

# Bangladesh Water Development Board



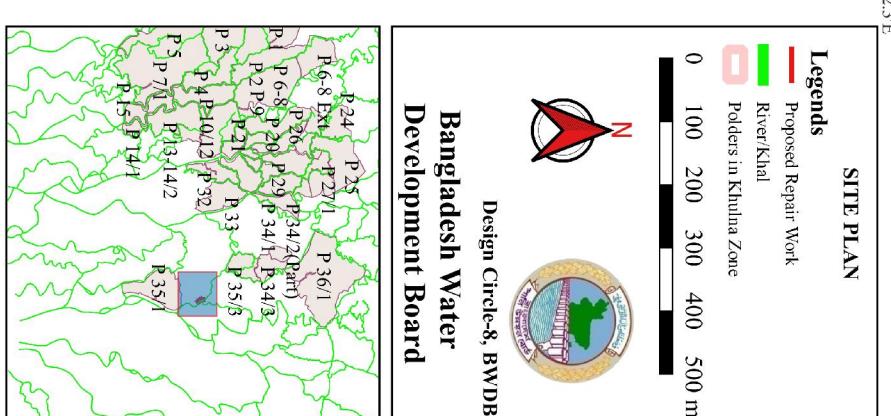
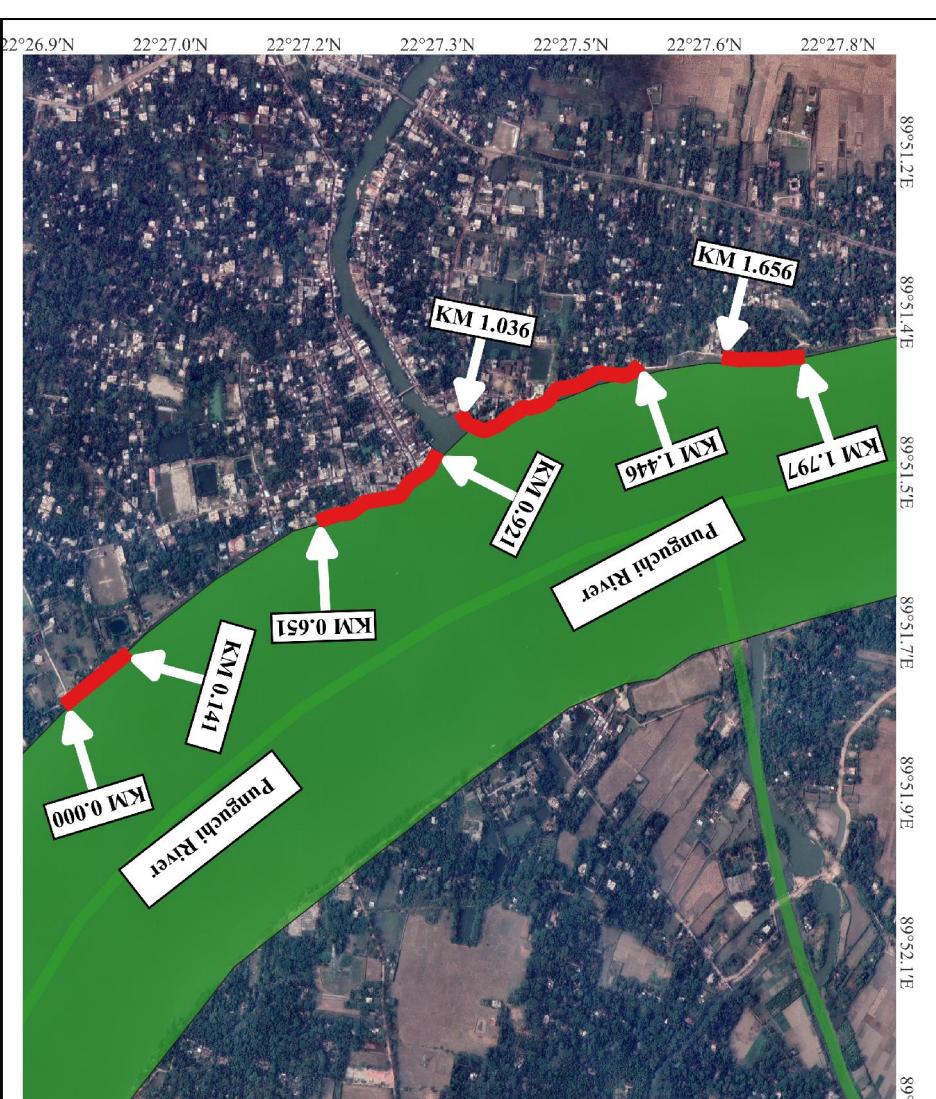
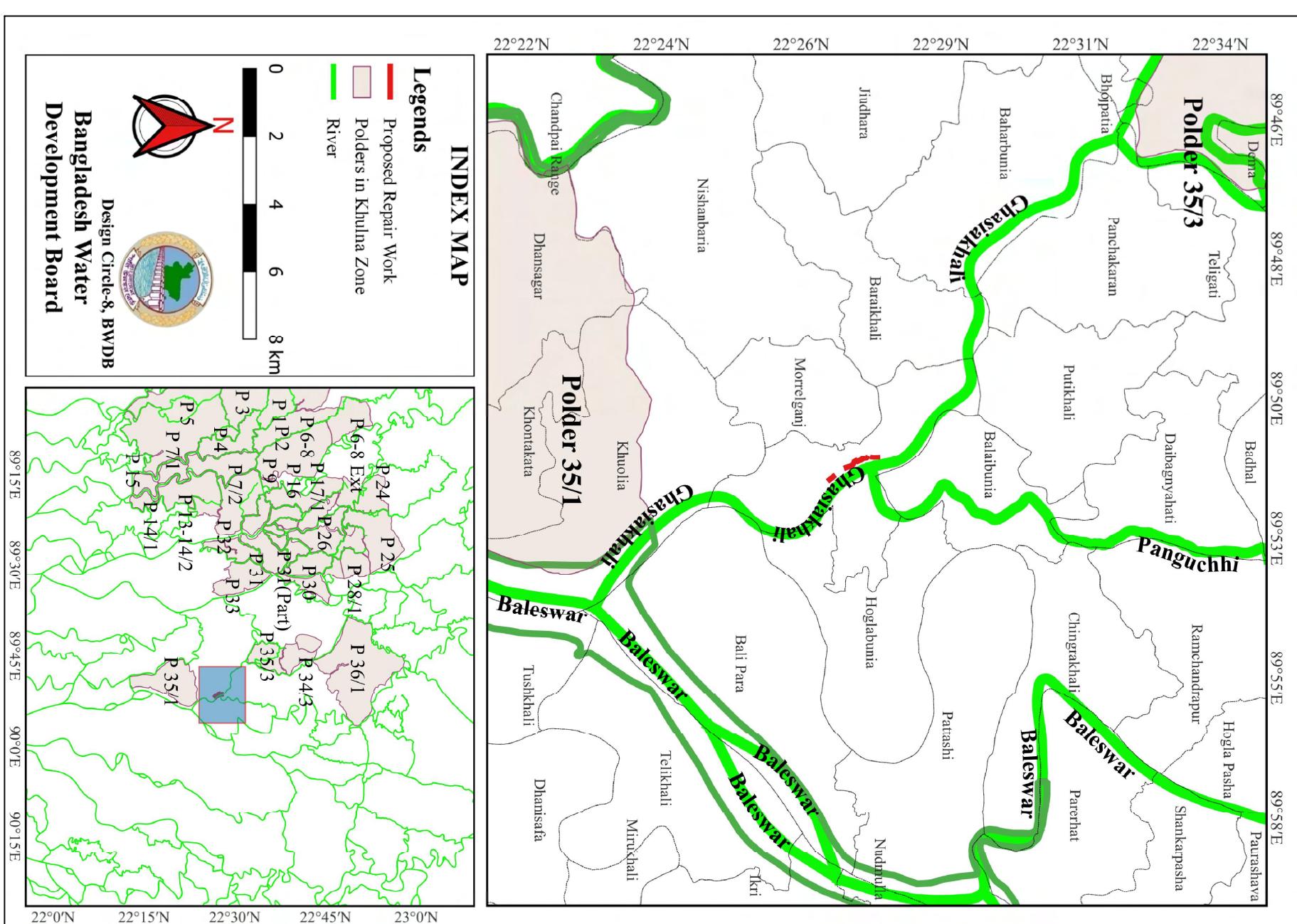
## Protection of Morrelgang Upazila Sadar & Adjacent Area from Erosion of Panguchi River & Re-excavation / Dredging of Biskhali River in Bagerhat District.

Rehabilitation of Protective Work at Different Four Locations (From KM 0.000 To KM 0.141=141m,  
From KM 0.0651 To KM 0.0921=270m, From KM 1.036 To KM 1.446=410m, From KM 1.656 To KM 1.797=141m)  
Total Length= 0.962 KM along the Right Bank of Panguchi River; at Morrelgang Bazar Area ;  
Upazila- Morrelgang, District- Bagerhat.

Bagerhat O & M Division, BWDB, Bagerhat.

Designed by: Design Circle-8, BWDB, Dhaka.

October, 2020



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**SITE PLAN**

Bangladesh Water  
Development Board

Bangladesh Water  
Development Board

22°0'N

**Bagerhat O & M Division, BWDB, Bagerhat.**

**BANGLADESH WATER DEVELOPMENT BOARD**  
**OFFICE OF THE SUPERINTENDING ENGINEER**  
**DESIGN CIRCLE-8**

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**Protection of Morrelgang Upazila Sadar & Adjacent Area from  
Erosion of Panguchi River & Re-excavation/Dredging of Biskhali  
River in Bagerhat District.**

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**GENERAL NOTES:**

1. THIS DRAWING HAS BEEN PREPARED BASED ON DATA SENT BY THE SUPERINTENDING ENGINEER, KHULNA O & M CIRCLE, BWDB, KHULNA VIDE MEMO NO: 168, DATED-07/08/2022.
2. FOR ANY ERROR, OMISSION OR CONFUSION PLEASE REFER TO THIS OFFICE AS QUICK AS POSSIBLE FOR NECESSARY ACTION.
3. THE WORK SHALL BE EXECUTED WITH PRIOR FINANCIAL & ADMINISTRATIVE APPROVAL AND TECHNICAL SANCTION FROM THE COMPETENT AUTHORITY.
4. ALL DIMENSIONS ARE IN MILLIMETRE (mm) AND ALL ELEVATIONS ARE IN METRE (PWD) UNLESS OTHERWISE MENTIONED IN THE DRAWING.
5. THE MATERIAL & WORKMANSHIP SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF BWDB MANUAL.
6. NECESSARY LAND SHALL BE ARRANGED BEFORE EXECUTION OF WORK.
7. THE GEO-TEXTILE FILTER HAVE THICKNESS OF 3.00 mm.
8. GEO-TEXTILE FILTER SHALL BE EXTENDED UPTO 1000 mm BELOW THE W.W.L/TOP & SHALL HAVE TO BE ANCHORED CAREFULLY AT THE TOP OF THE SLOPE AS SHOWN IN THE DRAWING.
9. GEO-TEXTILE MATERIALS SHALL BE PRESERVED AGAINST UV RAY AND FROM ANY OTHER DAMAGES.
10. GEO-TEXTILE MATERIALS AFTER PLACING SHALL NEVER BE EXPOSED TO SUNLIGHT. GEO-TEXTILE FILTER SHALL BE COVERED IMMEDIATELY AFTER PLACEMENT.
11. SAND LAYER BELOW GEO-TEXTILE SHALL BE MADE BY USING SAND OF F.M. 1.0 TO 1.50.
12. FULL LENGTH OF PROPOSED PROTECTIVE WORK SHALL BE DONE AT A TIME IN ONE DRY SEASON FOR EFFECTIVENESS.
13. IF THERE ARE ANY POND OR DITCH EXISTS WITHIN 100 m DISTANCE FROM THE RIVER BANK, IT MUST BE PROPERLY FILLED UPTO G.L WITH LOCAL EARTH AND SHALL BE COMPACTED AS PER SCHEDULE BEFORE STARTING THE PROTECTIVE WORK.
14. SLOPE OF PITCHING WORK SHALL BE MAINTAINED AS PER EXISTING SLOPE OR AS PER Rehabilitation SECTION, BUT NOT STEEPER THAN 2H:1V. ALL BANK IRREGULARITIES ABOVE WORKING WATER LEVEL SHALL BE REMOVED. NECESSARY CUTTING & FILLING SHALL BE DONE IN THIS RESPECT AS PER FIELD REQUIREMENT.
15. A SMOOTH TRANSITION TO BE PROVIDED BETWEEN HIGHER & LOWER LEVEL AND FLATTER & STEEPER SLOPE OF THE PROTECTIVE WORK. TOP LEVEL OF PITCHING WORK SHOULD BE MATCH WITH EXISTING BANK LEVEL.
16. AT THE STARTING AND AT THE END OF THE PROTECTIVE WORK TRANSITION TO THE EXISTING UNPROTECTED BANK OR THE PREVIOUSLY COMPLETED WORK MUST BE GRADUAL AND TANGENTIAL.

**SPECIAL NOTES:**

1. FOR SUSTAINABILITY OF THE WORK IN THE PROPOSED LENGTH OF PROTECTION, ALL DUMPING AND PITCHING WORK SHALL BE COMPLETED IN THE DRY SEASON. UNDER NO CIRCUMSTANCES, DUMPING WORK SHALL BE DONE DURING MONSOON OR WHEN WATER LEVEL IS MORE THAN THE WORKING LWL SHOWN IN THE DRAWING.
2. THE FOLLOWING NOTE ARE ADDED FOR THE SALVAGING & REUSING OF EXISTING C.C BLOCKS AT DIFFERENT FOUR LOCATIONS AS SHOWN IN THE DRAWING.
  - a) SALVAGABLE BLOCKS SHALL BE DUMPED UNIFORMLY OVER THE CHAINAGE IN ADDITION TO DUMPING VOLUME SHOWN IN THE DRAWING.

BANGLADESH WATER DEVELOPMENT BOARD OFFICE OF THE SUPERINTENDING ENGINEER DESIGN CIRCLE-8	
Protection of Morrelgang Upazila Sadar & Adjacent Area from Erosion of Panguchi River & Re-excavation/Dredging of Bishkhali River in Bagerhat District.	
Rehabilitation of Protective Work at Different Four Locations along the Right Bank of Panguchi River, Total Length= 0.962 KM; at Morrelgang Bazar Areas; Upazila-Morrelgang, District-Bagerhat under Bagerhat O & M Division, BWDB, Bagerhat.	
DESIGNED BY:  (ZAYED BIN SAJID, AE)	RECOMMENDED BY:  (MOHAMMAD SAJID UDDIN, SE)
CHECKED BY:  (ABU SAYEED MD. MASUM, EE)	APPROVED BY:  (MD. ENAYETULLAH, CL, Deprt)
DATE: 00-00-2022	DWG NO.: DCC-8-0000-02/16

**NOTES FOR C.C BLOCKS:**

1. CONCRETE FOR C.C BLOCK SHALL HAVE MINIMUM CYLINDER STRENGTH OF 15.00N/mm<sup>2</sup> AT 28 DAYS.
2. CURING OF C.C BLOCKS SHALL BE CONTINUED FOR 21 DAYS.
3. THE PITCHING WORK SHALL BE PLACED ON PROPERLY COMPACTED SLOPE.

**NOTES FOR GEOBAG:**

1. EACH BAG DELIVERED AT SITE SHALL BE MARKED WITH LABELS THAT IDENTIFY BRAND NAME, CONTRACT PACKAGE NO, SIZE OF BAG, ATE OF PRODUCTION OF GEOTEXTILE, NAME OF CONTRACTOR ETC.
2. SEWING SHALL BE DONE BY MACHINE WITH LOCK STITCH (TYPE 301 UNDER ISO 4915/DIN61400) AS PER BWDB TECHNICAL SPECIFICATION AND TENDER DOCUMENT. THREAD FOR STITCHING SHOULD BE 100% POLYPROPYLENE OR NYLON.
3. FILLING MATERIAL OF GEOBAG SHOULD BE SAND AND 80% SHOULD RETAIN ON #100 SIEVE. SAND SHOULD BE FREE FROM CLAY & ORGANIC MATTER.
4. MATERIAL OF GEOBAG SHALL BE 100% POLYPROPYLENE.
5. SIEVE ANALYSIS FOR CHECKING 80% RETAINED ON #100 SIEVE AND TEST FOR CLAY & ORGANIC MATTER CONTENT SHOULD BE DONE (AS PER ACTUAL NEED). SPECIFICATIONS OF GEOTEXTILE SHALL BE AS PER ITEM CODE 40-500-40.

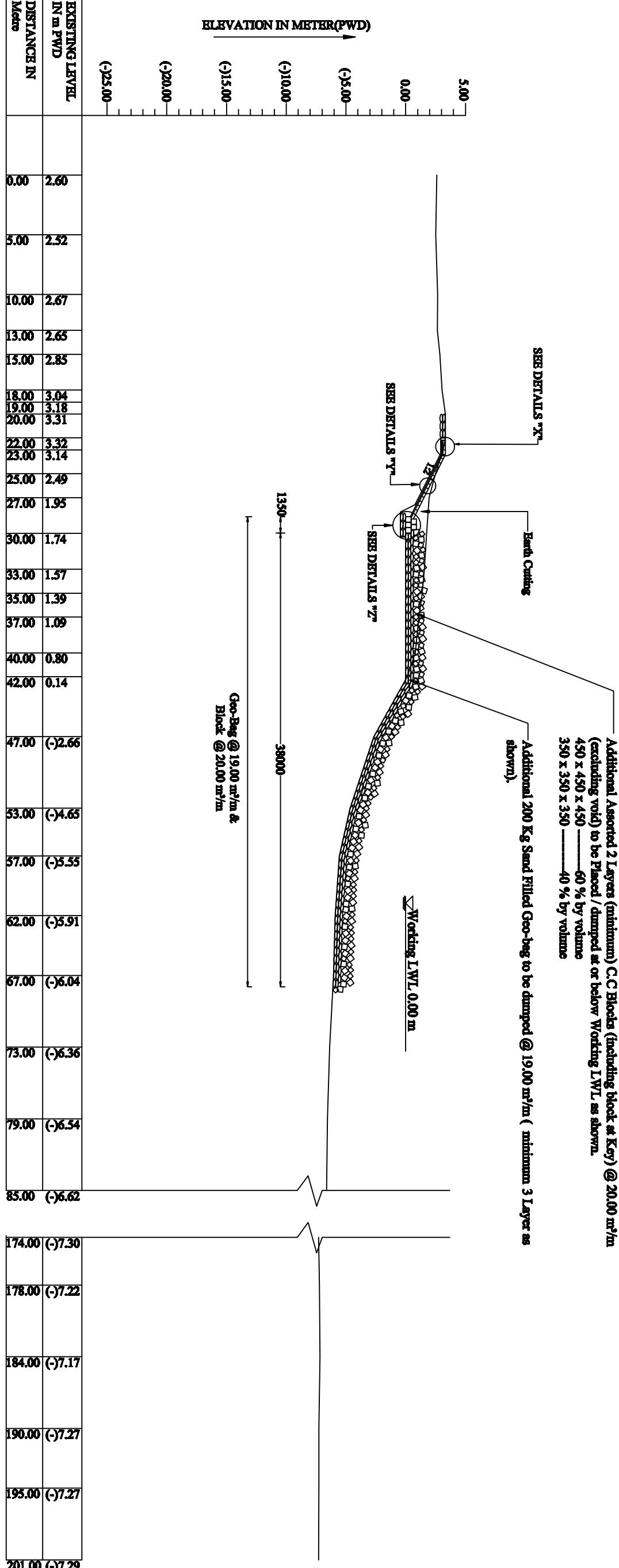
**MONITORING:**

1. AS BUILT DRAWING CONTAINING CROSS SECTIONS AT 50 m INTERVAL SHALL BE PREPARED IMMEDIATELY AFTER COMPLETION OF DUMPING.
2. THE RIVER BEHAVIOUR WITH RESPECT TO SCOUR AND EROSION AND PERFORMANCE OF REVETMENT WORK DURING AND AFTER EXECUTION SHALL BE MONITORED CAREFULLY ON REGULAR BASIS TO TAKE TIMELY MITIGATIVE AND STRENGTHENING MEASURES. REGULAR MONITORING OF THIS PROTECTIVE WORK MUST BE DONE THROUGH BATHYMETRIC SURVEY.
3. FROM JUNE TO OCTOBER BATHYMETRIC SURVEY SHOULD BE DONE ON REGULAR INTERVAL & SHALL BE KEPT AS RECORD FOR FURTHER USE.
4. DREDGING ADJACENT TO PROTECTIVE WORK SHALL NOT BE ALLOWED.

**NOTES FOR DUMPING:**

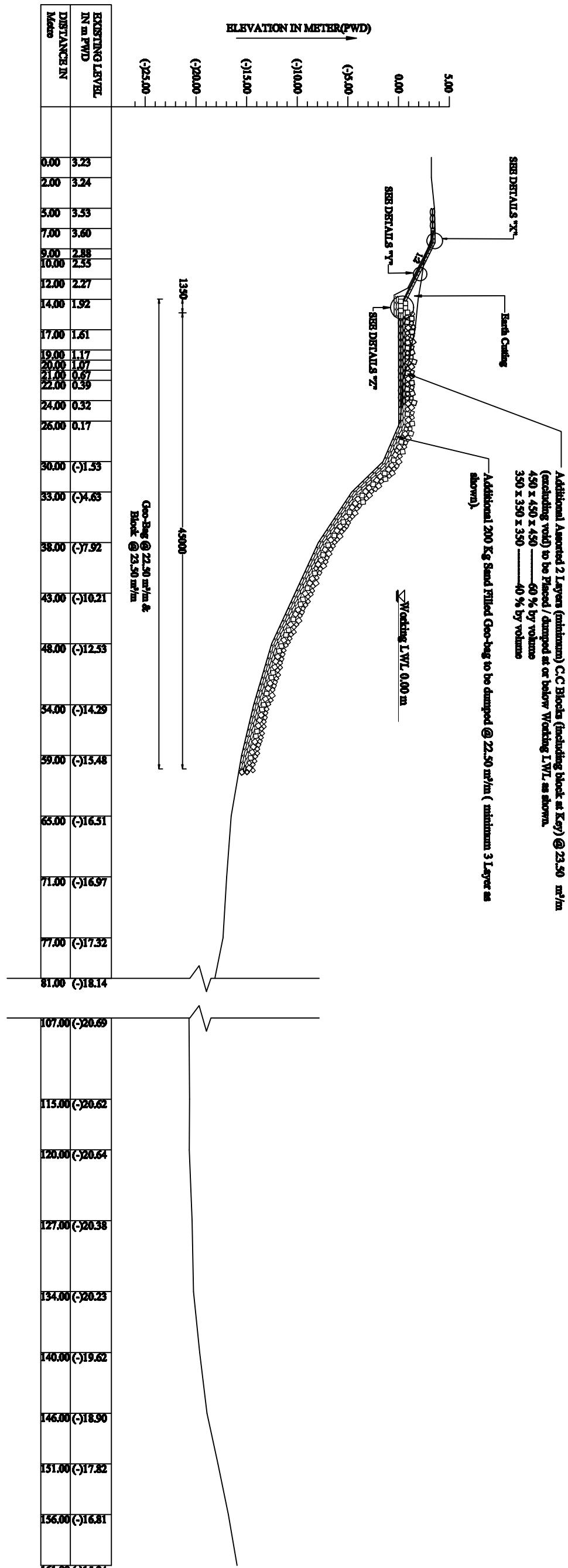
1. WORK SHALL BE EXECUTED ONLY WHEN WL IS AT OR NEAR WORKING L.W.L AS SHOWN IN THE DRAWING.
2. SURVEY BOAT EQUIPPED WITH NECESSARY DUMPING EQUIPMENT, SURVEY EQUIPMENT & SURVEY TEAM SHOULD BE ENSURED AT SITE BEFORE START OF DUMPING.
3. DUMPING MATERIALS SHALL BE DUMPED FROM BARGE EQUIPPED WITH GUIDED FENCE SO THAT DUMPING MATERIALS CAN BE DUMPED INTO PROPER POSITION.
4. THE FOLLOWING EQUIPMENT SHOULD BE USED FOR DUMPING.
  - a. FLAT TOP BARGE /PONTOONS/BOAT SHALL BE USED FOR DUMPING.
  - b. ENGINE BOAT - FOR TRANSPORTING THE DUMPING MATERIAL TO THE BARGE.
  - c. TOPOGRAPHIC & BATHYMETRIC SURVEY TEAM EQUIPPED WITH TOTAL STATION.
  - d. NO DUMPING SHALL ALLOWED WITHOUT PROPERLY POSITIONED & ANCHORED FLAT TOP BARGE OR DUMPING PONTOON OR BOAT.
5. SPECIAL CARE SHALL BE TAKEN FOR ANCHORING OF DUMPING PONTOON/BOAT..
6. WORK SHALL BE STARTED FROM U/S END AND FROM DUMPING END TO BANK.
7. FOLLOWING CONSTRUCTION SEQUENCE SHALL BE FOLLOWED DURING EXECUTION OF THIS PROTECTIVE WORK:
  - a. EXECUTION OF WORK SHALL BE DONE FROM THE EXTREME END OF DUMPING TO TOWARDS THE BANK.
  - b. DUMPING OF GEOBAG BELOW LWL.
  - c. DUMPING OF C.C BLOCKS BELOW LWL OVER GEOBAG.
  - d. SLOPE PREPARATION & PITCHING WORK ABOVE LWL.

<b>BANGLADESH WATER DEVELOPMENT BOARD</b>	
OFFICE OF THE SUPERINTENDING ENGINEER	
DESIGN CIRCLE-8	
Protection of Morrelganj Upazila Sader & Adjacent Area from Erosion of Panguchi River & Re-excavation/Dredging of Bishtai River in Bagerhat District.	
Rehabilitation of Protective Work at Different Four Locations along the Right Bank of Panguchi River, Total Length= 0.962 KM; at Morrelganj Bazar Area, Upazila-Morrelganj, District-Bagerhat under Bagerhat O & M Division, BWDB, Bagerhat.	
DESIGNED BY:	NOTES
(ZAYED BIN SAIF, AE)	RECOMMENDED BY:
CHICKED BY:	(MOHAMMAD SAIF UDDIN, SE)
(ABU SAWEED MD. MASUMA, EE)	APPROVED BY: (MD. ENAYETULLAH, CE, Deign)
DATE: 00-00-2022	DWG NO.: DC-8-0000-03/16



**TYPICAL X-SECTION AT KM 0.100**  
(Applicable from KM 0.000 TO KM 0.141)

<b>BANGLADESH WATER DEVELOPMENT BOARD</b>	
OFFICE OF THE SUPERINTENDING ENGINEER	
DESIGN CIRCLE-8	
Protection of Morrelganj Upazila Sader & Adjacent Area from Erosion of Panguchi River & Re-excavation/Dredging of Bishtai River in Bagerhat District.	
Rehabilitation of Protective Work at Different Four Locations along the Right Bank of Panguchi River, Total Length= 0.962 KM; at Morrelganj Bazar Area, Upazila-Morrelganj, District-Bagerhat under Bagerhat O & M Division, BWDB, Bagerhat.	
<b>TYPICAL SECTION AT KM 0.100</b>	
DESIGNED BY:	RECOMMENDED BY:
(SAVED BIN SAIF, AE)	(MOHAMMAD SAIF UDDIN, SE)
CHECKED BY:	APPROVED BY:
(ABU SAWEED MD. MASUMA, EE)	(MD. ENAYETULLAH, CE, Design)
DATE: 00-00-2000	DWG NO.: DC-8-0000-04/16



**TYPICAL X-SECTION AT KM 0.800**  
(Applicable from KM 0.651 TO KM 0.921)

EXISTING LEVEL IN m PWD	DISTANCE IN Meters
0.00	3.23
2.00	3.24
5.00	3.33
7.00	3.60
9.00	2.88
10.00	2.55
12.00	2.27
14.00	1.92
17.00	1.61
19.00	1.17
20.00	1.07
21.00	0.57
22.00	0.39
24.00	0.32
26.00	0.17
30.00	(-)1.53
33.00	(-)4.63
38.00	(-)7.92
43.00	(-)10.21
48.00	(-)12.53
54.00	(-)14.29
59.00	(-)15.48
65.00	(-)16.51
71.00	(-)16.97
77.00	(-)17.32
81.00	(-)18.14
107.00	(-)20.69
115.00	(-)20.62
120.00	(-)20.64
127.00	(-)20.38
134.00	(-)20.23
140.00	(-)19.62
146.00	(-)18.90
151.00	(-)17.82
156.00	(-)16.81
161.00	(-)15.94

**BANGLADESH WATER DEVELOPMENT BOARD**  
**OFFICE OF THE SUPERINTENDING ENGINEER**  
**DESIGN CIRCLE-3**  
**Protection of Morrelganj Upazila Sader & Adjacent Area from  
Erosion of Panguchi River & Re-excavation/Dredging of Bishtai  
River in Bagerhat District.**

Rehabilitation of Protective Work at Different Four Locations along  
the Right Bank of Panguchi River, Total Length= 0.962 KM; at  
Morrelganj Bazar Area, Upazila-Morrelganj, District-Bagerhat  
under Bagerhat O & M Division, BWDB, Bagerhat.

**TYPICAL SECTION AT KM 0.800**

DESIGNED BY:

(SAVED BIN SAIF, AE)

CHICKED BY:

(MOHAMMAD SAIF UDDIN, SE)

RECOMMENDED BY:

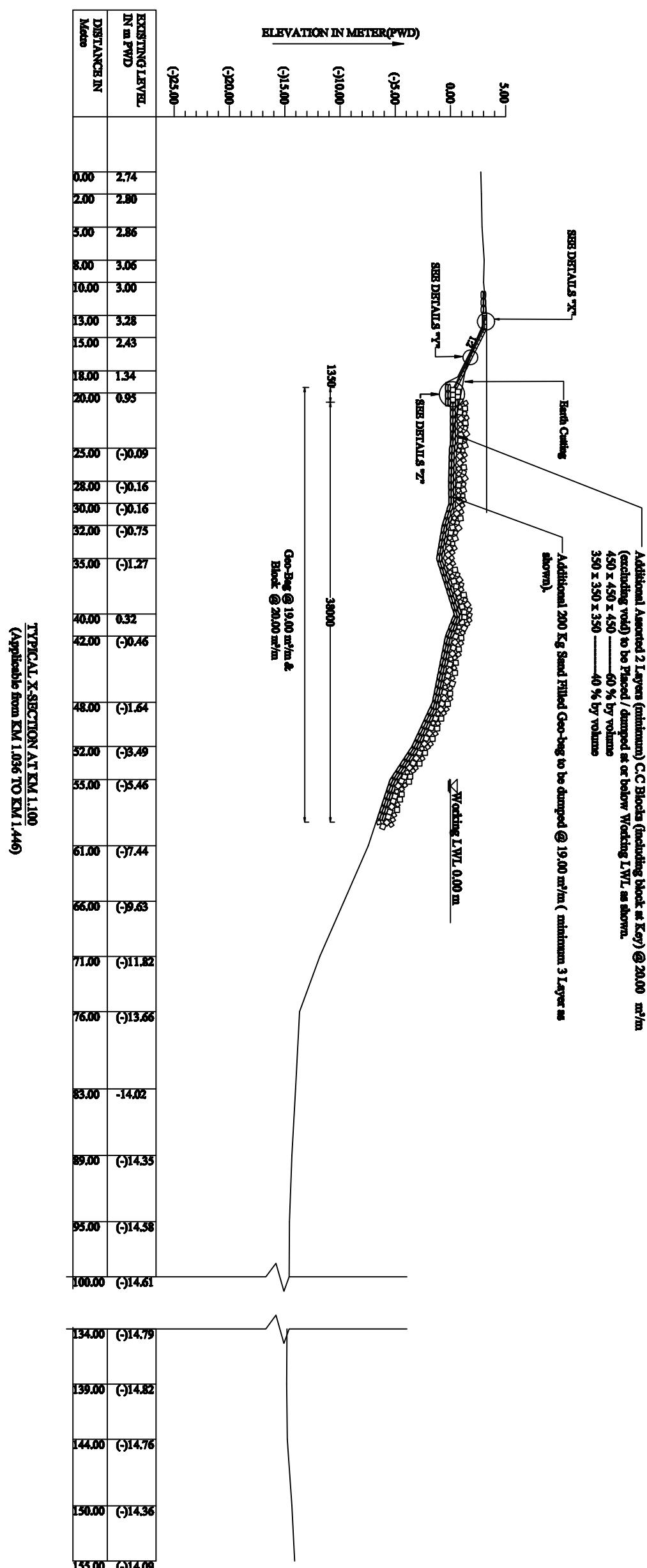
APPROVED BY:

(MD. ENAYETULLAH, CE, Deign)

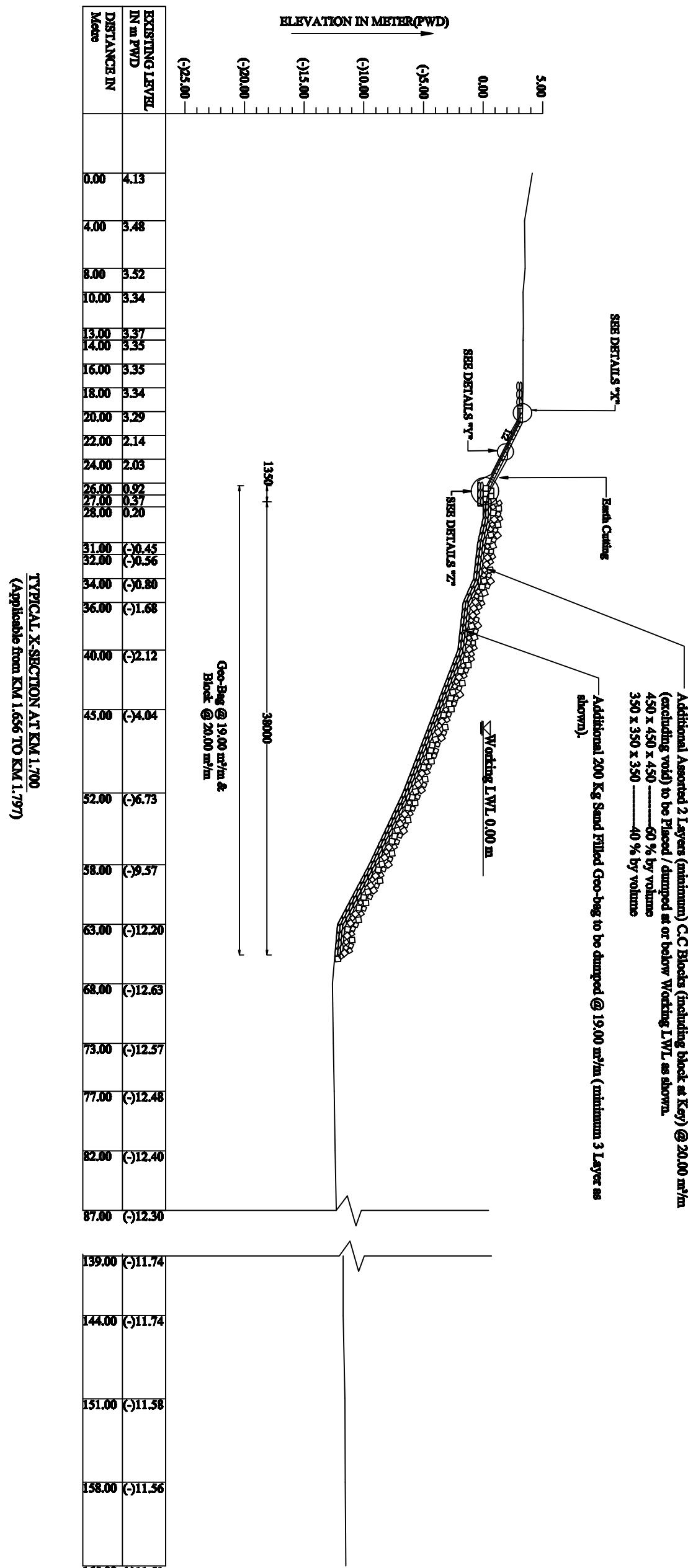
(ABU SAWEED MD. MASUMA, EE)

DATE: 00-00-2000

DWG NO.: DC-8-0000-05/00



<b>BANGLADESH WATER DEVELOPMENT BOARD</b>	
OFFICE OF THE SUPERINTENDING ENGINEER	
DESIGN CIRCLE-8	
Protection of Morrelganj Upazila Sader & Adjacent Area from Erosion of Panguchi River & Re-excavation/Dredging of Bishtai River in Bagerhat District.	
Rehabilitation of Protective Work at Different Four Locations along the Right Bank of Panguchi River, Total Length= 0.962 KM; at Morrelganj Bazar Area, Upazila-Morrelganj, District-Bagerhat under Bagerhat O & M Division, BWDB, Bagerhat.	
<b>TYPICAL SECTION AT KM 1.100</b>	
DESIGNED BY:	RECOMMENDED BY:
(SAVED BIN SAIF, AE)	(MOHAMMAD SAIF UDDIN, SE)
CHECKED BY:	APPROVED BY:
(ABU SAWEED MD. MASUMA, EE)	(MD. ENAYETULLAH, CE, Design)
DATE: 00-00-2000	DWG NO.: DC-8-0000-06/00



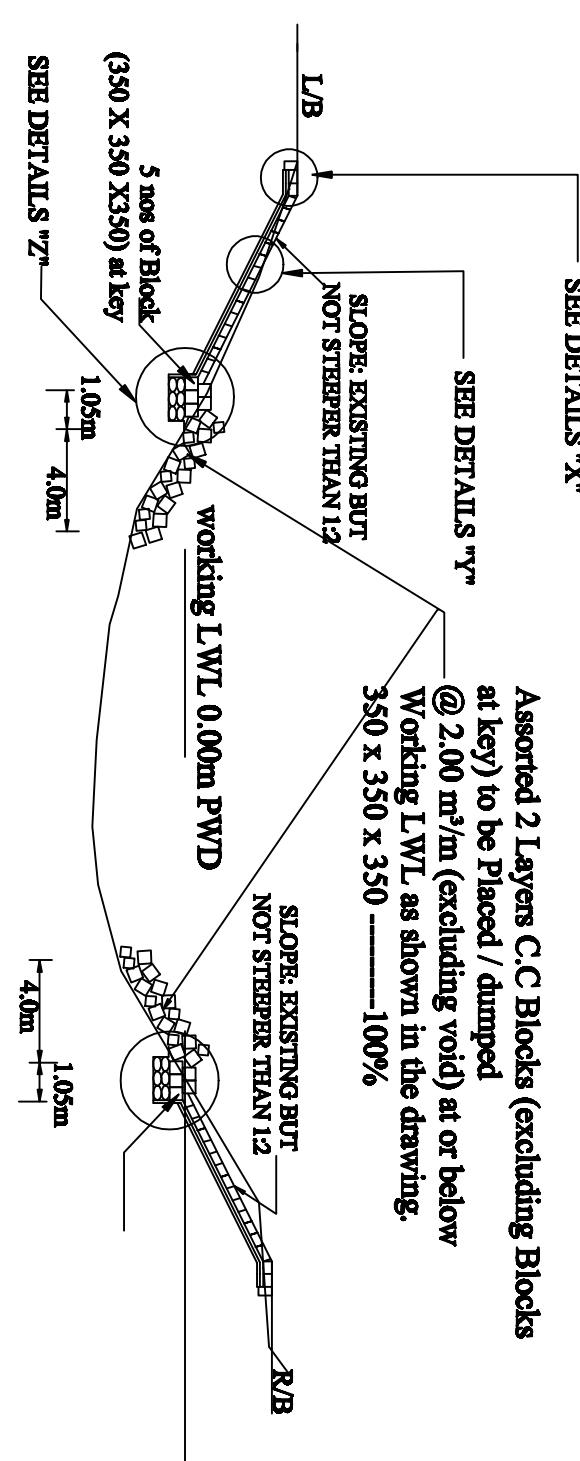
**TYPICAL X-SECTION AT KM 1.700**  
(Applicable from KM 1.656 TO KM 1.797)

**BANGLADESH WATER DEVELOPMENT BOARD**  
**OFFICE OF THE SUPERINTENDING ENGINEER**  
**DESIGN CIRCLE-8**  
**Protection of Morrelganj Upazila Sader & Adjacent Area from**  
**Erosion of Panguchi River & Re-excavation/Dredging of Bishtai**  
**River in Bagerhat District.**

Rehabilitation of Protective Work at Different Four Locations along  
the Right Bank of Panguchi River, Total Length= 0.962 KM; at  
Morrelganj Bazar Area, Upazila-Morrelganj, District-Bagerhat  
under Bagerhat O & M Division, BWDB, Bagerhat.

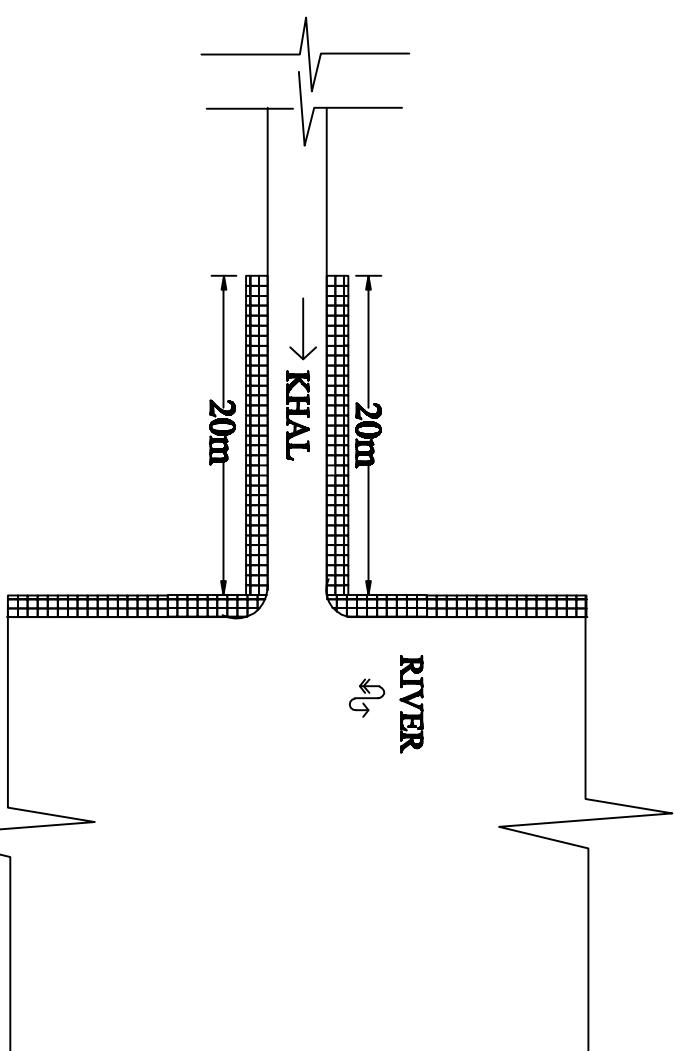
**TYPICAL SECTION AT KM 1.700**

DESIGNED BY:	RECOMMENDED BY:
(SAVED BIN SAIF, AE)	(MOHAMMAD SAIF UDDIN, SE)
CHECKED BY:	APPROVED BY:
(ABU SAWEED MD. MASUMA, EE)	(MD. ENAYETULLAH, CE, Design)
DATE: 00-00-2000	DWG NO.: DC-8-0000-07/00



### TYPICAL X-SECTION FOR ARMOURING OF PROTECTIVE WORK AT CONFLUENCE OF KHAL

(Limit of Wprk: To be Extended 20m towards Khal from Confluence of Khal and River)

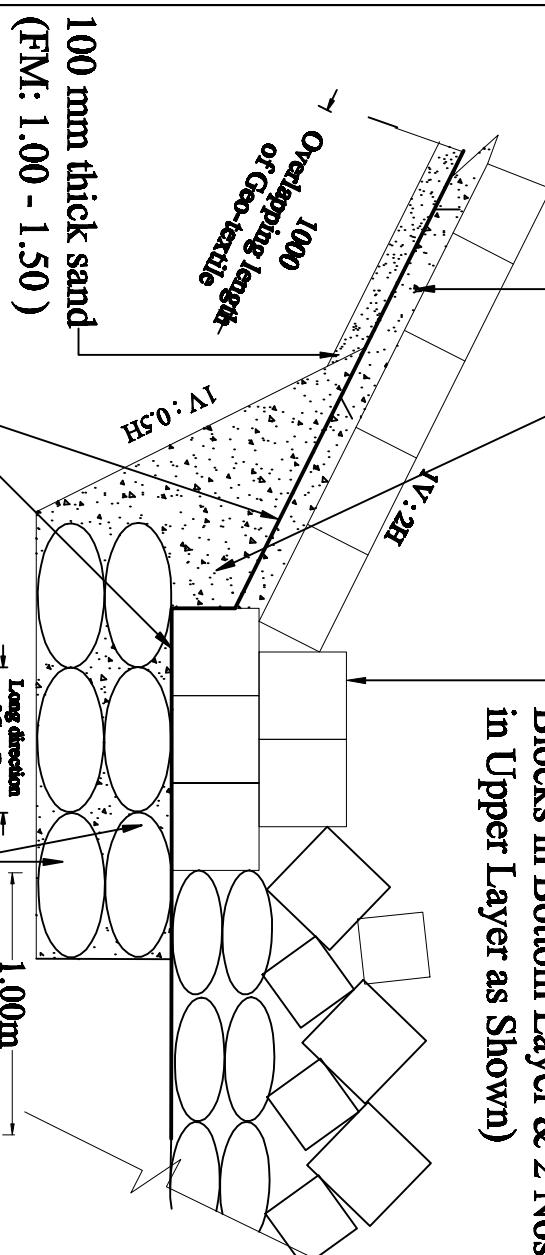


### PLAN OF ARMOURING OF KHAL (NOT TO SCALE)

DESIGNED BY:	RECOMMENDED BY:
(ZAYED BIN SAIF, AE)	(MOHAMMAD SAIF UDDIN, SE)
CHECKED BY:	APPROVED BY:
(ABU SAYEED MD. MASUM, EE)	(MD. ENAYET ULLAH, CL, Design)
DATE: 00-00-2000	DWG NO.: DC-8-0000-08/00

### Pick Jhama Chips (40mm to 5mm well graded)

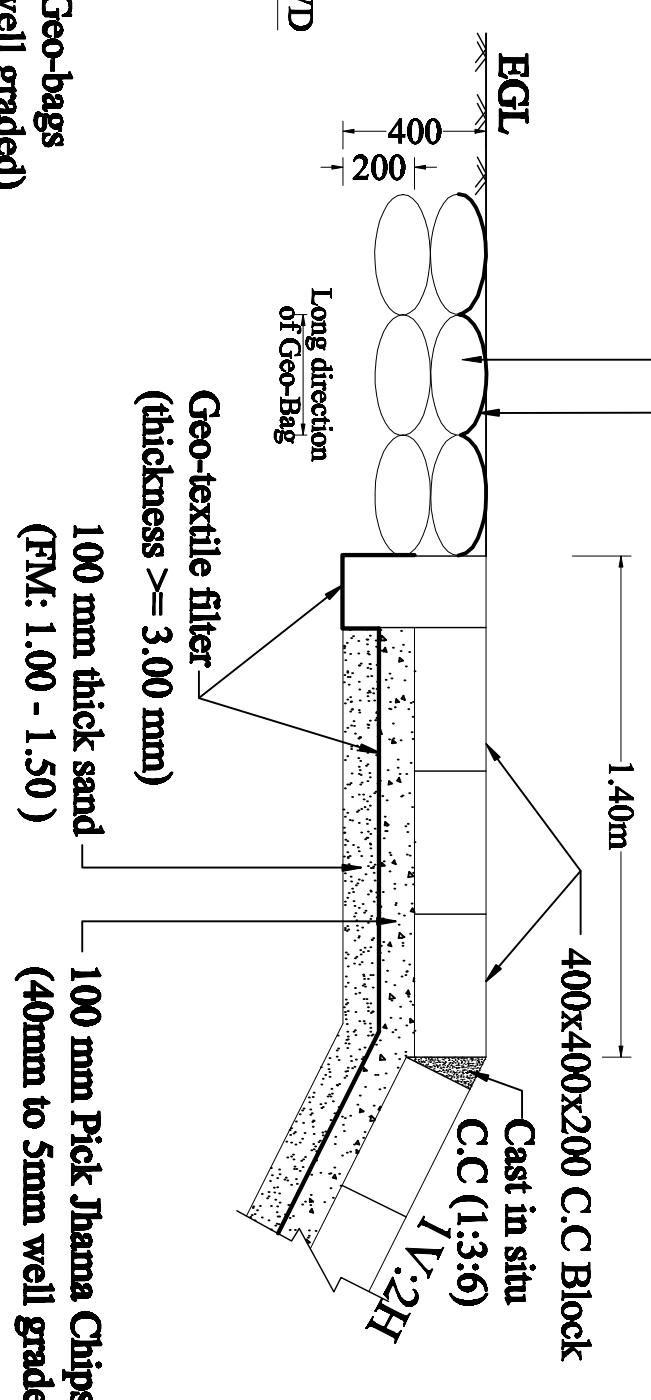
2-Layer C.C Blocks(450 x 450 x 450) to be Placed at Working L WL (Toe of Pitching Block) above Geo-textile (3 Nos Blocks in Bottom Layer & 2 Nos. Blocks in Upper Layer as Shown)



100 mm thick sand  
(FM: 1.00 - 1.50)  
Geo textile filter  
(thickness  $\geq 3.00$  mm)  
2-Layers (3 Nos. in each layer) 200 kg Geo-bags filled with pick jhama (40mm to 5mm well graded) to be Placed.

### DETAILS "Z" (Not to Scale)

1- layer 400x400x200 C.C block  
100 mm thick pick jhama chips (40 mm to 20 mm well graded at top & 20 mm to 5 mm well graded at bottom)  
Geo textile filter (thickness  $\geq 3.00$  mm) shall be extended 1.00m below Working LWL as shown in detail "Z".  
 $1\frac{1}{2}H$  - 100 mm thick sand (FM: 1.00 - 1.50)



### DETAILS "X" (Not to Scale)

BANGLADESH WATER DEVELOPMENT BOARD  
OFFICE OF THE SUPERINTENDING ENGINEER  
DESIGN CIRCLE-8  
Protection of Monrelgang Upazila Sedar & Adjacent Area From Erosion of Pangusia River & Dredging of Bishkhali River in Bagerhat District.  
Relief Work at Different Four Locations along the Right Bank of Pangusia River; Total Length= 0.962 KM; at Monrelgang Bazar Area, Upazila-Monrelgang, District-Bagerhat under Bagerhat O & M Division, BWDB, Bagerhat.

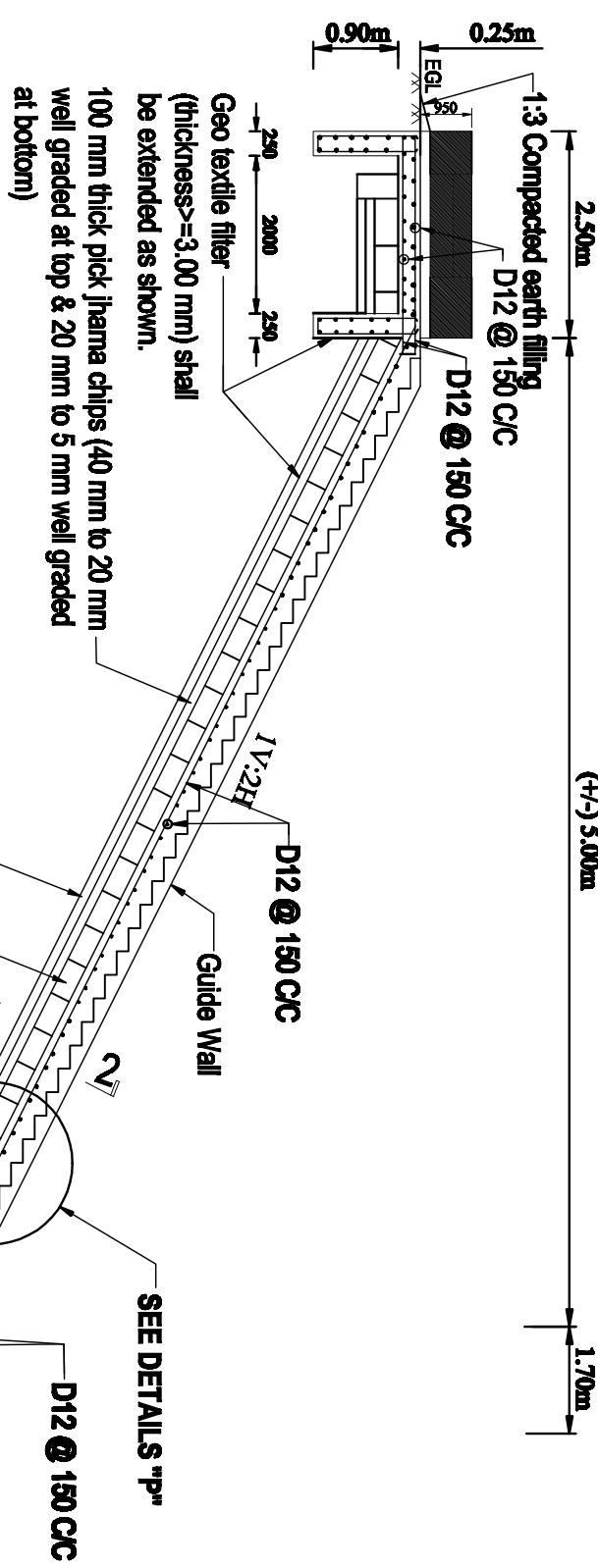
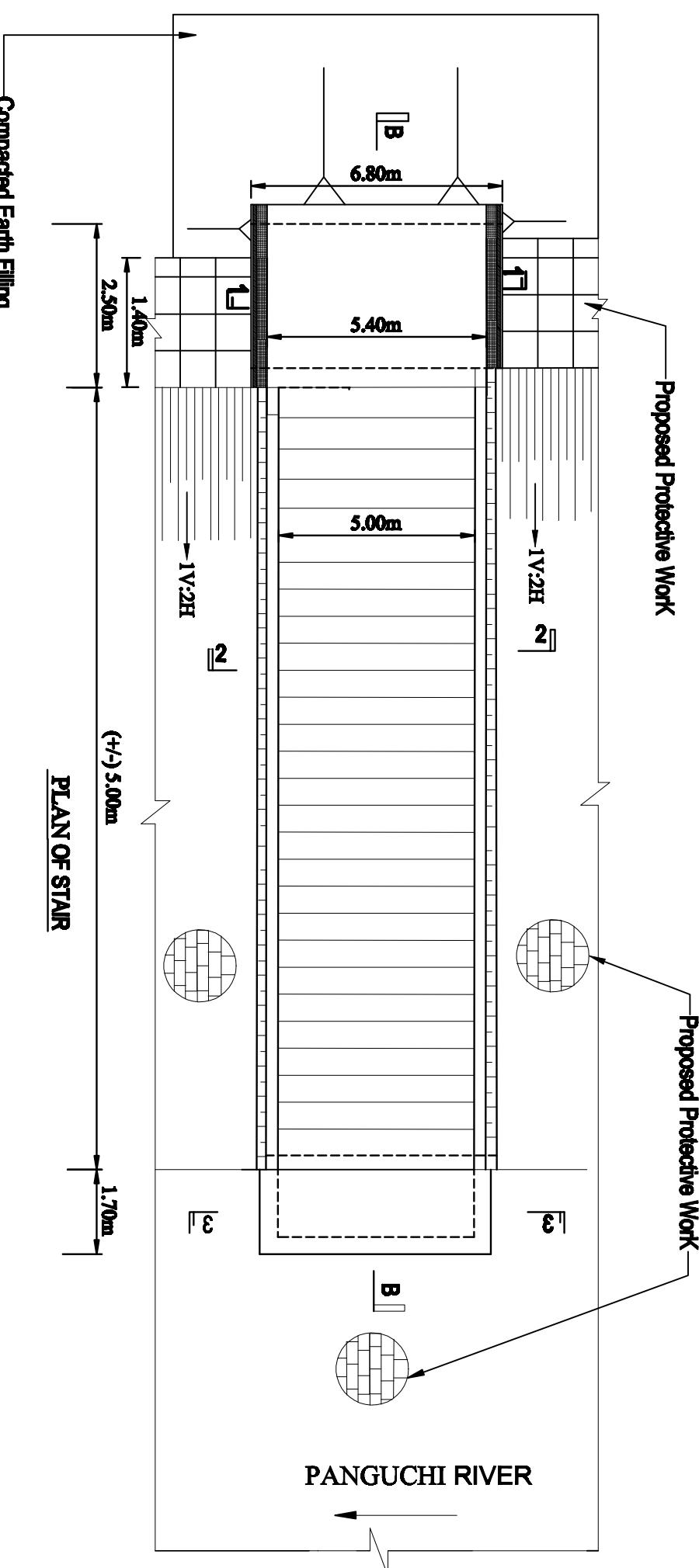
#### DETAILS OF PROTECTIVE WORK

##### DESIGNED BY:

**GENERAL NOTES FOR STAIR, R.C.C U-DRAIN & NAME PLATE :**

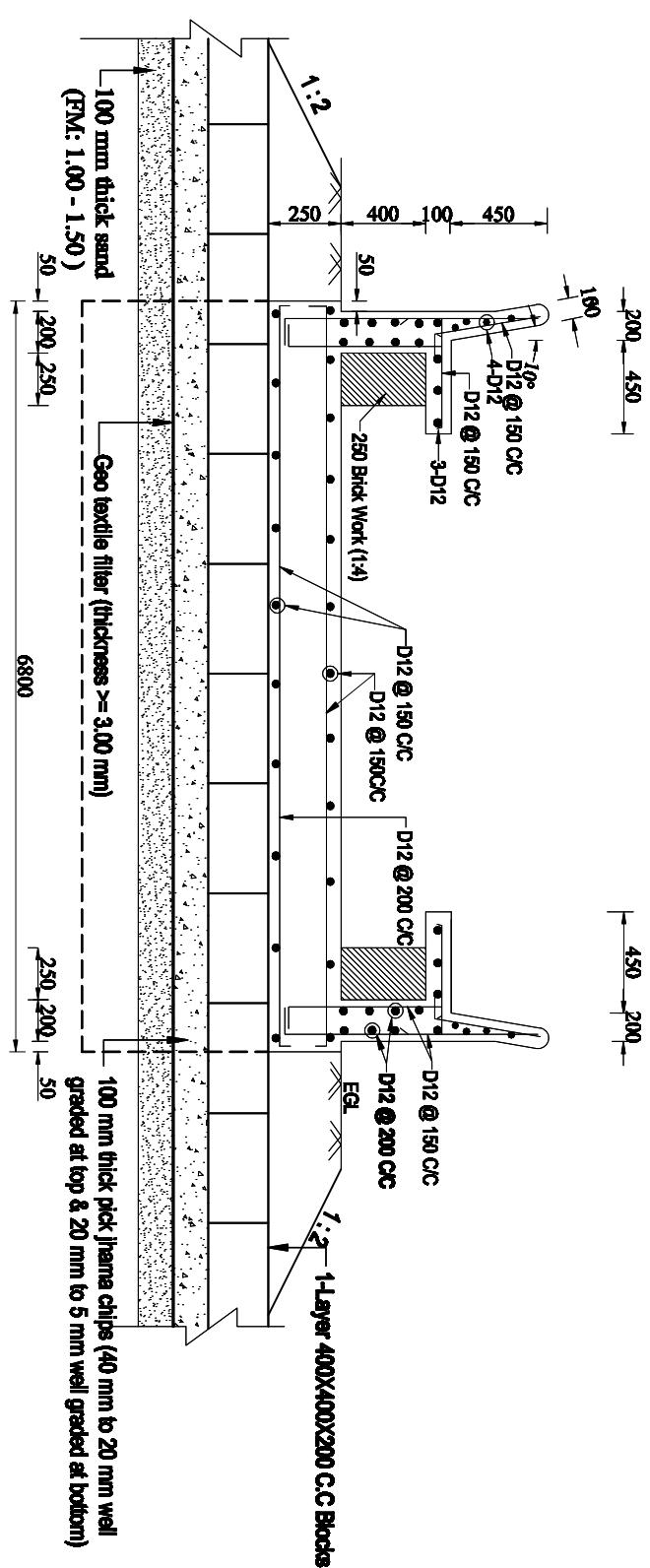
1. THE SPECIFICATION OF MATERIALS & WORKMANSHIP SHALL CONFORM TO THE STANDARD TECHNICAL SPECIFICATION OF BWDB IN GENERAL.
2. THE FOLLOWING SPECIFICATION OF MATERIALS & WORKS SHALL BE FOLLOWED:
  - a. CONCRETE STRENGTH (CYLINDER TEST) IN R.C.C WORKS : 22 N/mm<sup>2</sup>  
BLINDING LAYER CONCRETE : 1:3:6
  - b. YIELD STRENGTH OF REINF. BAR (DEFORMED BAR) : 400 N/mm<sup>2</sup>
  - c. CLEAR COVER FOR R.C.C WORK : 65mm (unless otherwise mentioned in the drawing)
3. CONCRETE SHALL BE POURED IN DRY BED CONDITIONS.
4. CONCRETE MIXTURE SHALL BE POURED AS QUICK AS POSSIBLE BUT NOT LATER THAN 45 MINUTES AFTER MIXING.
5. THE SURFACE OF CONSTRUCTION JOINTS SHALL BE WASHED THOROUGHLY WITH WATER JET & SHALL BE CLEAN ENOUGH. SURFACE SHALL BE KEPT DRY PRIOR TO PLACEMENT OF ADJOINING CONCRETE.
6. COMPRESSIVE STRENGTH OF C.C. BLOCK SHOULD NOT BE LESS THAN 12.00 N/mm<sup>2</sup> BY CYLINDER TEST AT 28 DAYS AND USING STONE CHIPS AS COARSE AGGREGATE.
7. CURING OF C.C. BLOCK SHALL BE CONTINUED FOR MINIMUM 21 DAYS.
8. FILLING IN FOUNDATION TREATMENT SHALL BE DONE BY COMPACTED SAND OF F.M  $\geq 1.00$  AS SHOWN IN THE DRAWING (IF REQUIRED).
9. LAP LENGTH / DEVELOPMENT LENGTH OF REINFORCING BARS SHALL BE 40 BAR DIA.
10. LAPS SHALL BE STAGGERED SO THAT NOT MORE THAN 50% OF BARS ARE LAPPED IN ANY ONE CROSS SECTION. WHERE BARS MUST BE LAPPED IN ONE CROSS SECTION, THE LAP LENGTH SHALL NOT BE LESS THAN 1.3 TIMES MINIMUM LAP LENGTH.
11. REINFORCING BAR SHALL BE SUPPORTED IN ITS PROPER POSITION BY USE OF MORTAR BLOCKS, SUPPORTS OR BY OTHER APPROVED MEANS.
12. LOCATION & NUMBERS OF RCC STAIR, R.C.C U-DRAIN & NAME PLATE SHALL BE FIXED FOLLOWING THE ACTUAL FIELD REQUIREMENT.
13. DIMENSIONS AND LEVELS SHOWN IN THE DRAWINGS ARE IN MILLIMETER AND METER PWD RESPECTIVELY.
14. THE COMPACTION MUST BE ENSURED BY THE CONCERNED FIELD EXECUTIVE ENGINEER.
15. CUT-OFF WALL OF STAIR & R.C.C U-DRAIN MUST BE CONSTRUCTED FROM THE LOWER PART (NEAR LWL) TO UPWARDS.
16. DRAWING FOR STAIR, R.C.C U-DRAIN & NAME PLATE ARE AN INTEGRAL PART OF THIS PROPOSED PROTECTIVE WORKS.
17. ANY OMISSION / CORRECTION SHALL BE IMMEDIATELY INFORMED TO THE DESIGN CIRCLE-8, BWDB, DHAKA FOR TAKING NECESSARY ACTION.

BANGLADESH WATER DEVELOPMENT BOARD OFFICE OF THE SUPERINTENDING ENGINEER DESIGN CIRCLE-8	
Protection of Morrelgang Upazila Sader & Adjacent Area From Erosion of Panguchi River & Dredging of Biskhali River in Bagerhat District.	
Rehabilitation of Protective Work at Different Four Locations along the Right Bank of Panguchi River, Total Length= 0.962 KM; at Morrelgang Bazar Area, Upazila-Morrelgang, District-Bagerhat under Bagerhat O & M Division, BWDB, Bagerhat.	
NOTES FOR STAIR, R.C.C U-DRAIN & NAME PLATE	RECOMMENDED BY:
DESIGNED BY:  (ZAYED BIN SAIF, AE)	(MOHAMMAD SAIF UDDIN, SE)
CHECKED BY:  (JAKAMA PERVEZ, EE)	(MD. ENAYETULLAH, CL, Design)
APPROVED BY:  DATE: 06-07-2020	DWG NO.: DC-8-0000-10/16

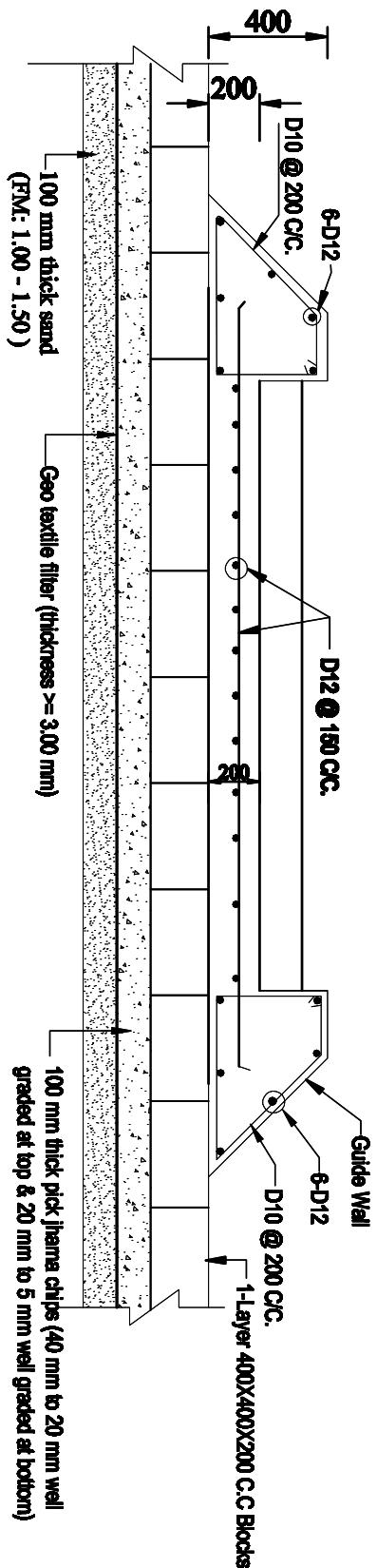


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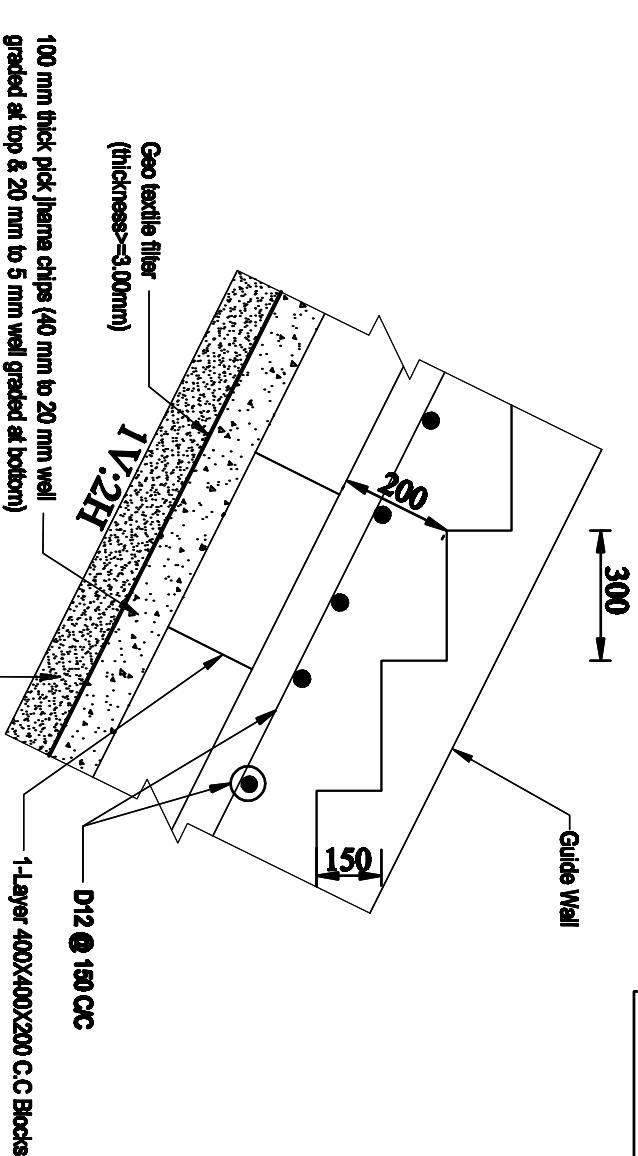
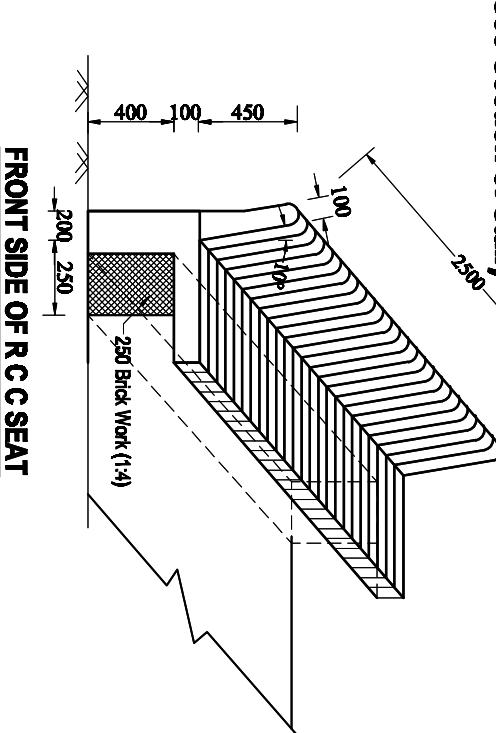
DESIGNED BY: <b>(ZAYED BIN SAIF, AE)</b>	RECOMMENDED BY: <b>MOHAMMAD RAJU UDDIN, SE</b>
CHECKED BY: <b>(MD. ENAYET ULLAH, CL, Desg.)</b>	APPROVED BY: <b>(MD. ENAYET ULLAH, CL, Desg.)</b>
DATE: 06-07-2020	DWG NO.: DC-8-0000-11/16



**SECTION 2-2**  
(See Plan & Section of Stair)



**DETAILS "P"**  
(See Section of Stair)



**BANGLADESH WATER DEVELOPMENT BOARD**  
OFFICE OF THE SUPERINTENDING ENGINEER  
DESIGN CIRCLE-8

Protection of Morrelganj Upazila Sader & Adjacent Area From Erosion  
of Panguchi River & Dredging of Biskhali River in Bagerhat District.  
Rehabilitation of Protective Work at Different Four Locations along  
the Right Bank of Panguchi River; Total Length= 0.962 KM; at  
Morrelganj Bazar Area; Upazila-Morrelganj, District-Bagerhat  
under Bagerhat O & M Division, BWDB, Bagerhat.

**SECTIONS & DETAILS OF STAIR**

RECOMMENDED BY:

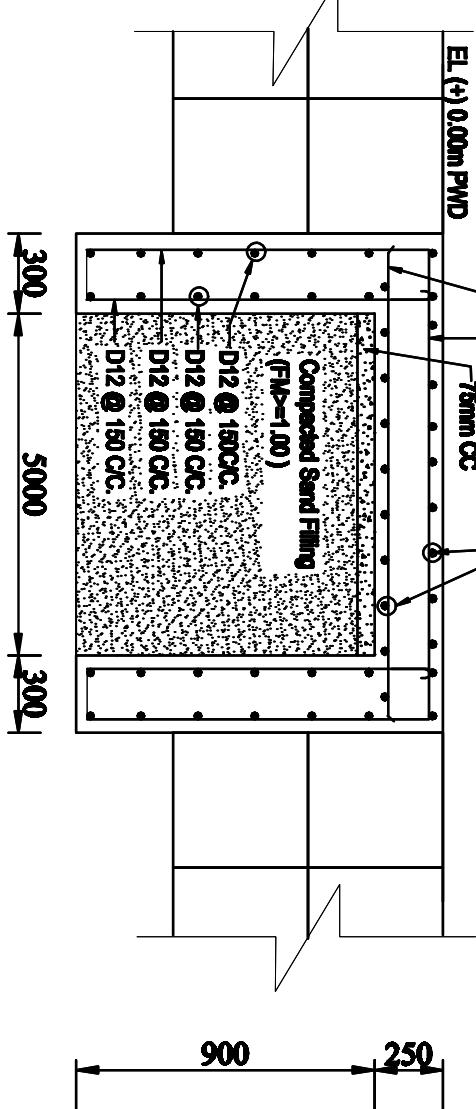
Mohammed Faruk Ullah, AE

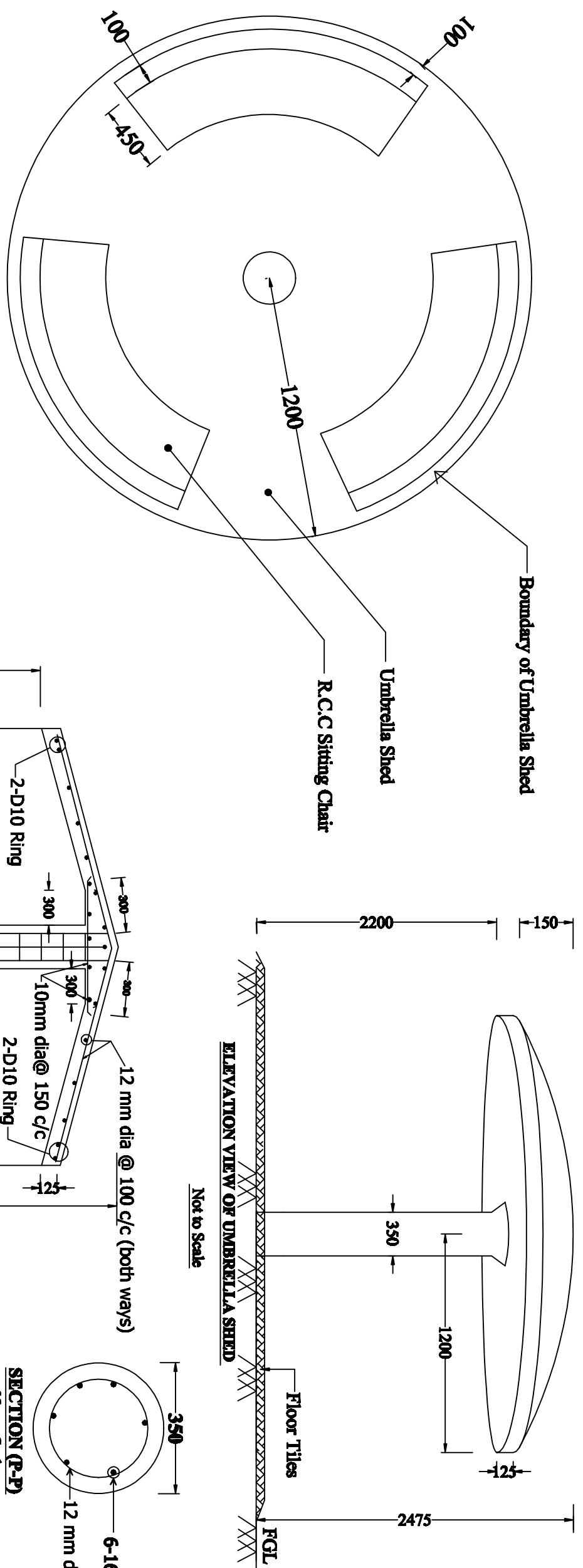
checked by:

Mohammed Faruk Ullah, AE

Approved by:

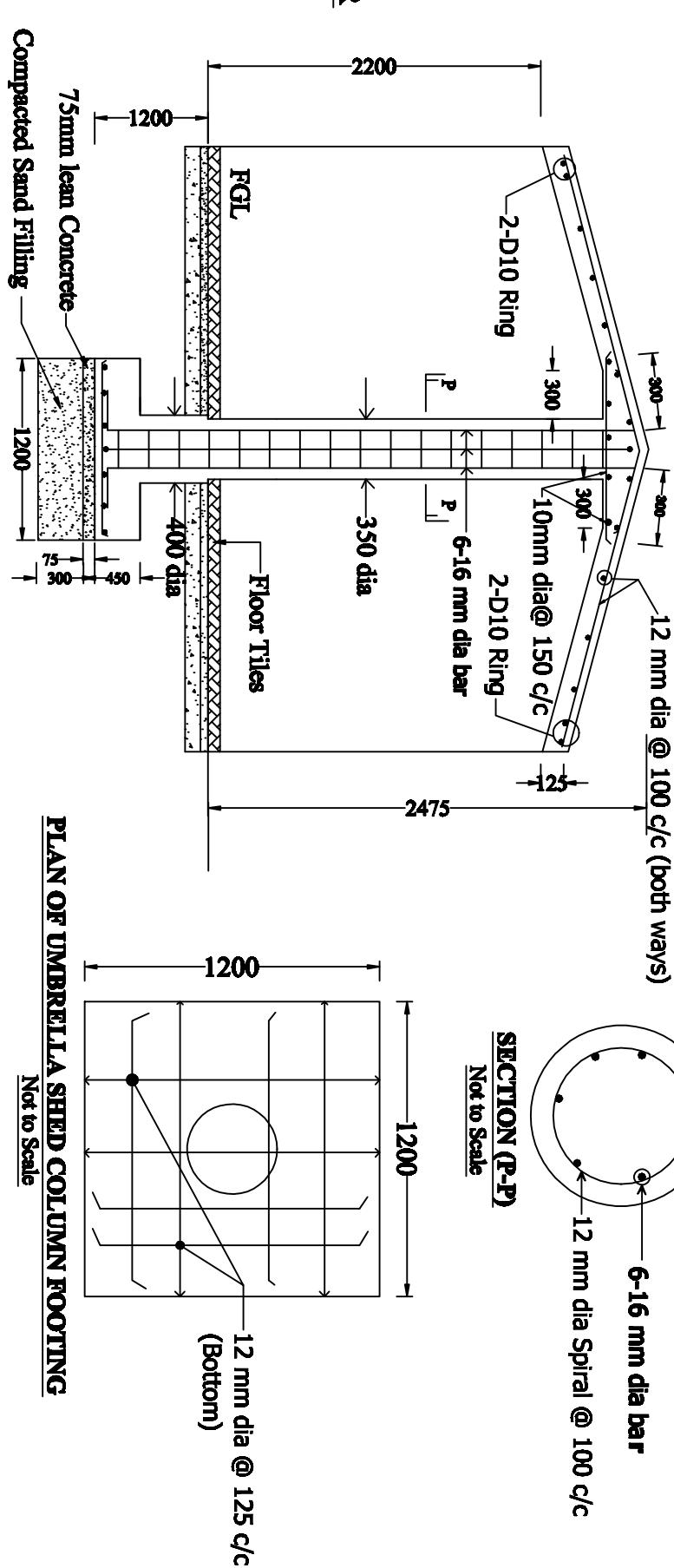
Mohammed Faruk Ullah, AE





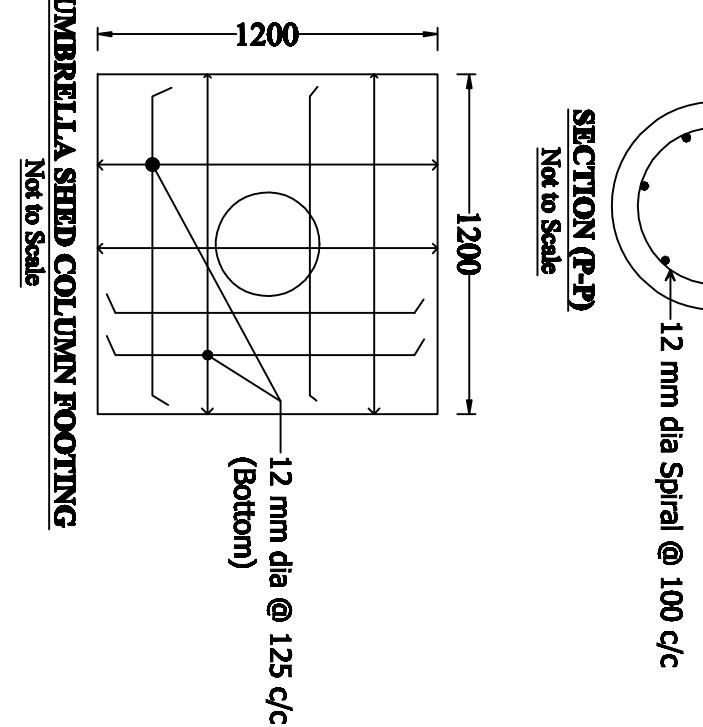
**PLAN OF UMBRELLA SHED WITH R.C.C SITTING CHAIR**

Not to Scale



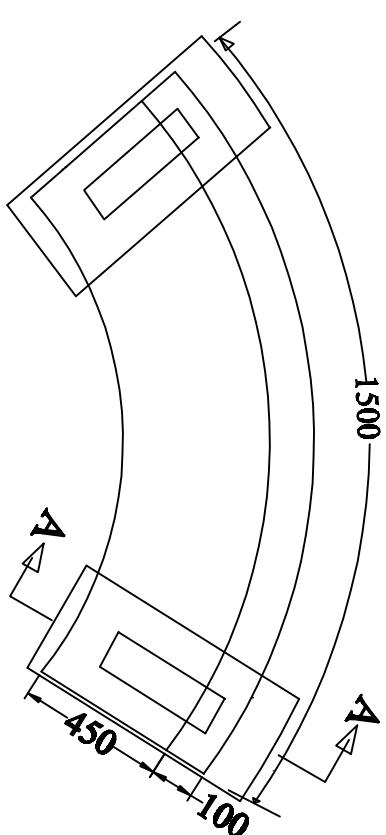
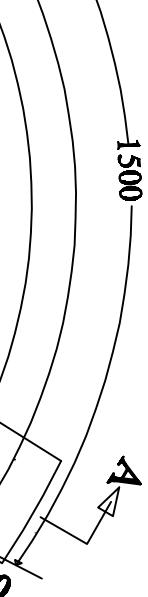
**PLAN OF UMBRELLA SHED COLUMN FOOTING**

Not to Scale



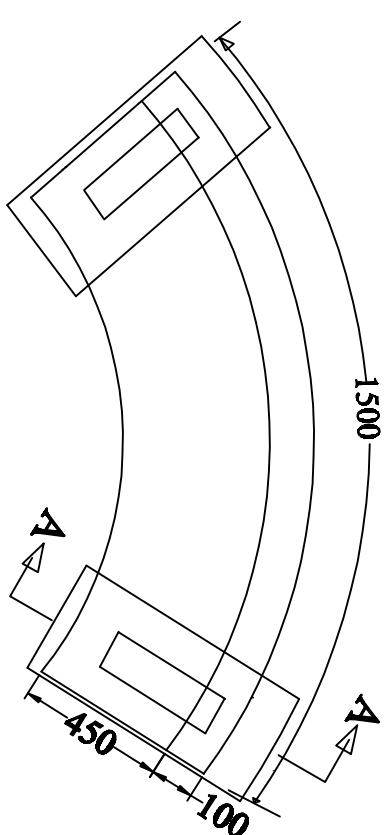
**SECTIONAL ELEVATION VIEW OF UMBRELLA SHED**

Not to Scale

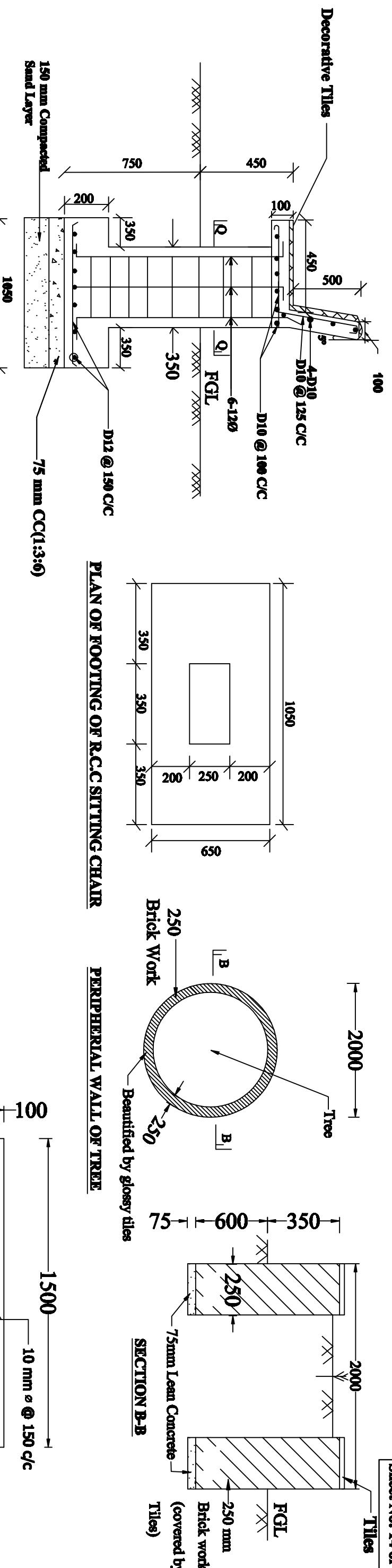


**PLAN OF R.C.C SITTING CHAIR**

Not to Scale



<b>BANGLADESH WATER DEVELOPMENT BOARD</b>	
OFFICE OF THE SUPERINTENDENT ENGINEER	
DESIGN CIRCLE-3	
Protection of Morrelganj Upazila Sadar & Adjacent Area From Erosion of Panguchi River & Dredging of Bishkhali River in Bagerhat District.	
Rehabilitation of Protective Work at Different Four Locations along the Right Bank of Panguchi River; Total Length= 0.962 KM; at Morrelganj Bazar Area, Upazila-Morrelganj,District-Bagerhat under Bagerhat O & M Division, BWDB, Bagerhat.	
<b>DETAILS OF UMBRELLA SHED &amp; BENCH</b>	
REMARKS	REMARKS
SAVED BY [Signature]	RECOMMENDED BY [Signature]
DATE: 06-07-2020	M.D. ENAYET ULLAH, CE, DESIGNEE
	DWG NO.: DC-3-0000-13/16



## **PLAN OF FOOTING OF R.C.C SITTING CHAIR**

PERIPHERAL WALL OF TREH

## **DETAILS OF R.C.C SITTING CHAIR (SECTION A-A)**

Not to Scale

350

450

1500

100 mm Thickness RCC. sitting  
Slab covered by tiles.

**MONVIEW**  
Not to Scale

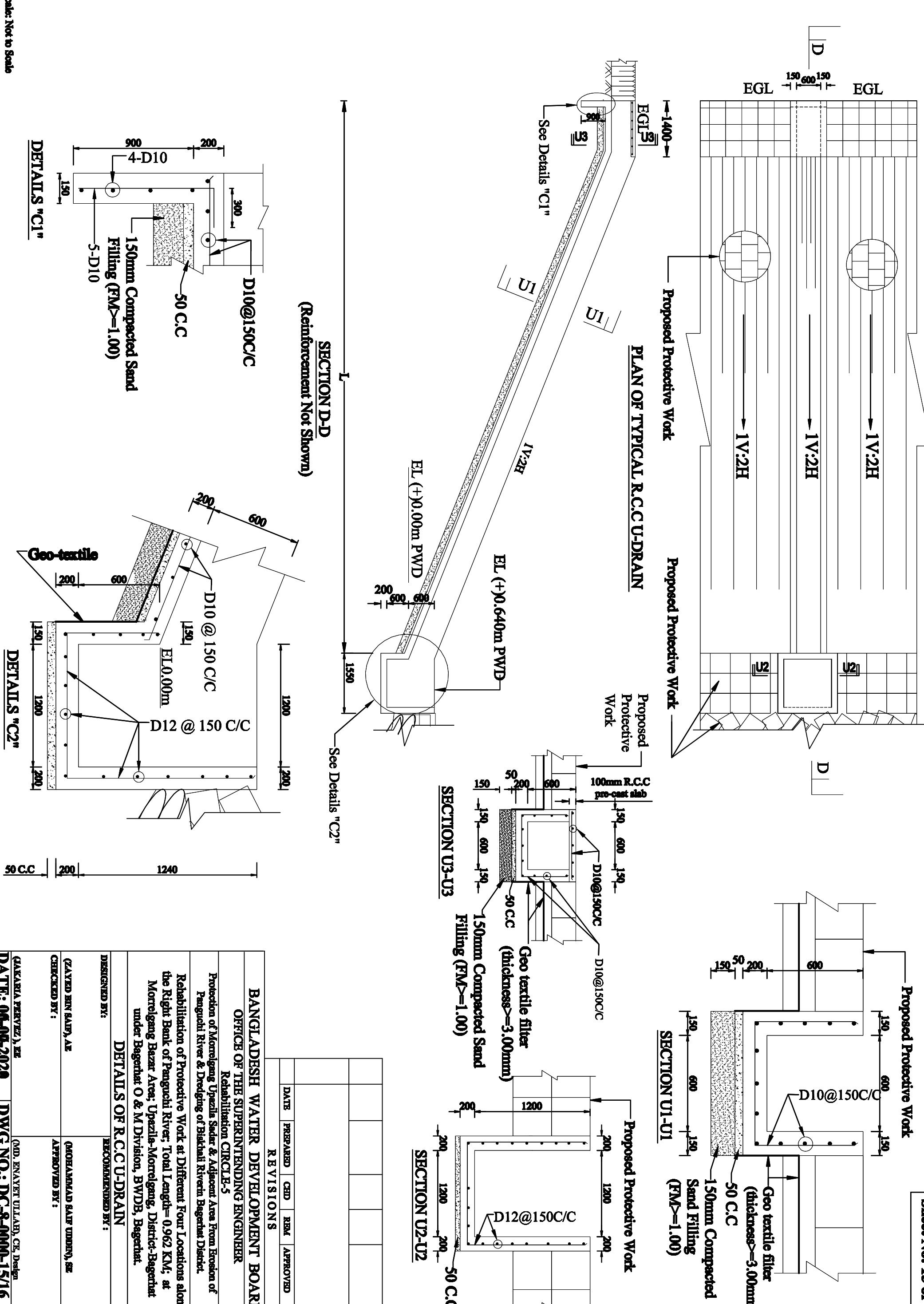
**PLAN OF BENCH**

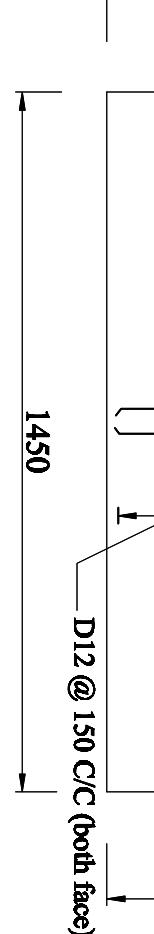
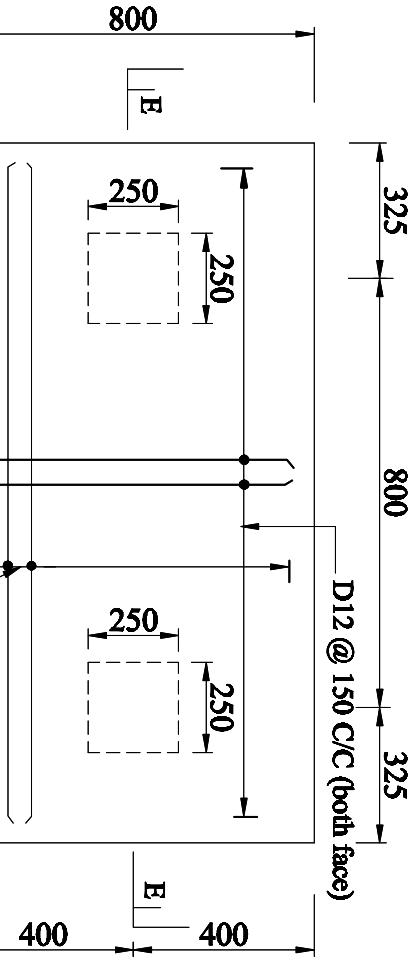
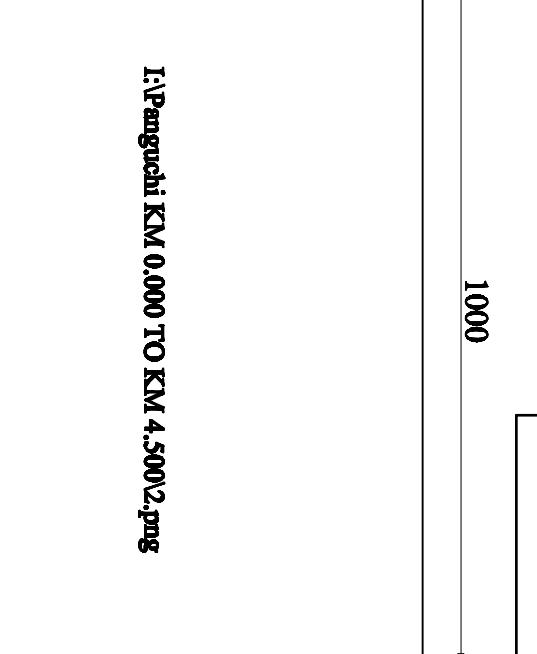
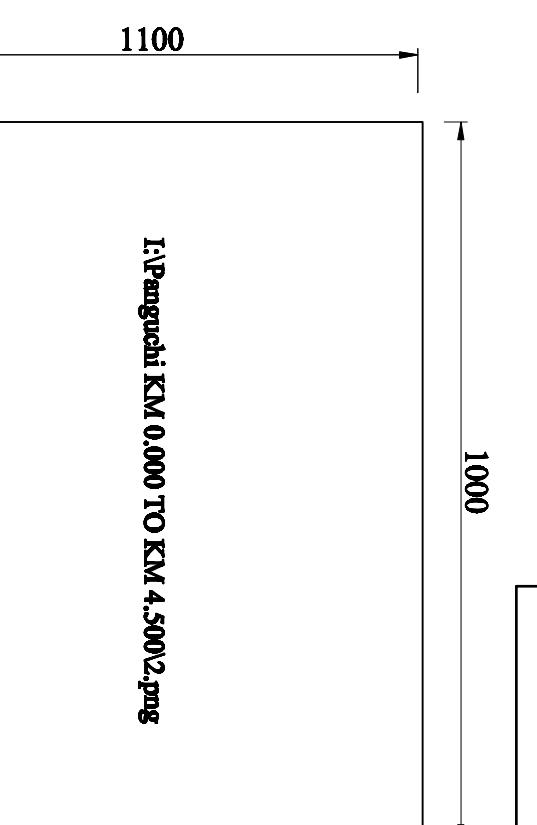
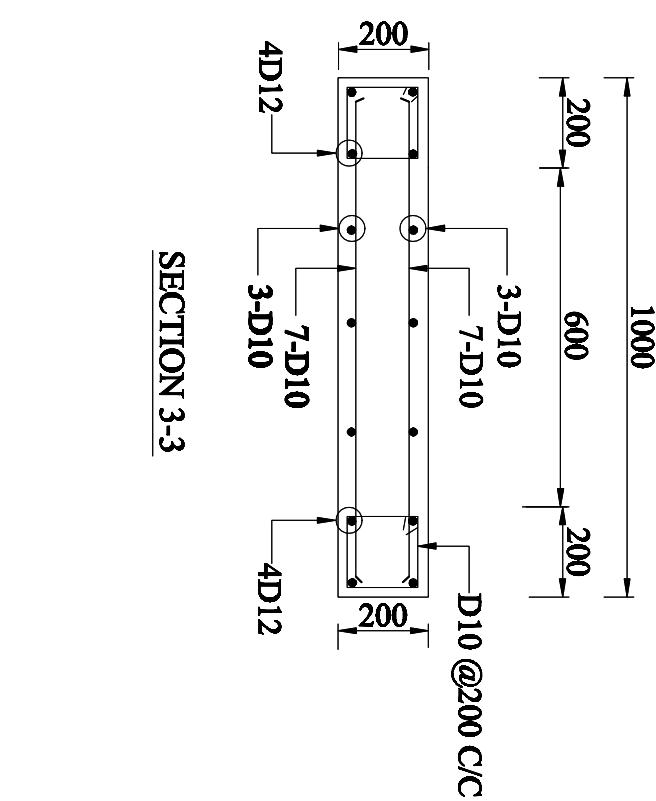
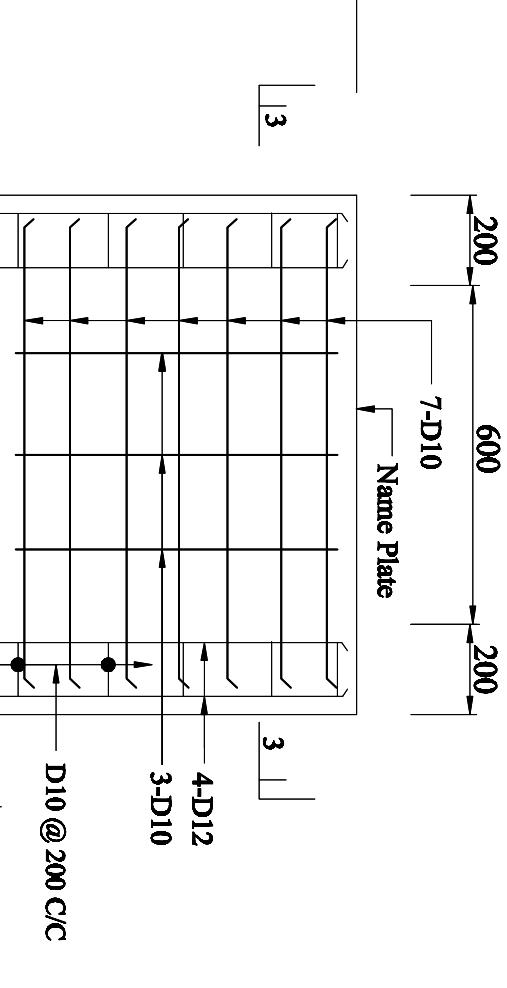
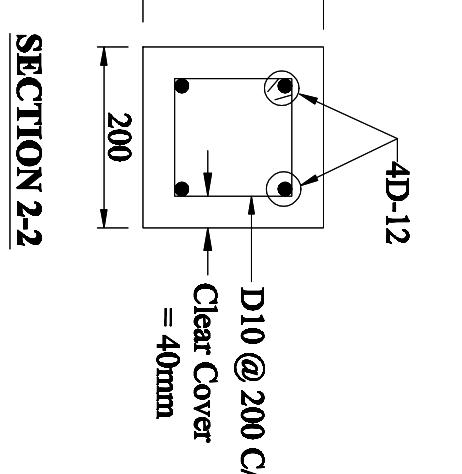
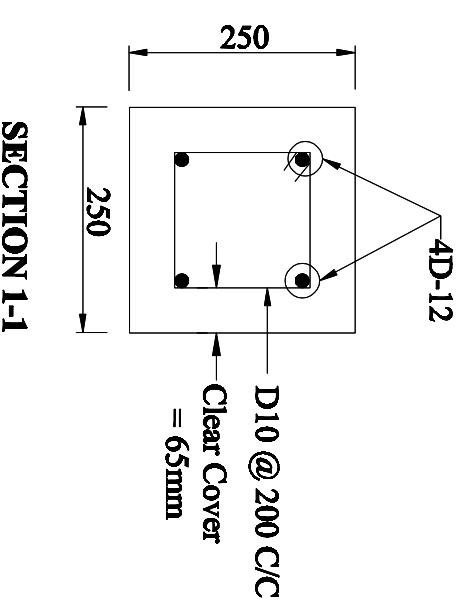
**REINFORCEMENT DETAILS OF BENCH**

## Section of (See R.R.)

N:B:- FGL= FINISHED GROUND LEVEL

<b>BANGLADESH WATER DEVELOPMENT BOARD</b>	
<b>OFFICE OF THE SUPERINTENDING ENGINEER</b>	
<b>DESIGN CIRCLE-3</b>	
<b>Protection of Morelgeang Upazila Sadar &amp; Adjacent Area From Erosion of Panguchi River &amp; Dredging of Biskhali River in Bagerhat District.</b>	
<b>Rehabilitation of Protective Work at Different Four Locations along the Right Bank of Panguchi River; Total Length= 0.962 KM; at Morrelgang Bazar Area; Upazila-Morrelgang, District-Bagerhat under Bagerhat O &amp; M Division, BWDB, Bagerhat.</b>	
<b>DETAILS OF UMBRELLA SHED &amp; BENCH</b>	
<b>DESIGNED BY</b>	<b>RECOMMENDED BY</b>
(SAVED IN SATE, AE)	(MOHAMMAD SAIF UDDIN, AE)
<b>CHECKED &amp; RECOMMENDED BY</b>	<b>APPROVED BY:</b>
<b>ENGR. ENAYET ULLAH, CE, Design</b>	(MD. ENAYET ULLAH, CE, Design)
<b>DATE: 06-07-2020</b>	<b>DWG NO.: DC-8-0000-14/16</b>



SECTION 3-3FOOTING FOR NAME PLATETYPICAL NAME PLATESECTION 1-1SECTION 2-2

**BANGLADESH WATER DEVELOPMENT BOARD**  
OFFICE OF THE SUPERINTENDING ENGINEER  
Rehabilitation Circle-5  
Protection of Morelgang Upazila Sadar & Adjacent Area From Erosion  
of Panguchi River & Dredging of Bisnali Riverin Bagerhat District.  
Rehabilitation of Protective Work at Different Four Locations along  
the Right Bank of Panguchi River; Total Length= 0.962 KM; at  
Morelgang Bazar Area; Upazila-Morelgang, District-Bagerhat  
under Bagerhat O & M Division, BWDB, Bagerhat.

**DETAILS OF NAME PLATE**

DESIGNED BY:

RECOMMENDED BY:

(ZAYED BIN SAIF, AE)

(MOHAMMAD SAIF UDDIN, SE)

CHECKED BY:

APPROVED BY:

(MD. ENAYET ULLAH, CE, Design)

DATE: 00-00-2022

DWG NO.: DC-8-0000-16/16