



Construction progress report prepared by William Rea Holway of Holway and Neuffer Consulting Engineers of Tulsa, OK, to the board members of the Grand River Dam Authority in Vinita, OK, dated January 3, 1939

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HOLWAY AND NEUFFER
Consulting Engineers
 TULSA & ALBUQUERQUE

W. R. HOLWAY
 H. C. NEUFFER

E. L. Chandler

JAN 4 - 1939

Vinita, Oklahoma
 January 3, 1939

RE: Grand River Project - Pensacola Dam
 PMA Docket Okla No. 1097 - P - DS

ENGINEERS' PROGRESS REPORT #11

Board of Directors
 Grand River Dam Authority
 Vinita, Oklahoma

Gentlemen:

We herewith submit a report of progress on the engineering and construction work on the Grand River Dam Project:

(Contracts 1, 2, 3, and 4 completed).

Contract 5. Hydraulic Turbines. Allis-Chalmers Mfg. Co. Contractor
 The manufacture of this equipment is proceeding rapidly, as shown in the last semi-monthly report of the Contractor attached hereto. A speed ring with spiral casing for one of the 20,000-hp units has been completed and assembled at the factory, the draft tube and base ring for the 750-hp turbine is completed, the four draft tube liners for the 20,000-hp units are finished, the governor for the 750-hp unit is finished, and the unit itself is fifty per cent (50%) complete.

The revised shipping schedule was approved by you as Change Order No. 20 on December 27th. At your next meeting we expect to present a payment schedule, as provided for in the contract.

Contract 6. Electric Generators. Westinghouse Electric Mfg. Co., Contractor

Work under this contract is progressing according to schedule. We hereto attach the last monthly report received from the Contractor. Our office has received the factory test report for the pilot exciter for a 16,000-kva unit and the 625-kva unit is completed, tested, and is now awaiting shipment.

Contract 7. Dam and Power House. Massman Construction Co., Contractor.
 The laboratory building on the site of the work near the concrete mixing plant has been practically completed and the Engineers' testing equipment has been moved from the Field Office to the job and work there has begun. The Oklahoma Testing Laboratories' equipment has also been installed in this building. The engineering force has been increased at the dam to provide for the inspection of concreting operations.

Excavation. The excavation on the switchyard site was prevented of completion by the suit of Willis Thompson, and a small amount remains to be done there and on the west approach highway. It is expected that

rock excavation on the face of the west abutment will be undertaken in the near future. A bench in the talus slope has been excavated.

Work is proceeding on the highway between Disney and the east spillways. The right-of-way is cleared and the culvert pipe is being laid.

In the main spillway channel the earth overburden is being removed from the rock along a strip about 150 feet wide, measured from the westerly side and extending from about 600 feet to 1500 feet downstream from the axis of the dam. The rock excavation is practically completed in the gravity non-overflow section, and in the gravity spillway section the upstream face of the excavation has been trimmed to neat lines for a portion of the length. Also over a part of the spillway area, the excavation is being carried to the full depth and trench excavation will now proceed.

The earth excavation program has been somewhat retarded by legal action and lack of access to the Wilkerson property on which the main spillway channel is located, although there has been no delay on this account to the completion of the whole project.

In the arch section rock excavation has been carried on for Buttresses #7 to #14 inclusive. The satisfactory stratum of foundation rock found about the five-foot depth at Buttress #8 has been found in all the buttress excavations, rising toward the east until at Buttress #12 it is found at a depth between two and three feet. It is proposed to excavate suitable key-ways in that stratum. Cut-off trenches for arches #7-8 and #8-9 have been shot and partly excavated.

The latter work has not been satisfactory and general progress on the rock excavation in the coffer-dam has been unsatisfactory in some respects. This work has been of a difficult nature; but the Contractor has lacked sufficient equipment, unified organization, and coordinated program. During this last week a conference was held between the Massman Construction Company representatives, his sub-contractor, and ourselves, which has, we believe, resulted in an understanding of this whole matter which will bring about the speeding up of the work. The Contractor has also recently added to his equipment an extra compressor to increase the capacity of his central compressor plant, a steam boiler for heating the concrete, and additional drilling equipment for the rock excavation. The Contractor is now trying broaching equipment for the cut-off trenches.

Concrete. The first concrete on the dam was poured at one o'clock on the afternoon of December 30, 1938. To date approximately 500 cubic yards have been poured. The easterly half of the footing for Buttress #8 was the first unit to be poured. The entire footing for this buttress was completed and the footing for Buttress #9 is now formed and ready for pouring. This is being done with the aggregate imported for early concreting.

The concrete mixing plant is in working order, the belt conveyors for the aggregate storage are well advanced, the bins completed, and a whirley has been erected to handle the aggregate.

Whitebird Quarry. The 250-hp gasoline engine, installed as the principal power unit, proved to be in poor condition and repairs have been under way. The installation of the Diesel engine to serve as a secondary power unit is practically complete. The screen and the bins are nearly erected and the supports for the main belt conveyor from the crushing plant to the bins are in place. Overburden stripping has progressed satisfactorily. This quarry should be in operation by the middle of January.

Attached to this report is a progress chart showing the amount of work which has been done the last month under this contract.

Contract 8. Grove Highway Bridge. S.E. Evans, Contractor

A secondary crusher is being installed as a part of the plant equipment at the quarry on this contract to take care of the deficiency in percentage of fines in the material, discovered when the equipment was tried out experimentally. The stripping of overburden and blasting of rock in the quarry is being carried on in advance of crushing operations.

The office buildings and a cement storage shed have also been completed and a settling basin on the north bank of the river which will furnish water supply for construction operations. The mixing plant set-up is well under way, and the railroad track lay-out is complete to the river bank.

The earth excavation for Pier #7 is practically complete and another is being excavated. Some structural and some reinforcing steel has been delivered on the site.

Progress on this contract has been very satisfactory.

Contract 9. Frisco Railroad - Track Elevation.

The award of this contract has not yet been made.

Contract 10. K.O. & G.R.R. Relocation. M.E. Gillioz, Inc., Contractor

The contract for this work has been executed and the Work Order was issued on December 30, 1938.

Various changes in grade preliminary to construction have been found advisable in laying out the work and suitable recommendations were prepared and submitted to the K.O. & G.R.R. officials. An agreement on these changes has been reached and a Change Order is being prepared.

Construction features and the right-of-way are being now staked in the field.

Contract 11-A. Clearing Lake Area. Dewey T. Ross Engineering Corporation, Contractor.

Bids were received on December 9th for the clearing of 2625 acres, the first of a series of contracts for the clearing of the lake area. Six bids were received, and the contract was awarded to the Dewey T. Ross Engineering Corporation of Tyler, Texas, at the contract price of \$74,877.70. The work order for this contract was issued December 31, 1938.

(Contract 11-B). Plans and specifications are ready for Contract 11-B, the clearing of 2700 acres in T24N, R23E, and T24N, R24E. We are waiting to present these to you for approval until enough land is secured to warrant starting the work.

Contract 12. Power House Auxiliaries and Switchyard. Brooker Engineering Company, Contractor.

Bids were received for Contract 12 on December 20th, eleven firms submitting bids. The contract was awarded to the Brooker Engineering Company of Detroit, Michigan, at a contract price of \$575,440.10. The contract for this work has not yet been executed.

Future Contracts. Plans and specifications are approaching completion for Contract 13-A, the 110-kv transmission line down the Grand River valley, which has been located on the aerial photographs. These documents will be submitted to you on schedule.

Plans are being worked out for relocating Vinita's waterworks pumping station and intake and also for replacing the Grove waterworks plant which will be flooded by the waters of the lake. Negotiations are still under way with the oil companies and telephone, telegraph, and power companies for the relocating of the utilities. One of our men is continuing work with the Land

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Department on the removal of cemeteries.

Surveying and Mapping. The field work of staking the clearing and severance lines around the lake is progressing ahead of schedule and will be completed during the month of March.

Miscellaneous. Mr. Cochrane, Mr. Dibble, Mr. Chandler, and Mr. Holway attended the hearing on flood control problems of the Arkansas Valley Association before the Federal Power Commission held in Fort Smith on December 7th, 1938. Our staff prepared data to sustain the Authority in their position of maintaining the power pool level at Elev 745.

Mr. Holway has acted as a witness in the lawsuit concerning the Willis Thompson land in court held at Pryor and in the injunction suit concerning Contract 9 at court held in Vinita. Other members of the staff assisted Mr. Davidson in the Willis Thompson case.

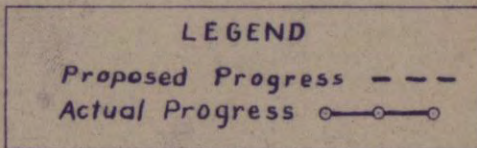
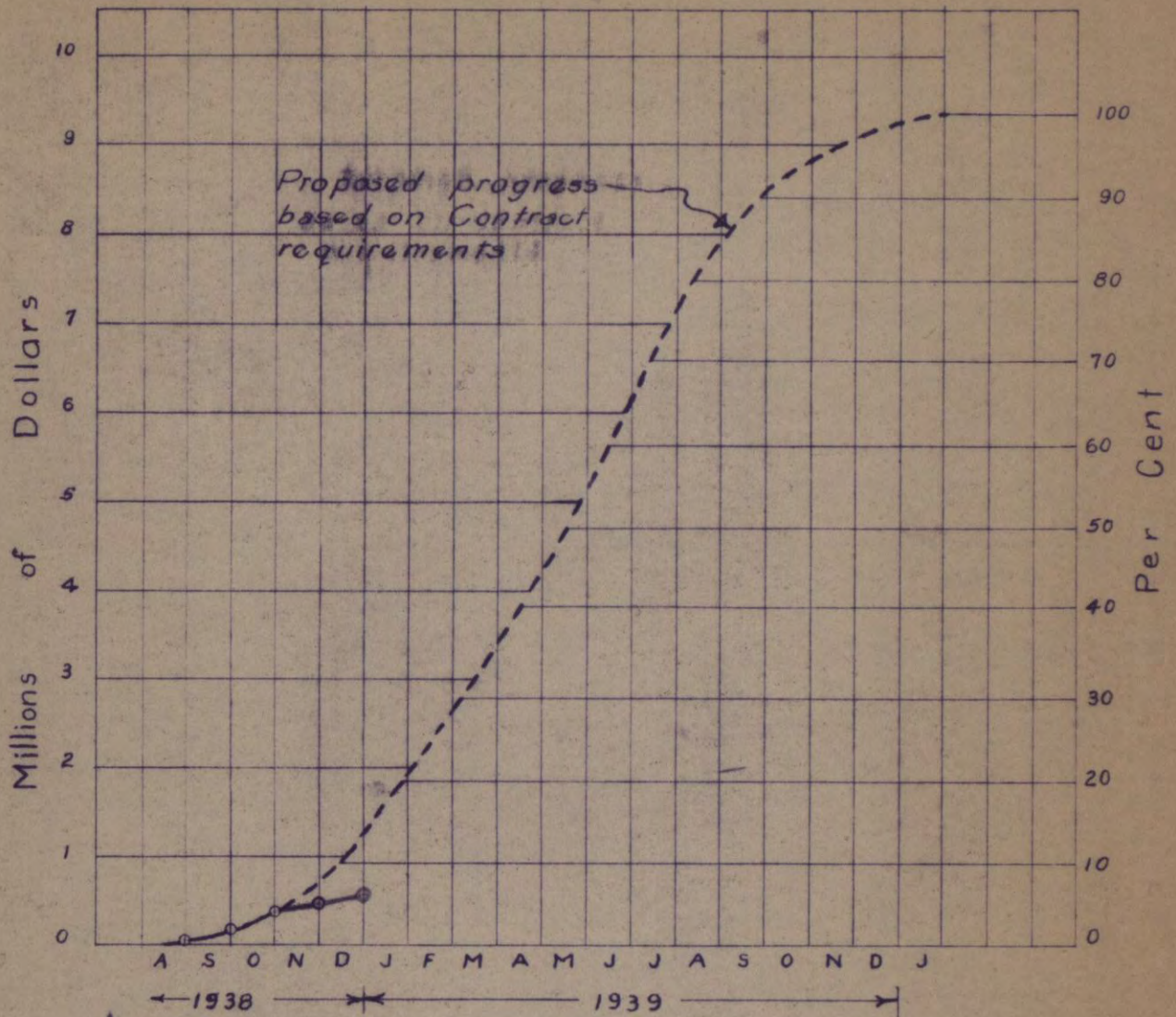
The first of a series of conferences with the United States Geological Survey and Weather Bureau was held on December 19th to work out locations of permanent gauging stations and a plan for the Authority to obtain proper information for the control of floods through the Pensacola Reservoir.

Respectfully submitted,

HOLWAY and NEUFFER, Engineers

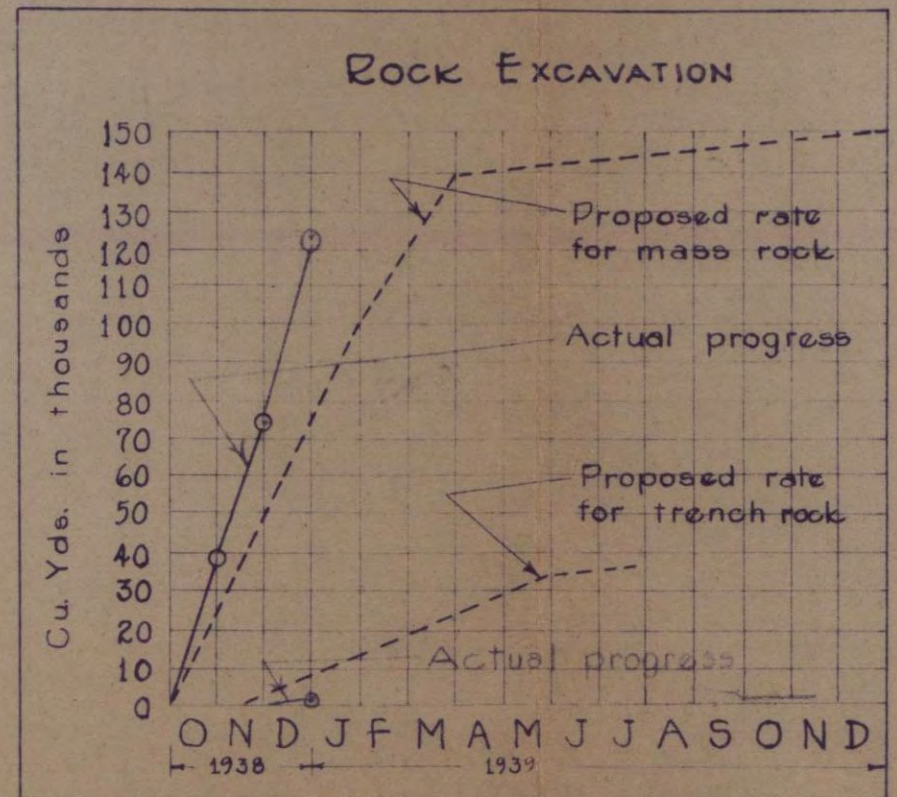
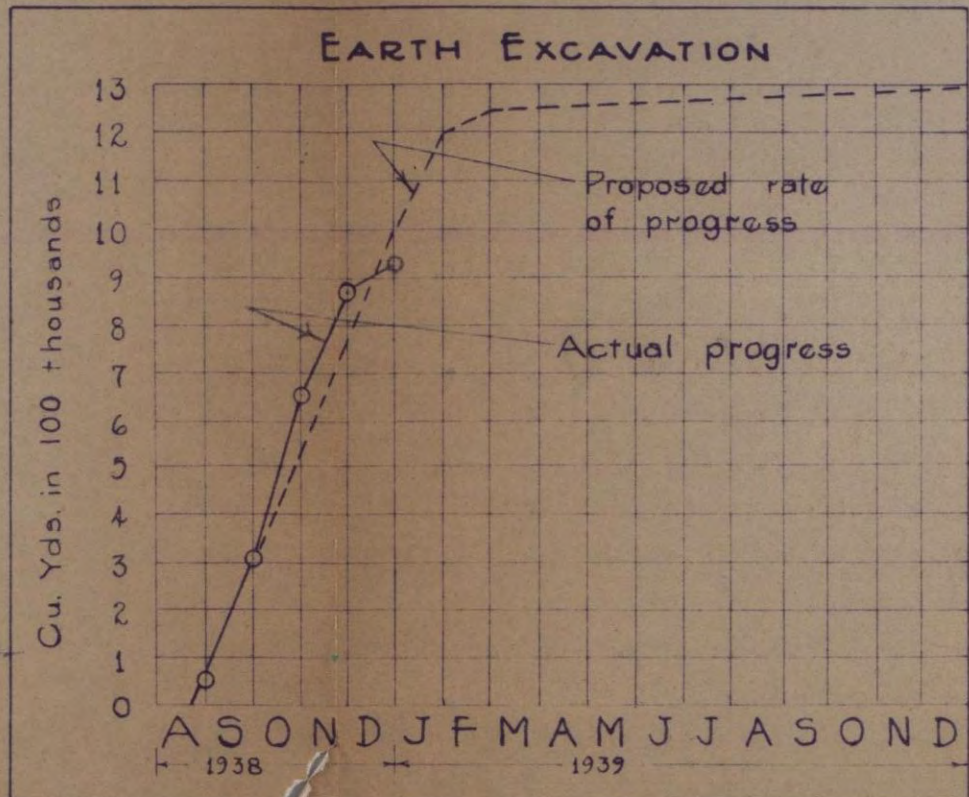
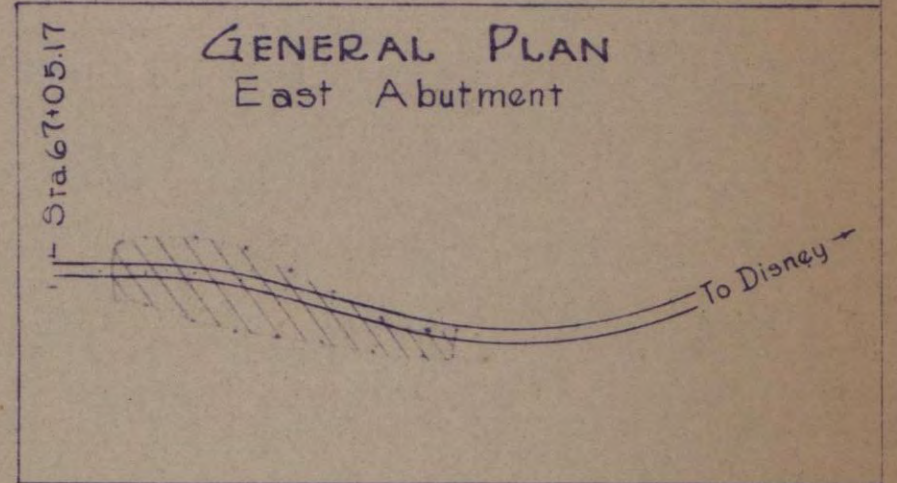
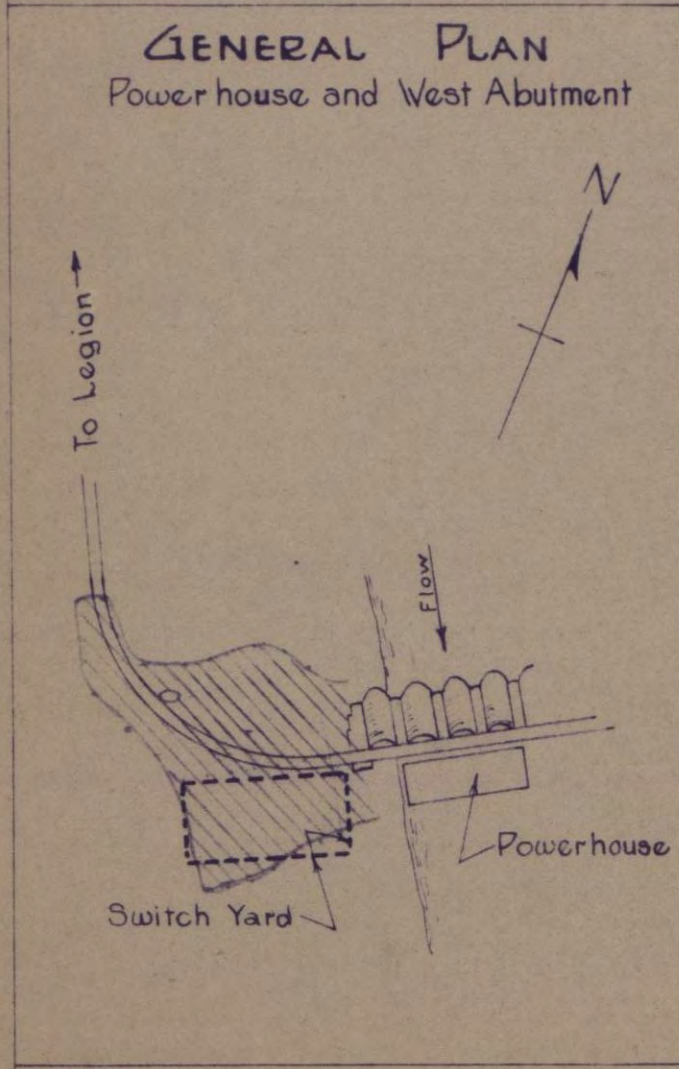
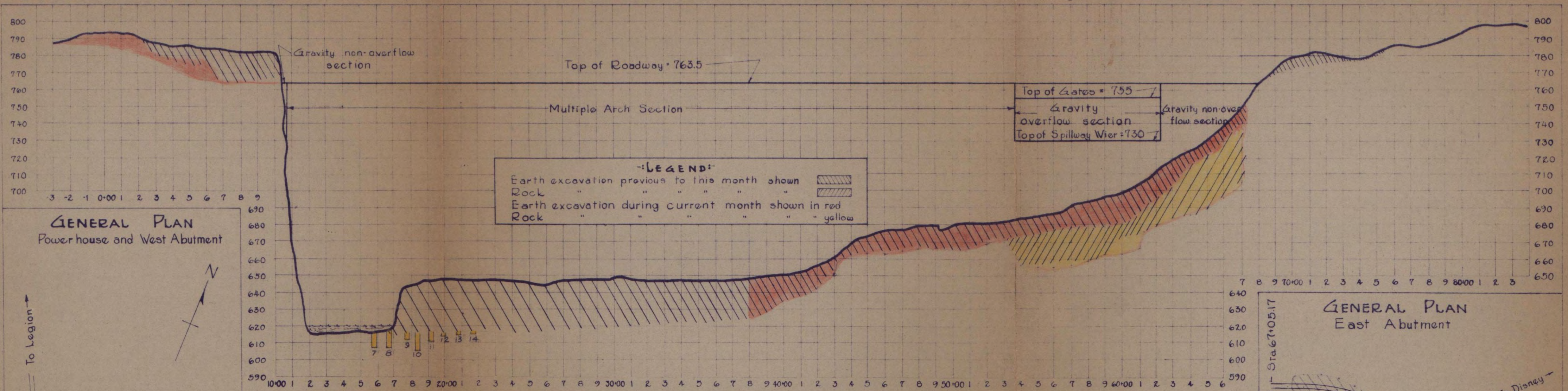
by

W.R. Holway



DRAWN BY *A. B. Morgan*
TRACED BY *A. B. Morgan*
APPROVED BY *S. R. Kauder*

GRAND RIVER PROJECT
PENSACOLA DAM
CONTRACT 7-DAM & POWER HOUSE
GENERAL PROGRESS DIAGRAM
SCALE AS SHOWN DWG. NO. FI-3R0
GRAND RIVER DAM AUTHORITY
HOLWAY & NEUFFER - ENGINEERS



Drawn by: Chas. J. Nichols
Approved by: E. Chandler

GRAND RIVER PROJECT	
PENSACOLA DAM	
CONTRACT 7-DAM & POWER HOUSE	
EXCAVATION - PROGRESS DIAGRAMS up to <u>DECEMBER 31, 1938</u>	
SCALE: As Shown	DWG NO. F1-4 R O
GRAND RIVER DAM AUTHORITY HOLWAY & NEUFFER - ENGINEERS	