Central Designs Organisation;
(Earth Dam), NASIK-422 004.
Inward No 326
Date 19-1-85

Providing Steel Lining for blockouts of Irrigation Outlets -

GOVERNMENT OF MAHARASHTRA,
Irrigation Department,
Circular No. MIS 1083/255(2215)-MAJ(3),
Dated the 9th January,1985.

CIRCULAR:-

It has come to the notice of Government that due to bulging of concrete in block out portion of some outlet gates on dams, certain difficulties are experienced in lowering the gates. At same locations leakage through blockout portion is also noticed. The main reason of bulging of blockout concrete and leakage is that enough attention is not being paid to the block out form work and block out concreting by the supervisory staff on the spillway and outlet works as well as the joints between monoliths of masonry dams.

The block out concrete is generally required to be done in two stages as shown in the accompanying sketch. In the first stage to avoid concrete protruding out of anchor rods, provision of welding pads is desirable. Though both stage concrete is 1: 1½: 3 or M-200, the quantity involved in every lift is very small and enough attention is not paid to shuttering and concreting. This is the most common drawback for which following special instructions are issued which should be closely observed during the concreting of blockouts for gates and for the blockouts for waterstop of the joints between monoliths of masonry dam.

i) Raking and cleaning the contact surfaces before laying I as well as II stage concrete needs to be done carefully.

ii) Erecting the shuttering to required form and plugging the gaps in the same.

iii) Mix design of concrete with close attention to gradation of aggregate and water cement ratio as necessary.

iv) Careful pouring is needed, specially due to restricted size of opening for concreting to avoid segregation.

v) Proper vibration of concrete, as necessary.

vi) Green cutting of surface of previously laid concrete after 8 to 10 hours of concreting is necessary to given proper bond to the concrete of II stage or of next lift. Where the earlier laid face is masonry careful raking for 5 to 7cm. depth is essential in addition to removing loose mortar from stone faces.

vii) Transverse Joints within the monolith which make it susceptible to leakage should be avoided.

viii) Proper care of the copper plate used in expansion joints for leak proofing is necessary to avoid its tearing or opening up of brazed joints.

ix) Steel plate cladding may be provided to blockouts of outlets upto level at double the gate height to overcome the bulging of concrete, in case of blockouts of gates for major and medium project dams. In additions special case should be taken to ensure smooth finish to blockout concrete as per required dimensions in respect of zones above double gate height level and in respect of blockouts for gates on dams of major, medium and minor projects.

x) It is desirable that some temporary cover in form of planks or thin metal sheet is laid over the gate location, after completing the embedments of gates parts upto double gate height to avoid spoiling of gate parts due to droppings from mortar or concrete used for higher level construction. The cover needs to be removed before fillingup of the lake upto outlet/level.

(D.L.GARUD)
Chief Engineer(Project) and Joint Secretary to the Government of Maharashtra.

Encl.: : One drawing

Copy for information and necessary action to:
All Regional Chief Engineers in Irrigation Department,
Chief Engineer and Director, Maharashtra Engineering Research Institute, Nashik,
All Superintending Engineers in Irrigation Department
All Technical Officers and Technical Desks in Irrigation Department, Mantralaya, Bombay.

NO. ED/DE(ADM) CIR-II Dated

Cfy to the EE D.D. ED-I, ED-II, III, IV, WP. & PL-1 for info and necessary action.

Encl:— 1 Sketch.

SDO (ADM)
+ 3E (ED)

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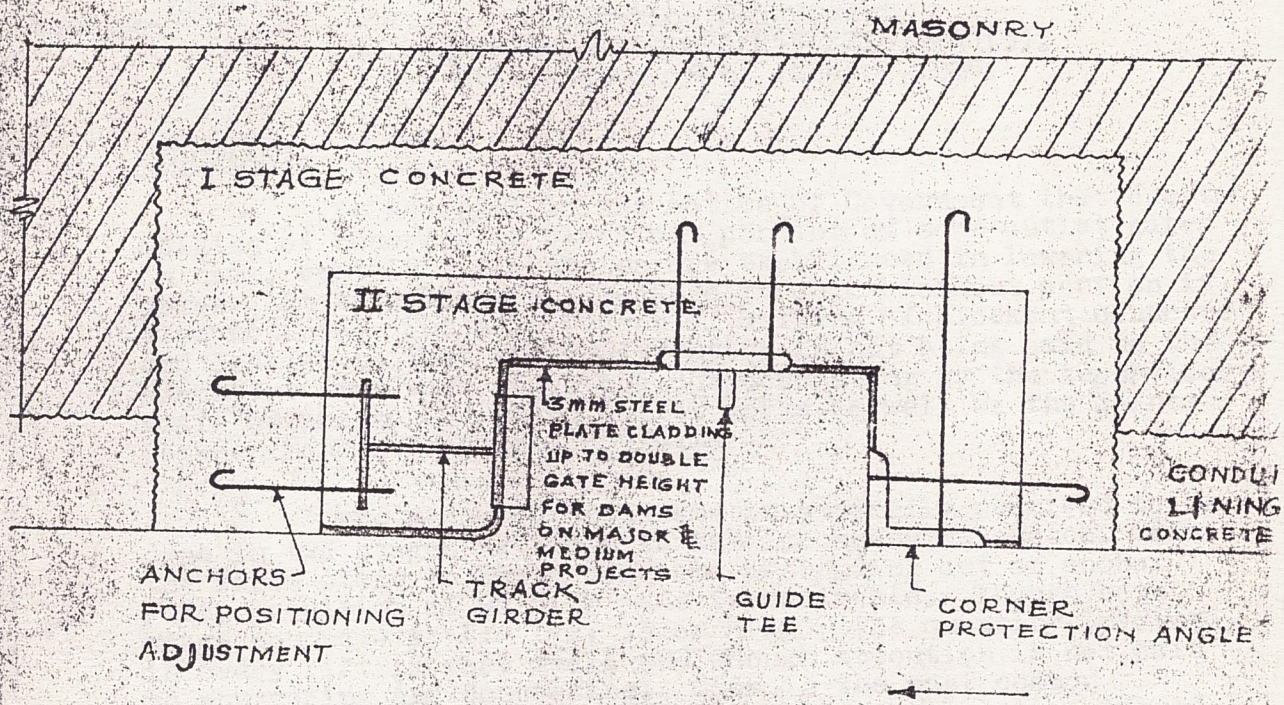

NOT TO SCALE

TYPICAL DETAILS OF BLOCKOUT