

Bangladesh Water Development Board



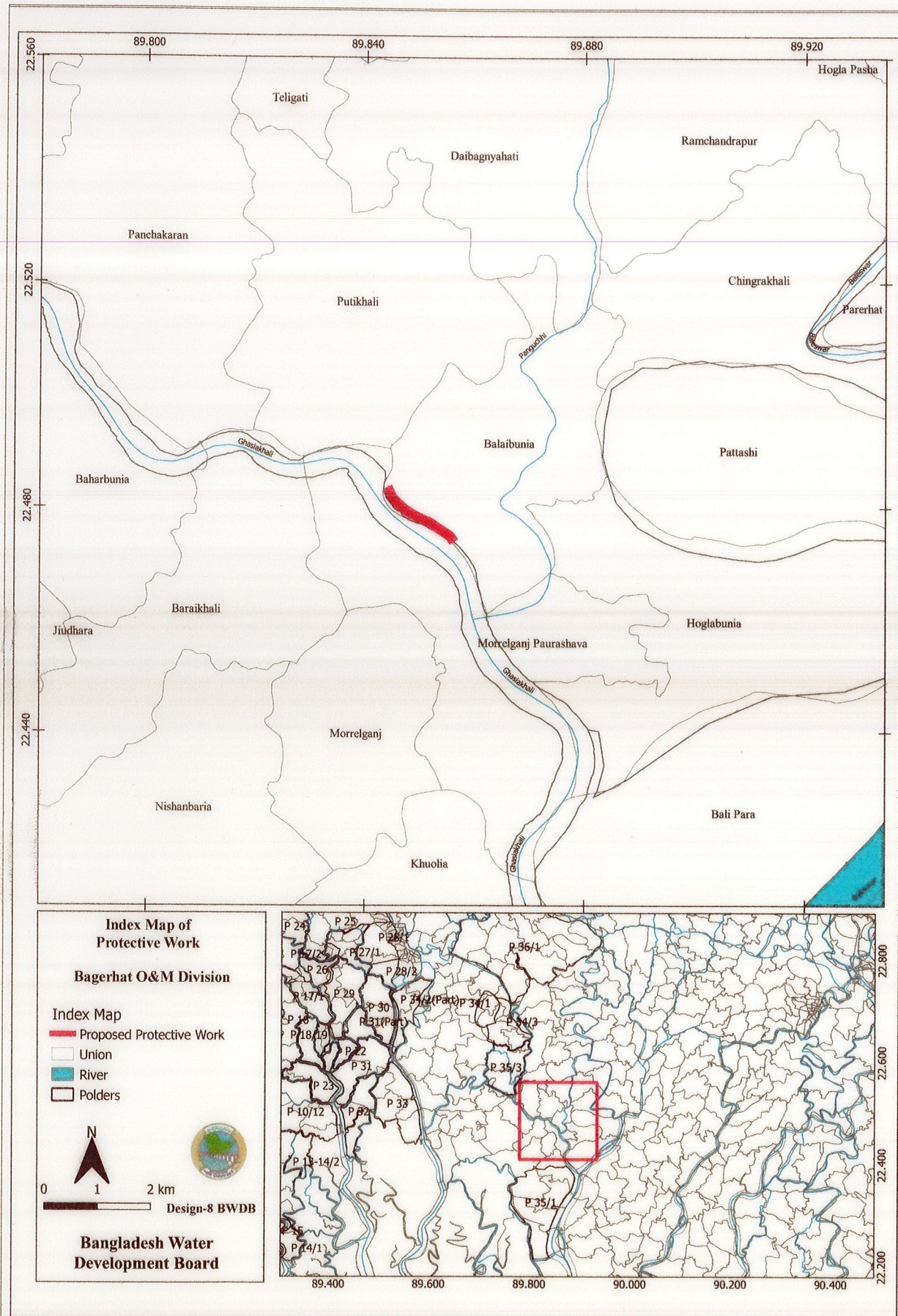
Protection of Morrelganj Upazila Sadar and adjacent areas from erosion of Panguchi river in Bagerhat District and Re-excavation/Dredging of Bishkhali river

**Design of River Bank Protective Work At Sinnakhali From km
2.100 to km 3.600 = 1.500 km**

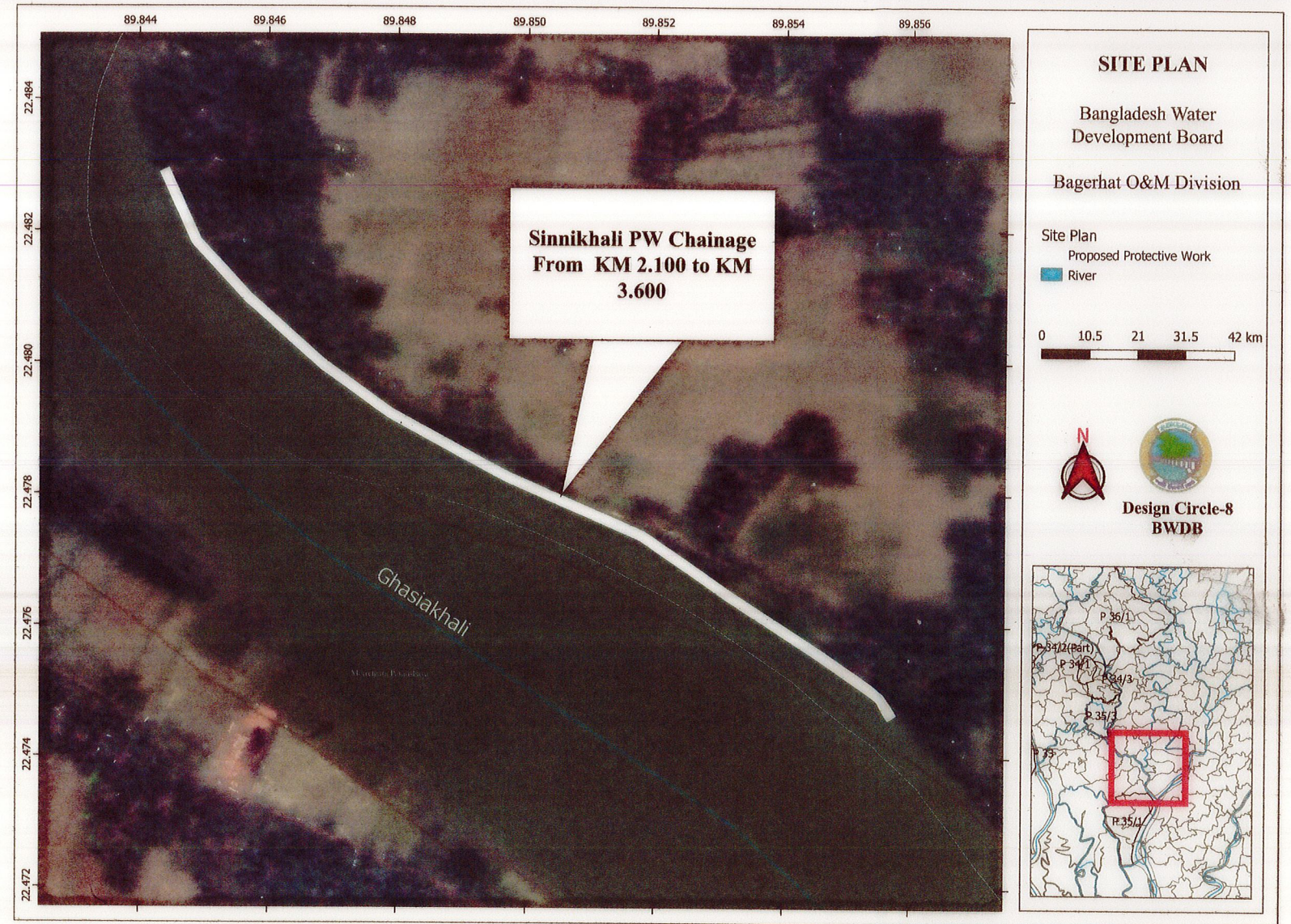
Bagerhat O&M Division

Designed by: Design Circle-8, BWDB, Dhaka

February, 2023



INDEX MAP



SITE MAP

Bangladesh Water Development Board	
Office of The Superintending Engineer, Design Circle-8	
Protection of Morrelganj Upazila Sadar and adjacent areas from erosion of Panguchi river in Bagerhat District and Re-excavation/Dredging of Bishkhali river	
Design of River Bank Protective Work At Sinnakhali From km 2.100 to km 3.600 = 1.500 km	
INDEX MAP & SITE MAP	
DESIGNED BY: (SAKIB BIN RAFI), AE	RECOMMENDED BY: (MOHAMMAD SAIF UDDIN), SE
CHECKED BY: (JAKARIA PERVEZ), EE	APPROVED BY: (MD. ENAYET ULLAH), CE, DESIGN
DATE: 16-02-2023	Drawing No: DC-8-0345-01/10

Notes :

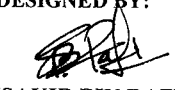
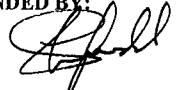
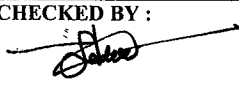
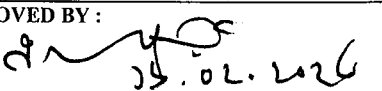
1. THIS DRAWING HAS BEEN PREPARED BASED ON DATA SENT BY THE SUPERINTENDING ENGINEER, KHULNA O & M CIRCLE, BWDB, KHULNA VIDE MEMO NO: 293, DATED-24/08/2022.
2. FOR ANY ERROR, OMISSION OR CONFUSION PLEASE REFER TO THIS OFFICE AS QUICK AS POSSIBLE FOR NECESSARY ACTION.
3. THE WORK SHALL BE EXECUTED WITH 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/TOE & 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.
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.

NOTES FOR C.C BLOCKS:

1. CONCRETE FOR C.C BLOCK FOR DUMPING SHALL HAVE MINIMUM CYLINDER STRENGTH of 10.50N/mm² AND FOR PLACING SHALL HAVE MINIMUM CYLINDER STRENGTH OF 12.00N/mm² 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 GEOBAGS:

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) OR DOUBLE CHAIN STITCH (TYPE 401 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 SEIVE. 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.


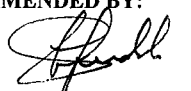
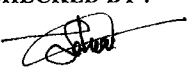

BANGLADESH WATER DEVELOPMENT BOARD	
OFFICE OF THE SUPERINTENDING ENGINEER DESIGN CIRCLE-8	
Protection of Morrelgonj Upazila Sadar & Adjacent Area from Erosion of Panguchi River & Re-excavation/Dredging of Biskhali River in Bagerhat District.	
Design of River Bank Protective Work At Sinnakhali From km 2.100 to km 3.600 = 1.500 km	
NOTES	
DESIGNED BY:  (SAKIB BIN RAFI), AE	RECOMMENDED BY:  (MOHAMMAD SAIF UDDIN), SE
CHECKED BY:  (JAKARIA PERVEZ), EE	APPROVED BY:  (MD. ENAYET ULLAH), CE, Design
DATE: 16-02-2023	DWG NO.: DC-8-0345-02/10

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.
6. SPECIAL CARE SHALL BE TAKEN FOR ANCHORING OF DUMPING PONTOON/ BOAT.
7. WORK SHALL BE STARTED FROM U/S END AND FROM DUMPING END TO BANK.
8. 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 L.W.L.
 - c. DUMPING OF C.C BLOCKS BELOW LWL OVER GEOBAG.
 - d. SLOPE PREPARATION & PITCHING WORK ABOVE LWL.
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 MITTIGATIVE 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.

ITEM CODE:

1. DUMPING BLOCK 450X450X450 : 40-170-25
2. DUMPING BLOCK 350X350X350 : 40-170-45
3. PLACING BLOCK 400X400X200 : 40-190-40
4. GEOTUBE 40-488-60

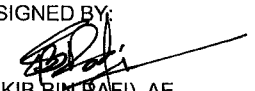
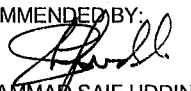


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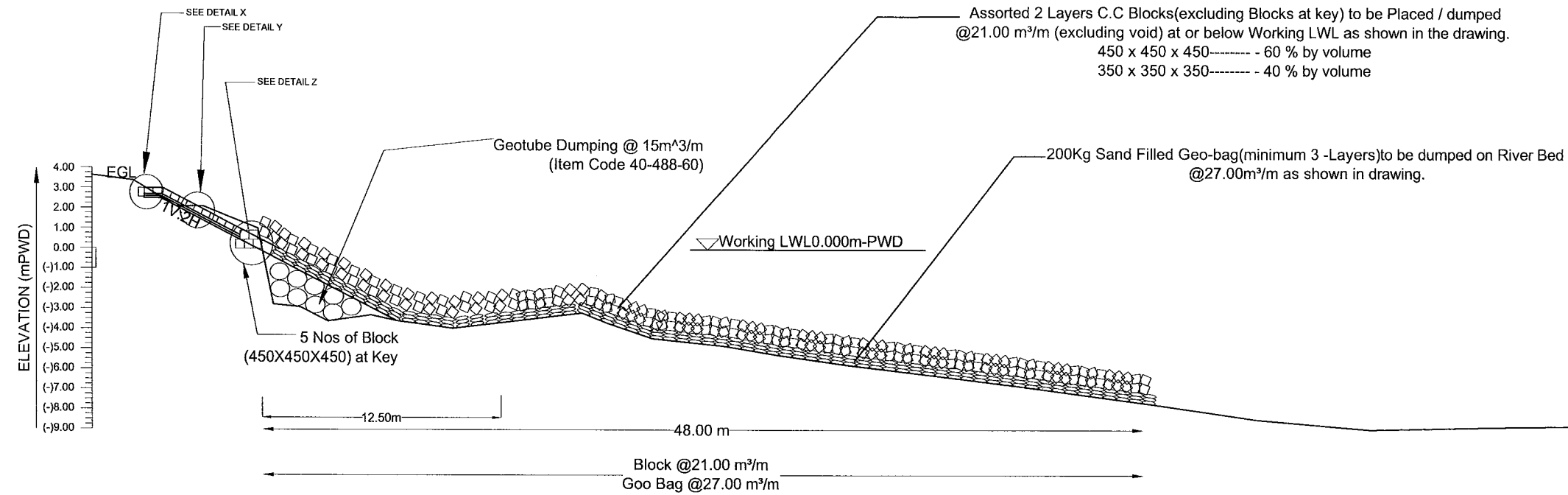
Special Notes For Revised Bathymetric Survey :

1. IN PROVIDED BATHYMETRIC SURVEY DATA SOME X-SECTIONS HAVE UNUSAL SHAPES WHICH RESULT IN EXCESSIVE FILLING.
2. FOR PROPER INVESTIGATION, SAFE AND ECONOMICAL DESIGN FILED OFFICE IS REQUESTED TO CONDUCT BATHYMETRIC SURVEY ALONG THE WHOLE REACH OF THE WORK AT 20 METER INTERVAL TO DETERMINE THE SCOUR HOLES AND GEOTUBE FILLING VOLUME BEFORE EXECUTION OF THE WORK.
- 4.FIELD OFFICE HAS TO SEND ABOVE SURVEY DATA FOR REVISION OF GEO-TUBE FILL VOLUME BEFORE INITIATION OF ANY DUMPING WORK TO THE DESIGN OFFICE.
- 5.DUMPING WORK CAN PROCEED ONLY AFTER GETTING REVISED DRAWING FOR GEO-TUBE FILLING.
- 6.THE COST OF SURVEYING SHOULD BE INCLUDED IN ESTIMATE AND BOQ.

Special Notes :

1. THIS DRAWING SUPERSEDES PREVIOUSLY APPROVED DRAWING NO. DC-80333. DATED 10/01/2023. SO THE DRAWING NO. DC-8-0333 WILL BE TREATED AS VOID.

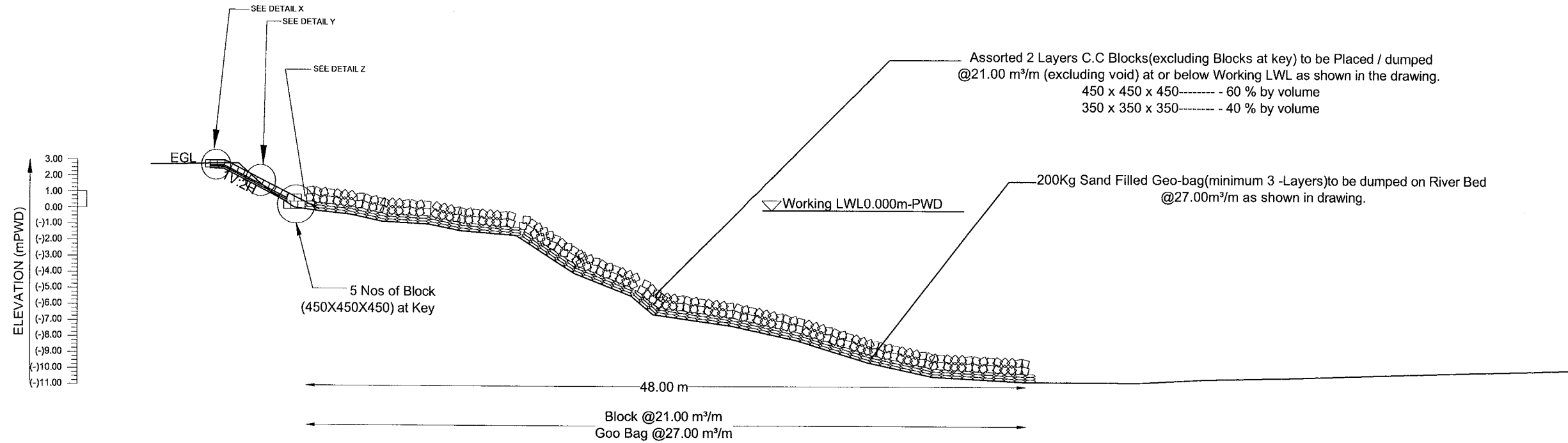
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DATE:16-02-2023	Drawing No:DC-8-0345-04/10



Existing Bed Level in (mPWD)	3.633	3.376	2.088	2.105	1.010	(-)2.762	(-)2.882	(-)3.584	(-)3.279	(-)3.573	(-)3.940		(-)3.170	(-)3.700	(-)4.440	(-)4.810	(-)5.260	(-)5.750		(-)6.460	(-)6.800		(-)7.750	(-)8.460	(-)8.940		(-)8.820	(-)8.760	(-)8.700
Distance(m)	4.243	6.403	8.602	10.000	12.806	13.601	15.000	16.401	18.601	20.000	22.804		29.411	30.806	33.015	36.620	39.408	43.012		48.826	51.614		58.822	63.820	69.635		76.026	81.025	86.839

TYPICAL CROSS SECTION AT KM 2.200
(APPLICABLE FROM KM 2.100 TO KM 2.250)

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TYPICAL CROSS SECTION OF SINNAKHALI PROTECTIVE WORK	
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Existing Bed Level in (mPWD)	2.727	2.766	2.827	2.818	1.588	0.998	0.088	(-)0.102	(-)0.315	(-)0.752	(-)0.902	(-)1.302	(-)1.582	(-)3.950	(-)5.350	(-)6.500	(-)7.220	(-)8.140	(-)9.480	(-)10.370	(-)10.680	(-)10.710	(-)10.500	(-)10.150	(-)10.000	(-)9.840	
Distance(m)	11.402	14.213	15.620	17.029	18.439	19.209	20.616	22.023	24.207	26.249	29.206	31.241	34.828	38.601	42.202	43.600	48.600	52.802	57.201	61.400	67.201	74.404	78.600	84.404	90.802	95.802	102.201

TYPICAL CROSS SECTION AT KM 2.300
(APPLICABLE FROM KM 2.250 TO KM 2.350)

Bangladesh Water Development Board

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TYPICAL CROSS SECTION OF SINNAKHALI PROTECTIVE WORK

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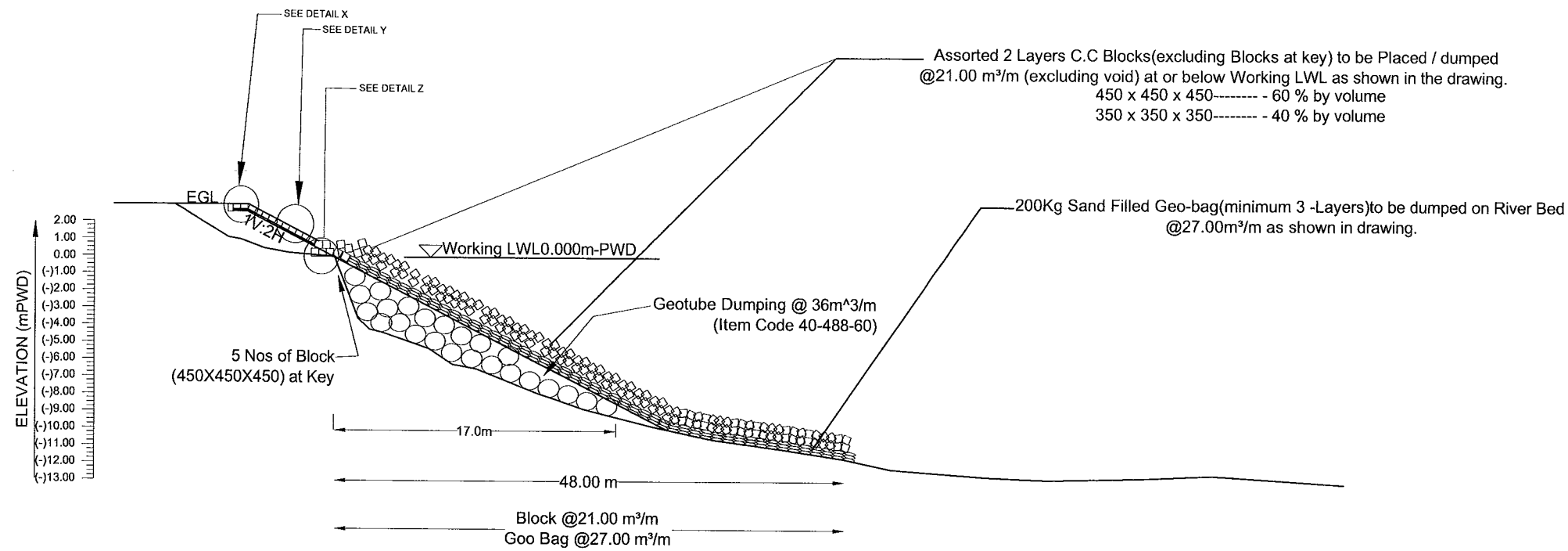
(JAKARIA PERVEZ), EE

APPROVED BY:

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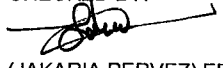

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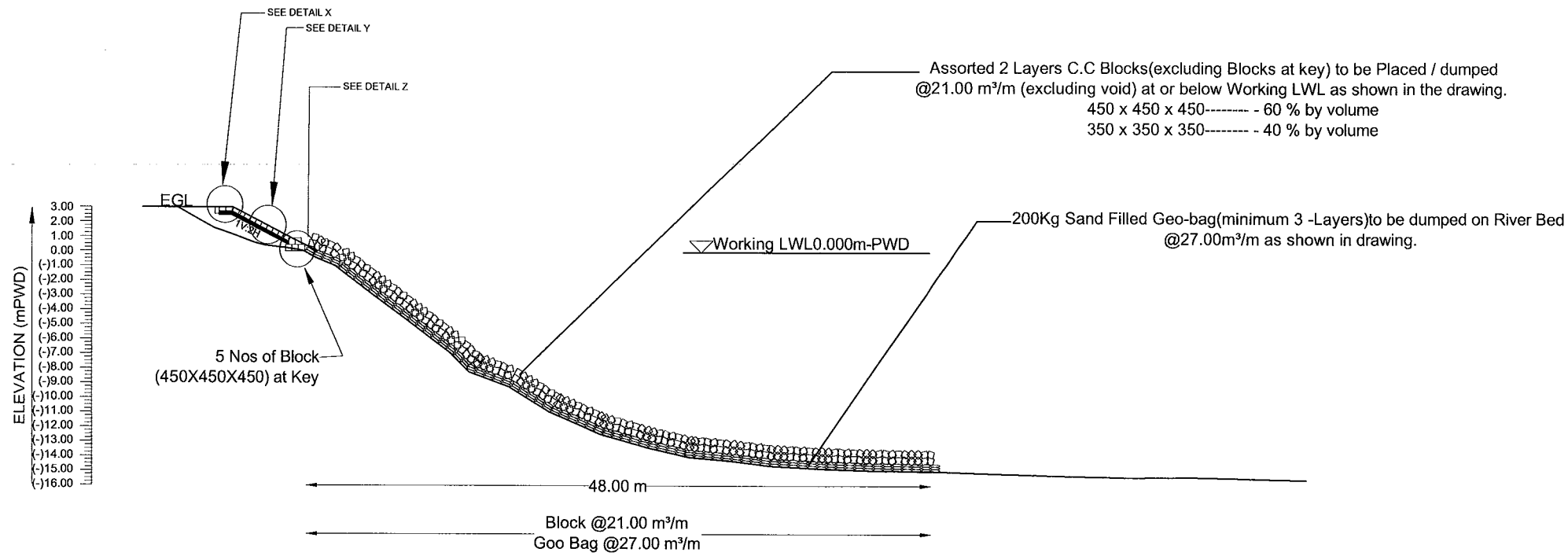
Drawing No:DC-8-0345-06/10



Existing Bed Level in (mPWD)	1.919	1.086	0.975	0.475	0.225	0.005	(-)3.550	(-)4.20	(-)5.300	(-)0.925	(-)6.460	(-)7.840	(-)8.790	(-)9.820	(-)10.560	(-)11.120	(-)11.650	(-)12.240	(-)12.650	(-)12.800	(-)12.690	(-)12.500	(-)13.000
Distance(m)	9.899	11.314	12.042	13.454	14.866	17.692	19.105	20.518	23.345	24.759	26.173	29.732	32.558	36.797	40.361	44.598	48.166	50.990	56.639	60.208	65.856	70.093	77.897



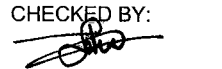
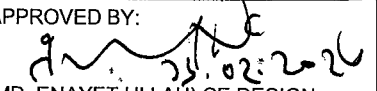
TYPICAL CROSS SECTION AT KM 2.400
(APPLICABLE FROM KM 2.350 TO KM 2.450)

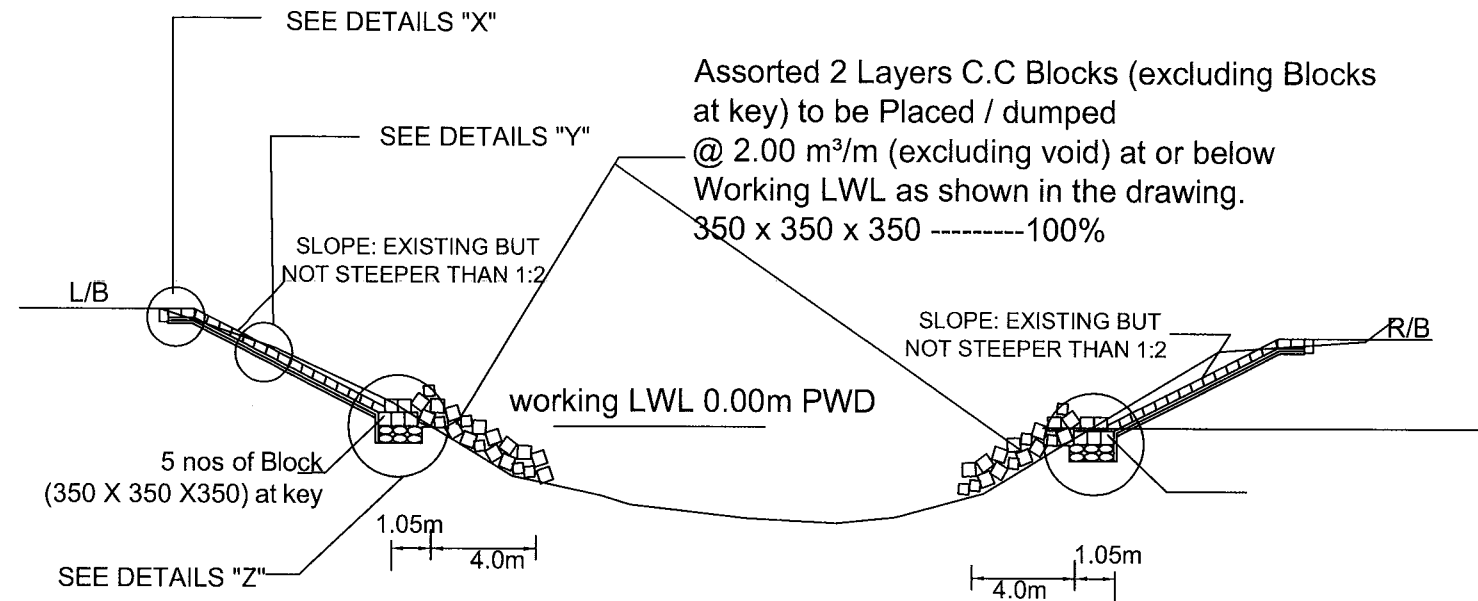
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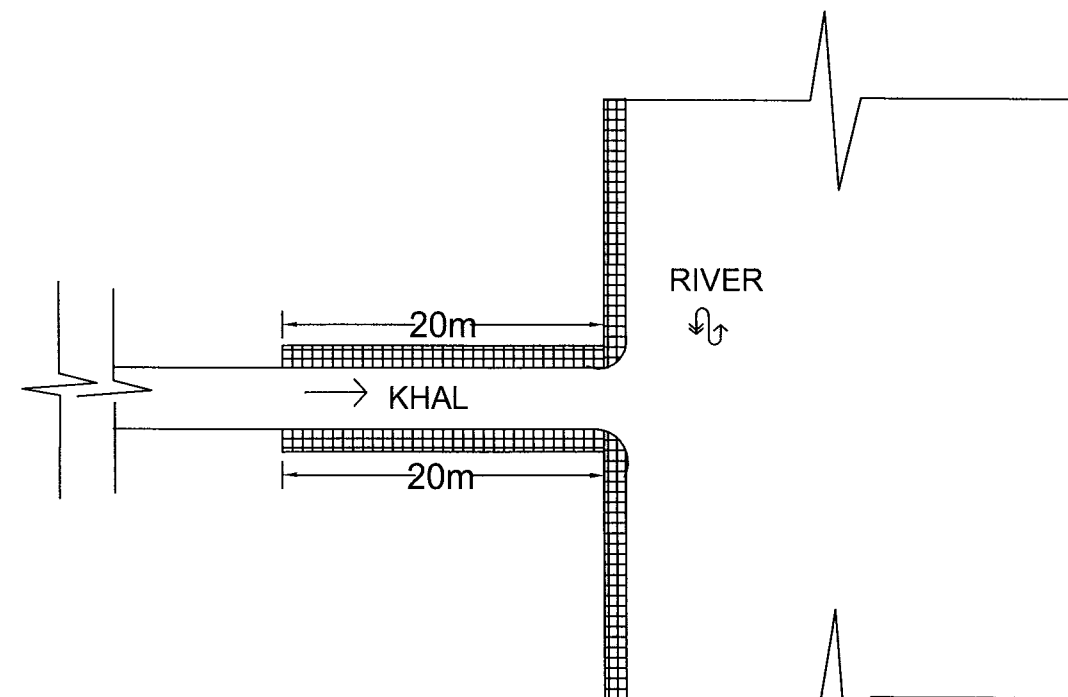
Existing Bed Level in (mPWD)	2.054	4.384	1.123	0.623	0.453	0.123	(-0.427	(-0.977		(-0.880	(-0.820	(-0.250	(-0.970	(-0.470	(-0.420	(-0.040	(-0.290	(-0.630	(-0.820	(-0.940	(-0.010	(-0.170	(-0.320	(-0.380	(-0.340		(-0.530
Distance(m)	13.038	13.892	15.264	16.643	17.493	18.968	19.723	21.095	22.472	30.480	31.828	34.655	37.537	41.110	44.553	47.381	50.249	53.038	56.586	60.208	65.192	69.527	74.653	78.243	82.620		90.604

TYPICAL CROSS SECTION AT KM 3.100
(APPLICABLE FROM KM 2.450 TO KM 3.600)




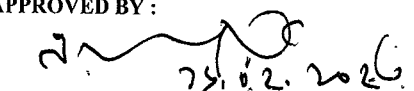
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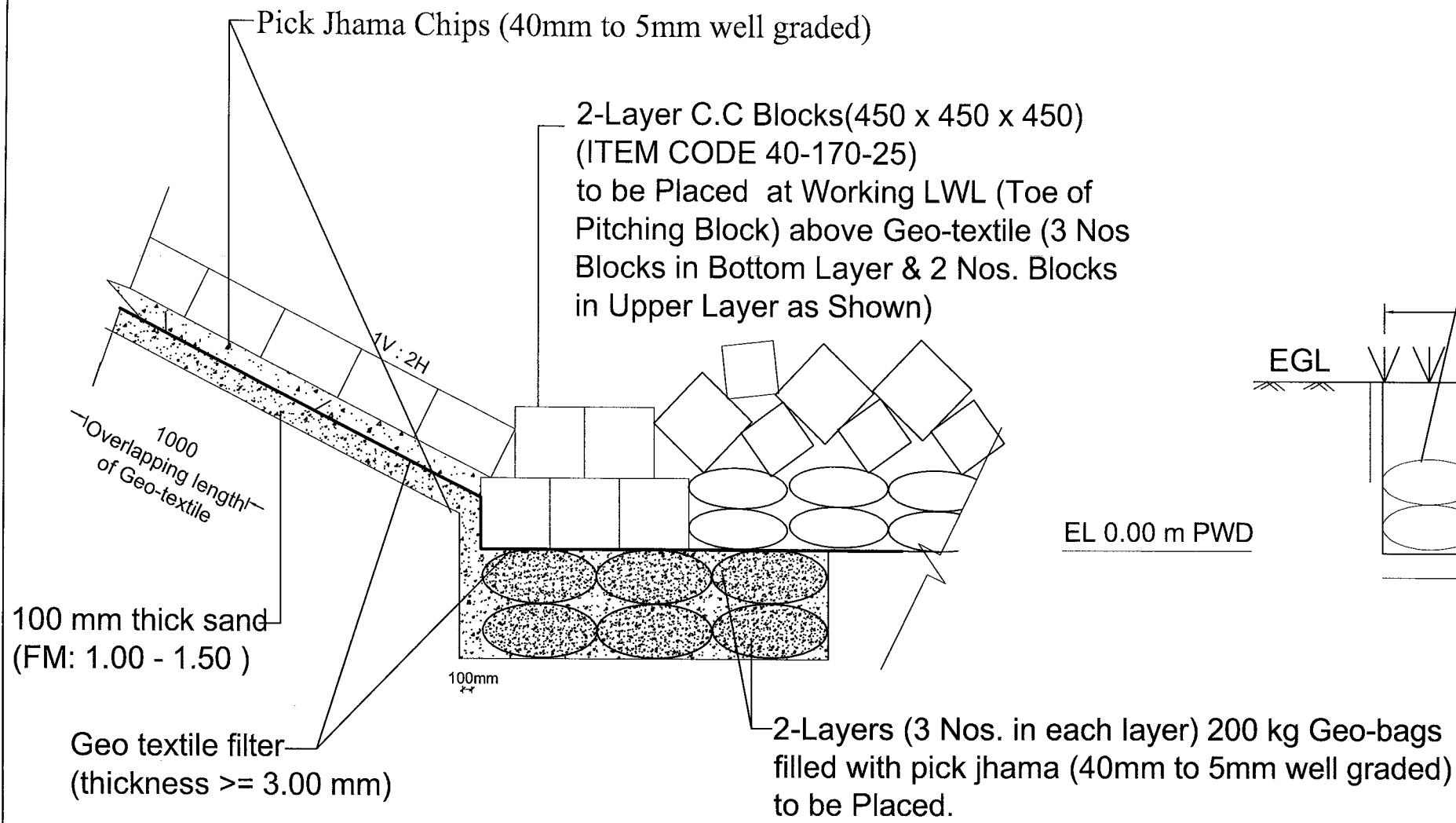


TYPICAL X-SECTION FOR ARMOURING OF PROTECTIVE WORK AT CONFLUENCE OF KHAL
 (Limit of Wprk: To be Extended 20m towards Khal from Confluence of Khal and River)

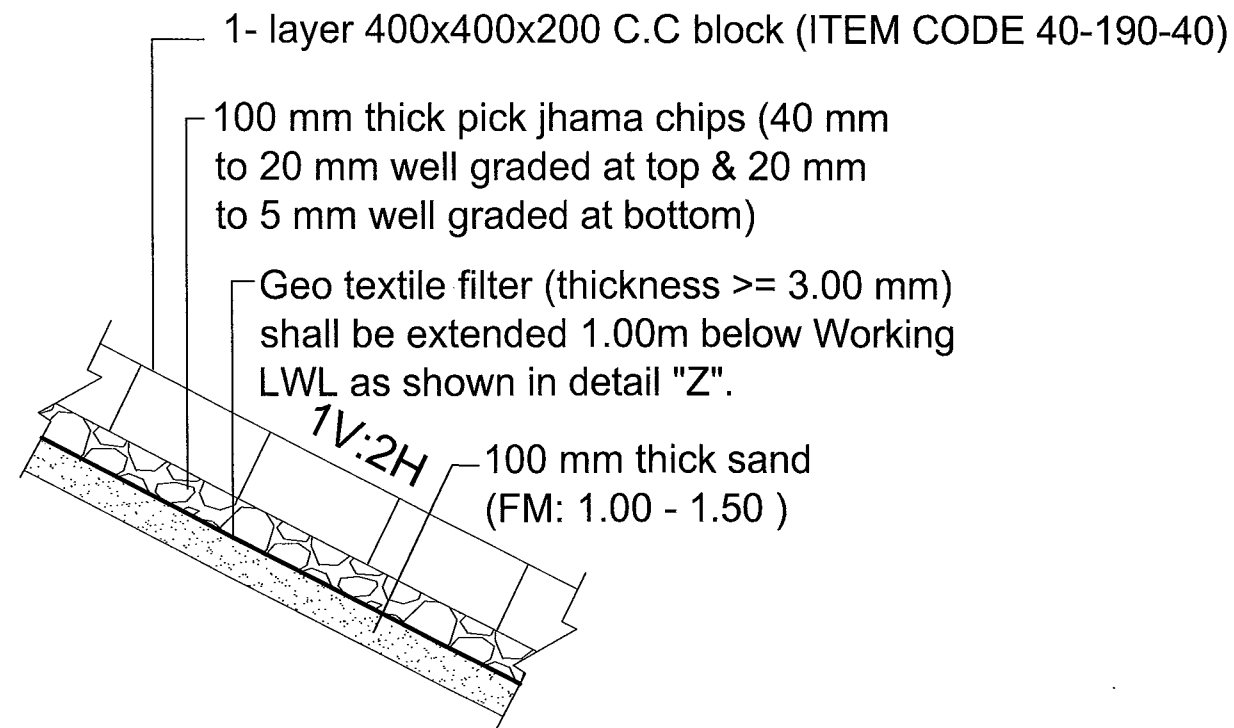


PLAN OF ARMOURING OF KHAL
 (NOT TO SCALE)

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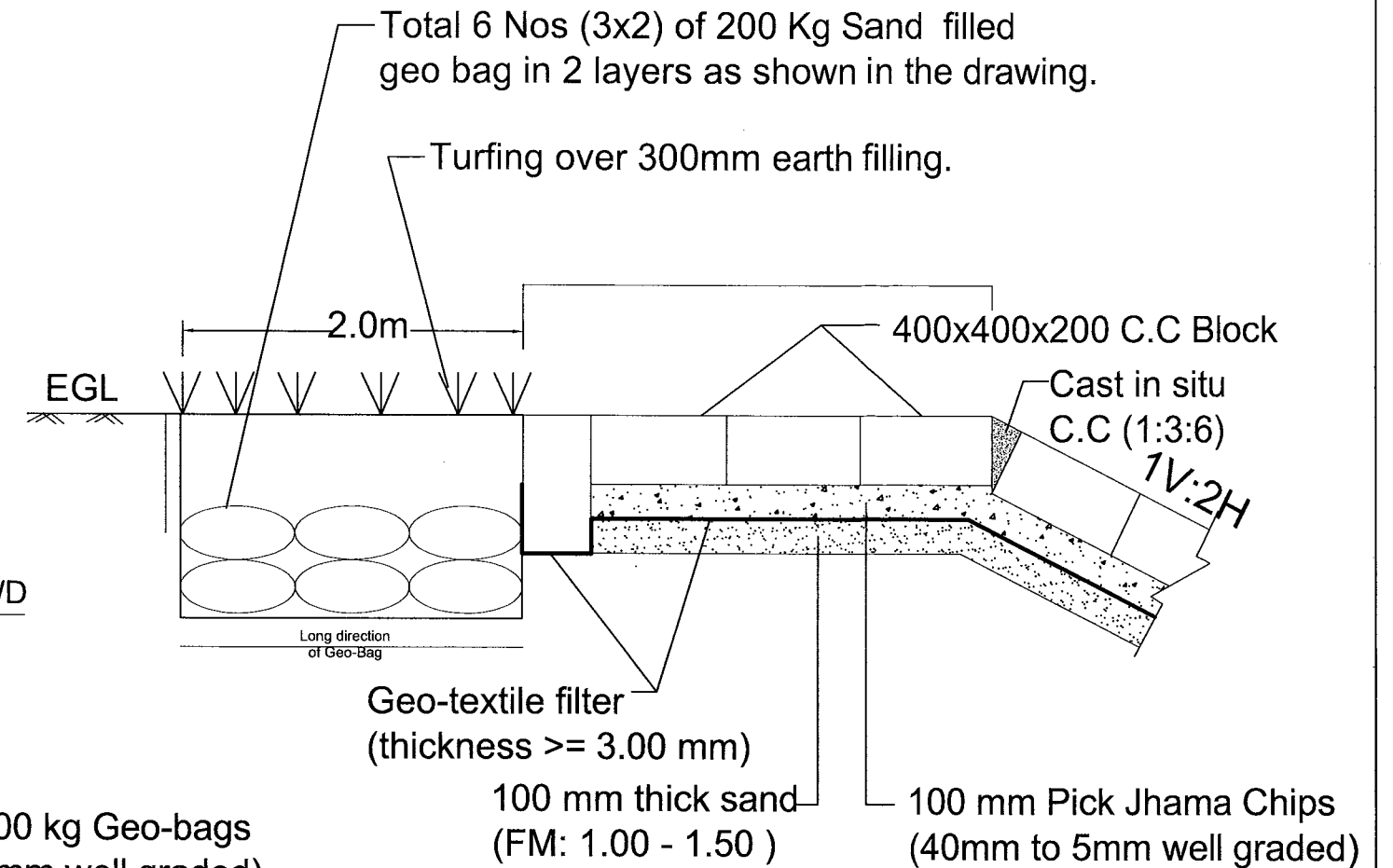


DETAILS "Z"
(Not to Scale)


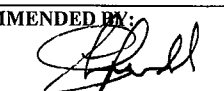
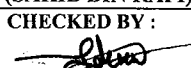
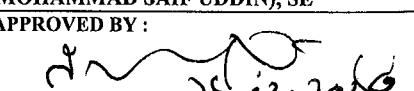


DETAILS "Y"
(Not to Scale)

Scale: Not to Scale



DETAILS "X"
(Not to Scale)

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DETAILS	
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