

## II - DESCRIPTION OF PROJECT

### 2-01 LOCATION

Lopez Dam and Reservoir are located on Pacoima Wash in the northcentral part of the San Fernando Valley, about 2.2 miles northeast of the city of San Fernando and entirely within the city and county of Los Angeles, in California. Lopez Dam is approximately 3.5 miles northwest of Hansen Dam. The location of Lopez Dam and Reservoir is shown on Plate 2-1.

### 2-02 PURPOSE

Lopez Dam and Reservoir are an integral unit on the Pacoima-Tujunga Wash system of tributaries to the Los Angeles River. The purpose of the project, a unit under the approved comprehensive plan for flood control in the Los Angeles County Drainage Area (LACDA), is to provide protection against debris-laden floodwaters for large areas between the dam site and the Los Angeles River. Important improvements in these areas include valuable industrial, business, and residential properties and transportation systems. The dam also forms a headworks to direct flows into the Pacoima Wash channel. The storage allocation for Lopez Reservoir is shown on Plate 2-2.

### 2-03 PHYSICAL COMPONENTS

a. Embankment. The earth-fill embankment has a crest length of approximately 1,300 feet and a maximum height of approximately 50 feet above the bed of Pacoima Wash. The crown width at the crest elevation of 1,298.9 is 20 feet. Upstream and downstream slopes of the embankment are 1 vertical on 2 horizontal throughout. The embankment has an impervious inner core with a crest width of 12 feet at elevation 1,292.8 with slopes of 1 vertical to 1 horizontal upstream and downstream. The upstream and downstream portions of the embankment are pervious zones constructed of material excavated from within the reservoir upstream of the dam and rock excavation from the spillway site. A three feet layer of loose rock on the upstream and downstream slopes of the embankment serves as protection against erosion. Information related to the embankment is shown on Plate 2-3. Photographs of the embankment are shown on Figure 2-1.

b. Spillway. The reinforced concrete spillway structure is located at the left abutment (looking downstream) of the dam. The spillway was designed as a combined outlet and spillway. The design discharge for the downstream channel is 11,000 cubic feet per second (cfs) and for the spillway, the design discharge is 31,000 cfs. The spillway is an uncontrolled broadcrested type with the crest at elevation 1,272.9. The spillway consists of a rectangular channel, extending about 92 feet upstream and about 470 feet downstream from the axis of the dam. The channel converges from a width of 110 feet at the crest, or axis of the dam (station 10+00), to a width of 30 feet at the end of the spillway transition (station 14+70.48) where it joins the Pacoima Wash channel. An overflow section is provided in the right wall of the spillway channel between station 12+13 and station 14+70.48 to spill flows in excess of 14,000 cfs during a spillway design flood.

The upstream approach channel has a reinforced concrete invert and vertical walls diverging upstream from the crest (at the same rate as the downstream convergence) to a channel base width of 122.0 feet at the beginning of the invert. The vertical walls terminate in quadrant walls forming the spillway approach. The tops of these quadrant walls are at elevation 1,293.1. A concrete cutoff wall extending to a depth of 8 feet into rock is constructed beneath the approach channel invert slab at its upstream edge (station 9+10) and along the right side to station 10+10. Details, dimensions, and other information related to the spillway are shown on Plate 2-4 and Plate 2-5. Figure 2-2 shows photographs of the spillway.

c. Reservoir Outlet. A low level outlet is provided to empty the reservoir pool remaining after flow over the spillway has ceased and during low flows. The outlet is a cast-in-place, reinforced concrete conduit with a flat invert and an inside diameter of 60 inches. Other appurtenant features include a low level intake, a perforated intake tower, and a combination gate well and recorder well. Plate 2-6 and Plate 2-7 show pertinent information pertaining to the reservoir outlet.

The low level intake structure is equipped with removable steel grates spaced to permit the entry of water but to prevent the entry of trash and debris. The invert elevation of the low level intake is 1,253.9. The intake tower is a cast-in-place, reinforced concrete structure opening into the conduit. The tower is 5 feet square inside and extends to elevation 1,273.9 (one foot above spillway crest). It is perforated with 4-inch diameter formed openings which permits the pool to be drained down in the event the low level intake becomes inoperative. Photographs of the low level intake structure and the intake tower are shown in Figure 2-3, and Figure 2-4.

The gate well and float recorder well-structure consists of a 2-compartment, reinforced concrete shaft, 10.5 feet by 3 feet and 42 feet deep inside, located in the upstream embankment near the axis of the dam (at station 2+44). A concrete block and steel structure covers the recorder well shaft and houses the recording equipment. Photographs of the gate and recorder structure are shown in Figure 2-5. The recorder well is fed from an intake structure in the reservoir, near the pool drain intake, through a 6-inch diameter steel pipe, encased in concrete. The recorder well compartment is also connected with the gate chamber by a short length of 3-inch diameter cast iron pipe equipped with a gate valve. This connection permits flushing of the recorder well and permits the recorder well to be fed either from the reservoir intake or from the gate well when the 60-inch slide gate is closed.

A heavy-duty circular 60-inch diameter slide gate with bronze seats is installed in the gate well. This gate is raised and lowered by means of a single gear pedestal lift, which is mounted on top of the gate well and equipped with a handcrank mechanism. One inch movement of the gate requires 16 turns of the handcrank. Approximately  $2\frac{1}{2}$  inches of the stem is exposed above the lift nut when the gate is closed. The height of the gate opening is determined by measuring the length of the stem above the lift nut.

A 3-inch brass gate valve with nonrising stem is provided at the flanged end of the short 3-inch diameter cast iron pipe connecting the float recorder well and the gate chamber. The valve operating handle is located just below

the floor level of the recorder house. For satisfactory operation of the recorder, this gate valve must be kept closed when the slide gate is open and water is flowing through the conduit.

#### 2-04 RELATED CONTROL FACILITIES

A diversion structure is located near the downstream end of the outlet pipe, immediately upstream of where the outlet pipe discharges into the spillway channel (see Plate 2-4). The diversion structure consists of a reinforced concrete box provided with slots for stop logs and a 30-inch diameter circular slide gate. The diversion structure was constructed with Lopez Dam in 1954 by the COE for the purpose of providing flows to the Lopez Spreading Grounds. The 30-inch gate remains closed and the stop logs are removed at all times except when spreading operations are in progress (Figure 2-6).

Other facilities located in the vicinity which are impacted by or affect the operation of Lopez Dam and Reservoir are described in Section 3-04.

#### 2-05 REAL ESTATE ACQUISITION

Lopez Dam and Reservoir Project lands comprise 101.4 acres as shown on Plate 2-3.

#### 2-06 PUBLIC FACILITIES

No public facilities are included in the Lopez Dam and Reservoir Project.

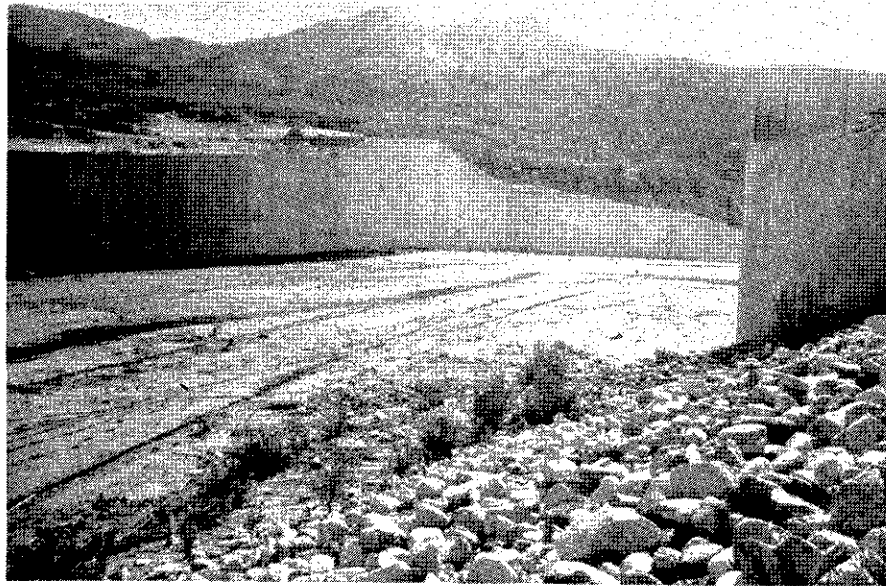


(a) Downstream Slope.



(b) Upstream Slope

Figure 2-1. Photographs of Lopez Dam Embankment.

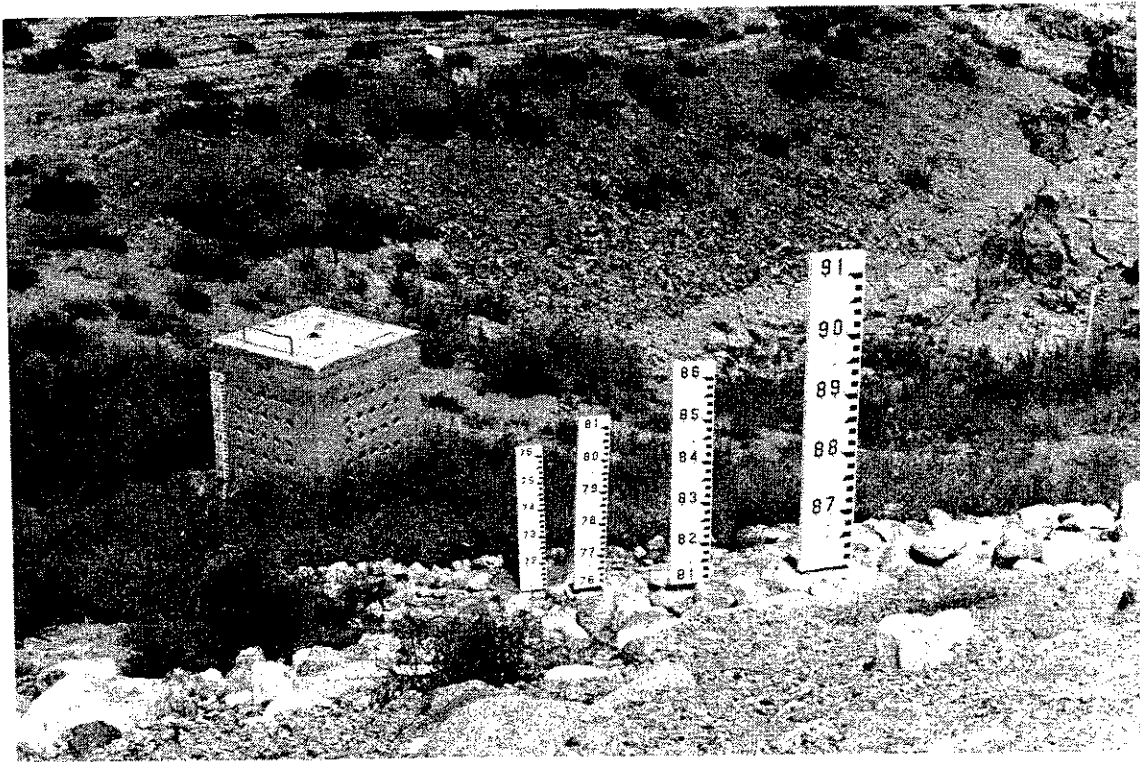


(a) Looking Downstream.

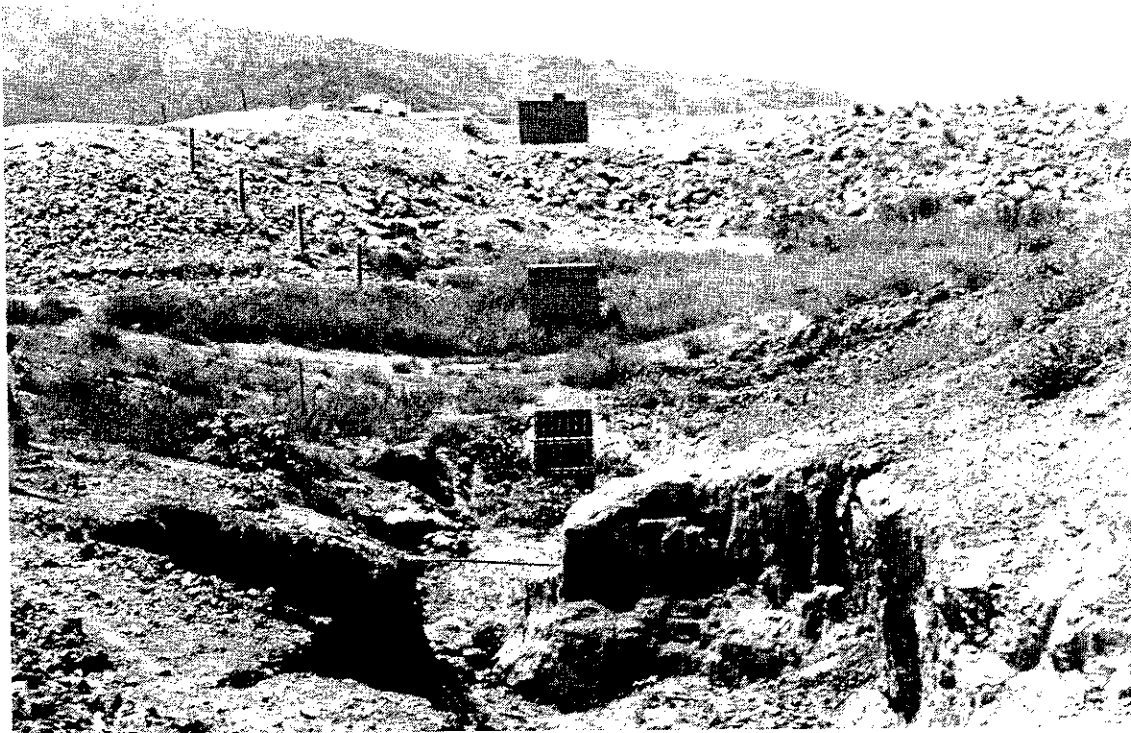


(b) Looking Upstream.

Figure 2-2. Photographs of Lopez Dam Spillway.



(a) Intake Tower.



(b) Low Level Inlet Structure.

Figure 2-3. Photographs of Lopez Dam Outlet.

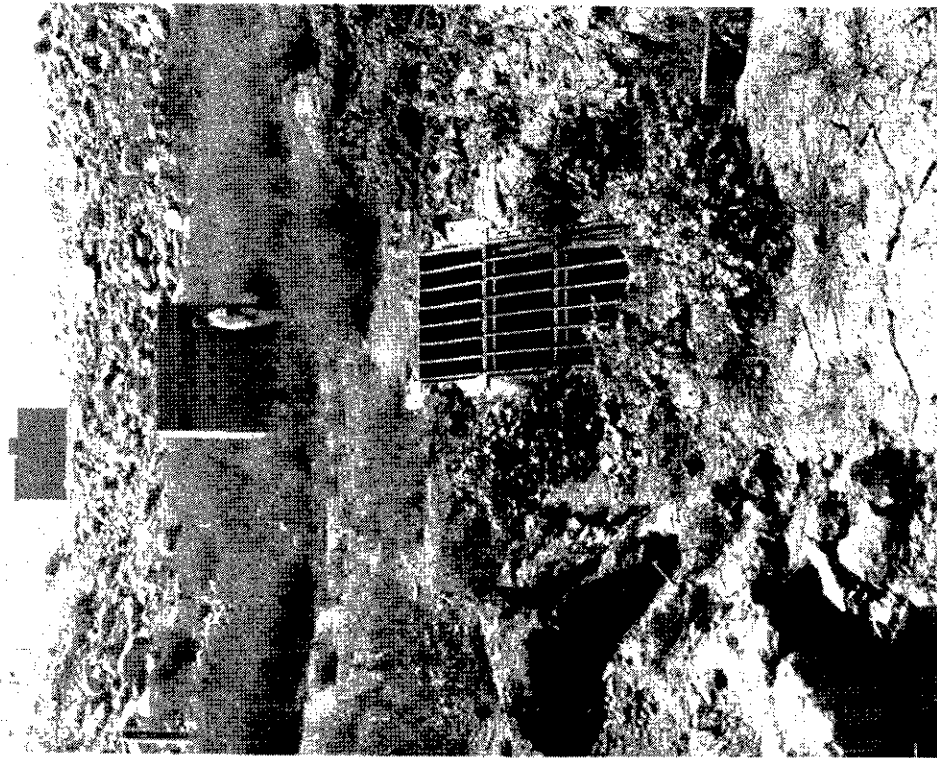
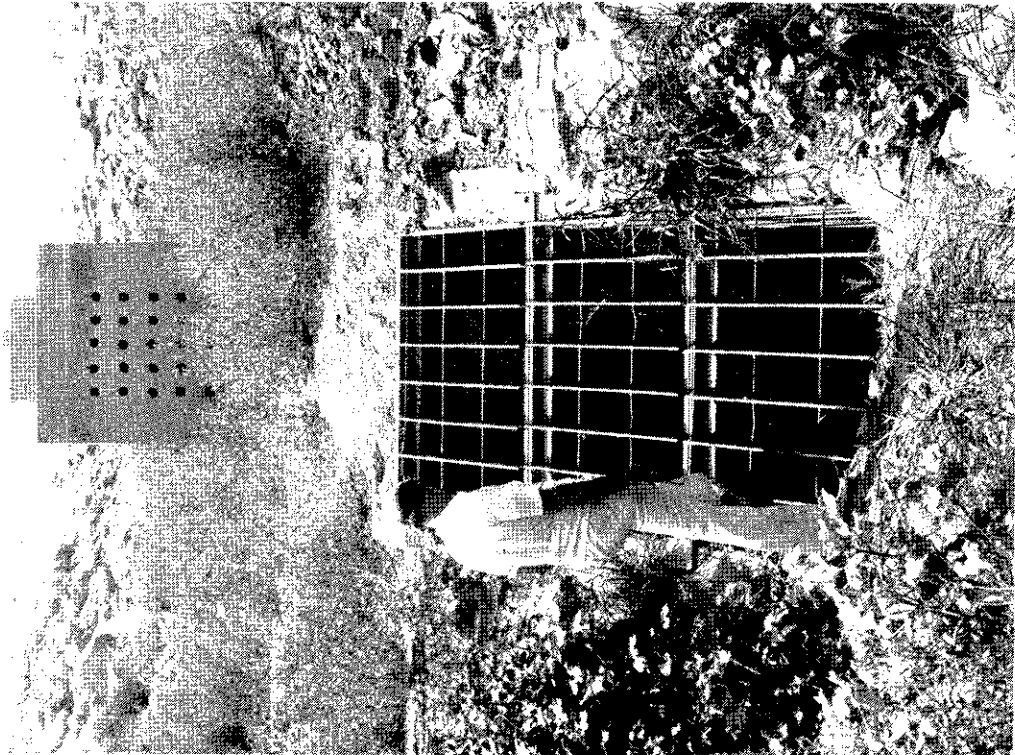
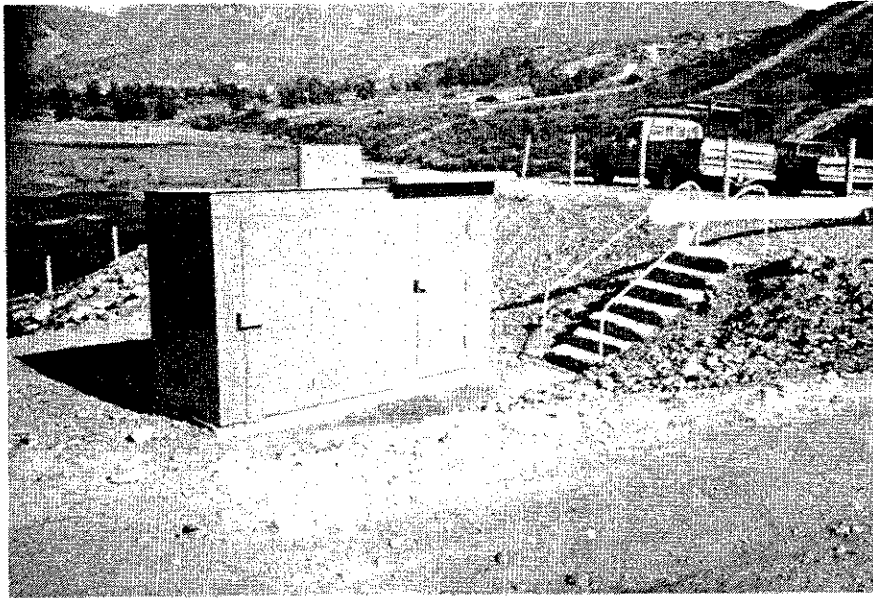
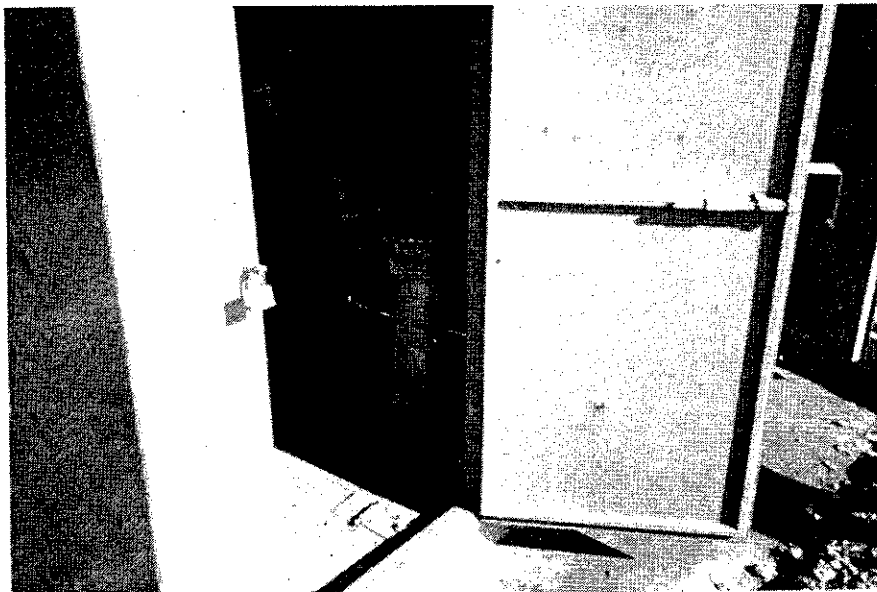


Figure 2.4. Photographs of Lopez Dam Intake Tower and Low Level Inlet Structure.



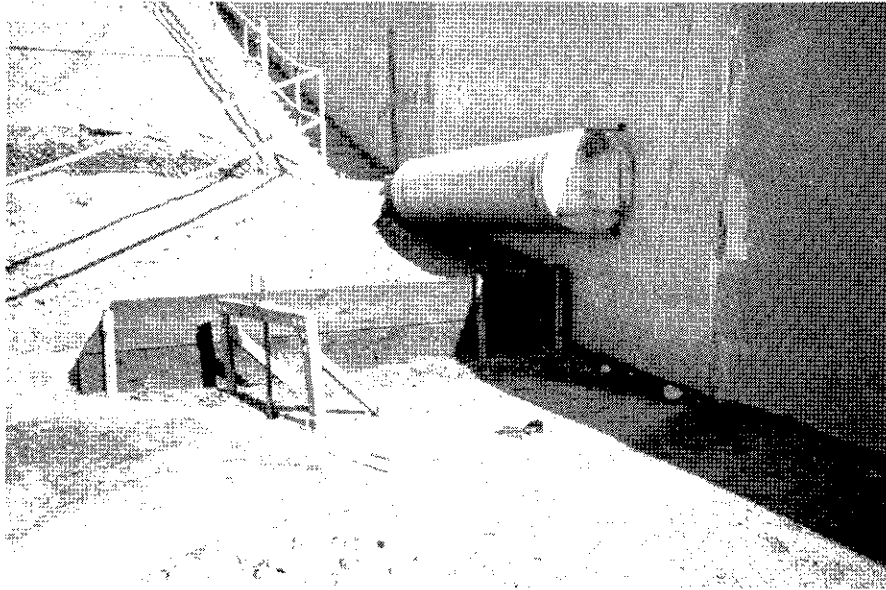
(a) Gate and Recorder Structure.



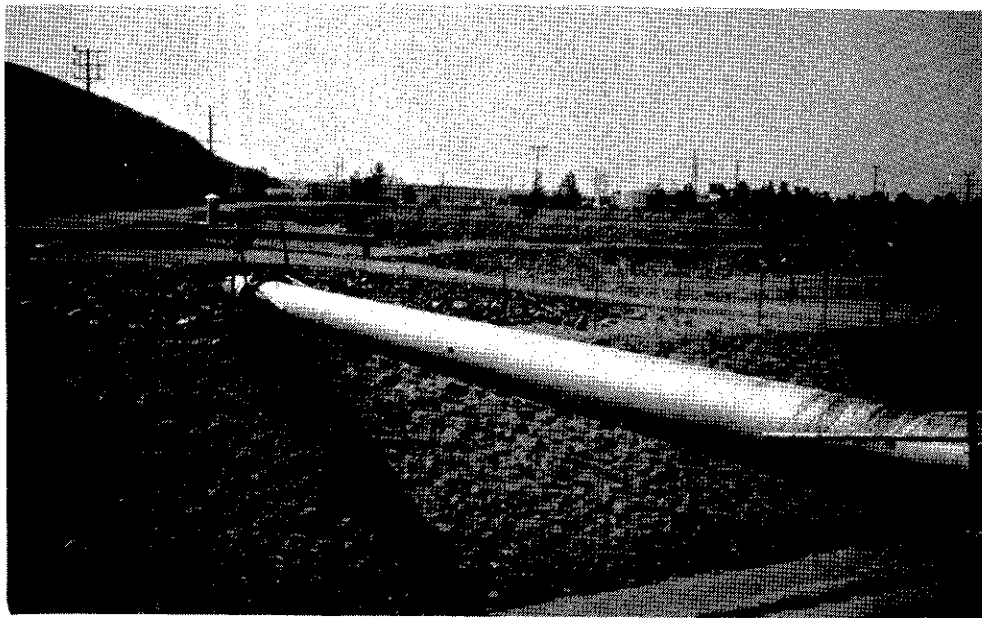
(b) Handrank Mechanism for Slide Gate.

Figure 2-5. Photographs of Lopez Dam Gate and Recorder Structure.





(a) Diversion Structure, Manhole.  
(The CMP is used to store equipment.)



(b) Spreading Facility.

Figure 2-6. Photographs of Lopez Spreading Grounds.