



Government of West Bengal
Irrigation & Waterways Department
Jalasangrahalaya, 1st Floor, Western Block
Bidhannagar, Salt Lake City, Kolkata 700091

The summary of the Minutes of the Review Meeting, held on 12.05.2022 to finalise the draft of "GUIDELINES ON RIVER BANK PROTECTION & ANTI-SEA EROSION WORKS IN WEST BENGAL (2ND AMENDMENT), PREPARED BY THE CENTRAL DESIGN OFFICE."

The meeting was started at 12:00 noon and was chaired by the Principal Secretary to the Govt. of West Bengal, irrigation & Waterways Department. The Following were present.

List of Attendees:-

1. Sri Amit Roy, Secretary to the GoWB, I&WD.
2. Sri Biplab Mukherjee, Joint Secretary to the GoWB, I&WD.
3. Sri Nayan Jyoti Ghosh, Chief Engineer (South)
4. Sri Krishnendu Bhowmik, Chief Engineer (Design & Research), Additional Charge.
5. Sri Shyam Banerjee, Chief Engineer (North) , online mode
6. Sri Sanjoy Kundu, Chief Engineer (West) , online mode
7. Sri Subrata Chattopadhyay, Chief Engineer (South-West), online mode.
8. Sri Debasish Sengupta, Chief Engineer & Project Director, WBMIFMP
9. Sri Samar Sarkar, Superintending Engineer, North East Irrigation Circle-II, on line
10. Sri Gopal Chandra Sadhu, Director, Central Design Office
11. Sri Dipankar Roy Choudhury, Dy Dir(Hydrology), C.D.O.
12. Sri Debashis Dey, Dy.Dir (MRS), C.D.O.
13. Sri Pinaki Chatterjee Dy. Dir (Structure), C.D.O.
14. Smt. Urmi Pal, Executive Engineer-II, IPD(South)
15. Sk. Abdul Hakim, Dy. Dir C.D.O.
16. Sri Rajgopal Das, Dy. Dir, D.S.O.

The Chairman welcomed the members present in the meeting. Discussion was held on the Draft for the proposed 2nd amendment of the manual prepared by the Central Design Office. All the Chief Engineers present in the meeting gave their views to ensure the effectiveness of the guidelines to be incorporated. After point to point threadbare discussion, following decisions were taken.

1. Quantity of bitumen, required for *bitumen caulking* for bank protection work of **Sub-Zone A-2 Bank Protection Type – 3** should be within 1.33 kg/m^2 (Density of bitumen is taken as 1050 kg/m^3) for a pitching thickness of 230 mm. (Refer Page-21, cl. 6.1.2.)
2. Toe walls for various categories of protection work should be oriented like 1200 (w) x 900 (h), instead of 900 (w) x 1200 (h), as shown. (Refer Page-24, Figure 4B – I/1/1 (Subzone BI, Protection Type 4B – I/1, Sub-category 4B -I/1/1) , Page-27 ,Figure 4B – I/S/1 , Page-29,Figure 4B-I/S/2, Page-30, Figure 4B/I , Page-39, Figure 5C-II (Type 5C-II).)
3. Shape of the R.C.C Toe wall should be Rectangular of size 1400(w) x 800(h) with reinforcement 0.1% distributed equally on all sides, with 4L stirrups 8 tor @ 300c/c. Figure to be given by the C.D.O. (Refer Page-37,Figure 5C-I (Type 5C-I).)
4. Any type of hard protections measures for sea coast protection works, like- Wave Breakers, Sheet piles, P.C.C. blocks etc., as in the manual, should be avoided. Any future protection work should be done as per the design & Guidance of C.D.O., with necessary model study. (Refer Page-40, Figure 6D (Type 6D).)
5. Geo textile filters should be considered in replacement of conventional filters, wherever possible. A cushion of sand of 100 mm thickness may also be provided below the geotextile/geojute filter to facilitate the horizontal seepage flow below the blocks, parallel to the bottom of the block. Cast-in-situ blocks may under laid by polyethylene sheet.
6. Some intermediate **divide-walls** in transverse direction, to be provided along the slope of boulder pitching, in the form of boulder sausage *As per Lining Manual of Canal (Drawing no MISC/1092/1/2/18 and MISC/1092/1/2/18).*
7. Where, bank slope length of pitching, exceeds by 6m, an intermediate berm of 2m to 3m wide, is found to be useful. To accommodate the berm, as well as the overall width of the base of the embankment, the upper part of the bank, above the berm, may be of steeper slope (upto 1:1.5), depending on the soil condition. Minimum berm width will be 1 m. (Refer Page-35, Fig 4B-II/1 (Type 4B-II/1).)
8. With the exception of unavoidable cases, like beautification, immediate use of bank slope etc. excess overburden above toe by providing heavy bank pitching by boulders/blocks should be

avoided. Instead use of HDPE bag is preferred, except for big rivers like *like Ganga, Subarnarekha, Damodar, Rupnarayan*. (Refer **Page-36, Fig 4B-II/2 (Type 4B-II/2).**).

9. Some of the river protection works, among those given in this manual, may also be adopted in the following locations, in addition to their parent proposed locations, as given in the Table below.

Type of Protection works for	Presently applicable for rivers	May be adopted further to the rivers
Sub Zone BI, Protection Type 4B-I/2, Sub category 4B-I/2/2	Ganga-Padma, Bhagirathi	Subarnarekha, Kangsabati in Jhargram and Paschim Medinipur district
Sub Zone BI, Protection Type 4B-I/2, Sub category 4B-I/2/1	Ganga-Padma, Bhagirathi	For all big rivers of South Bengal
Sub Zone EI, Protection Type 7E/1,	All rivers of Sundarban areas in North and South 24 paraganas	River Bhagirathi in Burdwan and Nadia districts, Tidal rivers of East Midnapore district

Any drawing required for this will be prepared by the C.D.O.

10. For calculation of embankment width the slope of H.G. Line may be taken as follows if detail calculation is not available in hand:

For clayey soil: 4(H): 1(V)

Clayey sand: 5(H):1(V)

Sandy soil: 6(H):1(V)

Any existing soil report may be used near the work place to determine the type of soil. In absence of data of type of soil, grain size distribution of the stratum may be made.

11. Forward Dwarf Embankment may be made (only for embankments of Sundarban region)to make Toe wall, ensuring the quality of concrete by preventing the entry of the saline water. Necessary drawing will be prepared by C.D.O.

12. Interlocking pre-cast block may be provided on slope for Sundarban regions. Shape to be decided by the CDO.


13. **Herring bone** bond may be allowed in embankment top BFS for Sunderban regions.

14. Following note to be added after Table 9 of the Manual.

- a. For embankment beyond 7 km from sea face & aligned more or less in N-S direction. If the open space in front of the embankment is more than 5 km it is to be considered as a sea face embankment.
- b. For embankment aligned in E-W direction & within 7 km from sea face, pitching will be done by 0.53 m X 0.53 m Brick Block of thickness 0.25m.

15. During preparation of the schemes of River Bank Protection works for river Haldi and other south Bengal rivers, it has been observed that both the criteria mentioned in the manual, viz. embankment slope and scour depth for sub zone C-I and C-II may not be fulfilled at a time for case to case. Under this zone, two (2) sets of bank protection criteria are mentioned under sub-zone C-I and sub-zone C-II. For this a separate sub-zone C-III to be incorporated in the manual. Necessary drawing and notes will be prepared by the C.D.O. (Refer Page-37, cl- 6.3.)

16. In case of ponds located very near to the embankment, in the countryside on a rayati land, where, land is not available for the required bottom width of the embankment, suitable protection work drawing will be prepared by the C.D.O.

 31/5/22

(A. Roy)


Secretary to the
Government of West Bengal

Memo No. 101/1(3)-IB
IW/O/IB-MISC-14/2011(Pt-I)

Dated: 01.06.2022

Copy forwarded for information to:

- 1.P.S to Hon'ble Minister-in-Charge, Irrigation & Waterways Department 1st floor, Jalasampad Bhavan, Salt lake, Kolkata- 91
- 2.Senior P.A to the Principal Secretary, Irrigation & Waterways Department 1st floor, Jalasampad Bhavan, Salt Lake, Kolkata- 91
- 3.Senior P.A to the Secretary, Irrigation & Waterways Department 1st floor, Jalasampad Bhavan, Salt Lake, Kolkata- 91


(S.Sarkar)

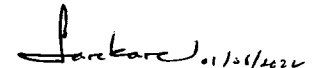
Deputy Secretary to the
Govt. of West Bengal

Memo No. 101/1(8)-IB
IW/O/IB-MISC-14/2011(Pt-I)

Dated: 01.06.2022

Copy forwarded for necessary action to:

- 1.Chief Engineer (South), Irrigation& Waterways Directorate, JalasampadBhawan, 1st Floor, Salt Lake City, Kol-91
- 2.Chief Engineer (North), Irrigation& Waterways Directorate, Green Park, P.O.: Mokdumpur, Dist : Malda, Pin : 732103
- 3..Chief Engineer (North East),Irrigation & Waterways Directorate, Club Road, P.O&Dist : Jalpaiguri
- 4.Chief Engineer (West), Irrigation & Waterways Directorate, P.O. Sadhanpur (Near Polytechnic), District-Burdwan, Pin - 713101
- 5.Chief Engineer& Project Director (WBMIFMP), Irrigation & Waterways Directorate, Jalasampad Bhawan, 9th Floor, Salt Lake City, Kol-91
- 6.Chief Engineer (South-West), Irrigation & Waterways Directorate, Khas Jungle, P.O.: Abas, Dist : Paschim Medinipur, Pin : 721 102
- 7.Chief Engineer (Design & Research), Irrigation & Waterways Directorate, 1st Floor, Salt Lake City, Kol-91
- 8.Director , Central Design Office , Irrigation & Waterways Directorate, 1st Floor, Salt Lake City, Kol-91


(S.Sarkar)

Deputy Secretary to the
Govt. of West Bengal