M.R.O. 1—77,006—8-6-37.

(1) Number of pages_____

(2) Date of repair_____

(3) Initials of the Referencer_____

MADRAS RECORD OFFICE.

Government of Madras.

Public works DEPARTMENT.

G.O. No. 2679 Press / Mis.
223-224

Dated 14- 11- 1942.

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department, 14th November 1872.

No. 223. Read the following Circular from the Government of India, Public Works Department, (Irrigation,) dated Simla, 21st September 1872, No. 48:—

FORWARDED with the documents marginally noted to Local Governments and Administrations in the Public Works Department, Irrigation Branch, for information and guidance.

Plans and printed description of the Fish Pass at the Wetherby Weir.

(By Order.)

(Signed) G. SKIPWITH, Captain, R.E.,
Asst. Secy. to the Govt. of India.

From the Inspector-General of Fisheries, to the Under Secretary to the Government of India, Department of Agricultural, Revenue, and Commerce, dated Simla, the 27th July 1872.

I HAVE the honour to acknowledge the receipt of memorandum No. 46, forwarding a letter as per margin accompanied by plans of fish ladders, and Mr. Francis's reports on Salmon ladders*, and requesting my opinion as to the suitability of the respective designs for Indian locks and weirs.

From Deputy Secretary to the Government of India, Public Works Department, No. 558-S.

* Herewith returned.

I consider that the principle of the Wetherby pass, where the weir is 8 feet high, is most suited for locks in canals. "The pass is divided into six boxes or pools each 7½ feet square, the ope in each step is 12 inches wide and 12 inches deep; each pool is 3 feet 6 inches deep, with a fall of 15 inches between each pool, except the uppermost, which has only 6 inches fall. The inlet of the pass is 2 feet wide and 16 inches deep, such inlet being cut below the crest of the weir in the manner described by Mr. Paterson, the Chairman of the Special Commission to the Select Committee in 1869. A sluice, worked by hand, is fitted to the inlet of the pass, and can close up and re-open the pass at discretion. When the pass is working the effect is only to lower the level of the head water about half an inch, which is unappreciable."

This plan would answer for the locks at the commencement of canals, modified, of course, in accordance with the height of each lock. The pools at greater distances from the head sluices, where the current becomes less rapid, need not be so deep, still I consider that they should never be less than 16 inches. The lead into these passes must be as close to the face of the locks as possible, as shown in the plan of the Wetherby Fish Pass.

As regards large weirs, such as those crossing the Ganges or Jumna, this principle would also be the best, but I should be obliged by seeing a proposed plan of any before their construction. The pool principle is not, I think, adapted to Indian fishes.

Extract from the Field the Country Gentlemen's Newspapers dated the 13th November 1871, and the 27th January 1872.

THE Wetherby weir is about 245 feet long, and about 8 feet 6 inches high to a perpendicular face. The corn-mill upon it has three water-wheels of 28 horse-power, and is let on lease for years. The lower part of the pass is formed in a curve round and close to one end of the weir, the whole pass being excavated out of the magnesian lime-stone rock, which forms the river bank.

* * * *

The pass is divided into six boxes or pools, each 7½ feet square; the ope in each stop is 12 inches wide and 12 inches deep; each pool is 3 feet 6 inches deep with a fall of 15 inches between each pool, except the uppermost, which has only 6 inches fall. The inlet of the pass is 2 feet wide and 16 inches deep, such inlet being cut below the crest of the weir in the manner described by Mr. Paterson, the Chairman of the Special Commission to the Select Committee in 1869. A sluice, worked by hand, is fitted to the inlet of the pass and can close up and re-open the pass at discretion. When the pass is working, the effect is only to lower the level of the head water

about half an inch, which is unappreciable. The miller, however, is at liberty to shut the inlet of the fish pass whenever there is less than one inch of water flowing over the weir. It is estimated that the total number of days in the year when this may require to be done will be about six weeks, but those days are not consecutive, for Sundays and occasional freshes intervene. The walls of the fish pass are from 10 feet to 12 feet. There is also a flood guard to prevent drift choking the pass.

It may be confidently referred to as one of the finest examples of a fish pass in the United Kingdom.

* * * *

The plan at Wetherby is constructed on the plan so long known and used in Ireland, with this slight difference, that each pool has been made twice the usual depth of the best existing fish ladders in Ireland. This circumstance, of course, makes no real difference in the flow of water, except that it may help to neutralize the tendency of froth in times of considerable floods. It makes no other difference, because, however deep the pools may be when they are once filled, the quantity of water afterwards coming in at the inlet and going out at the outlet is the same and regular as clockwork.

* * * *

The real efficiency of these passes, assuming that the outlets are the best, depends on the gradient, or rather to speak with more engineering precision, on the fall between each pool, and on the inlet of the pass being below the crest of the weir. Owing to the inlet being below the crest of the weir, the surplus water is at once caught and consolidated at the earliest moment when its adaption cannot practically injure or affect the mill. Owing to the fall between each pool being easy * * * * not exceeding 15 inches at Wetherby, the fish can, without difficulty, manœuvre their way through the ope in each stop, or, as they sometimes prefer, over the end of the stop near the ope, where the water is somewhat gathered, owing to the upper edge of each stop having a gradual fall of 3 inches from the side wall towards the ope.

It must not be supposed that these passes would not have a shorter fall between each pool if it had not been that the expense was at the time the passes were planned, considered a serious difficulty.

* * * *

Every one knows that if you lessen the fall between each pool you must make more pools, and so extend the body of the pass in one direction or another, and this again involves increased expense, for it represents so much more masonry and carpentry.

* * * *

All passes would probably be better by making the fall 12 inches if the extra expense be not deemed an obstacle, and nobody will go wrong in making that alteration of the proportions if the case of the efficiency of the pass be alone considered.

No. 224. ORDER THEREON, 14th November 1872, No. 2,679.

IRRIGATION, No. 16.

COMMUNICATED to the Superintending Engineers for information and guidance.

(True Extract.)

Colonel, R. E.,
Secretary to Government.

To Superintending Engineers.
,, Major R. B. Kennedy.
To the Acting Chief Engineer for Irrigation.
Exd. E. C. Shunker.

G. H. 1872 Department

No. 531

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMEN

IRRIGATION.

To

CIRCULAR No. 48 PUBLIC WORKS

Dated SIMLA, 21*st September* 1872.

Received 4th Nov/72.

Enc: 2.

1 Enc. 2

Chief Engineers for information and guidance.

2679

Forwards, for information and guide
plans and printed description of the
Pass at the Wetherby Weir.

Engineer
Irrigation
Ch: Eng: for Irrig: &c

Plans attached to Public Works Letter No 531 dated 21st September 1872

No 5367

Govt. of {1872} Madras.

PUBLIC WORKS.

To

The Superintending Engr

Dated

Recd. Encl. /

G. O 14th Nov. No. 2679.

Nos. 223 & 224

Fish Pass. Circular from the Govt. Madras forwarding for information and guidance plans & printed description of the Fish Pass at the Wellesley Weir, Cor. to the Rly Engr.