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UNITED STATES
DEPARTMENT OF THE INTERIOR
INDIAN IRRIGATION SERVICE
SUPERVISING ENGINEER
Fifth Irrigation District
Albuquerque, N. M.

February 22, 1929

Lo Kasa Kad

Mr. H. F. Robinson,
Supervising Engineer,
Albuquerque, New Mexico.

Dear Mr. Robinson:

Herewith is submitted a report on the proposed reservoir sites located on the Lo Kasa Kad Wash on what is known as the Marty property, better known as Indian Wells.

1. Location.
Indian Wells is located thirty-five miles north of Holbrook, Arizona, in Section 7, T. 23 N. R. 21 E.

2. Water Supply.
The Lo Kasa Kad Wash is an ephemeral stream subject to torrential floods. Soundings in the stream bed show that there are from three to five feet of loose shale, gravel, and sand. The stream carries large quantities of debris and any dam built across the stream bed would soon be filled to the height of the dam.

3. Reservoir Sites.
There were found to be two reservoir sites on the Marty property, one known as Lo Kasa Kad and the other located in Section 34, T. 23 N. R. 21 E.

A detailed topographic survey of Lo Kasa Kad reservoir site shows that with a dam constructed 60 feet in height that there would be impounded 1344 acre feet of water. There is an excellent dam site at this place, however, the dam would be constructed across the main wash and supplied by

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flood waters. As far as we are able to ascertain the life of the reservoir would perhaps be about five years. The silt deposited in the reservoir if constructed, would deplete the capacity of the reservoir by about 300 acre feet per year. As previously stated, there are from three to five feet of loose material in the stream bed and with each flood a considerable quantity of this would be moved into the reservoir, not taking into consideration the amount brought in from side washes immediately above the reservoir site.

In addition to the construction of the dam it would be necessary to build a conduit or flume to convey water from the reservoir to any lands that could be irrigated which would be some three miles distance from the reservoir. This construction is made necessary because the stream bed is very porous and if a small amount of irrigation water was released from the dam it would all sink into the sand or gravel before reaching the agricultural lands.

The following is an estimate for the construction of the Lo Kasa Kad dam and appurtenant works:

DAM
A concrete gravity type section,
estimated cost about $70,000.

3 MILES OF FLUME
@ $5.00 per foot 85,800.

Total of $155,800.

or about $120.00 per acre foot of water stored. Considering that the life of the reservoir would be some five years, it can readily be seen that the cost of the proposed dam would be prohibitive.

A survey was made of the reservoir site located in Sec. 34, T. 23 N. R. 21 E. which is some four miles from Indian Wells.

Some years ago Mr. Marty constructed a small dam across a depression which was used to impound water for irrigation purposes. No particular use was made of this dam.

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A detailed survey of this reservoir site shows that it would impound 1412 acre feet. To impound this water it would be necessary for us to construct 1500 lineal feet of dike approximately thirty feet high and 3300 feet of dike averaging from 5 to 35 feet. In addition to this it would be necessary to construct a diversion dam across the main wash with proper sluice gate facilities in order that we might avoid filling the reservoir with silt that the useful life of the reservoir might be prolonged for a number of years.

It is estimated that the cost of this dam and appurtenance would be as follows:

DIVERSION DAM	$25,000.
DIKES AND MAIN DAM	70,000.
Total of	$95,000.

making a cost of $67.00 per acre foot for the water that would be impounded.

The life of the reservoir would be dependent upon the operation of the diversion dam and the amount of water flowing in the stream bed at which time diversions would have to be made. It must be remembered that the Lo Kasa Wad is an ephemeral stream and the only water available for irrigation purposes would be from flood waters.

From information we have there is no steady flow of water in this stream bed at any time of the year. The springs mentioned in the various correspondence do not yield enough water for any practical purposes as far as irrigation is concerned and can only be used for stock water.

4. Irrigable Lands.

There are several hundred acres of irrigable lands located near the lower reservoir site located in Section 34 which, if supplied with sufficient irrigation water, would produce valuable crops. However, in view of the fact that the reservoir capacity is limited to 1412 acre feet, it would not be practical to encourage the Indians to plant more than 200 acres of land because it is very doubtful if irrigation water could be obtained for any more land.

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From the general appearance of the project and from the information we are able to secure, it would seem that the cost per acre would be prohibitive and that in view of the uncertain water conditions that any project constructed without an abundance of water will be very disappointing, not only to the Indians, but to the Irrigation Service.

Very truly yours,

Charles A. Burns
Assistant Engineer

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