made by the Superintendent to insure that the above maintenance measures are being effectively carried out and, further, to be certain that:

(i) No unusual settlement, sloughing, or material loss of grade or levee cross section has taken place;

(ii) No caving has occurred on either the land side or the river side of the levee which might affect the stability of the levee section;

(iii) No seepage, saturated areas, or sand boils are occurring;

(iv) Toe drainage systems and pressure relief wells are in good working condition, and that such facilities are not becoming clogged;

(v) Drains through the levees and gates on said drains are in good working condition;

(vi) No revetment work or riprap has been displaced, washed out, or removed;

(vii) No action is being taken, such as burning grass and weeds during inappropriate seasons, which will retard or destroy the growth of sod;

(viii) Access roads to and on the levee are being properly maintained;

(ix) Cattle guards and gates are in good condition;

(x) Crown of levee is shaped so as to drain readily, and roadway thereon, if any, is well shaped and maintained;

(xi) There is no unauthorized grazing or vehicular traffic on the levees;

(xii) Encroachments are not being made on the levee right-of-way which might endanger the structure or hinder its proper and efficient functioning during times of emergency.

Such inspections shall be made immediately prior to the beginning of the flood season; immediately following each major high water period, and otherwise at intervals not exceeding 90 days; and such intermediate times as may be necessary to insure the best possible care of the levee. Immediate steps will be taken to correct dangerous conditions disclosed by such inspections. Regular maintenance repair measures shall be accom-

plished during the appropriate season as scheduled by the Superintendent.

(2) *Operation.* During flood periods the levee shall be patrolled continuously to locate possible sand boils or unusual wetness of the landward slope and to be certain that:

(i) There are no indications of slides or sloughs developing;

(ii) Wave wash or scouring action is not occurring;

(iii) No low reaches of levee exist which may be overtopped;

(iv) No other conditions exist which might endanger the structure.

Appropriate advance measures will be taken to insure the availability of adequate labor and materials to meet all contingencies. Immediate steps will be taken to control any condition which endangers the levee and to repair the damaged section.

(c) *Flood walls—(1) Maintenance.* Periodic inspections shall be made by the Superintendent to be certain that:

(i) No seepage, saturated areas, or sand boils are occurring;

(ii) No undue settlement has occurred which affects the stability of the wall or its water tightness;

(iii) No trees exist, the roots of which might extend under the wall and offer accelerated seepage paths;

(iv) The concrete has not undergone cracking, chipping, or breaking to an extent which might affect the stability of the wall or its water tightness;

(v) There are no encroachments upon the right-of-way which might endanger the structure or hinder its functioning in time of flood;

(vi) Care is being exercised to prevent accumulation of trash and debris adjacent to walls, and to insure that no fires are being built near them;

(vii) No bank caving conditions exist riverward of the wall which might endanger its stability;

(viii) Toe drainage systems and pressure relief wells are in good working condition, and that such facilities are not becoming clogged.

Such inspections shall be made immediately prior to the beginning of the flood season, immediately following each major high water period, and otherwise at intervals not exceeding 90 days. Measures to eliminate encroachments and effect repairs found necessary by such inspections shall be undertaken immediately. All repairs shall be accomplished by methods acceptable in standard engineering practice.

(2) *Operation.* Continuous patrol of the wall shall be maintained during flood periods to locate possible leakage at monolith joints or seepage underneath the wall. Floating plant or boats will not be allowed to lie against or tie up to the wall. Should it become necessary during a flood emergency to pass anchor cables over the wall, adequate measures shall be taken to protect the concrete and construction joints. Immediate steps shall be taken to correct any condition which endangers the stability of the wall.

(d) *Drainage structures—(1) Maintenance.* Adequate measures shall be taken to insure that inlet and outlet channels are kept open and that trash, drift, or debris is not allowed to accumulate near drainage structures. Flap gates and manually operated gates and valves on drainage structures shall be examined, oiled, and trial operated at least once

CODE OF FEDERAL REGULATIONS (EXTRACT)

every 90 days. Where drainage structures are provided with stop log or other emergency closures, the condition of the equipment and its housing shall be inspected regularly and a trial installation of the emergency closure shall be made at least once each year. Periodic inspections shall be made by the Superintendent to be certain that:

(i) Pipes, gates, operating mechanism, riprap, and headwalls are in good condition;

(ii) Inlet and outlet channels are open;

(iii) Care is being exercised to prevent the accumulation of trash and debris near the structures and that no fires are being built near bituminous coated pipes;

(iv) Erosion is not occurring adjacent to the structure which might endanger its water tightness or stability.

Immediate steps will be taken to repair damage, replace missing or broken parts, or remedy adverse conditions disclosed by such inspections.

(2) *Operation.* Whenever high water conditions impend, all gates will be inspected a short time before water reaches the invert of the pipe and any object which might prevent closure of the gate shall be removed. Automatic gates shall be closely observed until it has been ascertained that they are securely closed. Manually operated gates and valves shall be closed as necessary to prevent inflow of flood water. All drainage structures in levees shall be inspected frequently during floods to ascertain whether seepage is taking place along the lines of their contact with the embankment. Immediate steps shall be taken to correct any adverse condition.

(e) *Closure structures*—(1) *Maintenance.* Closure structures for traffic openings shall be inspected by the Superintendent every 90 days to be certain that:

(i) No parts are missing;

(ii) Metal parts are adequately covered with paint;

(iii) All movable parts are in satisfactory working order;

(iv) Proper closure can be made promptly when necessary;

(v) Sufficient materials are on hand for the erection of sand bag closures and that the location of such materials will be readily accessible in times of emergency.

Tools and parts shall not be removed for other use. Trial erections of one or more closure structures shall be made once each year, alternating the structures chosen so that each gate will be erected at least once in each 3-year period. Trial erection of all closure structures shall be made whenever a change is made in key operating personnel. Where railroad operation makes trial erection of a closure structure infeasible, rigorous inspection and drill of operating personnel may be substituted therefor. Trial erection of sand bag closures is not required. Closure materials will be carefully checked prior to and following flood periods, and damaged or missing parts shall be repaired or replaced immediately.

(2) *Operation.* Erection of each movable closure shall be started in sufficient time to permit completion before flood waters reach the top of the structure sill. Information regarding the proper method of erecting each individual closure structure, together with an estimate

of the time required by an experienced crew to complete its erection will be given in the Operation and Maintenance Manual which will be furnished local interests upon completion of the project. Closure structures will be inspected frequently during flood periods to ascertain that no undue leakage is occurring and that drains provided to care for ordinary leakage are functioning properly. Boats or floating plant shall not be allowed to tie up to closure structures or to discharge passengers or cargo over them.

(f) *Pumping plants*—(1) *Maintenance.* Pumping plants shall be inspected by the Superintendent at intervals not to exceed 30 days during flood seasons and 90 days during off-flood seasons to insure that all equipment is in order for instant use. At regular intervals, proper measures shall be taken to provide for cleaning plant, buildings, and equipment, repainting as necessary, and lubricating all machinery. Adequate supplies of lubricants for all types of machines, fuel for gasoline or diesel powered equipment, and flash lights or lanterns for emergency lighting shall be kept on hand at all times. Telephone service shall be maintained at pumping plants. All equipment, including switch gear, transformers, motors, pumps, valves, and gates shall be trial operated and checked at least once every 90 days. Megger tests of all insulation shall be made whenever wiring has been subjected to undue dampness and otherwise at intervals not to exceed one year. A record shall be kept showing the results of such tests. Wiring disclosed to be in an unsatisfactory condition by such tests shall be brought to a satisfactory condition or shall be promptly replaced. Diesel and gasoline engines shall be started at such intervals and allowed to run for such length of time as may be necessary to insure their serviceability in times of emergency. Only skilled electricians and mechanics shall be employed on tests and repairs. Operating personnel for the plant shall be present during tests. Any equipment removed from the station for repair or replacement shall be returned or replaced as soon as practicable and shall be trial operated after reinstallation. Repairs requiring removal of equipment from the plant shall be made during off-flood seasons insofar as practicable.

(2) *Operation.* Competent operators shall be on duty at pumping plants whenever it appears that necessity for pump operation is imminent. The operator shall thoroughly inspect, trial operate, and place in readiness all plant equipment. The operator shall be familiar with the equipment manufacturers' instructions and drawings and with the "Operating Instructions" for each station. The equipment shall be operated in accordance with the above-mentioned "Operating Instructions" and care shall be exercised that proper lubrication is being supplied all equipment, and that no overheating, undue vibration or noise is occurring. Immediately upon final recession of flood waters, the pumping station shall be thoroughly cleaned, pump house sumps flushed, and equipment thoroughly inspected, oiled and greased. A record or log of pumping plant operation shall be kept for each station, a copy of which shall be furnished the District Engineer following each flood.

(g) *Channels and floodways*—(1) *Maintenance.* Periodic inspections of improved channels and floodways shall be made by the Superintendent to be certain that:

(i) The channel or floodway is clear of debris, weeds, and wild growth;

(ii) The channel or floodway is not being restricted by the depositing of waste materials, building of unauthorized structures or other encroachments;

(iii) The capacity of the channel or floodway is not being reduced by the formation of shoals;

(iv) Banks are not being damaged by rain or wave wash, and that no sloughing of banks has occurred;

(v) Riprap sections and deflection dikes and walls are in good condition;

(vi) Approach and egress channels adjacent to the improved channel or floodway are sufficiently clear of obstructions and debris to permit proper functioning of the project works.

Such inspections shall be made prior to the beginning of the flood season and otherwise at intervals not to exceed 90 days. Immediate steps will be taken to remedy any adverse conditions disclosed by such inspections. Measures will be taken by the Superintendent to promote the growth of grass on bank slopes and earth deflection dikes. The Superintendent shall provide for periodic repair and cleaning of debris basins, check dams, and related structures as may be necessary.

(2) *Operation.* Both banks of the channel shall be patrolled during periods of high water, and measures shall be taken to protect those reaches being attacked by the current or by wave wash. Appropriate measures shall be taken to prevent the formation of jams of ice or debris. Large objects which become lodged against the bank shall be removed. The improved channel or floodway shall be thoroughly inspected immediately following each major high water period. As soon as practicable thereafter, all snags and other debris shall be removed and all damage to banks, riprap, deflection dikes and walls, drainage outlets, or other flood control structures repaired.

(h) *Miscellaneous facilities*—(1) *Maintenance.* Miscellaneous structures and facilities constructed as a part of the protective works and other structures and facilities which function as a part of, or affect the efficient functioning of the protective works, shall be periodically inspected by the Superintendent and appropriate maintenance measures taken. Damaged or unserviceable parts shall be repaired or replaced without delay. Areas used for ponding in connection with pumping plants or for temporary storage of interior run-off during flood periods shall not be allowed to become filled with silt, debris, or dumped material. The Superintendent shall take proper steps to prevent restriction of bridge openings and, where practicable, shall provide for temporary raising during floods of bridges which restrict channel capacities during high flows.

(2) *Operation.* Miscellaneous facilities shall be operated to prevent or reduce flooding during periods of high water. Those facilities constructed as a part of the protective works shall not be used for purposes other than flood protection without approval of the District Engineer unless designed therefor. (Sec. 3, 49 Stat. 1571, as amended; 33 U.S.C. 701C) [9 F.R. 9999, Aug. 17, 1944; 9 F.R. 10203, Aug. 22, 1944]

EXHIBIT B
SUGGESTED CHECK LIST

EXHIBIT B

CHECK LIST NO. 1

INTERTIE CHUTE AND APPURTENANCES

Inspector's Name: _____ Date: _____

<u>Item</u>	<u>Remarks</u>
1. Condition of Concrete	
a. Walls	
b. Floor Slab	
c. Entrance Transition	
d. Exit Transition	
2. Trashrack and Catwalk	
3. Access Bridge	
4. Access Road	
5. Security Gate	
6. Culverts Under Channel	
a. Headwalls	
b. Culverts	
7. Corrective Action Taken Since Last Inspection	
8. Comments	

SEE INSTRUCTIONS ON SHEET 2

INSTRUCTIONS FOR COMPLETING CHECK LIST NO. 1

1. Show stationing, feature and location within or on feature where damage is noted.
2. Note any chipping, spalling or cracking of concrete. Also note any corrosion or rusting of metal parts.
3. Check guardrails for rusting or corrosion and missing or loose bolts. Inspect bridge deck and piers for cracking or spalling.
4. Note condition of pavement.
5. Check condition of gate and lock.
6. Check for any cracking, spalling or settlement. Note any deteriorated or missing sealant between pipe sections.

CHECK LIST NO. 2

CONTROL WEIRS

Inspector's Name: _____ Date: _____

<u>Item</u>	<u>Remarks</u>
1. Buena Vista Inlet Weir	
a. Condition of Foundation and Abutments	
b. Condition of Metal	
c. Condition of Stoplogs	
d. Depth of Sediment Upstream and Downstream	
2. Buena Vista Outlet Canal Weir	
a. Condition of Foundation and Abutments	
b. Condition of Railings	
c. Condition of Stoplogs	
d. Depth of Sediment at Weir	

SEE INSTRUCTIONS ON SHEET 4

INSTRUCTIONS FOR COMPLETING CHECK LIST NO. 2

Note any condition which could impede the proper operation of the structures, such as obstructions to flow or missing or damaged members.

CHECK LIST NO. 3

MECHANICAL EQUIPMENT

Inspector's Name: _____ Date: _____

<u>Item</u>	<u>Remarks</u>
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Slide Gates:

- a. All metal surfaces for coating, corrosion, wear, and cavitation: bottom seal surface on gate leaf, sill surface in bottom of frame, bottom vertical steel surfaces immediately downstream of bronze bearing bars.
- b. Seal and bearing surfaces for proper but not excessive lubrication and for wear.
- c. Hoist stem for uneven wear, scoring and condition of threads.
- d. Motors, switches and electrical controls for wear and adjustment.
- e. Manual operation of gates.
- f. Emergency electrical power.
- g. Bulkhead gate.
- h. Miscellaneous.
- i. Corrective action taken since last inspection.
- j. Comments.

SEE INSTRUCTIONS ON SHEET 6

INSTRUCTIONS FOR COMPLETING CHECK LIST NO. 3

- a. Carefully note changes in old and new coatings on slide gates, frames, bulkhead gate and machinery and other severe exposure areas.
- b. Measure cavitation pockets in slide gates and frames. Note any wear to the bearing surfaces.
- c. Check for any damage to stems, for proper lubrication of for misalignment and listen for any unusual noise during operation of gates.
- d. Note any unsafe conditions and any difficult operating conditions.
- e. Check for smoothness and ease of operation.
- f. If available, connect and operate.
- g. Check for damage or corrosion. Also inspect the rubber seals.

CHECK LIST NO. 4

CHANNELS AND LEVEES

Inspector's Name: _____ Date: _____

<u>Item</u>	<u>Remarks</u>
1. Name of channel and location.	
2. Vegetal growth in channel.	
3. Debris and refuse in channel.	
4. Extent of aggradation or degradation.	
5. Measures taken since last inspection.	

SEE INSTRUCTIONS ON SHEET 8

INSTRUCTIONS FOR COMPLETING CHECK LIST NO. 4

1. Indicate station of observation by relating to nearest reference point.
2. Note nature, extent, and size of vegetal growth within the limits of flood flow channel.
3. Note any debris or refuse which is interfering with the capacity of the channel.
4. Indicate any change in grade or alignment of the channels, either by deposition of sediment or scour, that is noticeable by visual inspection. Estimate amount and extent.
5. Indicate maintenance measures that have been performed since the last inspection and their condition at time of this inspection.

CHECK LIST NO. 5

EMERGENCY BYPASS CHANNEL

Inspector's Name: _____ Date: _____

<u>Item</u>	<u>Remarks</u>
1. Sill and downstream slope.	
2. Abutments and slope protection.	
3. Approach channel.	
4. Corrective action taken since last inspection.	

SEE INSTRUCTIONS ON SHEET 10

INSTRUCTIONS FOR COMPLETING CHECK LIST NO. 5

1. Note any settlement, cracking or erosion of the soil cement sill and downstream slope.
2. Note any erosion and loss of grade.
3. Report any vegetation or debris in the channel. Note any erosion or loss of grade.

EXHIBIT C

SUGGESTED ANNUAL REPORT FORM

EXHIBIT C

(___ August 19___)

TO: District Engineer
US Army Engineer District, Sacramento
650 Capitol Mall
Sacramento, CA 95814

Dear Sir:

The annual report for the period (1 August 19___ to 31 July 19___) Kern River - California Aqueduct Intertie Project is as follows:

a. The physical condition of the protective works is indicated by the Inspector's Report, copies of which are inclosed, and may be summarized as follows:

(Superintendent's summary of conditions.)

It is our intention to perform the following maintenance work in order to repair or correct the conditions indicated:

(Outline the anticipated maintenance operations for the following year.)

b. During this report period, the following operational activities were completed:

(Any flood control operations involving the Project.)

c. During flood control operations the following quantities of water and rates of flow were recorded as passing through the project:

<u>Quantity</u>	<u>Rate of Flow</u>	<u>Date</u>
-----------------	---------------------	-------------

d. The status of maintenance measures, indicated in the previous annual report as being required or as suggested by the representatives of the District Engineer, is as follows:

(Statement of maintenance operations, item by item with percent completion.)

e. The fiscal statement of the Superintendent's operations for the current report period is as follows:

	<u>Labor</u>	<u>Materials</u>	<u>Equipment</u>	<u>Overhead</u>	<u>Total</u>
1. Inspection					
2. Maintenance					
3. Flood fighting operations					
TOTAL					

Respectfully submitted,

SUPERINTENDENT

EXHIBIT D
LOCAL COOPERATION AGREEMENT

EXHIBIT D

13 May 1975

AGREEMENT BETWEEN
THE UNITED STATES OF AMERICA
AND
THE KERN COUNTY WATER AGENCY
FOR LOCAL COOPERATION AT
THE KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE PROJECT

THIS AGREEMENT entered into this 18th day of February 1976 by and between the UNITED STATES OF AMERICA (hereinafter called the "Government"), represented by the Contracting Officer executing this agreement, and the Kern County Water Agency (hereinafter called the "Agency") WITNESSETH THAT:

WHEREAS, construction of the Kern River - California Aqueduct Intertie Project, (hereinafter called the "Project") was authorized by the Chief of Engineers on 20 June 1974 in accordance with Section 205 of the 1948 Flood Control Act (Public Law 858, 80th Congress), as amended, (Public Law 93-251), 33 U.S.C. 701s; and

WHEREAS, the Agency hereby represents that it has the authority and capability to furnish the non-Federal cooperation required by the Chief of Engineers and by other applicable law.

NOW, THEREFORE, the parties agree as follows:

1. The Agency agrees that, if the Government shall commence construction of the Project substantially in accordance with the Detailed Project Report for the Project, dated February 1974, the Agency shall, in consideration of the Government commencing construction of such Project, fulfill the requirements of non-Federal cooperation specified, to wit:

a. Provide, without cost to the Government, all lands, easements, and rights-of-way, including spoil disposal areas, and relocations necessary for construction of the project, with adherence to the provisions of Public Law 91-646.

b. Hold and save the Government free from damages due to the construction, operation, and maintenance of the project, except for damages due to the fault or negligence of the Government or its contractors.

c. Maintain and operate the completed works in accordance with regulations prescribed by the Secretary of the Army.

d. Reimburse the Government for any Federal first cost in connection with planning and construction of the project, including preauthorization study cost, in excess of \$2,000,000.

e. Prevent encroachment of any type that would impair the effectiveness of the Kern River channel from Bakersfield to Buena Vista and Tulare Lakes, and maintain the existing channel capacities, as indicated in the attached Exhibit "A."

f. Obtain assurances satisfactory to the Corps of Engineers that the State of California would accept Kern River snowmelt floodwaters into the California Aqueduct. These assurances are evidenced by the "Agreement Among the State of California, the Kern County Water Agency, and the Buena Vista Water Storage District for Operation and Maintenance of Kern River - California Aqueduct Intertie," dated November 18, 1975. The Corps of Engineers Operation and Maintenance Manual shall be consistent with the operational provisions contained in the above agreement. If the operational criteria contained in the above agreement are found to be inadequate, they may be revised as appropriate by the parties to that agreement, with the approval of the Corps of Engineers, which shall then make corresponding modifications in the Operation and Maintenance Manual.

g. Hold the government harmless for any claims for water rights pertaining to diversion of Kern River waters into the California Aqueduct.

2. The agency hereby gives the Government a right to enter upon, at reasonable times and in a reasonable manner, lands which the Agency owns or controls, for access to the Project for the purpose of inspection, and for the purpose of repairing and maintaining the Project, if such inspection shows that the Agency for any reason is failing to repair and maintain the Project in accordance with the assurances hereunder and has persisted in such failure after reasonable notice in writing by the Government delivered to the Engineer-Manager of the Agency. No repair and maintenance by the Government in such event shall operate to relieve the Agency of responsibility to meet its obligations as set forth in paragraph 1 of this Agreement, or to preclude the Government from pursuing any other remedy at law or equity.

3. This agreement is subjected to the approval of the Secretary of the Army.

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written.

THE UNITED STATES OF AMERICA

THE KERN COUNTY WATER AGENCY

BY 
F. G. ROCKWELL, JR.
Colonel, Corps of Engineers
District Engineer
Contracting Officer

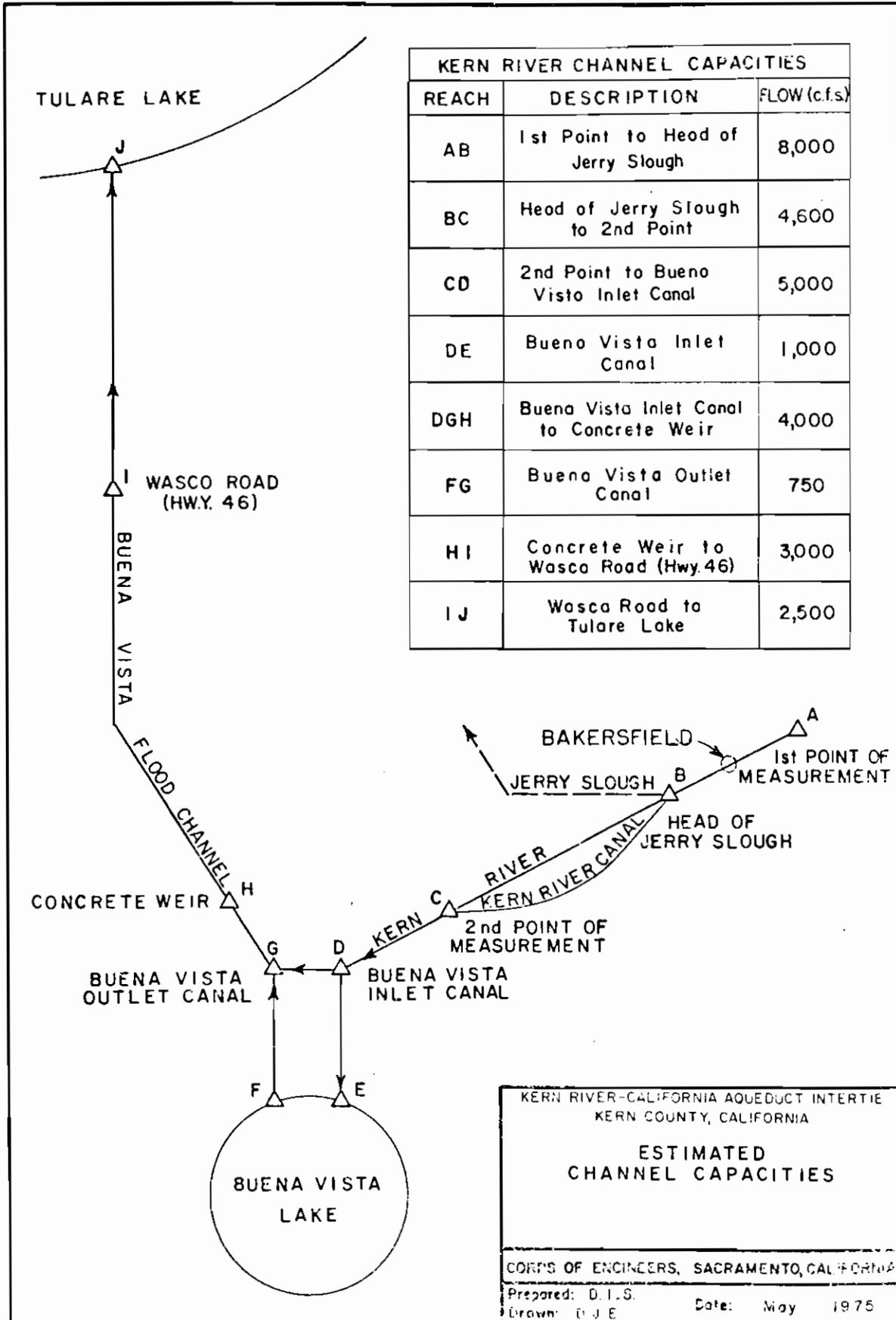
BY 
Title
President

DATE: 6 Jan 76

APPROVED: 
WOODROW FEDGE
Director of Real Estate

For the Secretary of the Army

EXHIBIT "A"



KERN RIVER-CALIFORNIA AQUEDUCT INTERTIE
 KERN COUNTY, CALIFORNIA

**ESTIMATED
 CHANNEL CAPACITIES**

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: D. I. S. Date: May 1975
 Drawn: G. J. E.

EXHIBIT E

OPERATION AND MAINTENANCE AGREEMENT

EXHIBIT E

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

AGREEMENT AMONG THE STATE OF CALIFORNIA
KERN COUNTY WATER AGENCY,
AND BUENA VISTA WATER STORAGE DISTRICT
~~FOR OPERATION AND MAINTENANCE OF THE~~
KERN RIVER-CALIFORNIA AQUEDUCT INTERTIE

THIS AGREEMENT is made this ^{15th} day of *November*, 1974, between the State of California, pursuant to the provisions of the California Water Resources Development Bond Act, the State Central Valley Project Act, and other applicable laws of the State of California, acting by and through its Department of Water Resources, hereinafter referred to as the "State"; Kern County Water Agency, hereinafter referred to as the "Agency"; and Buena Vista Water Storage District, hereinafter referred to as the "District".

RECITALS:

A. The U. S. Army Corps of Engineers has made findings in its Detailed Project Report dated February 1974 that the Kern River-California Aqueduct Intertie, a gravity connection between the Kern River and the California Aqueduct near State Highway 119, hereinafter referred to as "Intertie", is feasible and will provide flood control benefits and can be constructed as a Small Flood Control Project under Section 205 of the Flood Control Act of 1948, as amended. Announcement of authorization of the Intertie was made on June 20, 1974.

B. Diversion of certain floodwaters into the California Aqueduct, a feature of the State Water Project, is essential to the Corps' finding of feasibility of the Intertie.

C. State as owner and operator of the California Aqueduct is willing to allow such floodwaters to be diverted therein under certain conditions through use of the Intertie in order to provide flood control benefits, provided such use is compatible with the normal operation of the Aqueduct.

D. In order to reduce economic loss to the community resulting from floods, the Agency desires that such floodwaters be diverted into the California Aqueduct through use of the Intertie, and the Buena Vista Water Storage District, North Kern Water Storage District, Tulare Lake Basin Water Storage District, and Hacienda Water District, each such district being duly organized, existing and acting pursuant to the laws of the State of California and hereinafter collectively referred to as the "Kern River Interests", consent to such diversions.

E. The California Aqueduct is designed to be operated within specific water surface fluctuation limits and canal failures may result if it is not so operated.

F. Accepting waters into the California Aqueduct at the Intertie containing suspended solids beyond certain limits may damage the pumps of the Aqueduct facilities which have close tolerances, and may adversely affect the distribution facilities and ground water percolation programs of users receiving water from the Aqueduct.

G. The Agency has indicated to the Corps of Engineers that it intends to sponsor the Intertie and provide assurances of local cooperation for the project, including the assurance that the Agency will operate and maintain the Intertie.

H. The Buena Vista Water Storage District owns and operates certain control works on the Kern River known as the Buena Vista Lake Inlet Weir and the Kern River Outlet Weir.

NOW, THEREFORE, it is mutually agreed as follows:

A. INTRODUCTORY PROVISIONS

1. Definitions

When used in this agreement the following terms shall have the meaning hereinafter set forth:

(a) "Intertie" shall mean the gravity connection between the Kern River and the California Aqueduct near State Highway 119 in Kern County as generally described in the Detailed Project Report on Kern River-California Aqueduct Intertie of the U.S. Corps of Engineers dated February 1974, including:

(1) the Intertie structure comprising the rectangular reinforced concrete channel between the Kern River and the California Aqueduct, including a gated section, gates, trashrack, and water metering facilities.

(2) the sedimentation basin; and

(3) the emergency spillway from the sedimentation basin into the Buena Vista Flood Channel.

(b) "Floodflows" shall mean floodwaters (primarily from snowmelt) released from Lake Isabella to the Kern River according to advance schedules and other waters which enter the Kern River downstream from Lake Isabella at the same time as such floodwaters are released, all of which are in excess of the needs of the Kern River Interests and which they consent to be diverted into the

California Aqueduct in accordance with the "Agreement Among the State of California, Kern County Water Agency, and the Kern River Interests for Diversion of Floodwaters Through the Kern River-California Aqueduct Intertie" dated November 18, 1975.

(c) "Kern River Watermaster" shall mean the Kern River Watermaster appointed and serving as Watermaster pursuant to the Kern River Water Rights and Storage Agreement dated December 31, 1962 among the Kern River Interests.

(d) "State Control Center" shall mean that particular State facility from which responsibility will be exercised for monitoring and controlling the Intertie facilities. Such center at the date of this agreement is the San Joaquin Area Control Center near the Wind Gap Pumping Plant, and the telephone number of said center is (805) 858-2001. State may, from time to time, in the manner provided in Article 14 for giving notices, change the location and/or telephone number of the State Control Center.

(e) "Emergency" shall mean any condition, which in the judgment of the State exists or is about to exist, whereby damage to any portion of California Aqueduct facilities could result unless operation of the Intertie is curtailed or discontinued. Such emergency, for example, could be caused by a power outage at a downstream pumping plant, Aqueduct damage at or downstream from the Intertie, or the existence in the Kern River of waters of quality not meeting the standards set forth in Article 7(b) hereof.

(f) "Normal operation" shall mean all operation of the Intertie except during the period of an emergency.

2. Term of Agreement

This agreement shall become effective upon completion of the Intertie and shall remain in effect so long as the Intertie will provide flood control benefits and the State can use such flows in the normal planned operation of the California Aqueduct.

B. RESPONSIBILITY PROVISIONS

3. State

The State shall operate and maintain the Intertie structure to insure the integrity of the California Aqueduct. Such operation and maintenance shall be in accordance with the operation and maintenance manual for the project to be issued by the Corps of Engineers. Subject to the terms and conditions of this agreement, gates shall be opened when floodwaters are released from Lake Isabella and proper notice is received by the State from the Kern River Watermaster, in accordance with the agreement between the State; the Agency and the Kern River Interests for diversion of floodwaters referred to in Article 1(b).

4. Buena Vista Water Storage District

The District shall be responsible for operation of the Buena Vista Lake Inlet and Kern River Outlet Weirs between the Kern River channel and Buena Vista Lake and Buena Vista Flood Channel, respectively.

5. Kern County Water Agency

(a) Except for the Intertie structure which shall be operated and maintained by the State, the Agency shall be responsible for operation and maintenance of the Intertie in

accordance with the operation and maintenance manual for the project to be issued by the Corps of Engineers. The Agency shall reimburse the State for all costs of operation and maintenance of the Intertie structure.

(b) The Agency shall indemnify and hold harmless the State and its officers, agents and employees from any and all claims of third parties by reason of any actual or alleged injuries or damages which they may sustain by reason of the operation and maintenance of the Intertie including, but not limited to, changes in flows of water in channels, watercourses or across lands upstream or downstream from the Intertie.

C. OPERATIONAL PROVISIONS

6. Operational Criteria

Water will be diverted into the California Aqueduct at a rate not in excess of 3,500 cubic feet per second and only when (1) snowmelt flood releases from Lake Isabella are scheduled in advance, (2) the Kern River Watermaster has given timely notice to the State on behalf of the Kern River Interests of the specified time periods and the amounts of floodflows to be diverted through the Intertie by the State, (3) water can be used in the State Water Project in accordance with operation plans of the State, (4) the Aqueduct facilities planned for operation are not inoperable because of rare emergencies, and (5) the quality of water meets the standards set forth in Article 7(b) hereof. If any of the operational criteria are found to be inadequate, they may be revised as appropriate by the parties hereto, with the approval of the Corps of Engineers.

7. Normal Operation

(a) General. Under normal operating conditions,

upon timely notice by the Kern River Watermaster to the State Control Center requesting that floodflows be diverted into the California Aqueduct at a specified time, the State shall initiate changes in operation of the Aqueduct such that the floodflows can be accepted into the Aqueduct at the specified time. Such floodflows shall be made available at a uniform flow rate as nearly as practicable up to the amount of the minimum continuous flow rate (i.e., the minimum flow rate during the on-peak power period) planned for the specified time in the Aqueduct downstream from the Intertie, provided that such flow rate shall be limited to the capacity operationally available in the Aqueduct facilities downstream from the Intertie. The State shall operate the Intertie gates as required to accept the floodflows at such limited flow rate but not to exceed 3,500 cubic feet per second. The District shall set its flashboards at both the Buena Vista Lake Inlet and the Kern River Outlet Weirs at an elevation necessary to maintain the required operating pool level for the Intertie.

(b) Quality. Under normal operating conditions, the floodflows shall be accepted into the California Aqueduct when the quality of water is such that it will not be injurious to Aqueduct pumping facilities or to State Water Project users diverting water from the Aqueduct downstream from the Intertie, as determined by the State. Initial design operating criteria shall be to discharge Kern River water into the Aqueduct with less than 200 parts per million suspended solid concentration, a maximum particle size less than 62 microns in diameter, and with no deleterious

substances such as oil or floating debris.

8. Emergency Operations

(a) General. The Intertie will be operated on an emergency basis when any sudden change in the normal operation is required to react to an emergency. During the period of emergency operation, close coordination between the District, the Kern River Watermaster, the Corps of Engineers and the State will be necessary.

(b) Notice of Emergency. Upon recognition of an emergency or possible emergency, parties to this agreement shall notify the State Control Center.

(c) Emergency Change in Operation of Intertie. Immediately upon recognition of an emergency, which in the judgment of the State would make it necessary that the Intertie be closed or partially closed in advance of the time the District could be notified, the State shall modify the gate openings on the Intertie and shall as nearly simultaneously as possible notify the District and the Sacramento District Corps of Engineers of such modification by telephone or other expedient means. Accordingly, the District shall make every reasonable effort to expeditiously remove flashboards from the Buena Vista Lake Inlet and/or Kern River Outlet Weirs to facilitate passage of flows in the Kern River and augment discharges over the emergency spillway.

(d) Procedure Following Emergency Closing of Intertie. The State shall notify the District when the emergency has been eliminated and normal operation can be resumed, at which time, the flashboards shall be reinstalled to

the required operational elevation. At a mutually acceptable time thereafter, normal operation shall be resumed.

9. Monitoring

The State shall monitor the metering facilities, sample water and determine quantity and quality of flow into the California Aqueduct and the quality of flow in the Aqueduct upstream and downstream of the Intertie. The amount of flow into the Aqueduct shall be reported daily to the Sacramento District Corps of Engineers.

D. OTHER PROVISIONS

10. Modifications

Notwithstanding the operational provisions of this agreement, it is recognized that it has been impossible during the design period of the project to determine with precision the quality of water in the Kern River during snowmelt release periods. The parties hereto therefore agree to observe operation of the project and cooperate to the extent possible in determining the nature of and providing for any necessary modifications to the project and/or the operational provisions to the end that the project purposes will be substantially satisfied and at the same time California Aqueduct facilities will not be adversely affected to any significant degree.

11. Right of Access

(a) State.

The State shall have a right of entry on, over and across and under the Agency's real property in the vicinity of the Intertie structure. Such right of entry is limited to that portion of such property that is reasonably necessary for the purpose of fulfilling the State's responsibility under this

agreement.

(b) Agency and District.

The Agency and the District shall each have a right of entry on the State's service road from State Highway 119 across the concrete channel of the Intertie and over, across, and under the State's real property in the vicinity of the Intertie structure. Such rights of entry are limited to that portion of such property as is reasonably necessary for the purpose of fulfilling the Agency's and the District's respective responsibilities under this agreement and for the purpose of allowing the District access to its facilities in the vicinity of the Buena Vista Flood Channel downstream from the Intertie.

12. Kern River Interests

Notwithstanding the fact that the floodflows accepted into the California Aqueduct through the Intertie are put to use as in the normal operation of the California Aqueduct, the waters are accepted into the California Aqueduct through the Intertie in order to prevent flooding of usable lands. Therefore, nothing in this agreement is intended to or shall affect the responsibilities and liabilities of the Kern River Interests with respect to the control, use, distribution, or disposal of the floodwaters that occur in the Kern River at various times.

13. Opinions and Determinations

Where the terms of this agreement provide for action to be based upon the opinion, judgment, approval, review

or determination of any party hereto, such terms are not intended to be and shall never be construed as permitting such opinion, judgment, approval, review or determination to be arbitrary, capricious or unreasonable.

14. Contracting Officer of State

The contracting officer of the State shall be the Director of Water Resources of the State of California and his successors, or duly authorized representatives. The contracting officer shall be responsible for all discretionary acts, opinions, judgments, approvals, reviews, and determinations required of the State under the terms of this agreement.

15. Successors and Assigns Obligated

This agreement and all its provisions shall apply to and bind the successors and assigns of the parties hereto.

16. Notices

All notices that are required either expressly or by implication to be given by one party to any or all of the other parties under this agreement, except those referred to in Article 7(a), 8, and 9, shall be signed for the State by its contracting officer, and for the Agency and the District by such officer of each as may, from time to time, be authorized in writing to so act. All Notices shall be deemed to have been given if delivered personally or if enclosed in a properly

addressed and stamped envelope and deposited in a United States Post Office for delivery by certified or registered mail. Unless and until notified otherwise, all notices shall be addressed to the parties at their addresses as shown below.

State of California
Department of Water Resources
Post Office Box 388
Sacramento, California 95802

Kern County Water Agency
1415 - 18th Street, Room 418
Bakersfield, California 93301

Buena Vista Water Storage District
Post Office Box 756
Buttonwillow, California 93206

17. Maintenance and Inspection of
Books, Records and Reports

During regular office hours, each of the parties hereto and their duly authorized representatives shall have the right to inspect and make copies of any books, records or reports of the other parties pertaining to this agreement or matters related thereto. Each of the parties hereto shall maintain and make available for such inspection accurate records of all its costs, disbursements and receipts with respect to its activities under this agreement.

IN WITNESS WHEREOF, the parties hereto have executed
this agreement on the date first above written.

Approved as to legal
form and sufficiency:

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

By *[Signature]* Chief Counsel
Department of Water Resources
By *[Signature]* Director

Approved as to form:

KERN COUNTY WATER AGENCY

By *[Signature]* Counsel
By *[Signature]* President

Attest:

By *[Signature]*
Secretary
Kern County Water Agency

BUENA VISTA WATER STORAGE DISTRICT

Attest:
By *[Signature]*
Secretary
Buena Vista Water Storage District

By *[Signature]*
President

EXHIBIT F

DIVERSION OF FLOODWATERS AGREEMENT

EXHIBIT F

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

AGREEMENT AMONG THE STATE OF CALIFORNIA,
KERN COUNTY WATER AGENCY,
AND THE KERN RIVER INTERESTS ~~FOR~~
~~DIVERSION OF FLOODWATERS~~ THROUGH THE
KERN RIVER-CALIFORNIA AQUEDUCT INTERTIE

THIS AGREEMENT is made this *18th* day of *November*,
19*75*, pursuant to the provisions of the California Water
Resources Development Bond Act, the State Central Valley Project
Act, and other applicable laws of the State of California
between the State of California, acting by and through its
Department of Water Resources, hereinafter referred to as the
"State"; Kern County Water Agency, hereinafter referred to as
the "Agency"; and Buena Vista Water Storage District, North
Kern Water Storage District, Tulare Lake Basin Water Storage
District and Hacienda Water District, each such district being
duly organized, existing and acting pursuant to the laws of
the State of California and hereinafter collectively referred
to as the "Kern River Interests".

RECITALS:

A. The United States Army Corps of Engineers, here-
inafter referred to as the "Corps", has made findings in its
Detailed Project Report dated February 1974 that the Kern
River-California Aqueduct Intertie, a gravity connection
between the Kern River and the California Aqueduct near State
Highway 119, hereinafter referred to as the "Intertie", is
feasible and will provide flood control benefits and can be

constructed as a Small Flood Control Project under Section 205 of the Flood Control Act of 1948, as amended. Announcement of authorization of the Intertie was made on June 20, 1975.

B. The State Water Rights Board, predecessor to the State Water Resources Control Board, by Decision D 1196 adopted October 29, 1964, determined that there are no unappropriated waters in the Kern River.

C. North Kern Water Storage District executes this agreement for and on behalf of itself and all other parties of the second part (or their successors in interest) in and to the Miller-Haggin Agreement, as amended and supplemented, and all other parties (or their successors in interest) whose water rights on the Kern River were adjudicated among themselves in that certain judgment known as the "Shaw Decree", rendered August 6, 1900, by the Superior Court of the State of California in and for the County of Kern, Honorable Lucien Shaw, Judge, in that certain action No. 1901 entitled "Farmers Canal Company, et al., Plaintiffs, vs. J. R. Simmons, et al., Defendants", who may wish to cooperate with the other parties hereto and to share in such benefits as may accrue to said parties mentioned herein and the obligation of this agreement.

D. Buena Vista Water Storage District executes this agreement for and on behalf of itself and all other parties of the first part (or their successors in interest) in and to the Miller-Haggin Agreement, as amended and supplemented, who may

wish to cooperate with the other parties hereto and to share in such benefits as may accrue to said parties mentioned herein and the obligations of this agreement.

E. Tulare Lake Basin Water Storage District and Hacienda Water District execute this agreement on behalf of themselves and on behalf of all others who establish rights to waters of Kern River for use on lands north of Wasco Road and who may wish to share in the benefits and obligations of this agreement.

F. The Kern River Interests assert that they hold all of the water rights to the waters of the Kern River and that the only waters not being diverted and used are floodwaters: Provided, however, and pursuant to Section 895.8 of the Government Code of the State of California, any liability assumed by the Kern River Interests shall not be borne pro rata but each entity of which the Kern River Interests is comprised shall bear the full cost of and hold the other entities harmless from any such claim made by or on behalf of one claiming a right to such of the Kern River water that said entity purports to exercise and/or represent by the execution hereof.

G. Diversion of certain floodwaters into the California Aqueduct, a feature of the State Water Project, is essential to the Corps' finding of feasibility of the Intertie.

H. The State as owner and operator of the California Aqueduct is willing to allow such floodwaters to be diverted into the Aqueduct under certain conditions through use of the Intertie

in order to provide flood control benefits, provided such use is compatible with the normal operation of the Aqueduct.

I. In order to reduce economic loss to the community resulting from floods, the Agency desires that such floodwaters be diverted into the California Aqueduct through use of the Intertie to the extent that the Kern River Interests consent to such diversions.

J. The Agency has indicated to the Corps that it intends to sponsor the Intertie and provide assurance of local cooperation for the project.

NOW, THEREFORE, the parties hereto agree as follows:

1. Kern River Watermaster -- Notice
of Request to Divert Water

The Kern River Watermaster appointed and serving as Watermaster pursuant to the Kern River Water Rights and Storage Agreement executed by the Kern River Interests, dated December 31, 1962, shall be the general agent of the Kern River Interests for the purpose of providing notices pertaining to diversions into the California Aqueduct through the Intertie.

Kern River waters to be diverted shall be floodwaters (primarily from snowmelt) released from Lake Isabella to the Kern River according to advance schedules and other waters which enter the Kern River downstream from Lake Isabella at the same time as such floodwaters are released, which the Kern River Interests have determined to be in excess of the needs of the Kern

River Interests, which the Agency desires shall be diverted, and which the Kern River Interests hereby consent to be diverted into the California Aqueduct in accordance with this agreement. The Kern River waters described above are hereinafter called "floodflows".

The Kern River Watermaster, upon consultation with and concurrence of the Agency, shall give timely notice to the State of the specified time periods and the amounts of floodflows to be diverted by the State into the California Aqueduct. The notice shall be given to the State Control Center as far in advance as possible and not less than seven days prior to the start of flow or a change in flow rate. The notice shall include a proposed plan of operation for the period that it is requested floodflows be diverted. The plan of operation shall indicate any variations in the flow rate and the duration of flow at each rate. The State Control Center at the date of this agreement is the San Joaquin Area Control Center near Wind Gap Pumping Plant, and the telephone number is (805) 858-2001. The State may, from time to time, change the location and/or telephone number of the State Control Center.

2. Water to be Accepted into
the California Aqueduct

The State hereby agrees that it will accept into the California Aqueduct those Kern River floodflows for which the Kern River Watermaster has given proper notice to divert: Provided, That in order to protect the integrity of the State Water Project, including the water supply contracts and the Aqueduct pumping facilities, such floodflows will be diverted only in accordance with the "Agreement Among the State of California, Kern County Water Agency, and Buena Vista Water Storage District for Operation and

Maintenance of the Kern River-California Aqueduct Intertie" dated November 18, 1975.

3. Indemnity Agreement

The Kern River Interests hereby agree to indemnify and hold harmless the State and the Agency and their officers, agents and employees from any and all claims of rights to the waters diverted into the California Aqueduct through the Intertie in accordance with provisions of this agreement.

4. Kern River Interests

Notwithstanding the fact that the floodflows accepted into the California Aqueduct through the Intertie are put to use as in the normal operation of the California Aqueduct, the waters are accepted into the California Aqueduct through the Intertie in order to prevent flooding of usable lands. Therefore, nothing in this agreement is intended to or shall affect the responsibilities and liabilities of the Kern River Interests with respect to the control, use, distribution, or disposal of the floodwaters that occur in the Kern River at various times.

5. Successors and Assigns Obligated

This agreement and all of its provisions shall apply to and bind the successors and assigns of the parties hereto.

6. Term of Agreement

This agreement shall not be effective until completion of the Intertie as described in Recital A hereof and shall remain in effect so long as the Intertie will provide flood control benefits and the State can use such flows in the normal planned operation of the California Aqueduct.

IN WITNESS WHEREOF, the parties hereto have executed

this agreement on the date first above written.

Approved as to legal form
and sufficiency:

By [Signature]
Chief Counsel
Department of Water Resources

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

By [Signature]
Director

Approved:

By [Signature]
Legal Counsel

KERN COUNTY WATER AGENCY

By [Signature]
President

By [Signature]
Secretary

Approved:

By [Signature]
Legal Counsel

BUENA VISTA WATER STORAGE DISTRICT

By [Signature]
President

By [Signature]
ASSY. Secretary

Approved:

By [Signature]
Legal Counsel
11/13/75

NORTH KERN WATER STORAGE DISTRICT

By [Signature]
President

By [Signature]
Secretary

Approved:

By [Signature]
Legal Counsel

TULARE LAKE BASIN WATER
STORAGE DISTRICT

By [Signature]
President

By [Signature]
Secretary

Approved:

By [Signature]
Legal Counsel

HACIENDA WATER DISTRICT

By [Signature]
President

By [Signature]
Secretary

EXHIBIT G
AS-CONSTRUCTED DRAWINGS

EXHIBIT G

KERN RIVER - CALIFORNIA

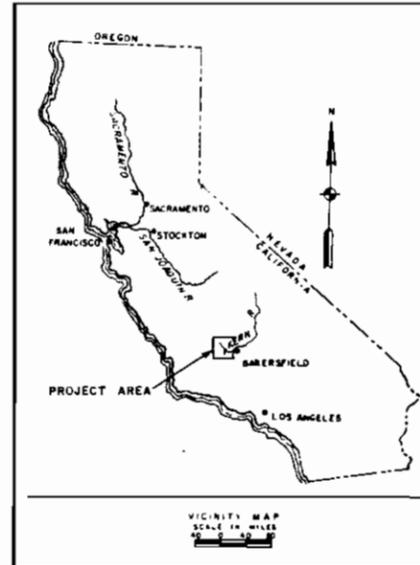
AQUEDUCT INTERTIE

KERN COUNTY, CALIFORNIA



INDEX OF DRAWINGS

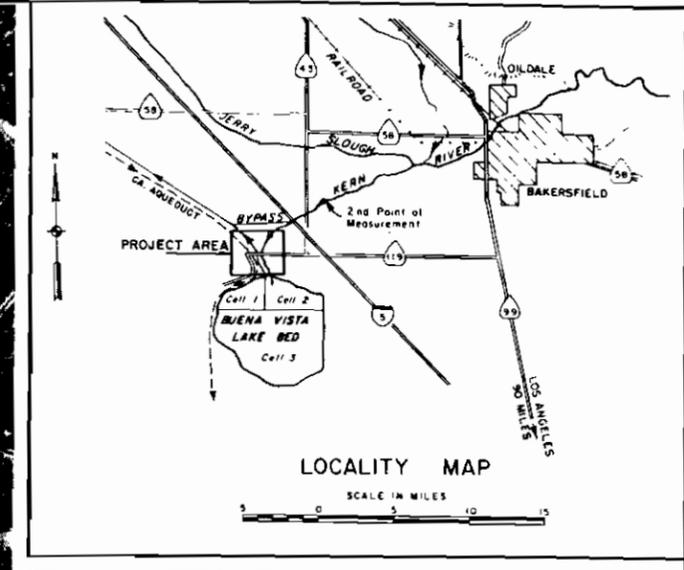
SHEET NO.	DESCRIPTION OF SHEET
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11/5	Logs Of Borings
△△△ 11/6.3	Vicinity Topography
△△ 11/7.2	Sedimentation Basin & Levees, Sections
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AS-CONSTRUCTED
CONTR. NO 76-C-0072

REVISION	DATE	DESCRIPTION	BY	IT
△	20 Sep 76	Revised "As-Constructed"	JL	1
△	18 Jun 76	Contract Sheets Revised	JL	1
△	19 Apr 76	Contract Sheets Revised	MS	1
△	12 Apr 76	Contract Sheets Revised	MS	1

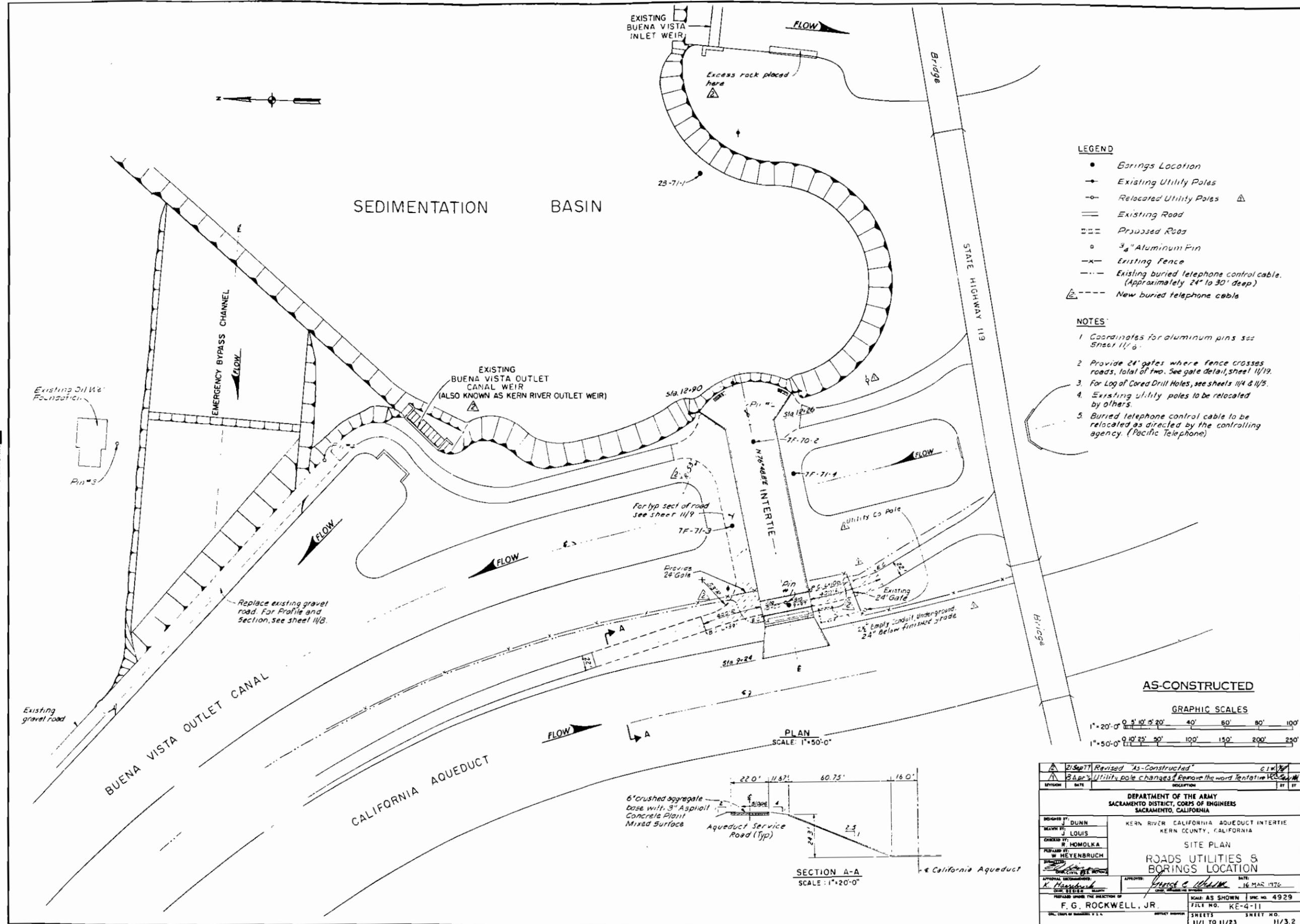
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA	
DESIGNED BY: J. DUNN	KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA INDEX OF DRAWINGS
DRAWN BY: J. LOUIS	
CHECKED BY: J. DUNN	
PREPARED BY: W. HEYENBRUCH	
APPROVED: <i>[Signature]</i> CIVIL ENGINEER	
DATE: 16 MAR 1976	
PREPARED UNDER THE DIRECTION OF: F. G. ROCKWELL, JR.	SCALE: NONE SHEET NO. KE-4-11 SHEETS 11/1 TO 11/23 SHEET NO. 11/1.4



UNIVERSITY MICROFILMS
 INTERNATIONAL
 SERIALS ACQUISITION
 DEPARTMENT
 300 N ZEEB RD
 ANN ARBOR MI 48106

AS-CONSTRUCTED		REVISION	DATE	DESCRIPTION	BY	CHK
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA						
DESIGNED BY: J. DUNN				KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE		
DRAWN BY: J. LOUIS				KERN COUNTY, CALIFORNIA		
CHECKED BY: J. DUNN				PROJECT AREA		
PREPARED BY: W. HEYENBRUCH				APPROVED: <i>[Signature]</i> DATE: <i>[Date]</i>		
DRAWN BY: <i>[Signature]</i>				SCALE: AS SHOWN SPEC. NO.		
F.G. ROCKWELL, JR.				FILE NO. KE-4-11		
SHEETS				SHEET NO.		
11/1 TO 11/23				11/2		

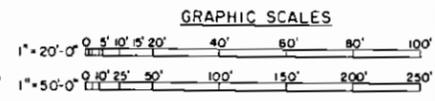
LEGEND
 - - - - - Limit of Contractor's Work Area



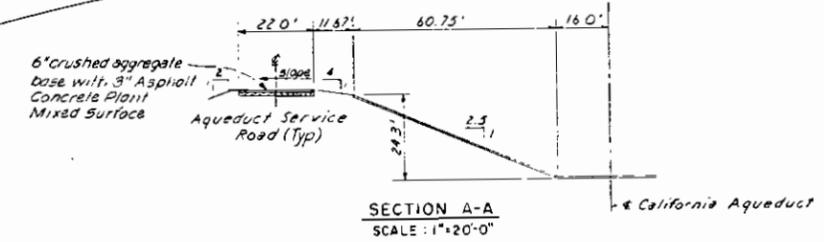
- LEGEND**
- Borings Location
 - Existing Utility Poles
 - Relocated Utility Poles
 - Existing Road
 - ▤ Prussed Road
 - 3/4" Aluminum Pin
 - x- Existing Fence
 - - - Existing buried telephone control cable. (Approximately 24" to 30" deep)
 - △ - - - New buried telephone cable

- NOTES**
1. Coordinates for aluminum pins see Sheet 11/6.
 2. Provide 24" gates where fence crosses roads, total of two. See gate detail, sheet 11/19.
 3. For Log of Cored Drill Holes, see sheets 11/4 & 11/5.
 4. Existing utility poles to be relocated by others.
 5. Buried telephone control cable to be relocated as directed by the controlling agency. (Pacific Telephone)

AS-CONSTRUCTED



PLAN
SCALE: 1" = 50'-0"



DESIGNED BY: J. DUNN	DATE: 21 Sept 77	REVISION: Revised "As-Constructed"	C.I.W. 11/16
CHECKED BY: J. LOUIS	DATE: 28 Apr 78	REVISION: Utility pole changes. Remove the word Tentative.	11/16
DESIGNED BY: W. HEYENBRUCH	DATE: 16 MAR 1976	REVISION: 11/1 TO 11/23	11/3.2
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA			
KERN RIVER CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA			
SITE PLAN ROADS UTILITIES & BORINGS LOCATION			
APPROVAL SIGNATURES: F. G. ROCKWELL, JR.		DATE: 16 MAR 1976	
PREPARED UNDER THE DIRECTION OF: F. G. ROCKWELL, JR.		SCALE: AS SHOWN SPEC. NO. 4929	
FILE NO. KE-4-11		SHEETS 11/1 TO 11/23	
SHEET NO. 11/3.2		SHEET NO. 11/3.2	

7F-71-3
Elev. 280±

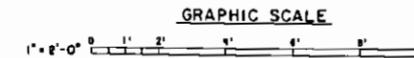
DEPTH	TEST	TEST NO.	TEST DATE	TEST TIME	TEST RESULT	DESCRIPTION
0	ML	6 28 30 12	-	-	-	Silt, light tan, stiff, traces of fine sand, mica and organic material, small root holes
2.7'	SC					Clayey Sand, brown-gray, wet, soft
2.9'	SM	87 12	-	NP 122 14		Silty Sand, dark tan, 1/8 to 1/4-inch lenses of cemented sand with mica
4.0'	ML					Silt, dark gray, moist, dense
4.0'	SP					Sand, lenses of dark gray, and dark brown, dense, contains mica
5.5'	SM	65 35	-	NP 102 25		Silty Sand
5.9'	SP					Sand, light gray, dense, fine
6.1'	SM					Silty Sand, gray, dense
6.4'	MP					Sand, light gray, loose to dense
8.1'	SM					Silty Sand, dark gray, loose to dense, lensed and pocketed with sandy silt, traces of roots
8.8'	CL					Silty Clay, dark gray, moist, med. stiff, traces of fine sand
	CH					Clay, dark gray, moist, stiff, traces of fine sand, roots and rootholes throughout
12.0'	ML	1 98 38 8 82 39				Silt, dark gray, med. to stiff, some fine sand, bottom sandier than top, rootlets throughout, lenses of mica and sand
16.2'	SP	98 2	-	NP 98 22		Sand, dark gray, wet, fine, clean
17.1'	SM					Gravelly Sand, gray, moist, loose, subangular, plus No. 4
17.4'	SP	98 2	-	NP 112 27		Sand, gray, dense, uniform
20.4'	SP	30 67 3	-	NP 122 21		Gravelly Sand, subrounded to subangular gravel, 1 1/2" max.
24.8'	SP	99 1	-	NP 95 28		Sand, light gray, dense, fine to med. sand
26.3'						Bottom

7F-71-4
Elev. 280±

DEPTH	TEST	TEST NO.	TEST DATE	TEST TIME	TEST RESULT	DESCRIPTION
0	F					Clayey Silt, brown, dry, low to medium plasticity, stiff
1.0'	SP					Sand, tan-brown, dry, non-plastic, fine to medium, clean, fine
0.5'	SM	1 95 4				Silty Sand, light tan, dense, 10% mica
0.6'	SP					Sand, dark brown, med. dense, fine sand
0.9'	SM	90 10	-	NP 98 21		Light brown, dense, horizontal and steeply bedded tan, brown and gray sand lenses, some mica
12.9'	SM	89 11	-	NP 98 27		Light tan, med. dense, fine sand and mica
14.3'	SP	94 4	-	NP 102 21		Tan, dense, horizontally bedded
23.1'	SP	98 2	-	NP 98 24		Grayish-tan, med. loose, layer of sandy gravel, gray, dense, 20% gravel, 1" max. from 24.0' to 24.3' deep
25.1'						Bottom

2B-71-1
Elev. 295±

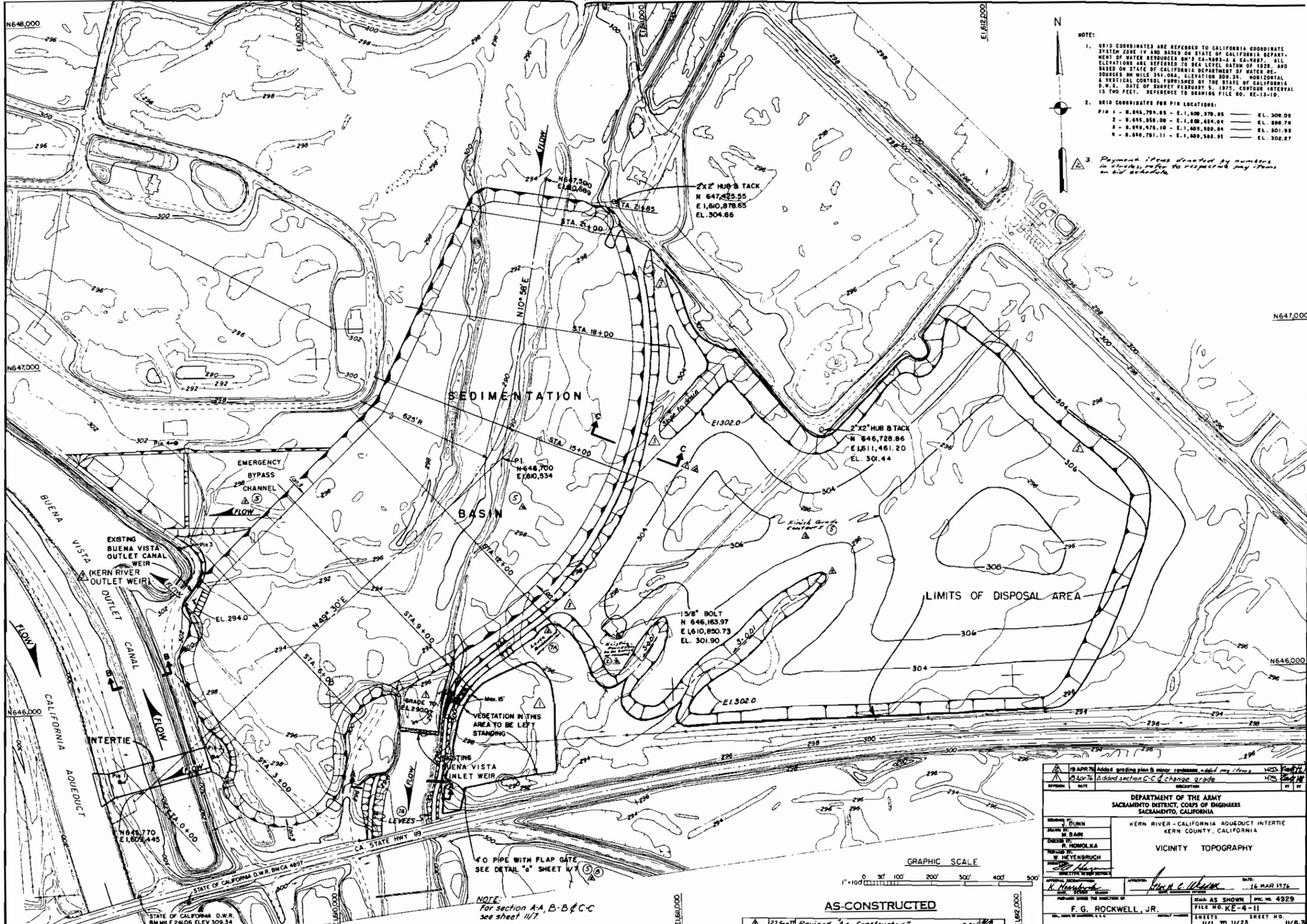
DEPTH	TEST	TEST NO.	TEST DATE	TEST TIME	TEST RESULT	DESCRIPTION
0	SP	97 3	-	NP -		Sand, brown, dry
2.5'	SM	86 14	-	NP -		Silty Sand, brown, dry
5.0'	SP	93 7	-	NP - 4		
7.0'	CL	12 81 83 24	-	29		Sandy Clay, mottled brown
10.0'	F					Sand, gray, damp, loose
11.0'						Silty Sand, gray, tan and brown
18.0'	SM	78 22	-	NP - 12		
18.0'						Bottom



- NOTES:
1. See sheet 11/3 for Location of borings.
 2. General Notes and Legends and other logs of Borings see sheet 11/4

AS-CONSTRUCTED

REVISION	DATE	DESCRIPTION	BY	DT
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA				
DESIGNED BY: C B Hendricks		KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA		
CHECKED BY: T S Gutierrez		LOG OF BORINGS		
DRAWN BY: C B Hendricks				
APPROVED BY: T S Gutierrez		DATE: 16 MAR 1976		
APPROVED BY: <i>[Signature]</i>		DATE: 16 MAR 1976		
PREPARED UNDER THE DIRECTION OF F.G. ROCKWELL, JR.		SCALE: AS SHOWN SPEC. NO. 4929 FILE NO. KE-4-11		
SHEETS		SHEET NO. 11/1 TO 11/23 11/5		

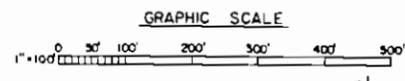


NOTE:

- GRID COORDINATES ARE REFERRED TO CALIFORNIA COORDINATE SYSTEM ZONE 14 AND BASED ON STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES BM'S CA-4889-A & CA-4887. ALL ELEVATIONS ARE REFERRED TO SEA LEVEL DATUM OF 1929. AND BASED ON STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES BM MILE 241.00A, ELEVATION 309.34. HORIZONTAL & VERTICAL CONTROL FURNISHED BY THE STATE OF CALIFORNIA D.W.R. DATE OF SURVEY FEBRUARY 1, 1975. CONTOUR INTERVAL IS TWO FEET. REFERENCE TO DRAWING FILE NO. EE-13-10.
- GRID COORDINATES FOR PIN LOCATIONS:
 PIN 1 - N. 646,704.85 - E. 1,609,379.85 EL. 308.08
 PIN 2 - N. 646,958.00 - E. 1,609,654.04 EL. 298.78
 PIN 3 - N. 646,876.10 - E. 1,609,580.84 EL. 301.99
 PIN 4 - N. 646,781.11 - E. 1,609,508.91 EL. 302.27
- Payment items denoted by numbers in circles, refer to respective pay items on bid schedule.

ENVIRONMENTAL ENGINEERING CONSULTANTS

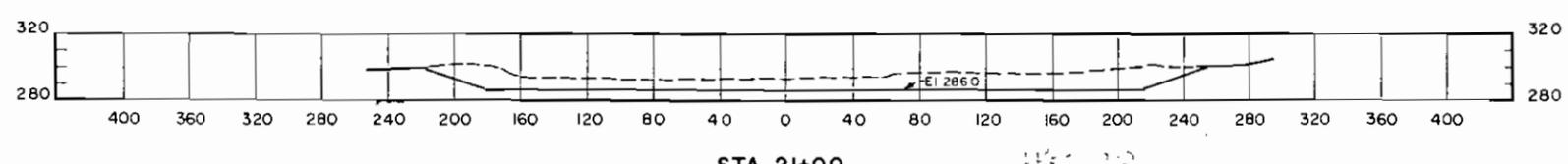
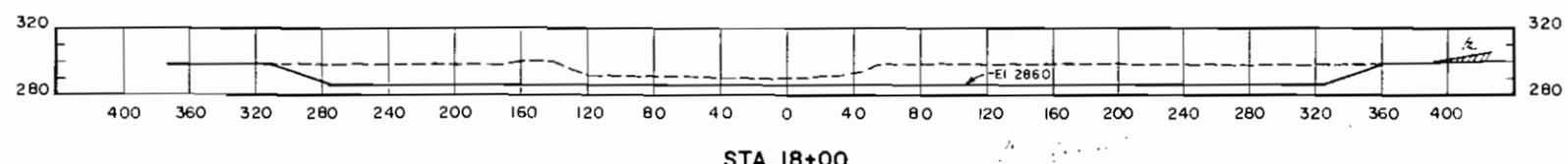
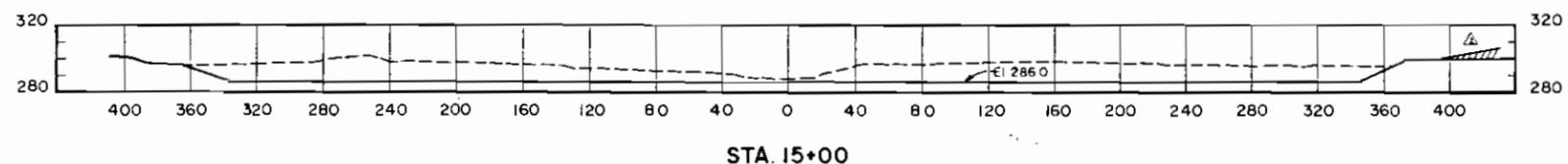
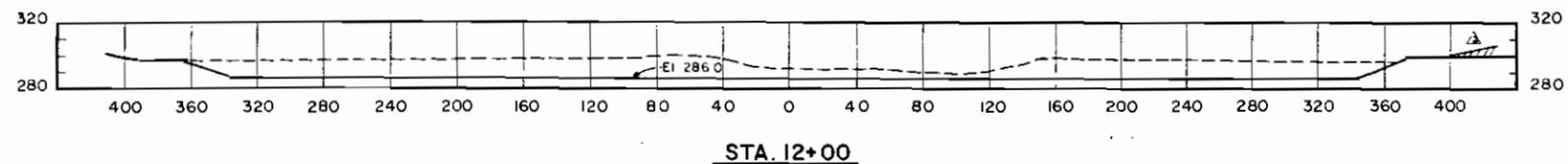
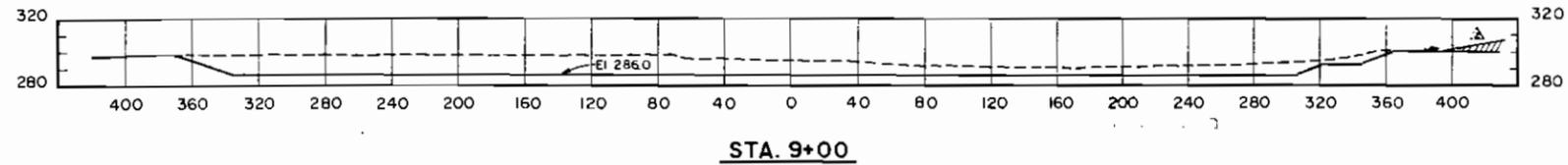
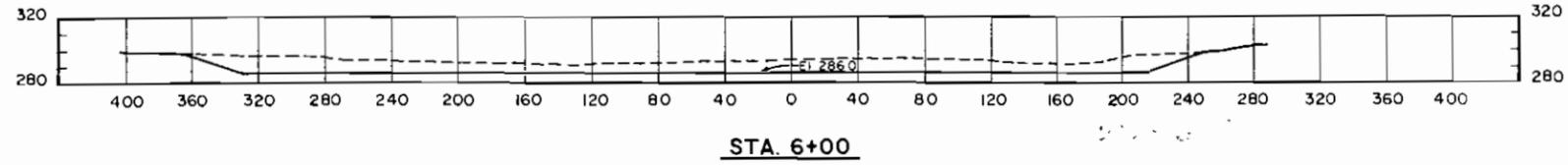
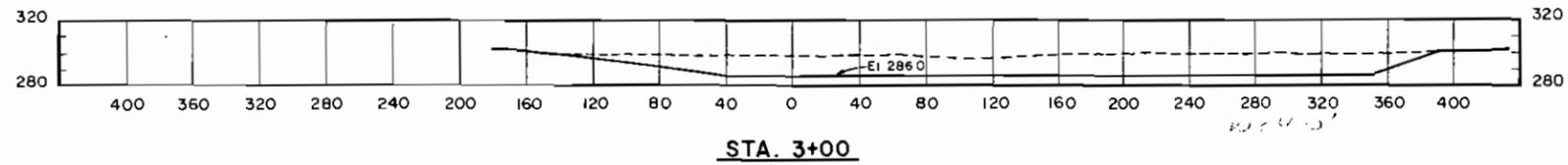
19 APR 76 Added grading plan B minor revisions, added pay items VCS, F107 20 APR 76 Added section C-C & change grade	
APPROVED:	DATE:
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA	
KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA	
VICINITY TOPOGRAPHY	
DESIGNED BY: JAGAN B. BARN	DATE: 16 MAR 1976
CHECKED BY: R. MOMOLKA	SCALE AS SHOWN SHEET NO. KE-4-11
APPROVED BY: K. HEYENBRUGH	SHEETS 11/1 TO 11/25
F. G. ROCKWELL, JR.	



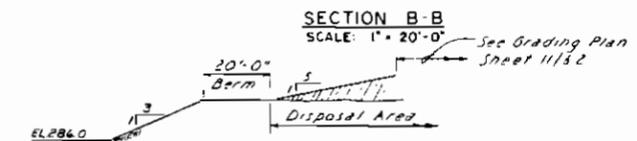
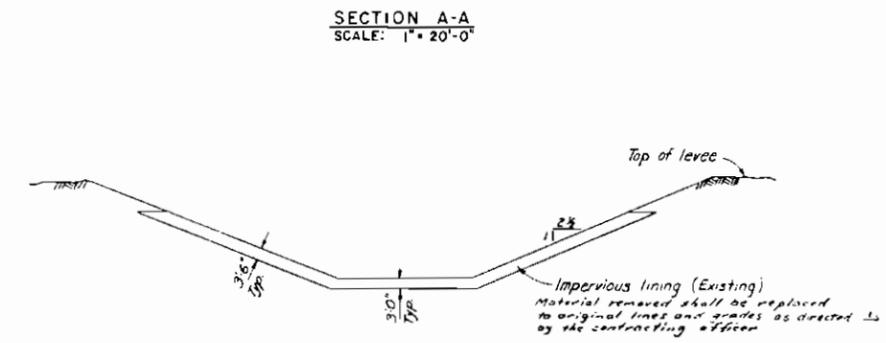
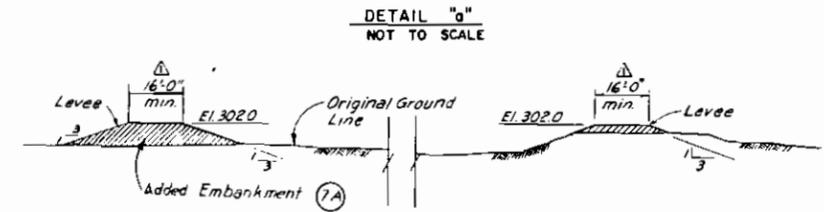
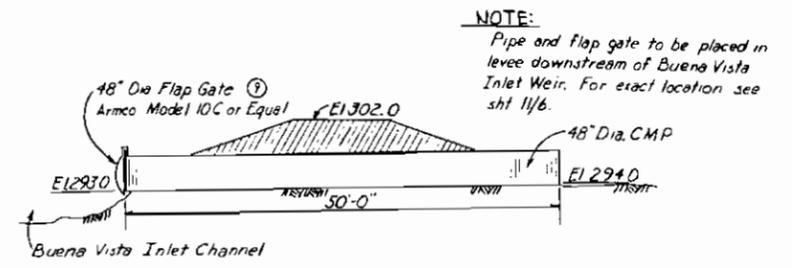
NOTE:
For section A-A, B-B & C-C see sheet 11/7

SAFETY PAYS

22 Sep 77 Revised "As-Constructed" c.r.w.



SCALE: 1" = 40', HORIZONTAL & VERTICAL

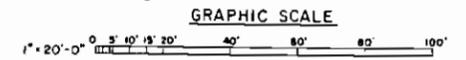


LEGEND

----- Original ground elevation
 _____ Excavated ground elevation

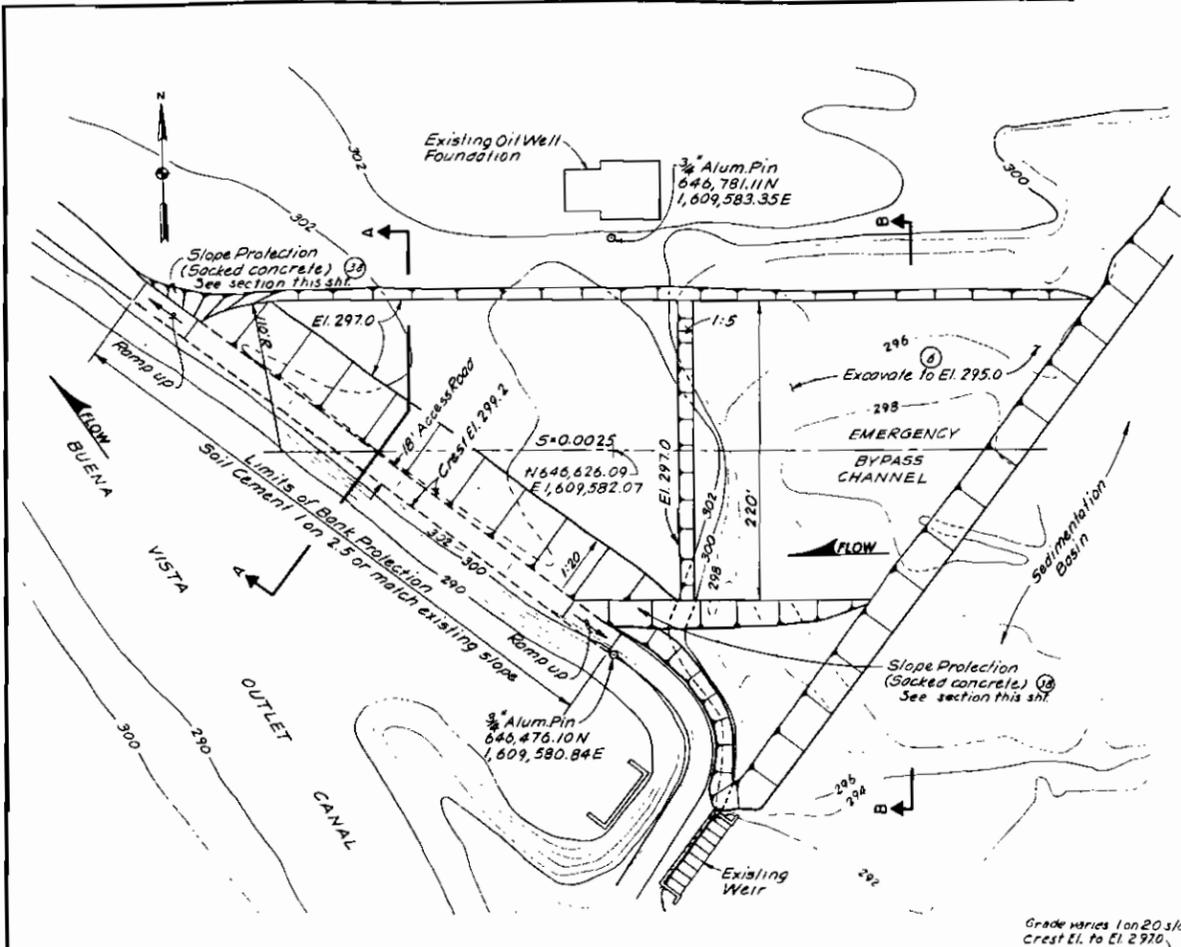
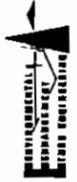
*W.S. (operating
 2001) is 297.2
 - see sht 11, # 263*

- NOTES**
- See sheet 11/6 for location of stations and sections (Stations taken looking upstream)
 - All slopes are 1 on 3 unless otherwise indicated
 - Payment Items:
 Levee Embankment (7A)
 Flap Gate, 48-inch (9)

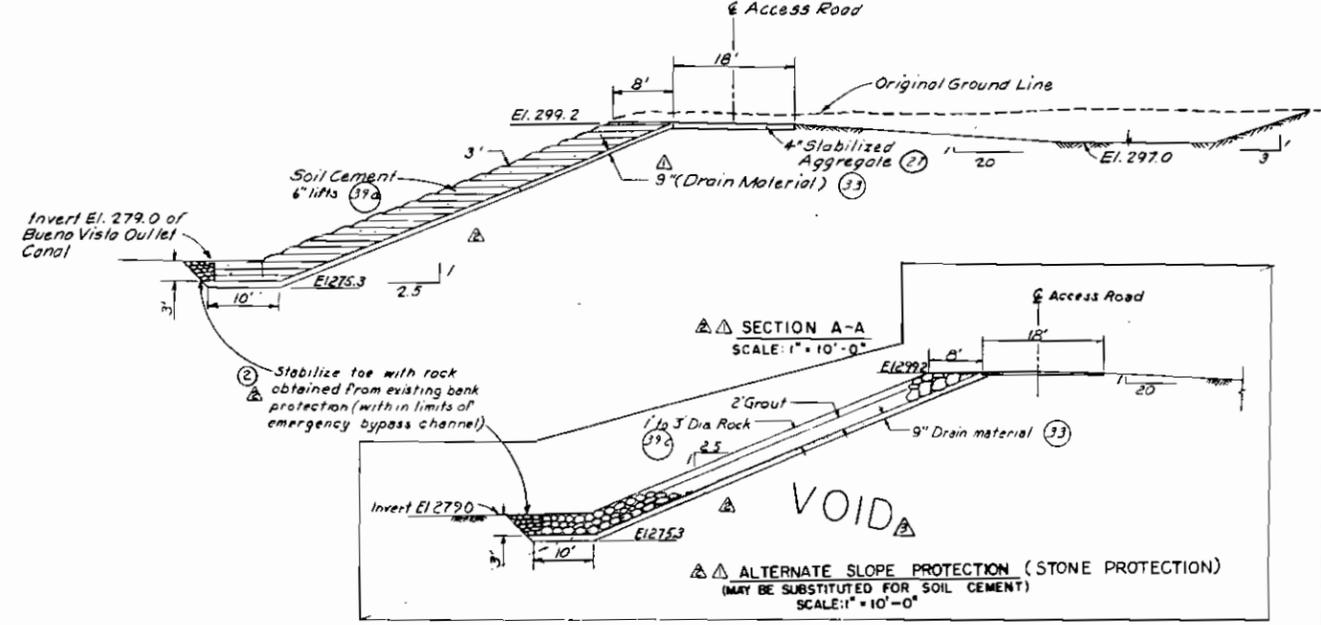


AS-CONSTRUCTED

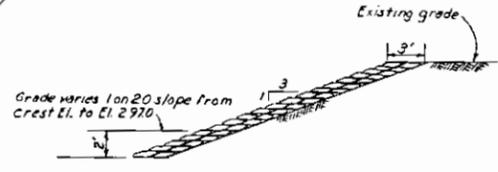
DESIGNED BY: DUNN	MINOR REVISION	DATE: 11/76	BY: [Signature]
CHECKED BY: LOUIS	ADDED SECTION C-C AND MINOR REVISIONS	DATE: 11/76	BY: [Signature]
PREPARED BY: HOMOLKA	DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA		
APPROVED BY: HEYENBRUCH	KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA		
APPROVED: [Signature]		DATE: 16 MAR 1976	
PREPARED UNDER THE DIRECTION OF: F.G. ROCKWELL, JR.		SCALE: AS SHOWN	SPEC. NO. 4929
FILE NO. KE-4-11		SHEET NO. 11/1 TO 11/23 11/72	



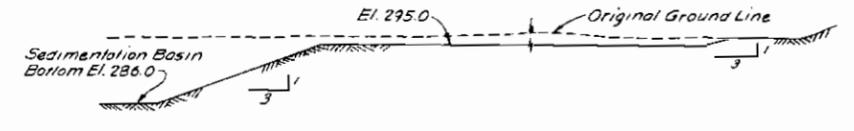
PLAN
SCALE: 1" = 50'-0"



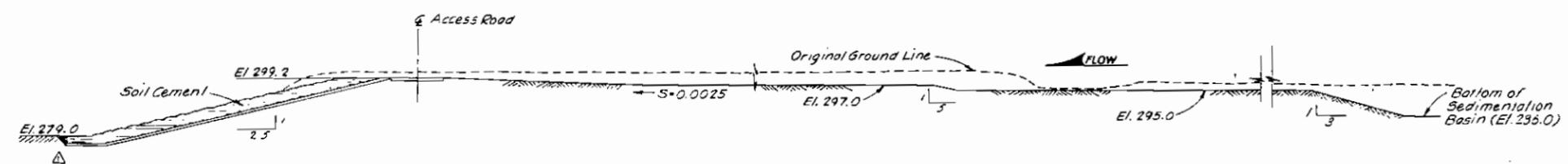
SECTION A-A
SCALE: 1" = 10'-0"



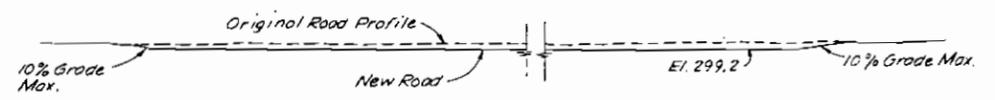
TYPICAL SECTION - SACKED CONCRETE
SCALE: 1" = 5'-0"



SECTION B-B
SCALE: 1" = 10'-0"

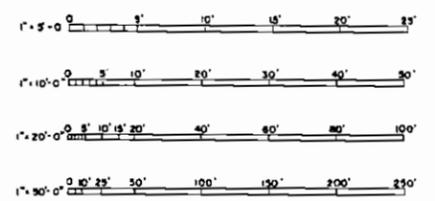


PROFILE ALONG CENTERLINE
SCALE: 1" = 20'-0"



PROFILE OF ACCESS ROAD
SCALE: 1" = 20'-0"

GRAPHIC SCALES



NOTES

- All excavated slopes are 1 on 3 unless otherwise indicated.
- For elevations of 3/8" aluminum pins see notes on sheet 11/6.
- For general notes see sheet 11/9.
- Material excavated to facilitate construction beyond that shown on the drawings shall be restored to original lines and grade using like material.
- Payment Items:
 - Excavation - Emergency Bypass Channel (5)
 - Crushed Mineral Aggregate Base Course (27)
 - Drain Material (33)
 - Sacked Concrete (38)
 - Soil Cement (39a)
 - Quarry Stone (39c)

REFERENCE DRAWINGS

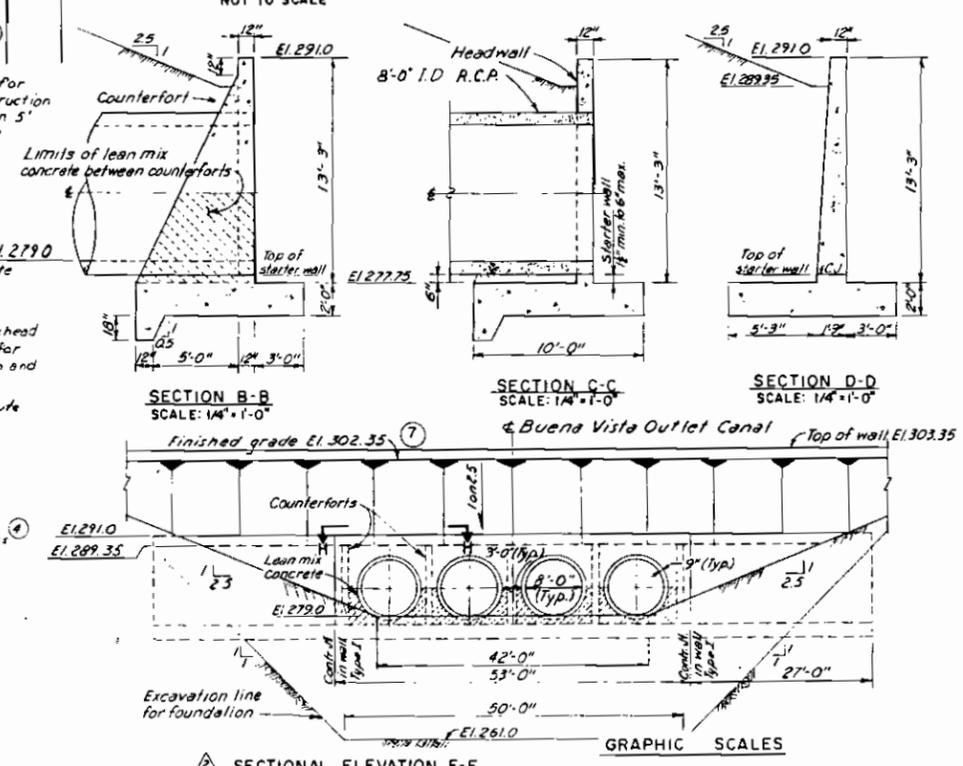
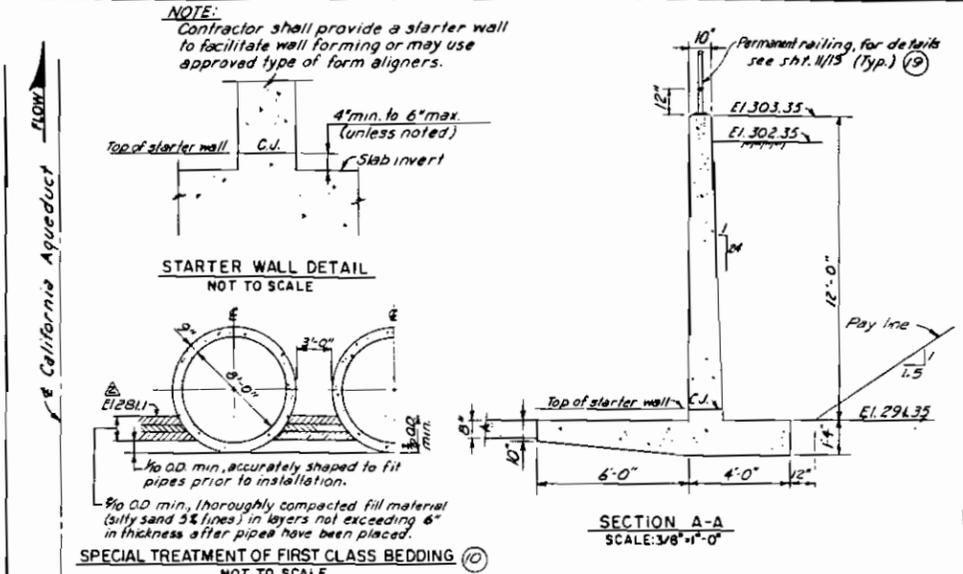
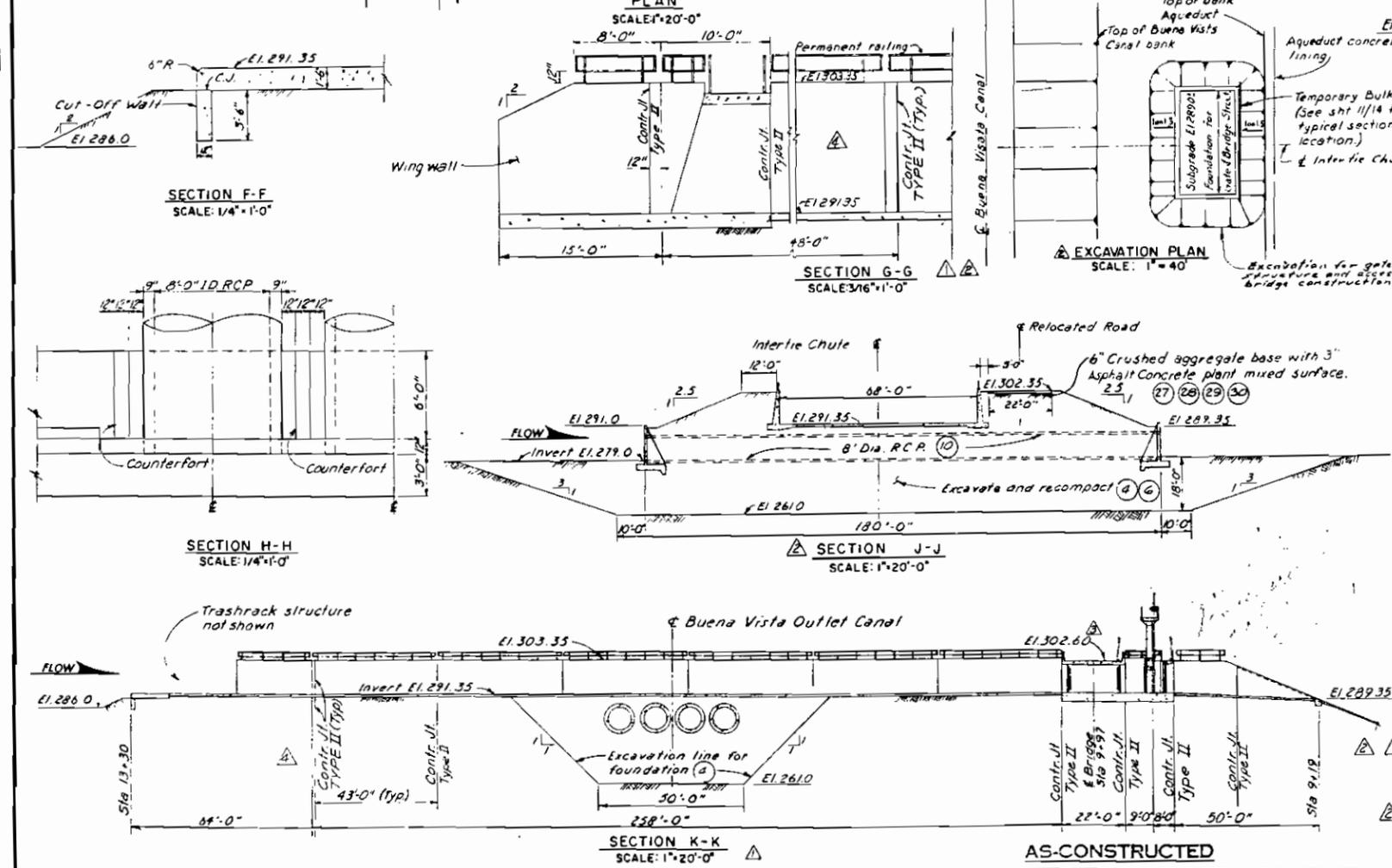
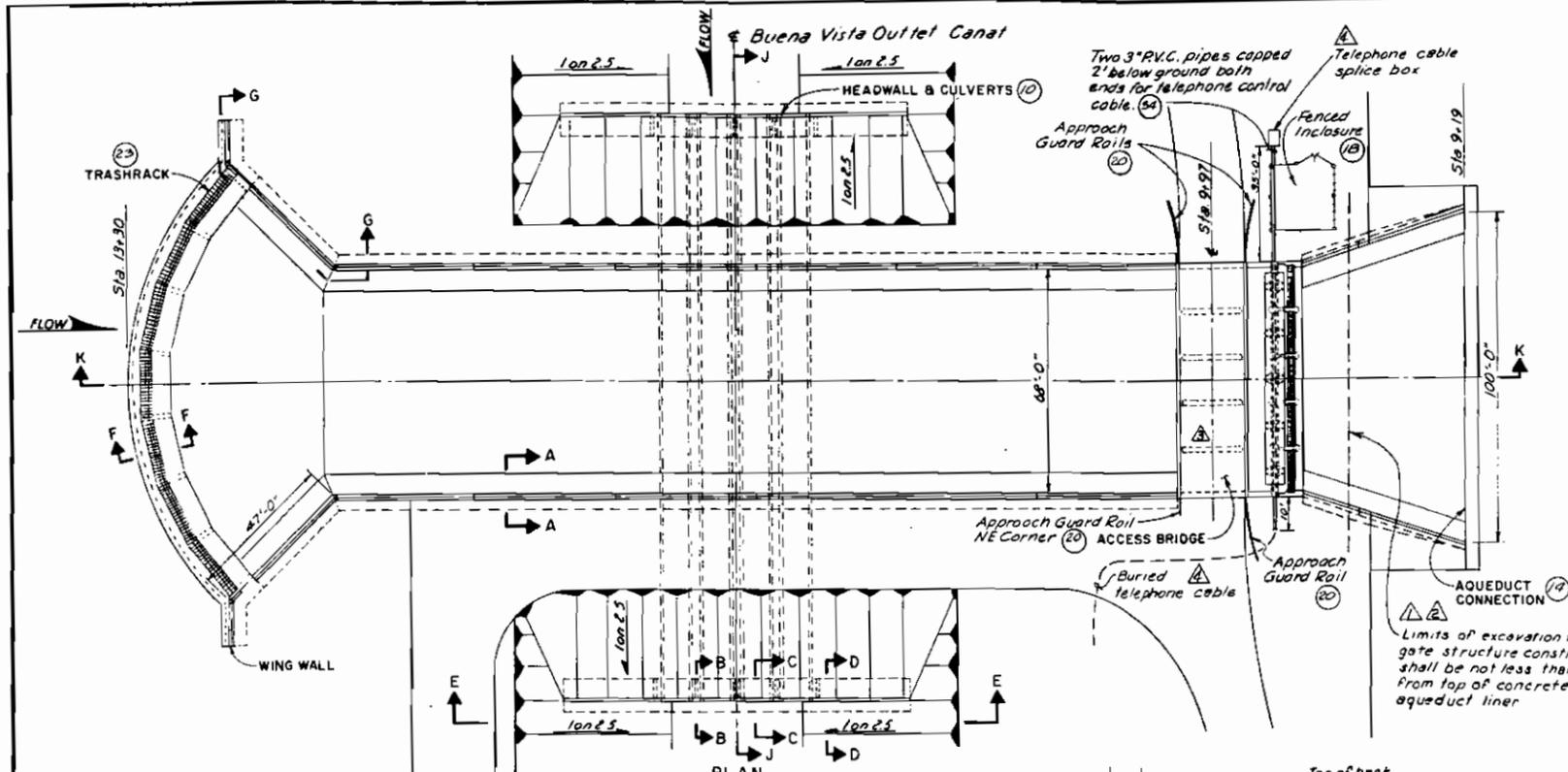
Vicinity Topography.....11/8



AS-CONSTRUCTED

REVISION	DATE	DESCRIPTION	BY	CHKD
22 Sept 77		Revised "As-Constructed"	C.J.W.	
19 APR 76		Add section, delete drain pipes, B minor revisions		
5 Apr 76		Add alternate slope protection and minor revisions		

DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA	
DESIGNED BY: JUSTINIANO DRAWN BY: STEFFENS CHECKED BY: BAIN PERMITTED BY: HEYENBRUCH JUNIOR TITLE: PROJECT ENGINEER APPROVAL SIGNATURE: <i>K. Housley</i> TITLE: SENIOR ENGINEER	KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA EMERGENCY BYPASS CHANNEL PLAN & SECTIONS DATE: 16 MAR 1976 SPEC. NO. 4929 FILE NO. KE-4-11 SHEETS 11/1 TO 11/23 SHEET NO. 11/8.3



GENERAL NOTES:

- All concrete to have 4,000 psi compressive strength in 28 days.
- All exposed edges of concrete to be chamfered $\frac{3}{4}$ " x 45°.
- Concrete finishes:
 - Floor slabs --- Steel trowel
 - All other unformed surfaces --- Wood float
 - Formed surfaces against backfill --- Class "D"
 - Formed interior water passages --- Class "C"
 - Bulkhead gate slots --- Class "A"
 - All other formed surfaces --- Class "B"
- The contractor shall show location of top of the starter wall on shop drawings, in order to provide proper splice lengths for steel reinforcement.
- Contraction joints in walls are shown on (sheet 11/14)
- All excavated slopes noted on drawings are pay lines.
- Structural concrete may be used in lieu of lean mix concrete. (See Specifications)
- All figures in circle () denote payment item. Concrete and reinforcement not shown.

REVISION	DATE	DESCRIPTION	BY	CHK
1	18 JUN 72	CHANGE BRIDGE PIER SIZE & BRIDGE ELEVATION	WJ	WJ
2	20 APR 72	MINOR REVISION & EXCAVATION PLAN FOR TEMP. SHORING	WJ	WJ
3	18 APR 72	CHANGE CONTR. JT. TYPE II; TEMP. SHORING	WJ	WJ

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

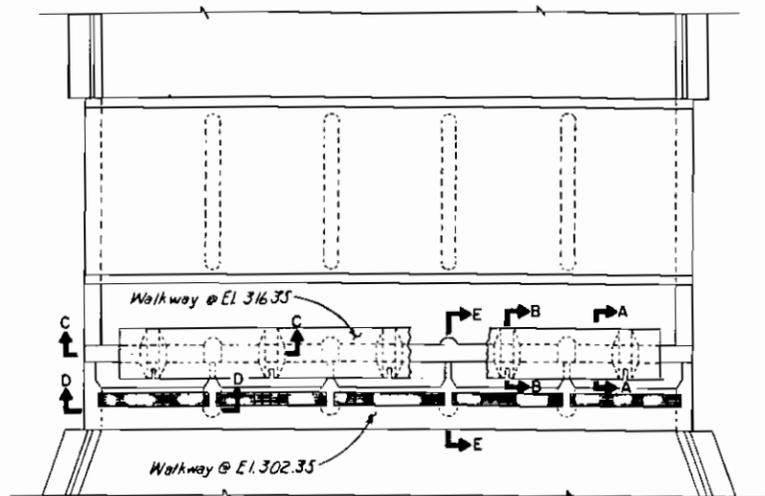
KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE
KERN COUNTY, CALIFORNIA

GENERAL ARRANGEMENT
PLAN, SECTION AND DETAILS

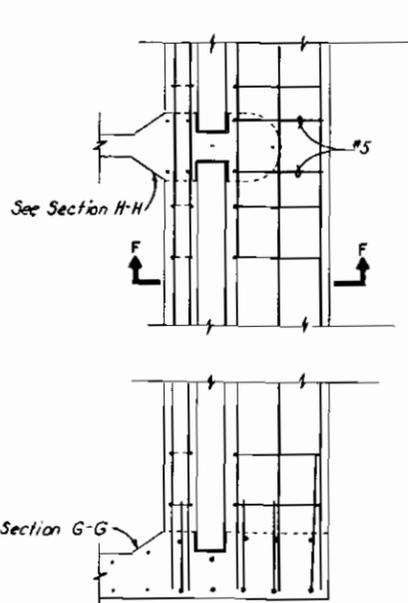
DESIGNED BY: QUINN
DRAWN BY: J. LOUIS
CHECKED BY: R. HORNOLKA
PREPARED BY: W. HEYENBRUCH
DATE: 16 MAR 1972

APPROVED: F. G. ROCKWELL, JR. DATE: 16 MAR 1972

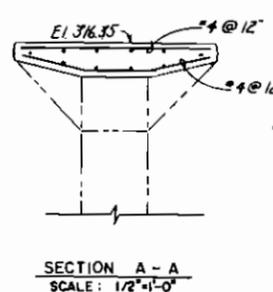
SCALE: AS SHOWN | SPEC. NO. 4929
FILE NO. KE-4-11
SHEETS 11/1 TO 11/23 | SHEET NO. 11/9.4



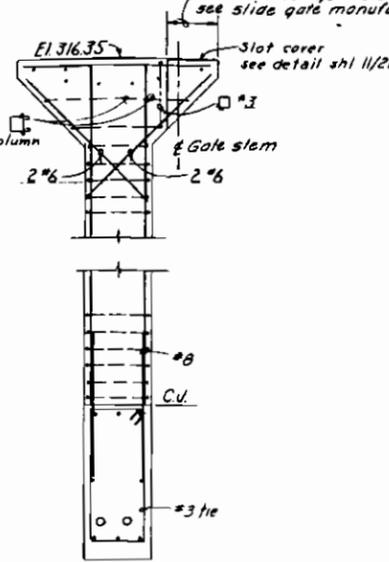
PLAN
SCALE: 1/8"=1'-0"



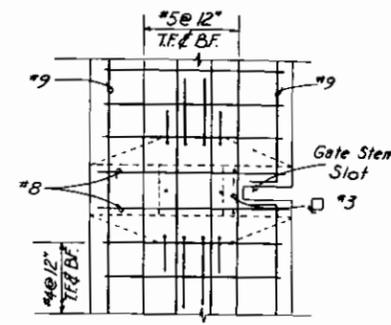
PLAN OF WALKWAY @ EL. 302.35
SCALE: 1/2"=1'-0"



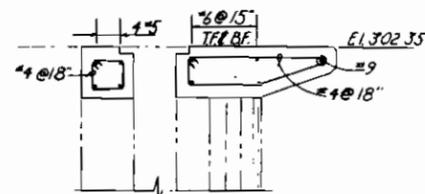
SECTION A-A
SCALE: 1/2"=1'-0"



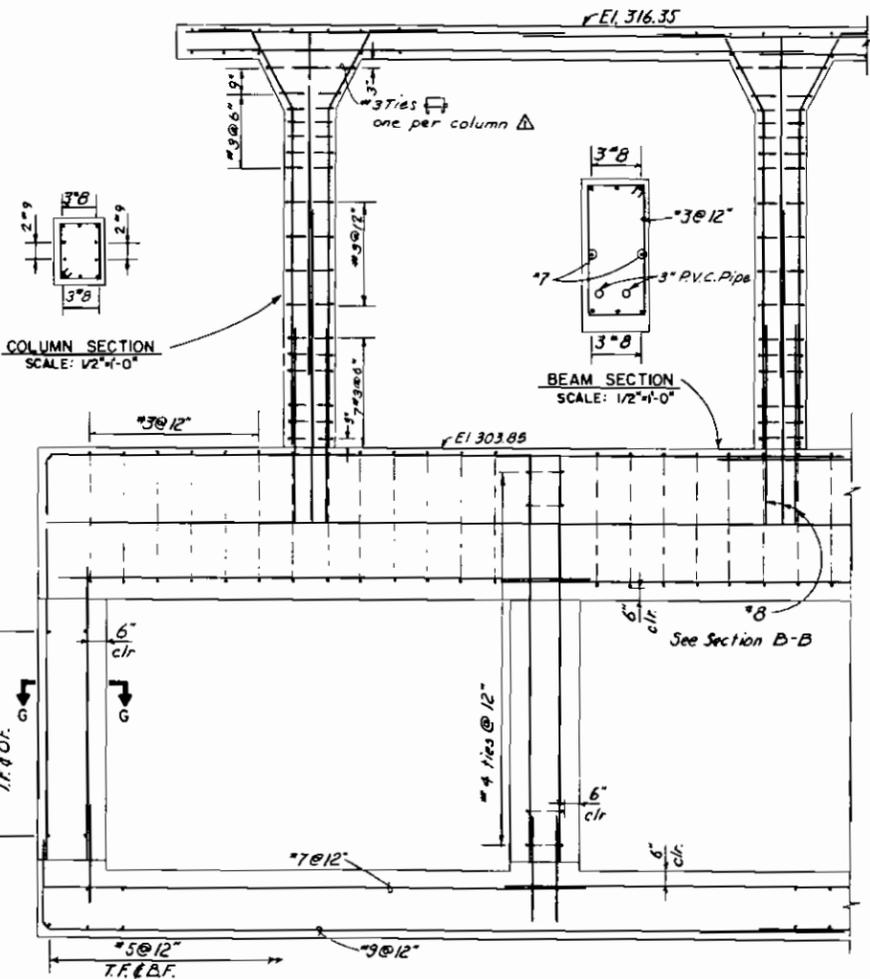
SECTION B-B
SCALE: 1/2"=1'-0"



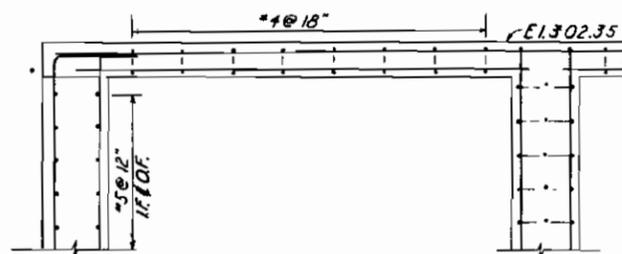
PLAN OF WALKWAY @ EL. 316.35
SCALE: 1/2"=1'-0"



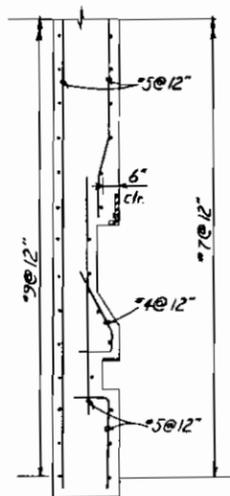
SECTION F-F
SCALE: 3/4"=1'-0"



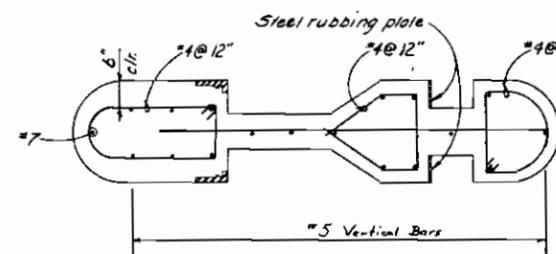
SECTION C-C
SCALE: 1/2"=1'-0"



SECTION D-D
SCALE: 1/2"=1'-0"

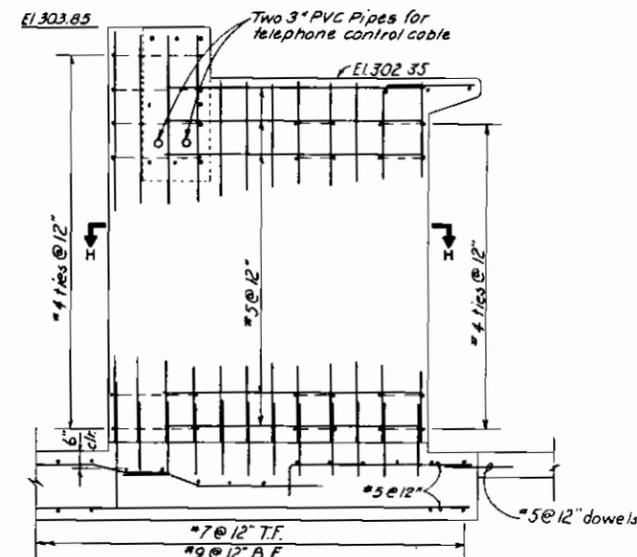


SECTION G-G
SCALE: 1/2"=1'-0"

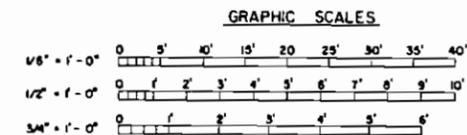


SECTION H-H
SCALE: 3/4"=1'-0"

NOTE
1. For general reinforcing notes see sheet 11/16.



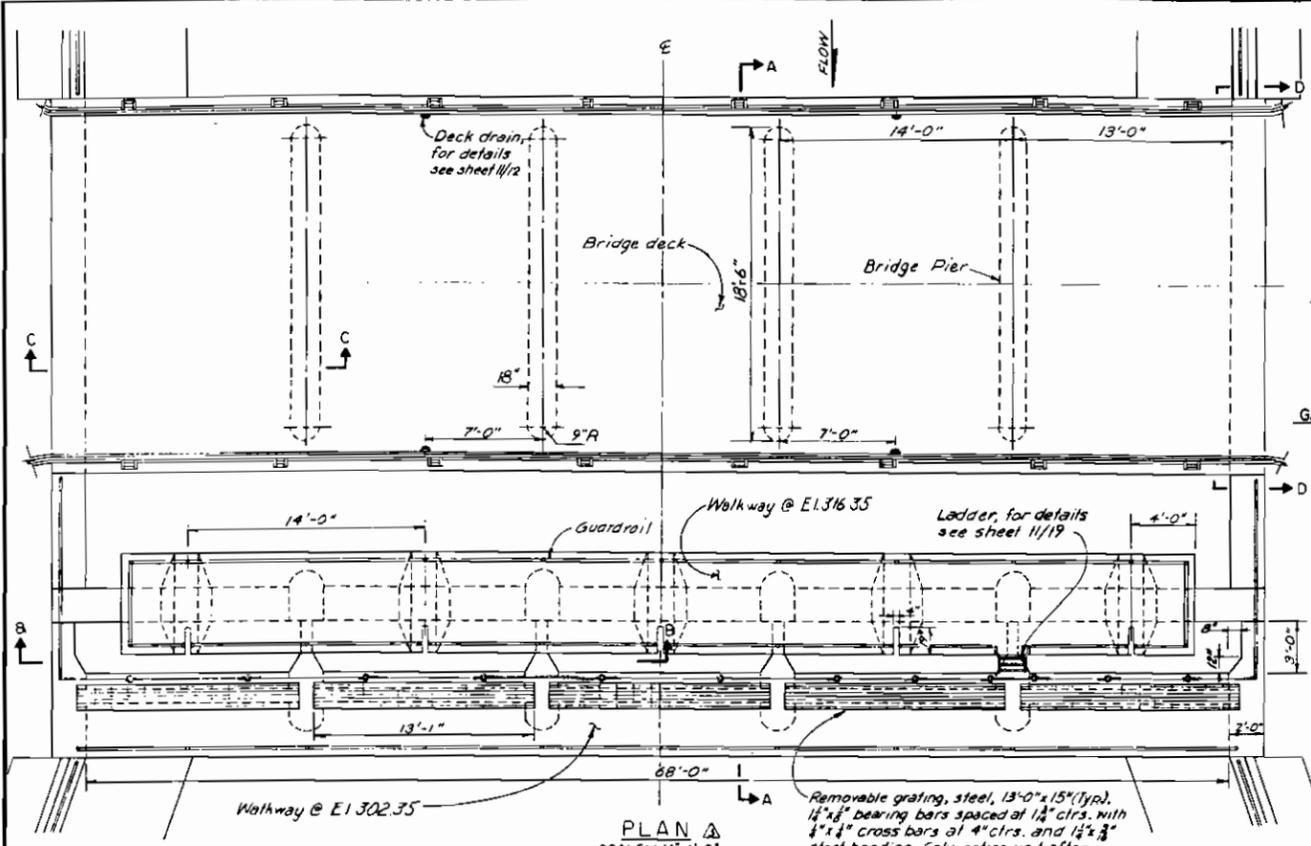
SECTION E-E
SCALE: 1/2"=1'-0"



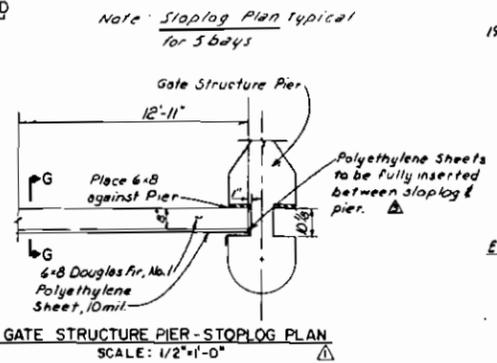
REFERENCE DRAWINGS
Access Bridge & Gate Structure, Plan & Section-----11/10
Access Bridge, Reinforcement-----11/12

AS-CONSTRUCTED

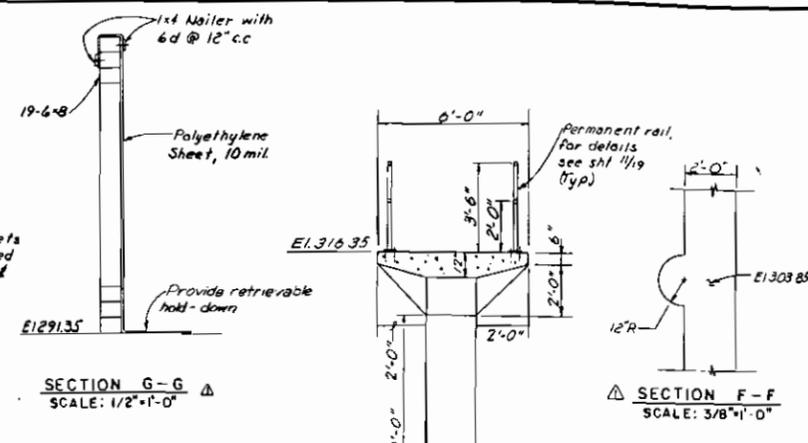
REVISION	DATE	DESCRIPTION	BY	IT
18 JUN 76	REVISE	GATE STEM HOLE TO SLOT & SIZE OF PIERS	W. H. H. / J. H. H.	
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA				
DRAWN BY: DUMN CHECKED BY: M. BAIN DESIGNED BY: R. HONDOLKA REVISIONS BY: W. HEYENBRUCH		KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA GATE STRUCTURE REINFORCEMENT		
APPROVAL: [Signature] PROJECT ENGINEER	APPROVAL: [Signature] SUPERVISOR	DATE: 16 MAR 1976		
PREPARED UNDER THE DIRECTION OF F. G. ROCKWELL, JR.		SCALE: AS SHOWN SPEC. NO. 4929 FILE NO. KE-4-11 SHEETS 11/1 TO 11/23 SHEET NO. 11/13.1		



PLAN
SCALE: 1/4"=1'-0"

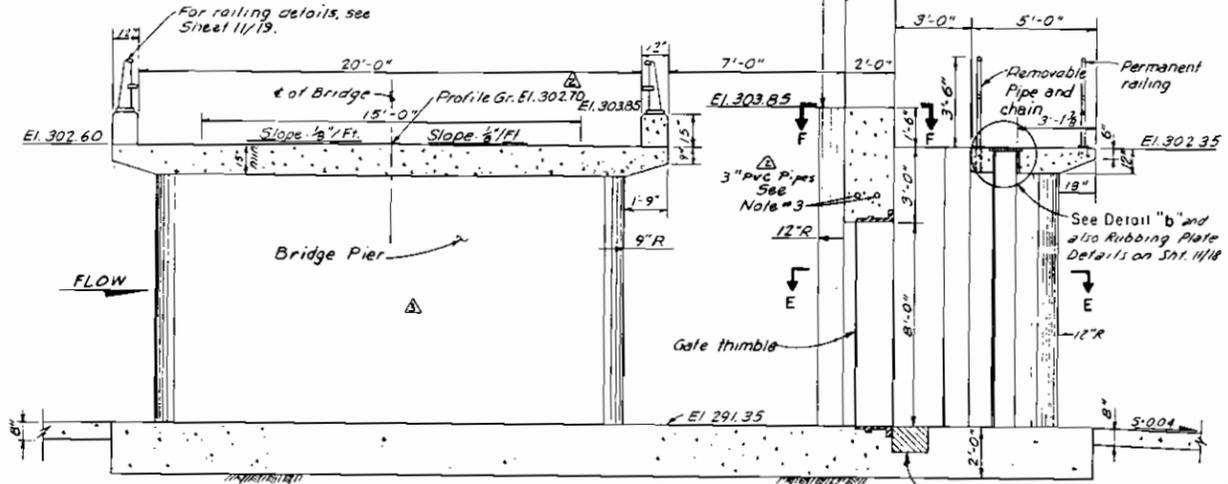


GATE STRUCTURE PIER - STOPLOG PLAN
SCALE: 1/2"=1'-0"

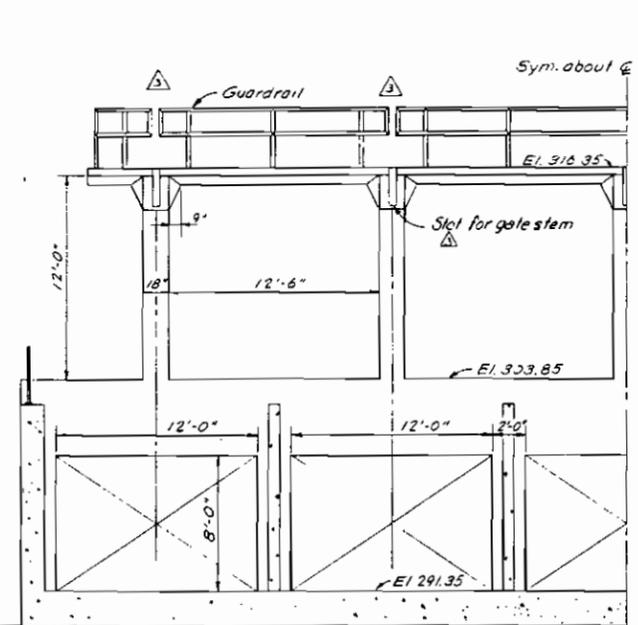


SECTION G-G
SCALE: 3/8"=1'-0"

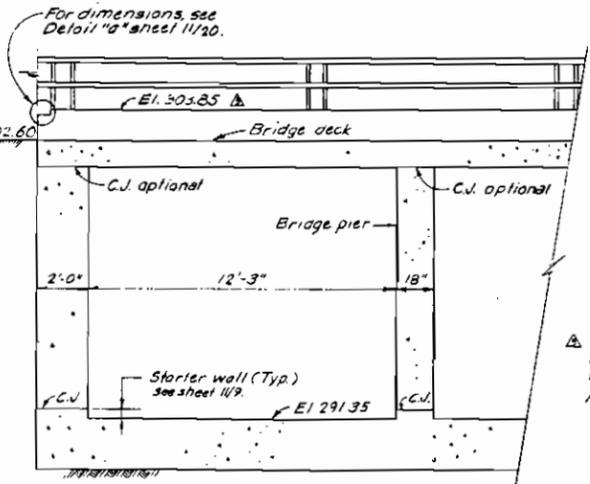
SECTION F-F
SCALE: 3/8"=1'-0"



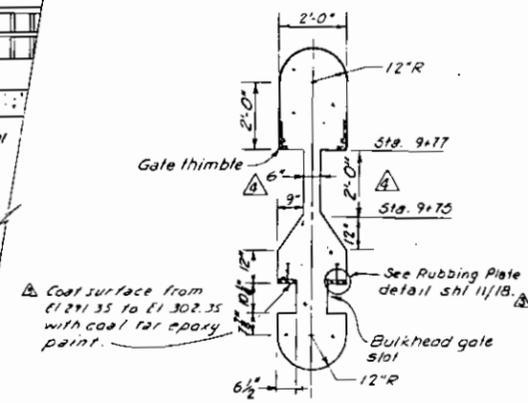
SECTION A-A
SCALE: 3/8"=1'-0"



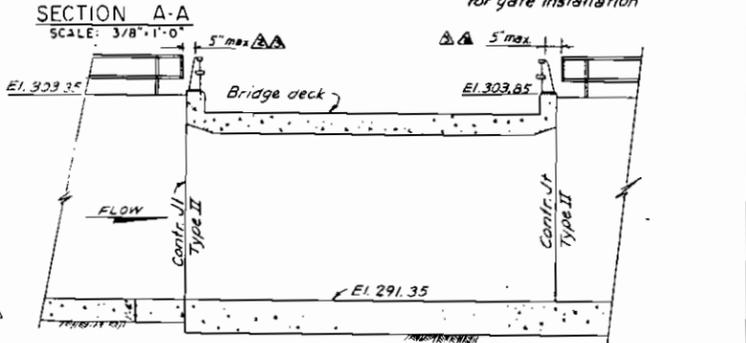
SECTION B-B
SCALE: 1/4"=1'-0"



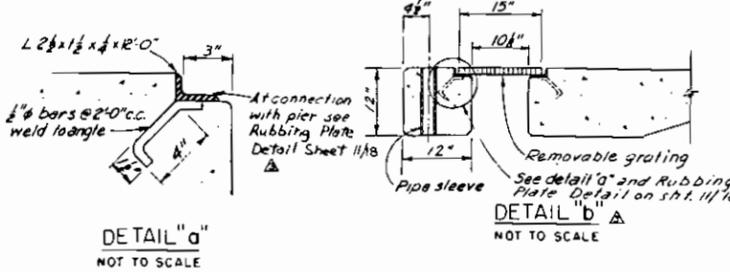
SECTION C-C
SCALE: 3/8"=1'-0"



SECTION E-E
SCALE: 1/2"=1'-0"



SECTION D-D
SCALE: 1/4"=1'-0"



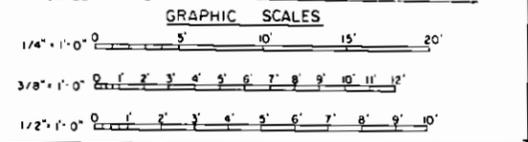
DETAIL 'a'
NOT TO SCALE

DETAIL 'b'
NOT TO SCALE

- NOTES:
- For general notes see sheet 11/9.
 - For removable post and chain detail see sheet 11/9.
 - Two 3" PVC pipes for telephone control cable see "Plan" sheet 11/9 for dimensions.
 - For bridge design loading see sheet 11/12.

REFERENCE DRAWINGS

Structural Features, Plan, Sections & Details	11/9
Access Bridge Reinforcement	11/12
Gate Structure, Reinforcement	11/13



DATE	DESCRIPTION	BY	CHK
11/17/76	Change dimension	WCS	WCS
9/24/76	Add stoplog plan & minor revisions	WCS	WCS

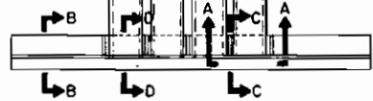
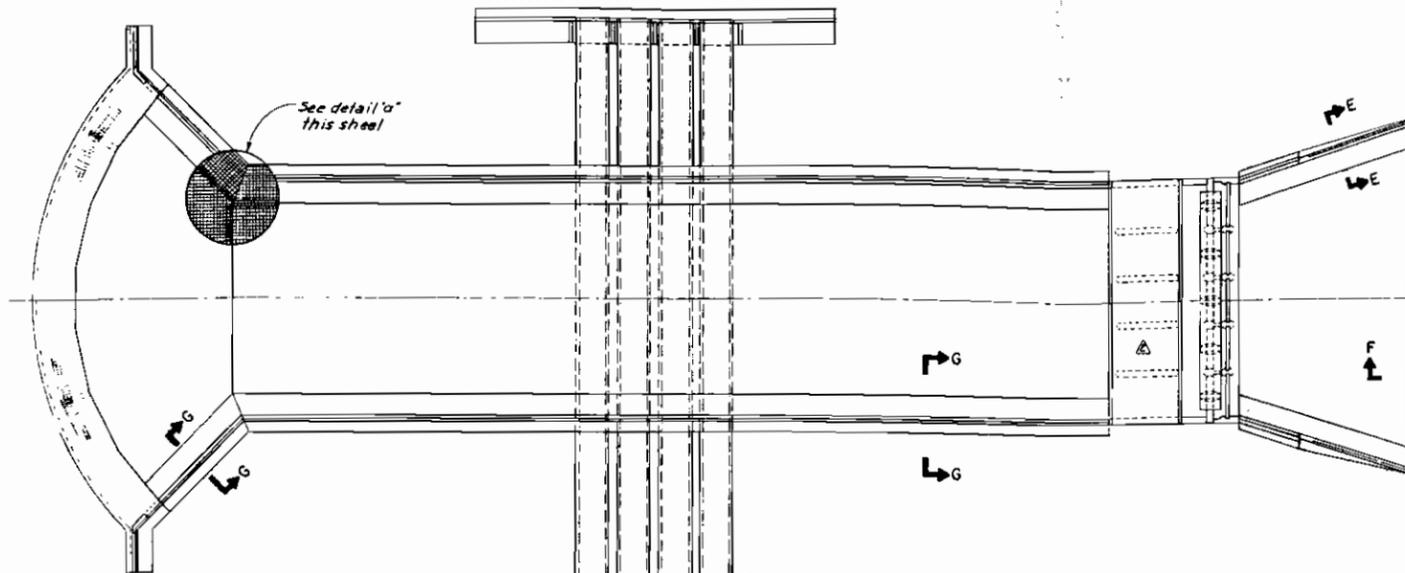
DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE
KERN COUNTY, CALIFORNIA

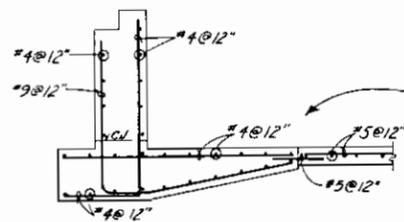
ACCESS BRIDGE & GATE STRUCTURE
PLAN & SECTIONS

APPROVAL: *George C. Hovnan* DATE: 16 MAR 1976

F.G. ROCKWELL, JR. SCALE AS SHOWN SPEC NO. 4929
FILE NO. KE-4-11 SHEET NO. 11/11 TO 11/23 11/10.4

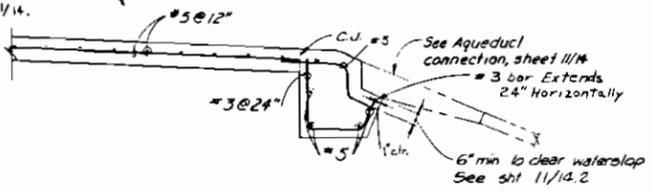


PLAN
SCALE: 1/20'-0"

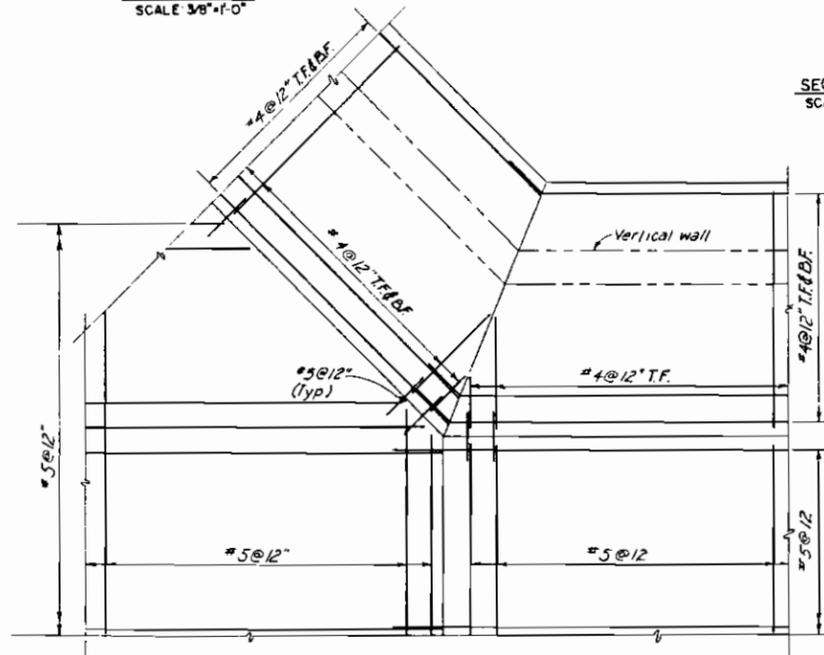


SECTION E - E
SCALE: 3/8'-1'-0"

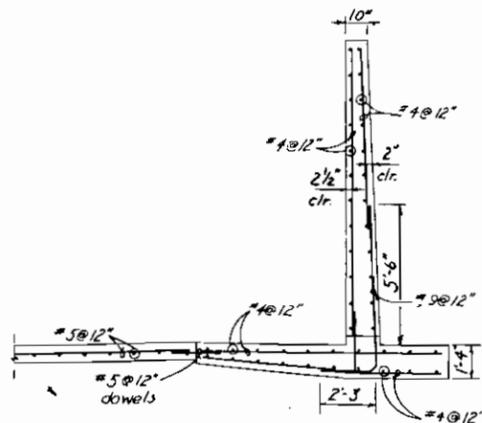
NOTE:
For concrete outline
dimensions of sections
E-E & FF see sht. 11/14.



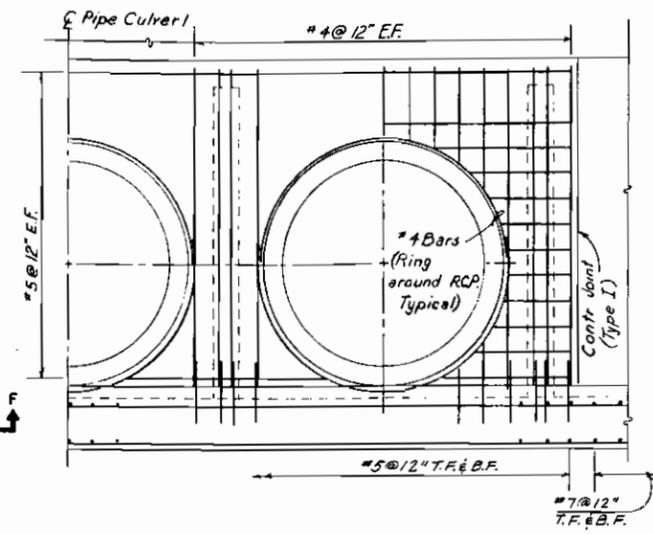
SECTION F - F
SCALE: 1/2'-1'-0"



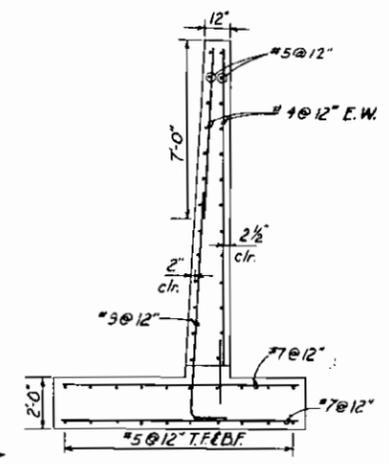
DETAIL "a"
SCALE: 3/8'-1'-0"



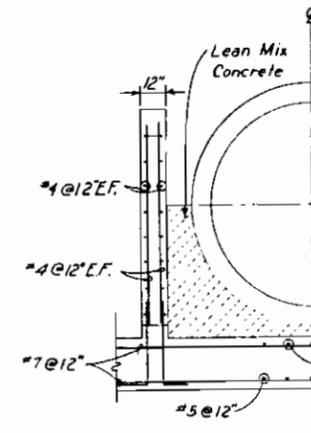
SECTION G - G
SCALE: 3/8'-1'-0"



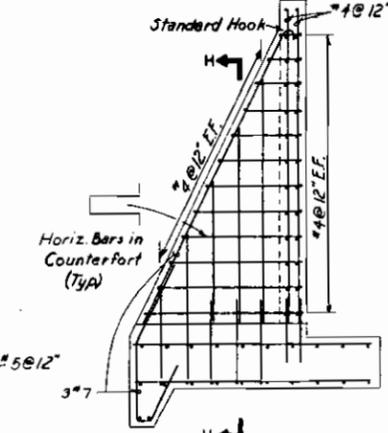
SECTIONAL ELEVATION A - A
SCALE: 3/8'-1'-0"



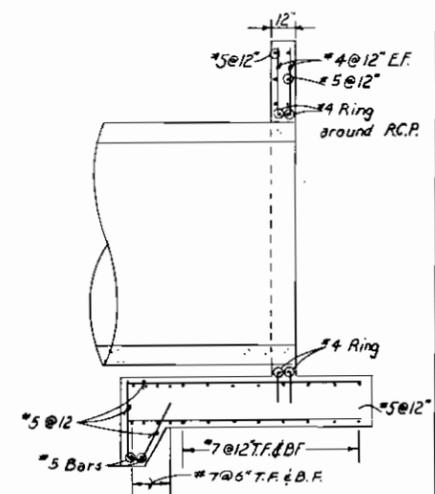
SECTION B - B
SCALE: 3/8'-1'-0"



SECTION H - H
SCALE: 3/8'-1'-0"



SECTION C - C
SCALE: 3/8'-1'-0"



SECTION D - D
SCALE: 3/8'-1'-0"

AS-CONSTRUCTED

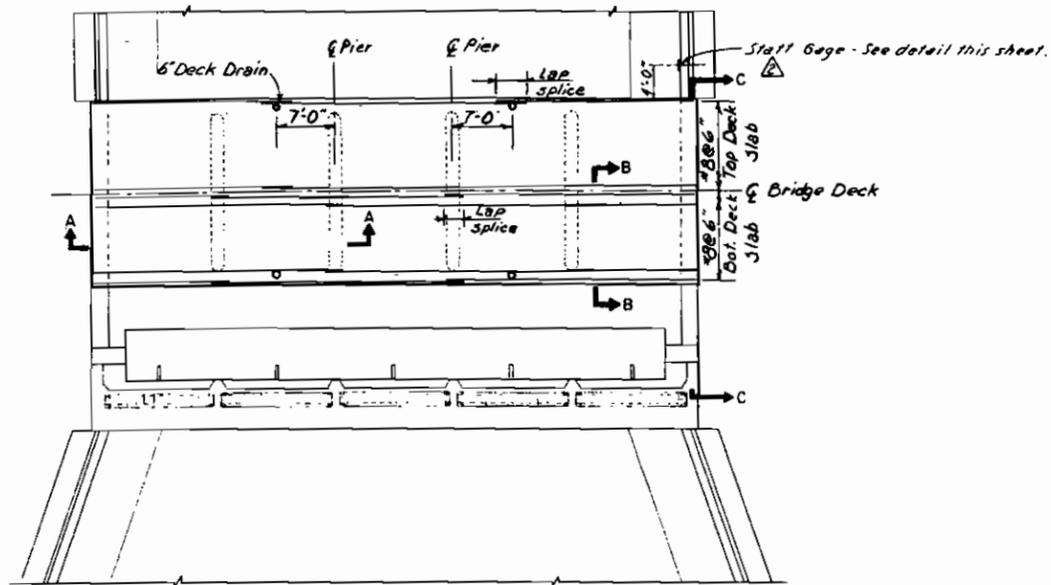
GRAPHIC SCALES



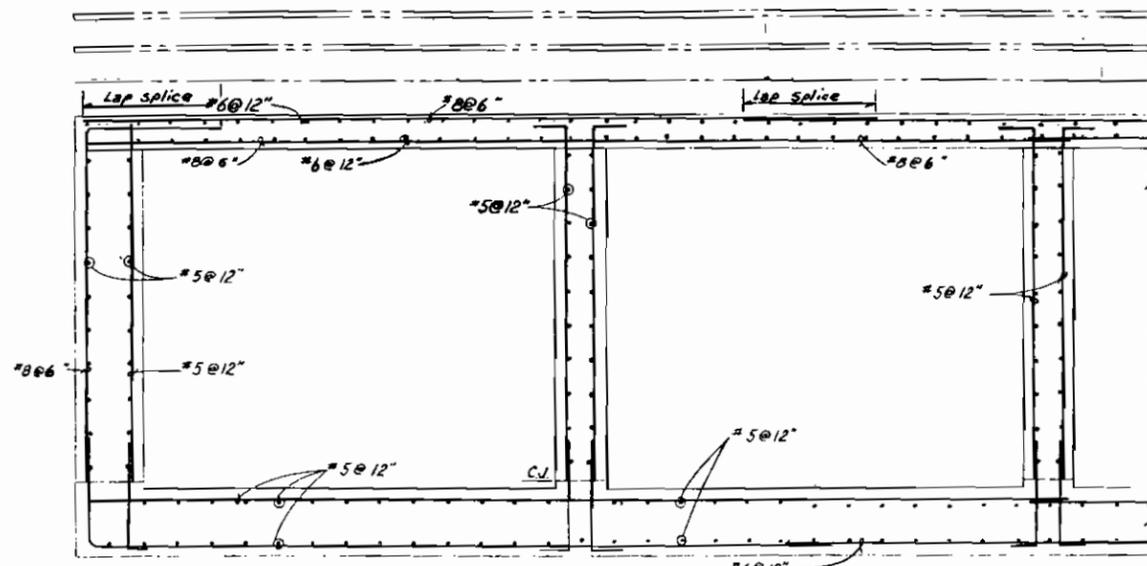
NOTE
1. For general notes see sheet 11/16.

REFERENCE DRAWINGS
Access Bridge & Gate Structure, Plan & Sections - 11/10
Access Bridge, Reinforcement - 11/12

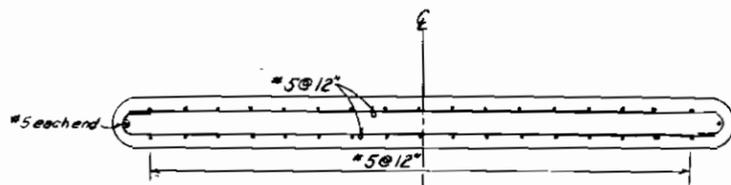
18 JUN 76	CHANGE SIZE BRIDGE PIERS	16 MAR 1976
20 APR 76	Minor change	
DESIGNED BY:	H. JUSTINIANO	CHECKED BY:
DRAWN BY:	M. BAIN	PERMITTED BY:
CHECKED BY:	R. HOMOLKA	APPROVED BY:
DESIGNED BY:	W. HEYENBRUCH	DATE:
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA		PROJECT NO.:
KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA		SCALE: AS SHOWN SPEC. NO. 4929
CHUTE AND HEADWALLS		FILE NO. KE-4-11
REINFORCEMENT		SHEETS SHEET NO.
PREPARED UNDER THE DIRECTION OF F.G. ROCKWELL, JR.		11/1 TO 11/23 11/11.2



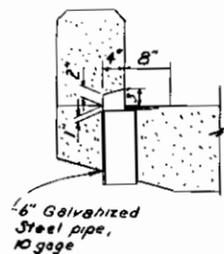
PLAN
SCALE: 1/8"=1'-0"



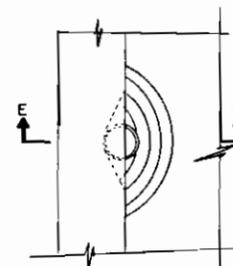
SECTION A-A
SCALE: 1/2"=1'-0"



SECTION D-D
SCALE: 1/2"=1'-0"

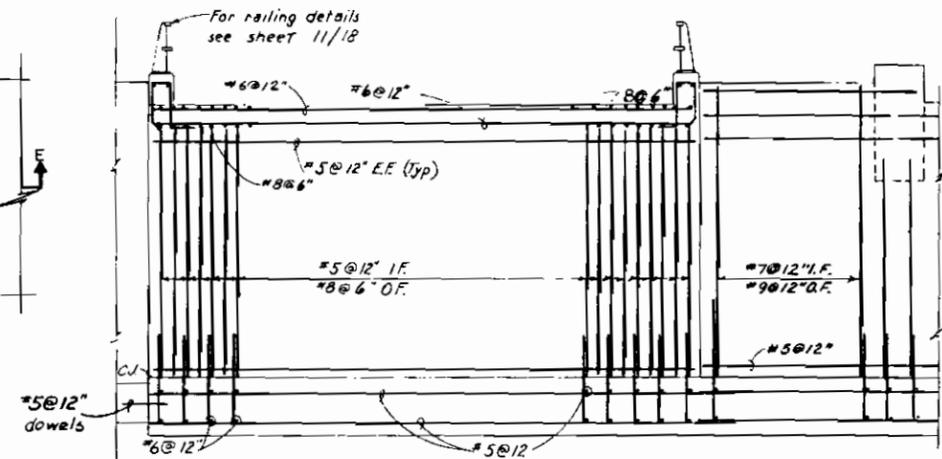


SECTION E-E



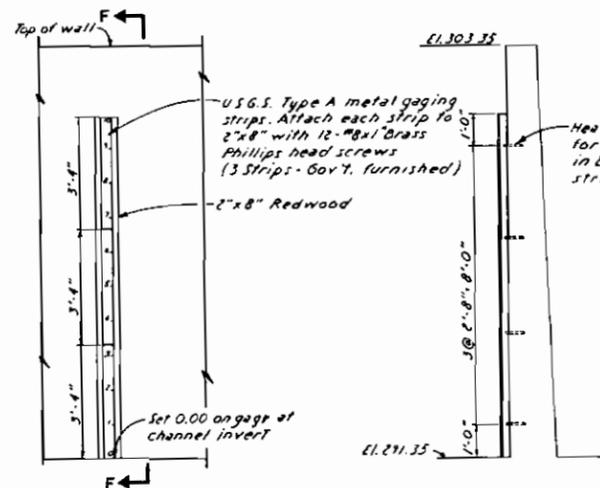
PLAN

DECK DRAIN DETAIL
SCALE: 1"=1'-0"

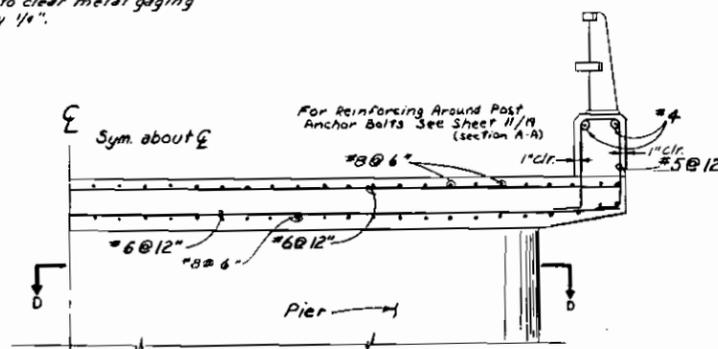


SECTION C-C
SCALE: 3/8"=1'-0"

GRAPHIC SCALES



STAFF GAGE DETAIL
SCALE: 1/2"=1'-0"



SECTION B-B
SCALE: 3/4"=1'-0"

NOTES

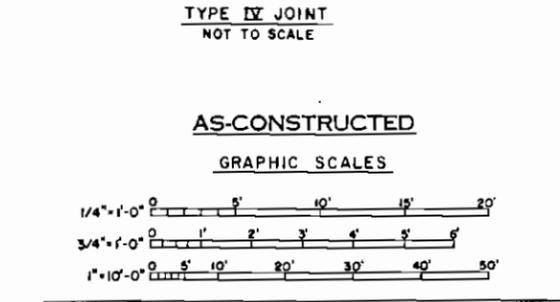
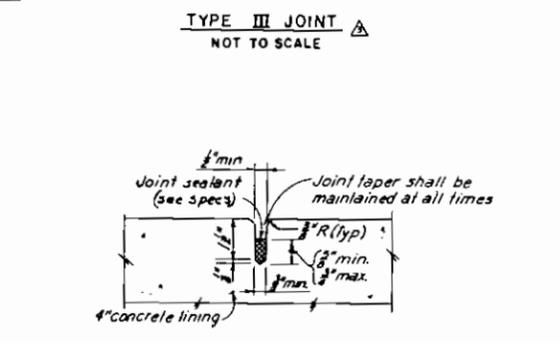
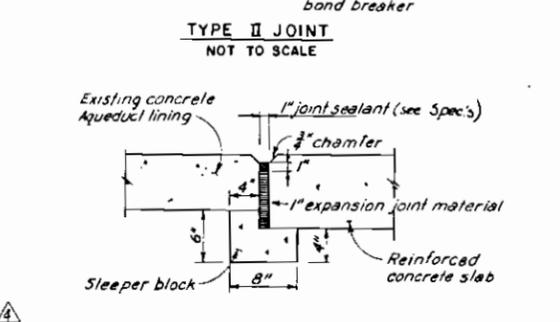
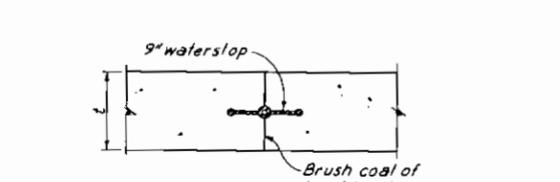
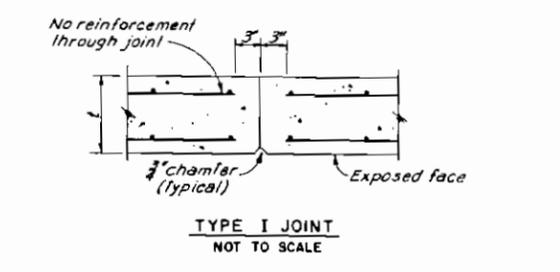
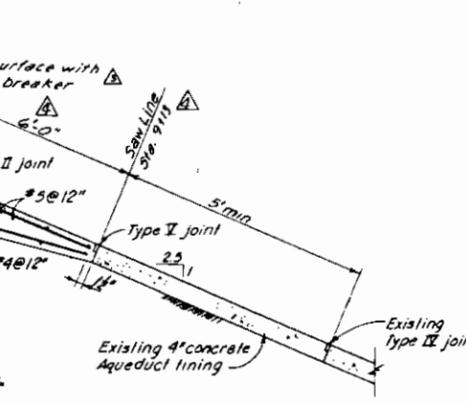
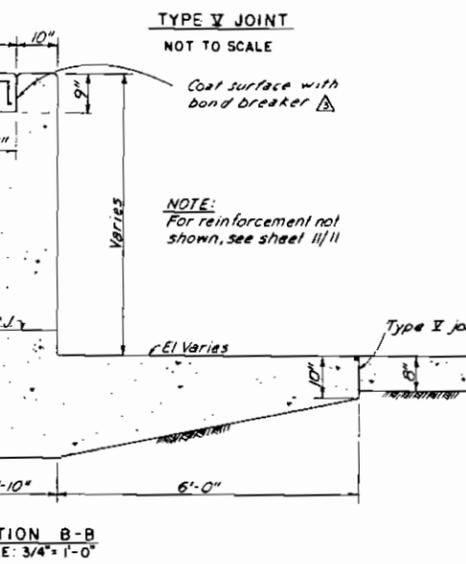
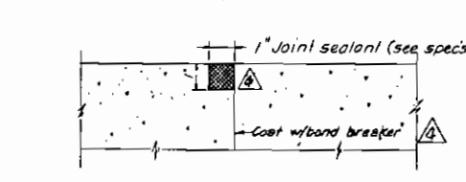
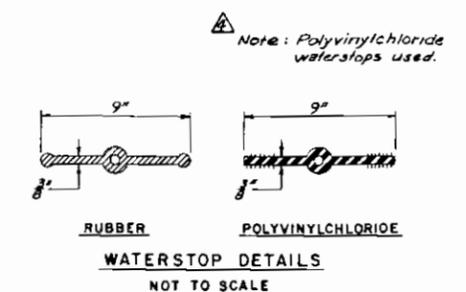
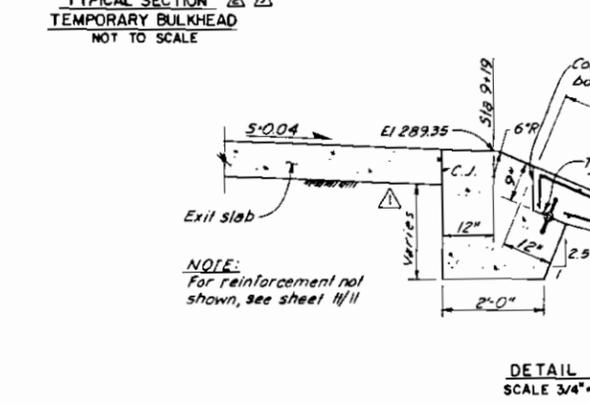
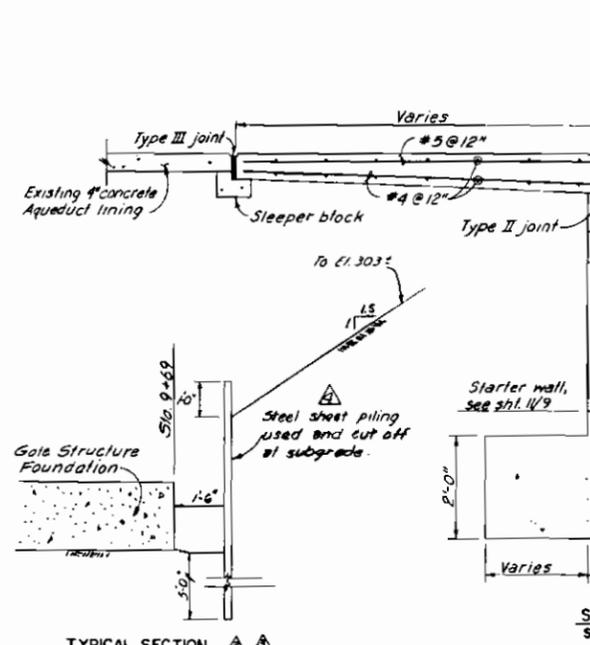
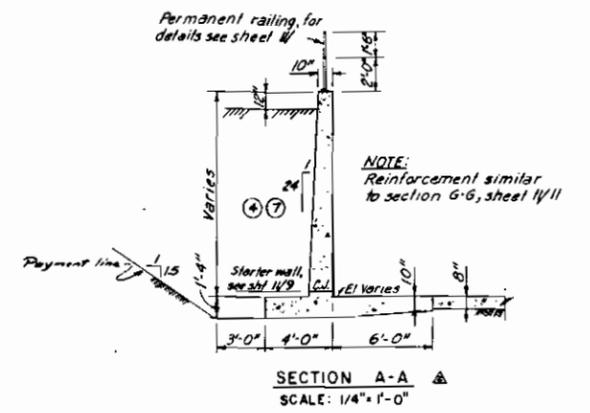
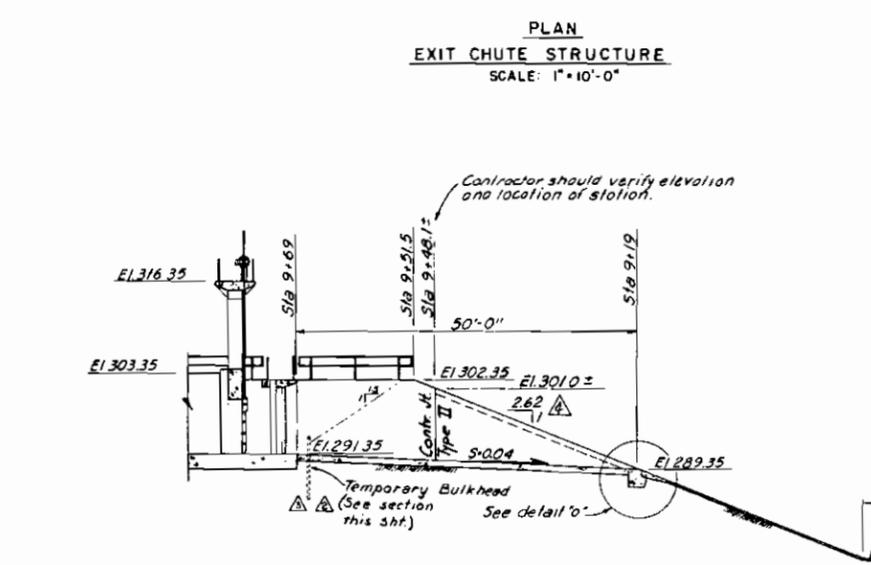
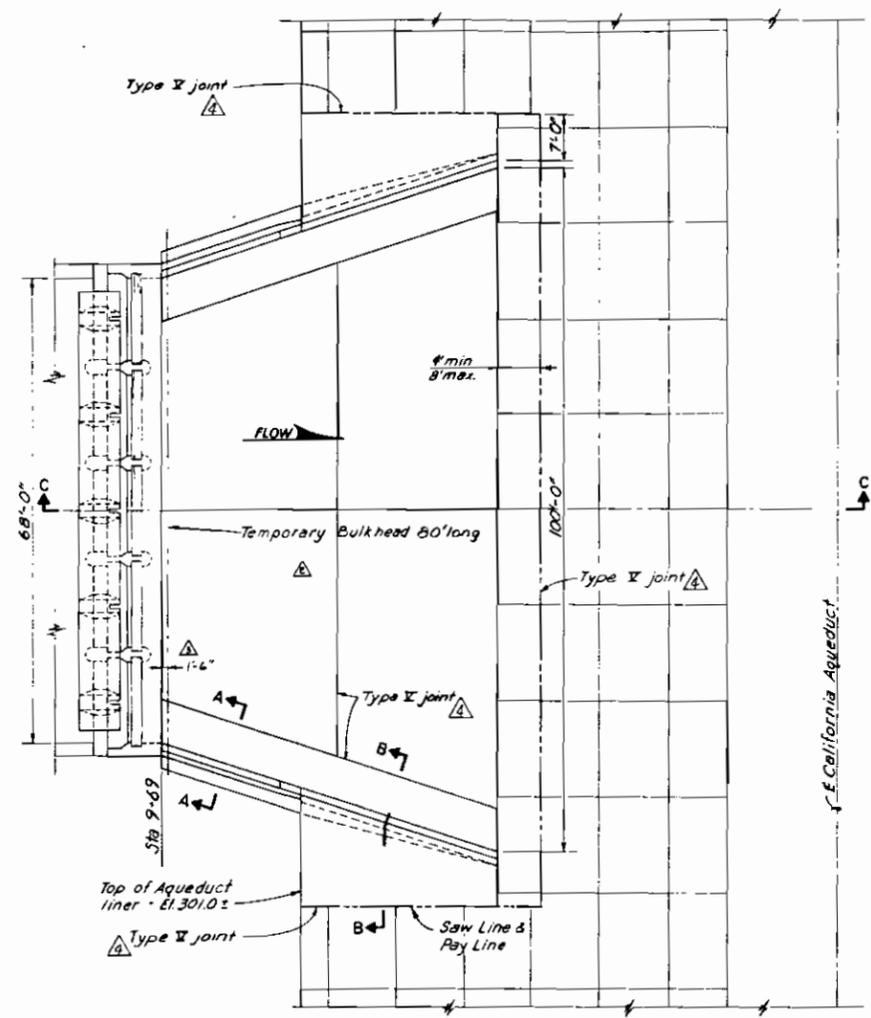
1. For general reinforcing notes see sheet 11/16
2. Bridge design loading is a 25 ton crane (P&H Model 325-TC) lifting 23,000 lbs. Also designed for the standard design load of an ASHMO HS-20 loading.
3. No. 8 Bridge deck reinforcing to be ASTM A-615, Grade 60. Lap splices: Top bars 71", Other bars 51".

REFERENCE DRAWINGS

- Access Bridge & Gate Structure, Plan Sections-----11/10
Gate Structure, Reinforcement-----11/13

AS-CONSTRUCTED			
REVISION	DATE	DESCRIPTION	BY
1	4 Dec 74	Added Staff Gage	J.L. [Signature]
2	18 Jun 76	Revise steel in bridge piers & deck drain	[Signature]

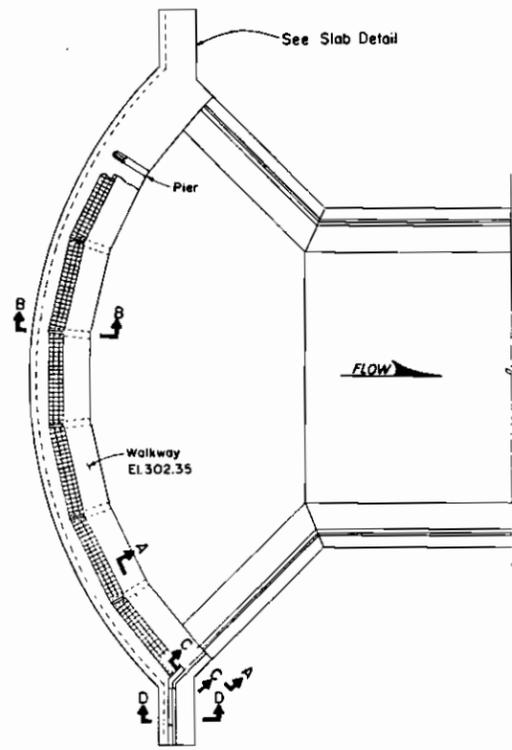
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA		KERN RIVER - CALIFORNIA AQUEDUCT INTERIE KERN COUNTY, CALIFORNIA	
DESIGNED BY: D. DUNN		CHECKED BY: R. BAIN	
DRAWN BY: R. HONDOLKA		APPROVED BY: [Signature]	
PROJECT NO.: 11/10		DATE: 16 MAR 1976	
SHEET NO. KE-4-11		SHEET NO. 11/2.2	



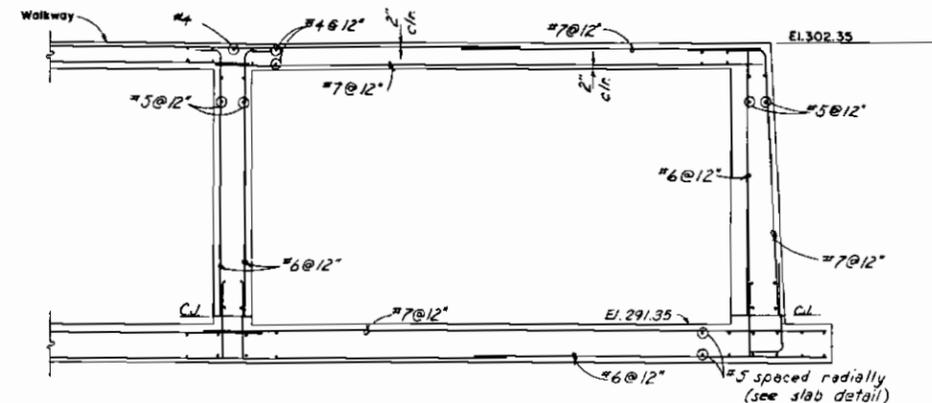
REFERENCE DRAWINGS
Gate Structure, Reinforcement --- 11/13

- NOTES:
1. Typical California Aqueduct lining consist of 12"x12" concrete slabs with Type II joints.
 2. The longitudinal cut of the Aqueduct lining shall be made such that the remaining portion of slab is at least 3' wide (see detail 'a').
 3. For General Notes, see sheets 11/9 & 11/16.
 4. Type II joint is to be formed when placing concrete, not saw cut.

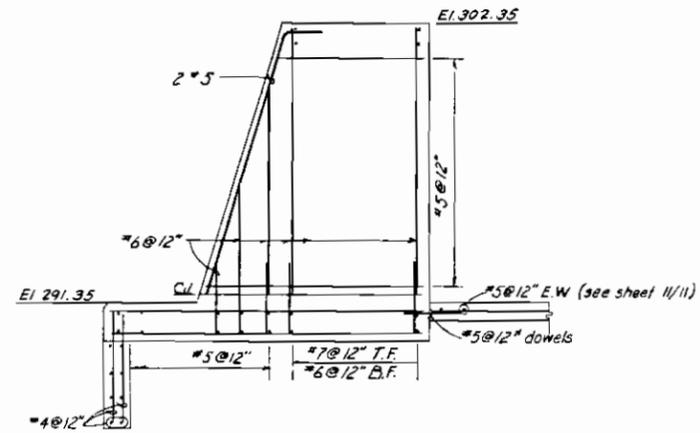
26-Sep-77	Revised 'As-Constructed'	C.I.W.
26-Sep-77	REVISED TEMPORARY BULKHEAD MISC. REVISIONS	
21-APR-76	ADDED TEMPORARY BULKHEAD	
9-APR-76	ADDED C.J. AND CHANGE DIMENSION	
DATE	DESCRIPTION	BY
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA		
DESIGNED BY: DUNN	KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA	
CHECKED BY: R. HOMOLKA	AQUEDUCT CONNECTION PLAN, SECTIONS & DETAILS	
DESIGNED BY: R. HOMOLKA		
CHECKED BY: W. HEYENBRUCH	DATE: 16 MAR 1976	
APPROVED: K. Handberg	SCALE: AS SHOWN SPEC. NO. 4929	
DATE: 11/11/76	FILE NO.:	SHEET NO.
F. G. ROCKWELL, JR.	KE 4-11	11/1 TO 11/23 11/14.9



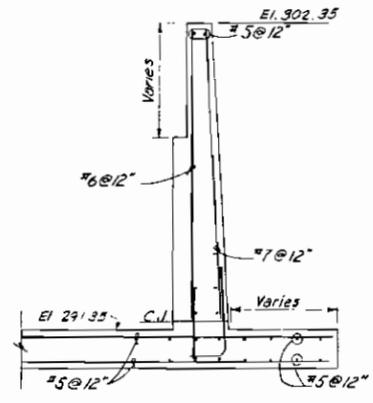
PLAN
NOT TO SCALE



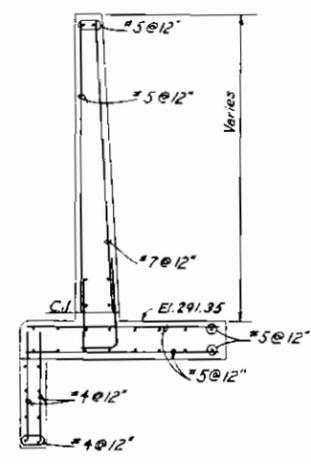
SECTION A-A
SCALE: 3/8"=1'-0"



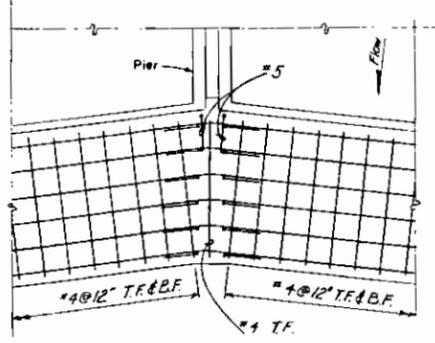
SECTION B-B
SCALE: 3/8"=1'-0"



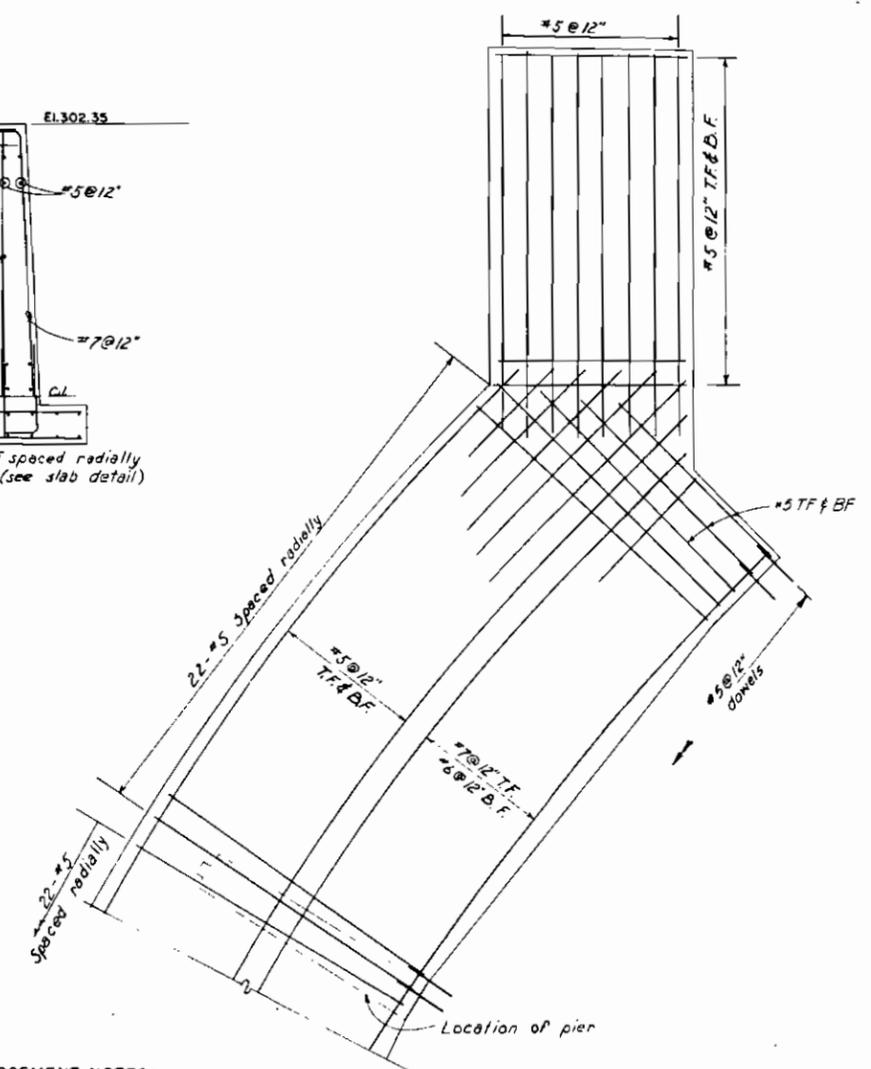
SECTION C-C
SCALE: 3/8"=1'-0"



SECTION D-D
SCALE: 3/8"=1'-0"



WALKWAY REINFORCEMENT AT PIER
SCALE: 3/8"=1'-0"



SLAB DETAIL
SCALE: 3/8"=1'-0"

GENERAL REINFORCEMENT NOTES:

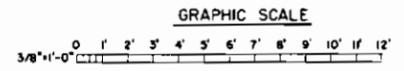
- Lap splices and embedment lengths are shown below unless otherwise noted on drawings.
 $f'_c = 4,000 \text{ psi}$, $f_y = 40,000 \text{ psi}$

Bar size	3	4	5	6	7	8	9	10	11
Lap splices #									
Top bars	14	19	24	29	36	48	60	77	94
Other bars	12	14	17	20	26	34	43	55	67
Embedment #									
Top bars	12	12	14	17	21	28	35	45	55
Other bars	12	12	12	12	15	20	25	32	40

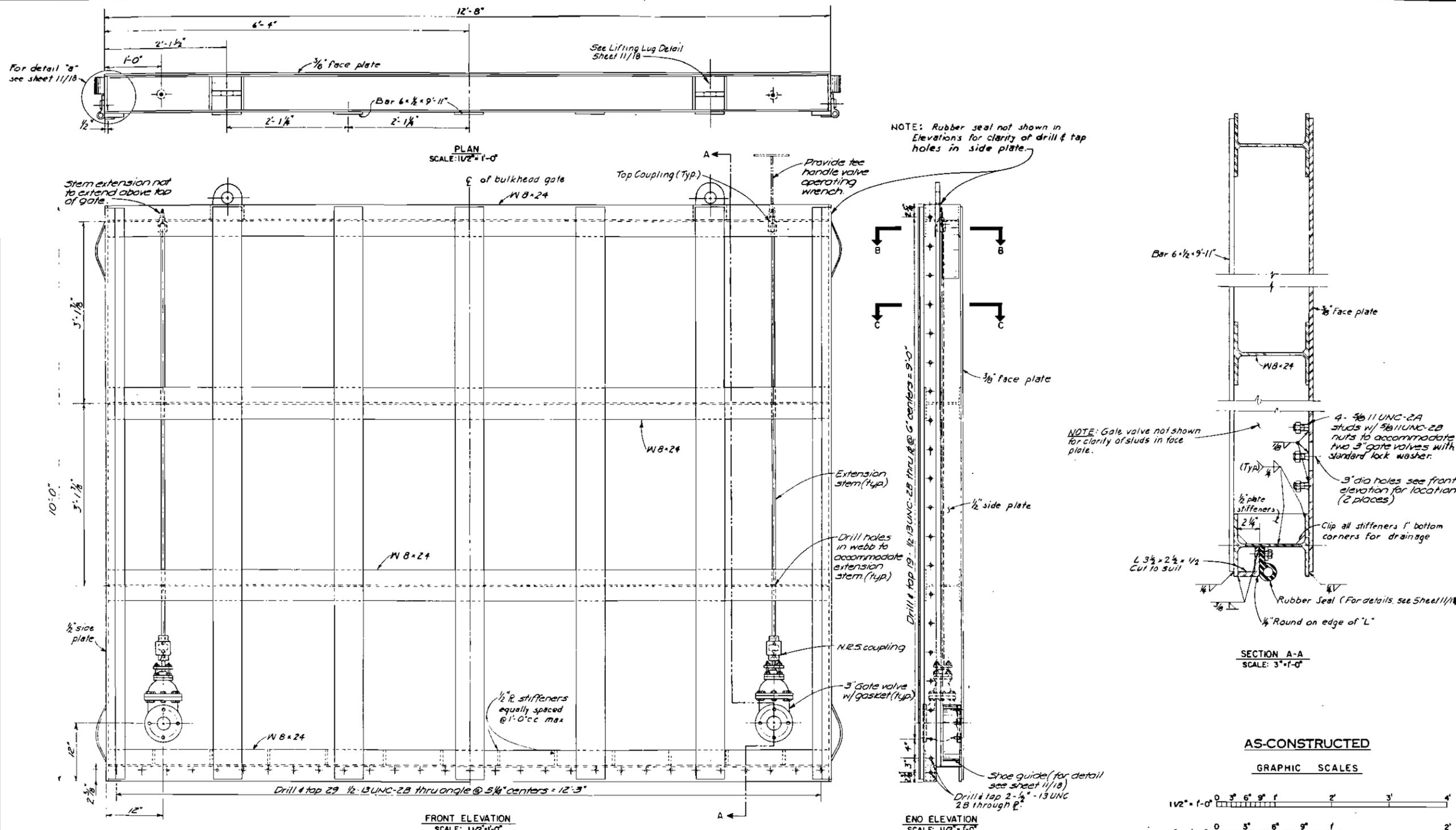
 - For bars spaced 6" or more apart and having 3" or more concrete cover, multiply by 0.8. Minimum length is 12".
 - Top bars are horizontal bars with more than 12" of concrete below the bars.
 - When bars of different sizes are to be spliced, the splice length shall be governed by the smaller diameter.
- Unless noted, all hooks are "standard hooks".
- Reinforcement in slabs with one layer of steel shall be placed at the center of the concrete.
- For payment purposes, longitudinal reinforcing steel shall be based on authorized splices every 30'-0" unless otherwise shown on the drawings.
- All reinforcement to be placed with the following clear cover, unless otherwise shown:
 - Formed surfaces against backfill ----- 3"
 - Uniform surfaces placed against earth ----- 3"
 - Unless otherwise noted on drawings all other surfaces ----- 2"

REFERENCE DRAWINGS
Trashrack, plan, sections & details ---- 11/15

AS-CONSTRUCTED



REVISION	DATE	DESCRIPTION	BY	CHK	
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA TRASHRACK REINFORCEMENT					
DESIGNED BY:	J. DUNN	CHECKED BY:	R. HOMOLKA	DATE:	16 MAR 1976
DRAWN BY:	M. BAIN	PERMITTED BY:	W. HEYENBRUCH	APPROVED:	[Signature]
PREPARED UNDER THE DIRECTION OF F.G. ROCKWELL, JR. CHIEF, DIVISION OF DESIGN					
SCALE: AS SHOWN			FILE NO.:	KE-4-11	
SWEETS			11/1 TO 11/23	SHEET NO. 11/16	



For detail "a" see sheet 11/18

See Lifting Lug Detail Sheet 11/18

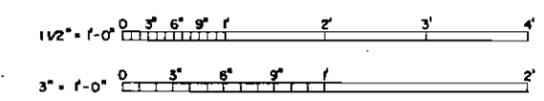
NOTE: Rubber seal not shown in Elevations for clarity of drill & tap holes in side plate.

NOTE: Gate valve not shown for clarity of studs in face plate.

SECTION A-A
SCALE: 3"=1'-0"

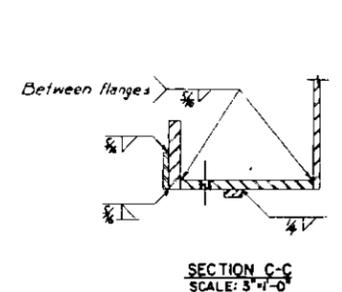
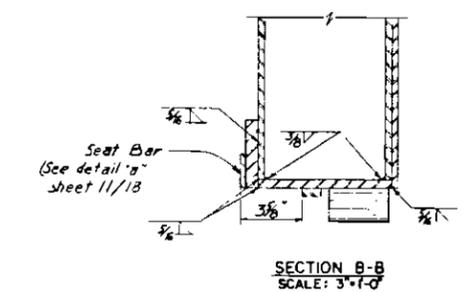
AS-CONSTRUCTED

GRAPHIC SCALES

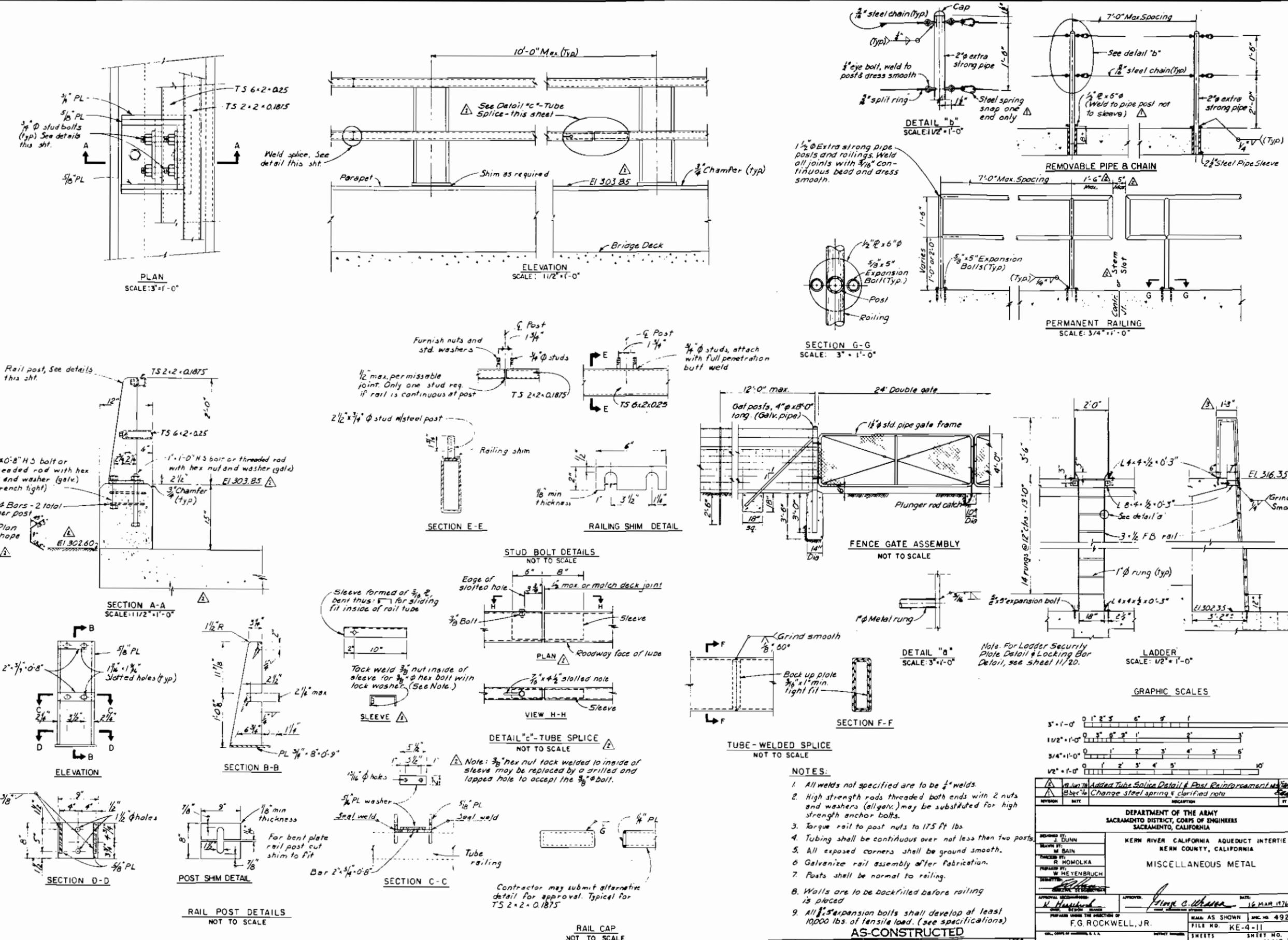


NOTES

1. See notes on Sheet 11/18, Bulkhead Gate Details
2. All structural steel shall conform to A.S.T.M. A 36.

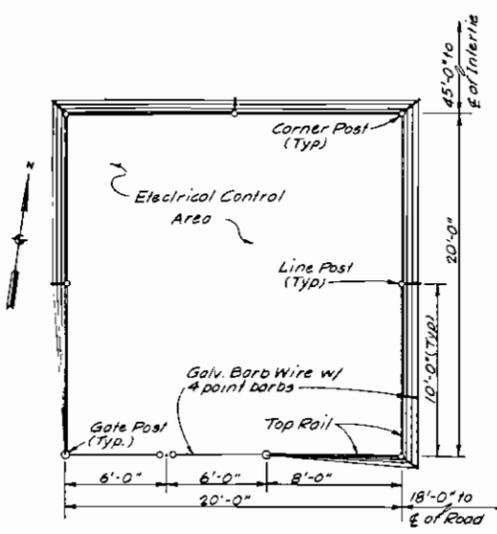


REVISION	DATE	DESCRIPTION	BY	IT
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA				
KERN RIVER - CALIFORNIA AQUEDUCT INTERTE KERN COUNTY, CALIFORNIA				
BULKHEAD GATE PLAN & SECTIONS				
DESIGNED BY: J. DUNN DRAWN BY: M. BARN CHECKED BY: R. NOMOLKA PREPARED BY: W. HEYENORLICH DRAWING NO.: 11/18	DATE: 16 MAR 1974 APPROVED: <i>[Signature]</i> TITLE: <i>[Signature]</i>			
PREPARED UNDER THE DIRECTION OF F.G. ROCKWELL, JR.			SCALE: AS SHOWN SPEC. NO. 4929 FILE NO. KE-4-11 SHEETS: 11/1 TO 11/23 SHEET NO. 11/17	

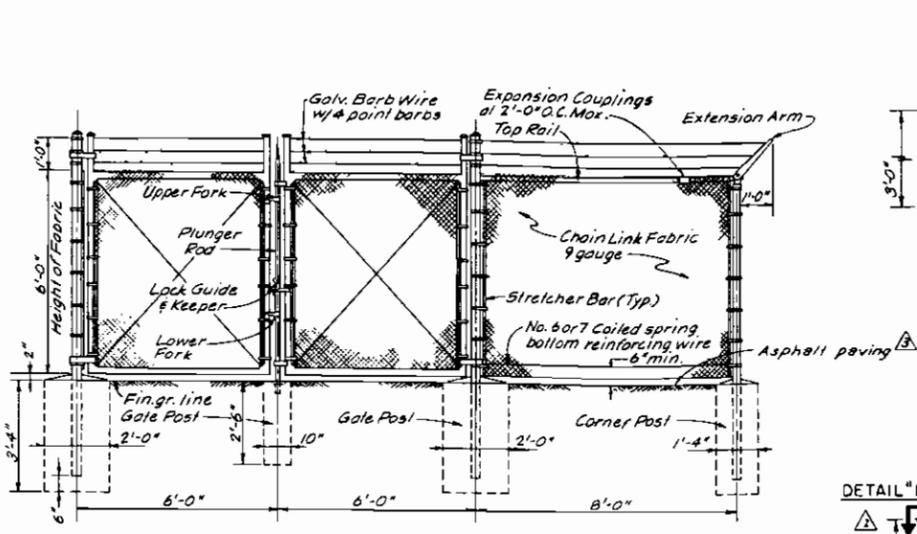


NO.	DATE	DESCRIPTION	BY	CHKD
1		Add Tube Splice Detail & Post Reinforcement		
2		Change steel spring & clarified note		

DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA	
DRAWN BY: J. GUNN CHECKED BY: M. BAIN REVISION BY: R. HOMOLKA DESIGNED BY: W. MEYENBRUCH	KERN RIVER CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA MISCELLANEOUS METAL
APPROVAL AUTHORITY: [Signature] DATE: 16 MAR 1976	SCALE: AS SHOWN SPEC. NO. 4929 FILE NO. KE-4-11 SHEETS SHEET NO. 11/1 TO 11/23 11/19.3

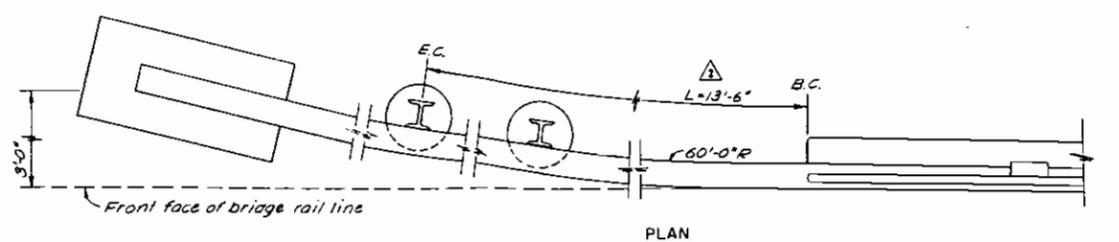


PLAN
SCALE: 1/4" = 1'-0"

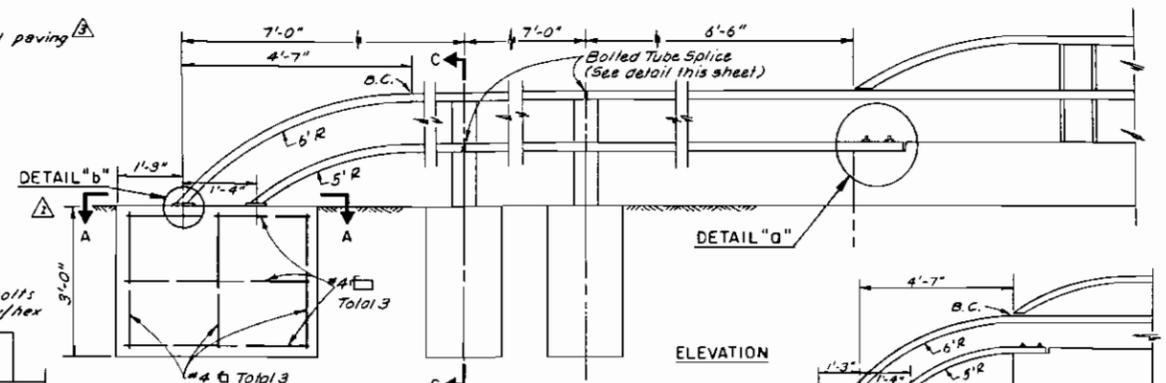


ELEVATION
SCALE: 1/2" = 1'-0"

FENCED INCLOSURE



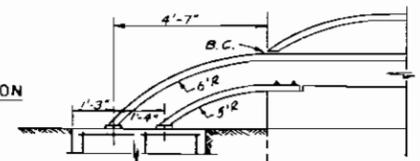
PLAN
SCALE: 3/4" = 1'-0"



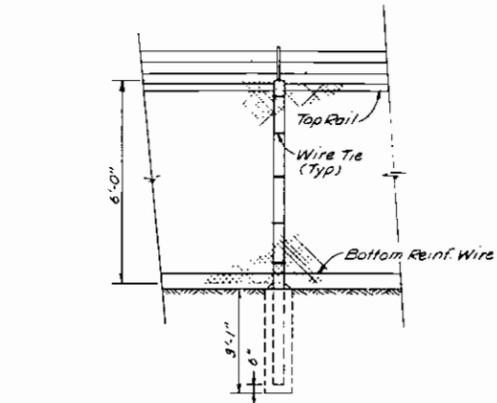
ELEVATION
SCALE: 3/4" = 1'-0"

APPROACH GUARD RAILING

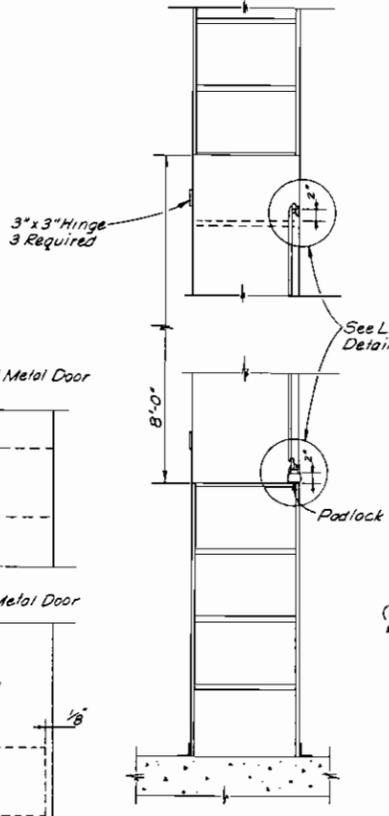
SCALE: 3/4" = 1'-0"



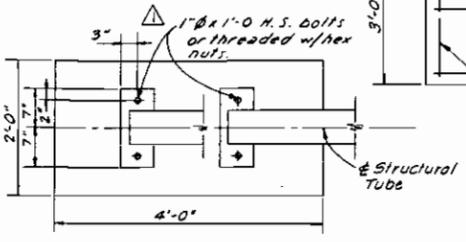
ELEVATION
SCALE: 1/2" = 1'-0"



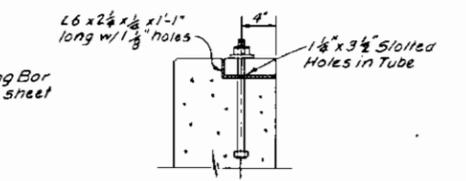
LINE POST DETAIL
SCALE: 1/2" = 1'-0"



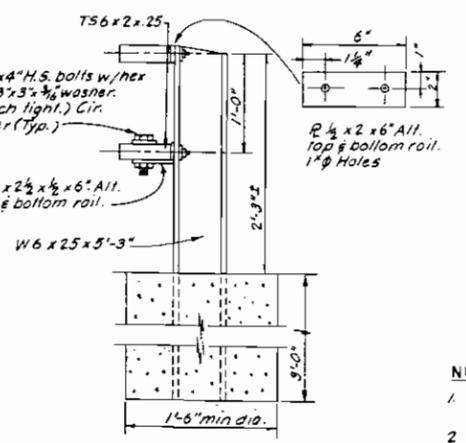
LADDER
SECURITY PLATE
NOT TO SCALE



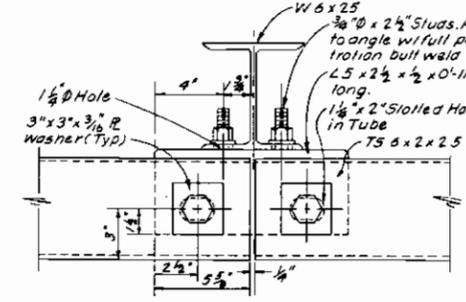
SECTION A-A
SCALE: 1" = 1'-0"



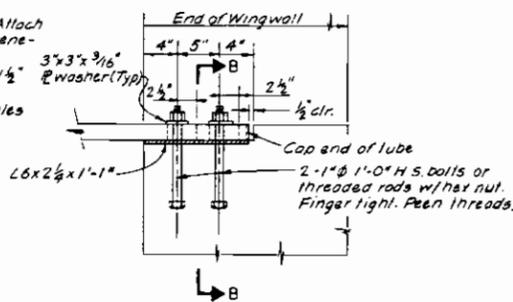
SECTION B-B
SCALE: 1/2" = 1'-0"



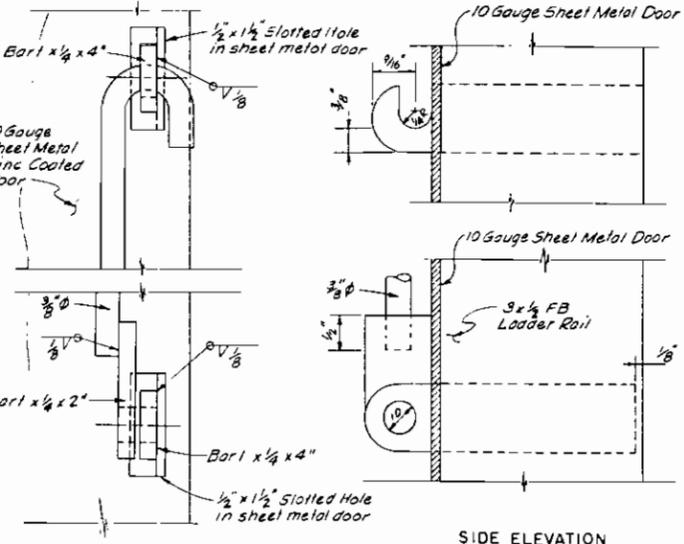
SECTION C-C
SCALE: 1/2" = 1'-0"



BOLTED TUBE SPLICE DETAIL (TYP)
SCALE: 3" = 1'-0"



DETAIL "D"
SCALE: 1 1/2" = 1'-0"

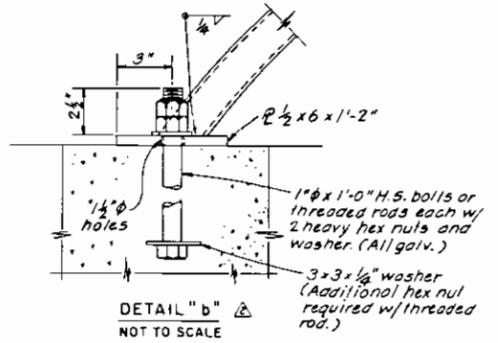


FRONT ELEVATION

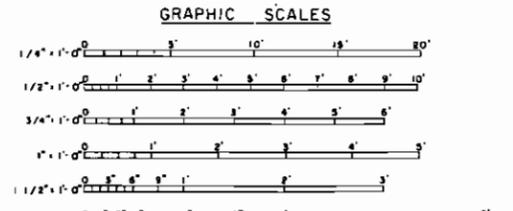
SIDE ELEVATION



LOCKING BAR DETAIL
SCALE: FULL SIZE



DETAIL "b"
NOT TO SCALE



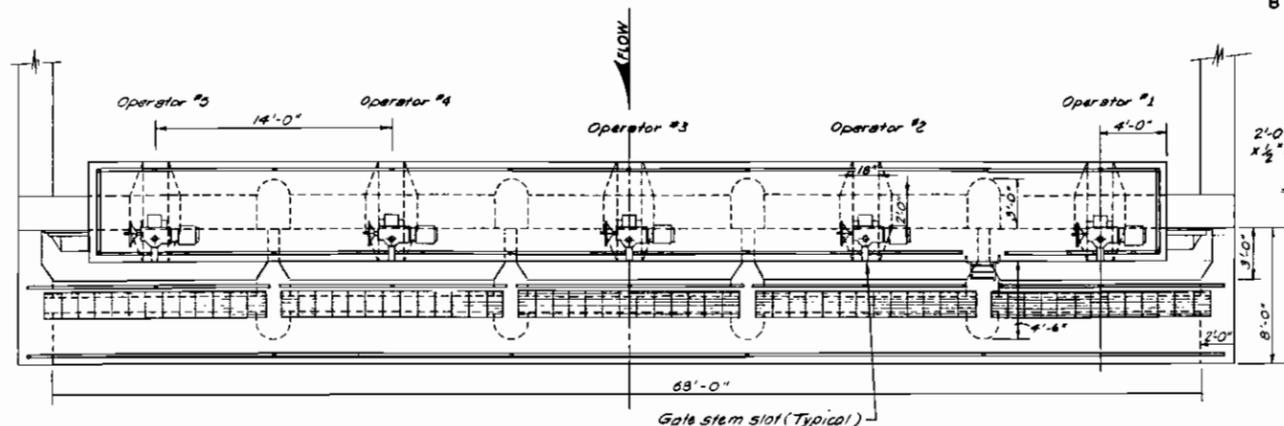
GRAPHIC SCALES

- NOTES:
1. For Approach Guard Rail locations, see Sheet No. 11/9
 2. For ladder details, See Sheet 11/10

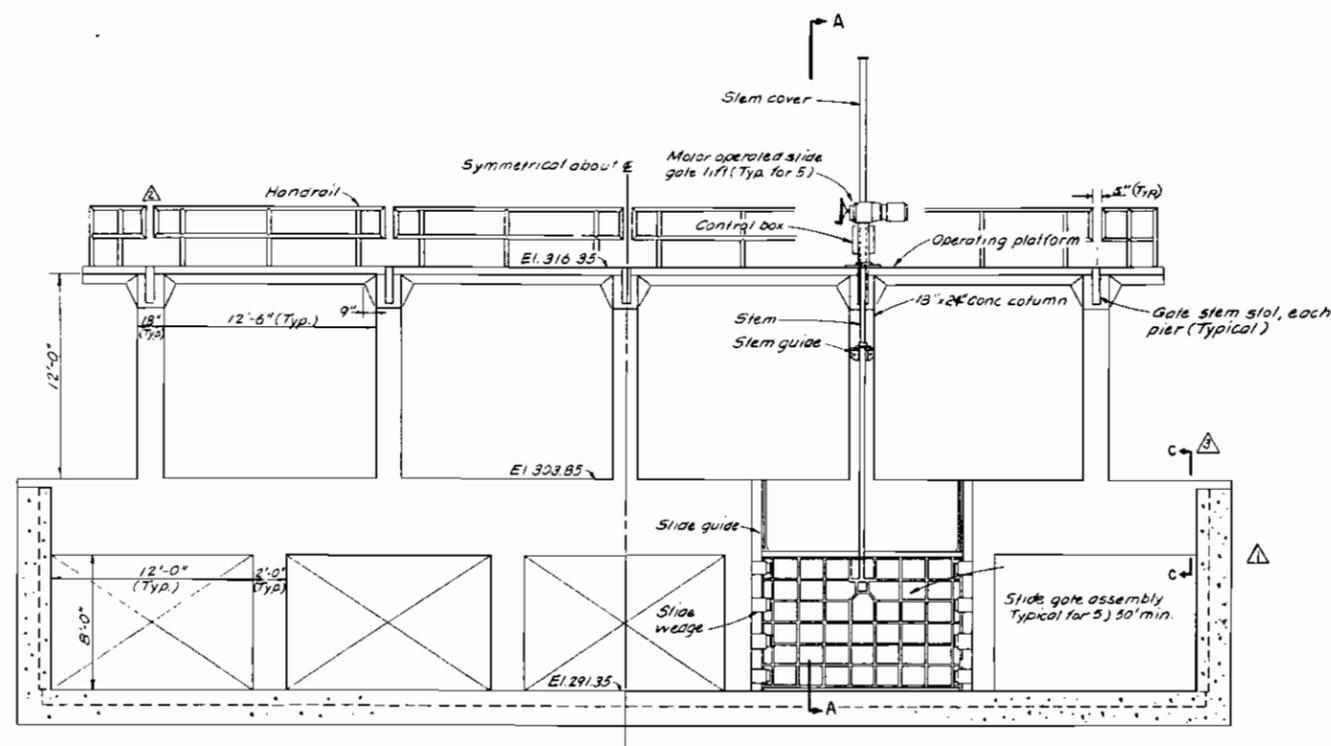


AS-CONSTRUCTED

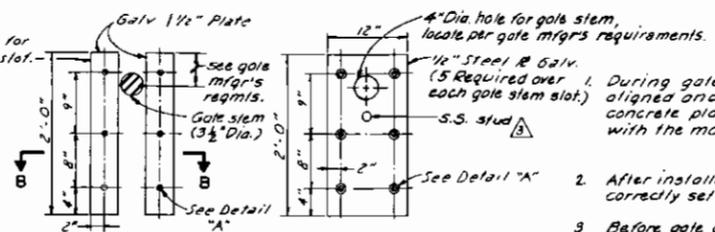
DESIGNED BY: DUNN	DATE: 16 MAR 1976
DRAWN BY: M. STEFFENS	
CHECKED BY: D. BELLET	
PREPARED BY: W. HEYENBRUCH	
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA	
KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA	
MISCELLANEOUS METAL	
APPROVED: [Signature]	
FILE NO. KE-4-11	SHEET NO. 11/1 TO 11/23



PLAN
SCALE: 1/4" = 1'-0"

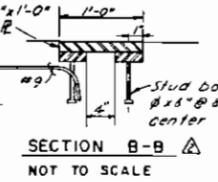


DOWNSTREAM ELEVATION
SCALE: 1/4" = 1'-0"

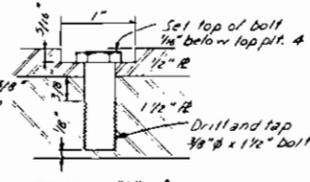


STEM SLOT DETAIL
NOT TO SCALE

COVER PLATE
NOT TO SCALE



SECTION B-B
NOT TO SCALE

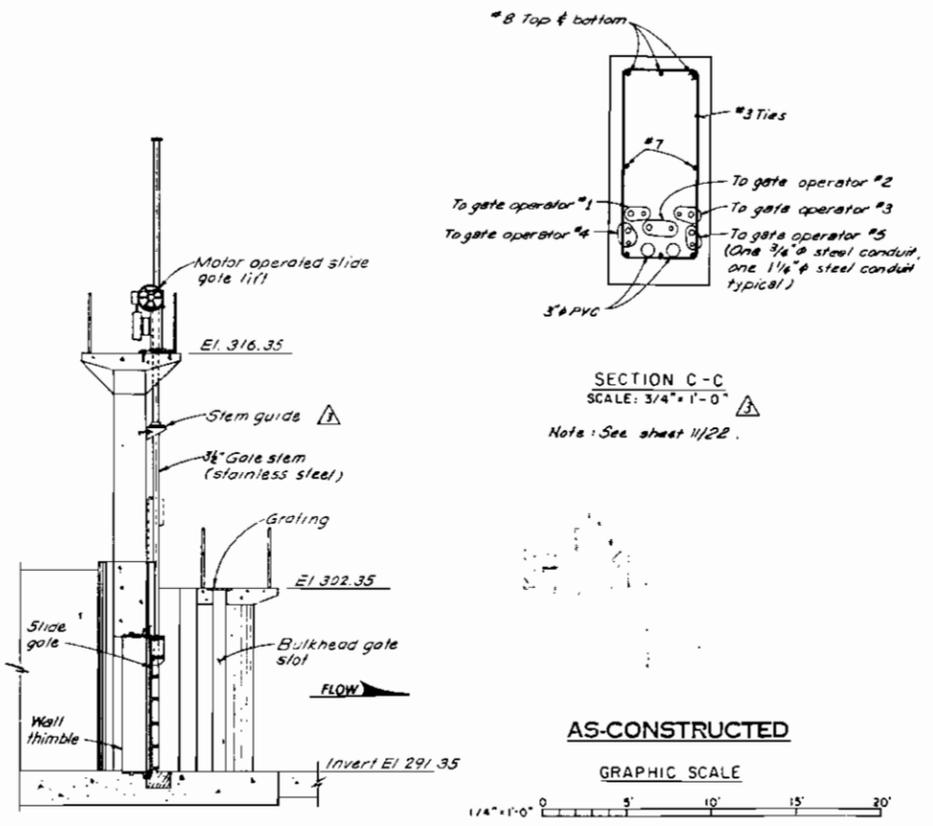


DETAIL "A"
NOT TO SCALE

GENERAL NOTES

- During gate installation the parts shall be accurately aligned and braced to prevent movement during concrete placement and installation shall be in accordance with the manufacturers recommendations.
- After installation all the adjustable parts shall be correctly set to prevent gate leakage.
- Before gate operation all seal faces, wedges and wedge seats shall be thoroughly cleaned and lubricated with a waterproof grease. Any scouring of the seats or wedges shall be repaired or replaced without additional cost to the Government.

TEST:
Each gate shall be operated for a minimum of three full open and full closed operations to prove that all parts function properly and all adjustable parts have retained their proper settings. Any discrepancies found shall be corrected and the test rerun.



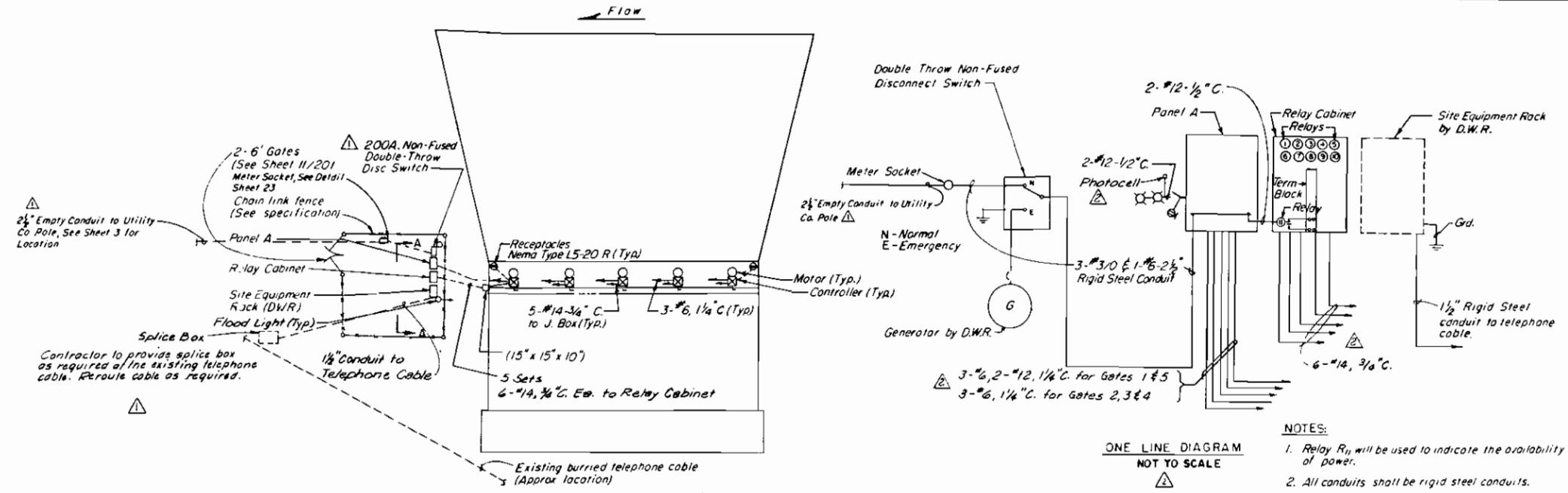
SECTION A-A
SCALE: 1/4" = 1'-0"

AS-CONSTRUCTED

GRAPHIC SCALE



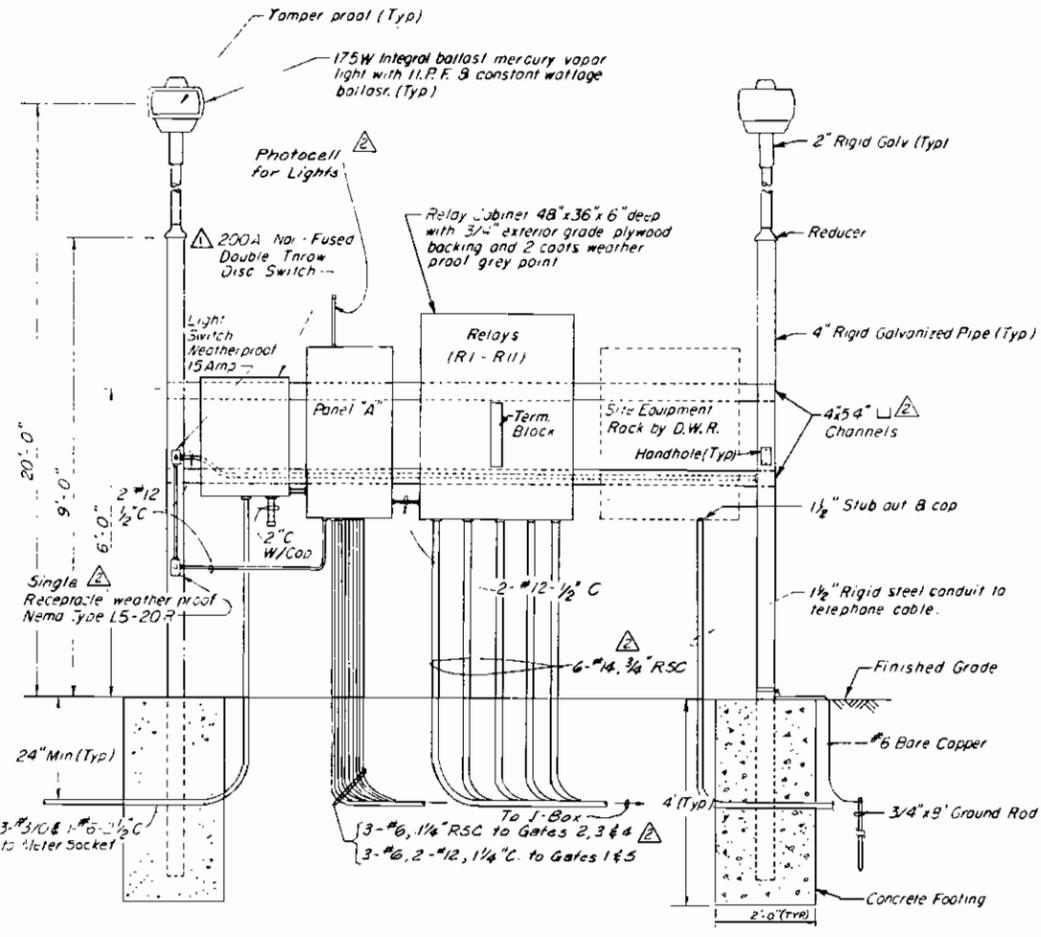
07Sep77	Revised "As-Constructed"	C. J. W.
08Jun76	Stem slot detail / Handrail change	W. H. W.
09Apr76	Gate dimension	W. H. W.
REVISION	DATE	DESCRIPTION
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA		
KERN RIVER CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA		
GATES MECHANICAL		
DESIGNED BY: D. GRINAGER CHECKED BY: W. STEFFENS DRAWN BY: J. DUNN REVISION BY: J. SIROSKY	APPROVED: <i>[Signature]</i> DATE: 16 MAR 1976	SCALE: AS SHOWN FILE NO.: KE 4-11 SHEETS: 11/1 TO 11/23 SHEET NO.: 11/21.3



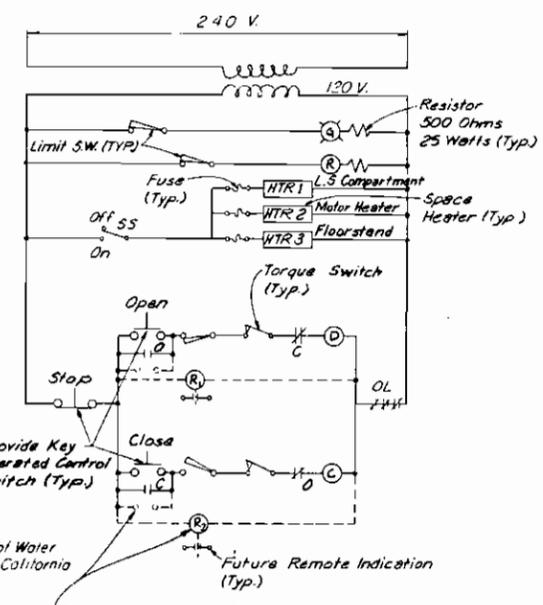
LOCATION PLAN
SCALE: 1" = 10'-0"

ONE LINE DIAGRAM
NOT TO SCALE

- NOTES:
1. Relay R_i will be used to indicate the availability of power.
 2. All conduits shall be rigid steel conduits.
 3. All relays shall have one N.O. & one N.C. contacts rated 5 Amp at 120V D.W.R. to wire from Relay contacts to terminal board.
 4. All equipment have NEMA 4 enclosures, unless otherwise noted.
 5. See specification for fence grounding.
 6. All conduit shall be installed under ground or embed in concrete structure except as shown on Section A-A this sheet.



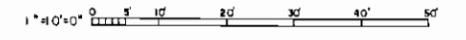
SECTION A-A
NOT TO SCALE



- LEGEND
- O - Open
 - C - Close
 - G - Green Light
 - R - Red Light
 - DWR - Department of Water Resources, State of California
 - Terminal Strip
- Provide Key Operated Control Switch (Typ)
- Terminal Strip and Relay Located in Relay Cabinet for future Remote Control (Typ.)

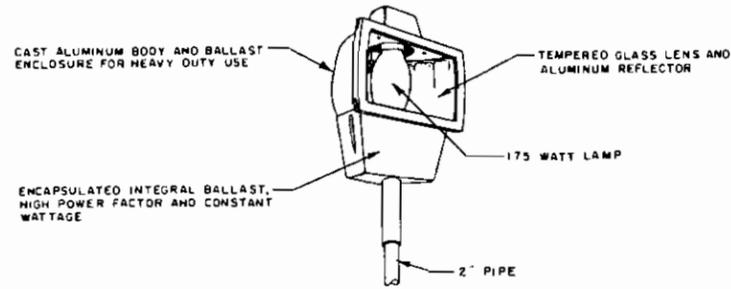
TYPICAL WIRING DIAGRAM (TYPICAL FOR FIVE)
NOT TO SCALE

GRAPHIC SCALES

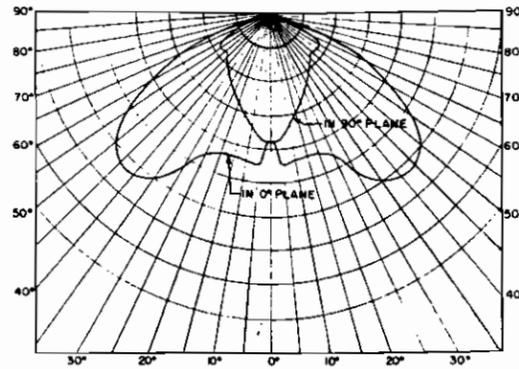


AS-CONSTRUCTED

89 Sept Revised "As-Constructed"		C.S.W.	
BAPR 76 REVISED SERVICE ENTRANCE	L.T.M.		
DESIGNED BY: T. CARADEMOS	KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE		
MADE BY: E. W. FULLON	KERN COUNTY, CALIFORNIA		
CHECKED BY: T. CARADEMOS	ELECTRICAL		
DATE: 11/11/73	PLAN & DETAILS		
APPROVED: [Signature]	DATE: 16 MAR 1976	SCALE: AS SHOWN	SPEC NO. 4929
PREPARED UNDER THE DIRECTION OF: F.G. ROCKWELL, JR.	FILE NO. KE-4-11	SHEETS	SHEET NO. 11/21 TO 11/23 11/22.2



FJ-SERIES FLOODLIGHT

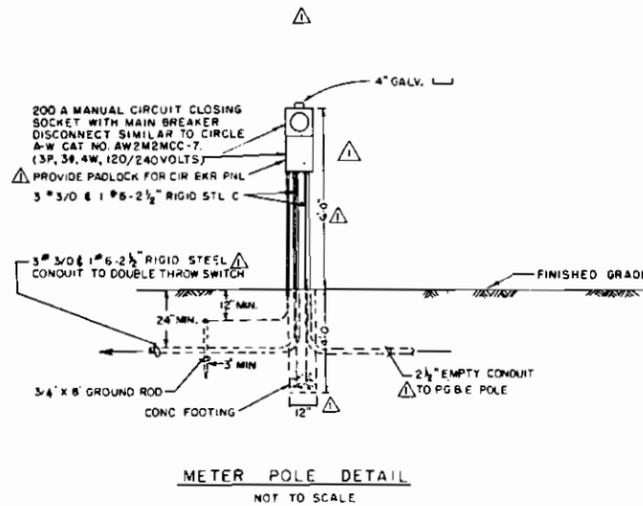


TYPICAL CANDLEPOWER DISTRIBUTION CURVE

PANEL A 120/240 V., 3PHASE, 4 WIRE S/N 225 AMP BUS. W/ 200A MAIN BKR.					
CIRCUIT BREAKER NO.	POLE	LOAD IN WATTS			REMARKS
		# A	# B	# C	
1	3	60	3333	3333	1" C-3#6 10 HP. GATE MOTOR
2	3	60			1" C-3#6 10 HP. GATE MOTOR
3	3	60			1" C-3#6 10 HP. GATE MOTOR
4	3	60			1" C-3#6 10 HP. GATE MOTOR
5	3	60	3333	3333	1" C-3#6 10 HP. GATE MOTOR
6	1	20	1500		1/2" C. POWER FOR (D.W.R.)
7	1	20		350	1/2" C. LIGHTS & RECEPTACLE GROUND FAULT INTERRUPTER
8	1	20		500	1/2" C. RECEPTACLES GROUND FAULT INTERRUPTER
9	1	20			SPACE
10					SPACE
11					SPACE
12					SPACE
TOTAL			18,165	17,015	17,105

NOTES:

1. Circuit breakers in panel A shall have minimum interrupt capacity 7,500 symmetrical.
2. Identify high leg throughout the system with orange color.



METER POLE DETAIL
NOT TO SCALE

AS-CONSTRUCTED

REVISION	DATE	DESCRIPTION	BY
1		BAPR 76 REVISED METER POLE	LTW
DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA			
DRAWN BY: T. CARADEMOS CHECKED BY: V.S. ANDERSON		KERN RIVER - CALIFORNIA AQUEDUCT INTERTIE KERN COUNTY, CALIFORNIA	
DESIGNED BY: T. CARADEMOS CHECKED BY: V.S. ANDERSON		ELECTRICAL DETAILS & PANEL SCHEDULE	
APPROVED BY: [Signature] DATE: 16 MAR 1976		SCALE: AS SHOWN SPEC. NO. 4929	
PREPARED UNDER THE DIRECTION OF F.G. ROCKWELL, JR.		FILE NO. KE-4-11 SHEETS 11/1 TO 11/23 SHEET NO. 11/23-1	