

Bangladesh Water Development Board



BLUE GOLD PROGRAM

APPROPRIATE RIVER BANK EROSION PROTECTION IN POLDER 29 ALONG THE RIGHT BANK OF LOWER BHADRA RIVER (FOUR SPURS AT KM 4.500, KM 4.700, KM 4.900 AND KM 5.100) AT DUMURIA UPAZILLA OF DISTRICT KHULNA IN C/W "BLUE GOLD PROGRAM, BWDB"

Khulna O & M Division-1, BWDB, Khulna.

October, 2016

Designed By: Design Circle-5, BWDB, Dhaka.

NOTES:

1. ALL DIMENSIONS SHOWN IN THE DRAWING ARE IN MILLIMETER AND ALL ELEVATIONS ARE IN METER (PWD) UNLESS OTHERWISE MENTIONED IN THE DRAWING

NOTES FOR PILE :


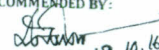


1. CONCRETE :
 - a. Compressive Strength : >25 N/mm²
 - b. Mixing Ratio : 1:1.5:3
 - c. Coarse Aggregate : stone chips
 - d. Fine Aggregate : Sylhet Sand (FM>2.2)
 - e. Cement : OPC
 - f. Water : free of salinity
2. REINFORCING BARS SHALL BE TWISTED M.S. BARS HAVING MINIMUM YIELD STRESS OF 414 N/mm².
3. CASTING OF PILE SHALL BE CARRIED ON AS A CONTINUOUS OPERATION UNTIL THE ENTIRE PILE CASTING IS COMPLETED BEGINING FROM THE HEAD TO END.
4. MINIMUM WEIGHT OF THE HAMMER FOR DRIVING PILE SHALL BE 1500KG.
5. HEIGHT OF FALL OF DROP HAMMER SHALL NOT BE GREATER THAN 1.5 METRE.
6. DRIVING MAY BE STOPPED WHEN A PENETRATION OF MINIMUM 5mm PER BLOW IS ATTAINED THROUGH THE DRIVING APPLIANCES AS MENTIONED ABOVE. THE LIMIT OF PENETRATION AS NOTED SHALL BE AVERAGE OF 30cm.
7. FOLLOWING PILE DRIVING RECORD SHALL BE KEPT IN AN ORDERLY FORM AND SHALL BE SENT TO THE DESIGN OFFICE TO VERIFY THE ALLOWABLE AND SHALL BE SENT TO THE DESIGN OFFICE TO VERIFY THE ALLOWABLE PILE CAPACITY BEFORE NEXT PHASE OF WORK.
 - (a) TYPE AND WEIGHT OF HAMMER.
 - (b) HEIGHT OF FALL OF HAMMER.
 - (c) NUMBER OF BLOWS REQUIRED FOR EACH 30 cm OF PENETRATION .
 - (d) SPECIAL MEASURE SHALL BE TAKEN TO RECORD THE PENETRATIONS PER BLOW FOR THE LAST 60cm.
8. CLEAR COVER FOR PILE AND BEAM= 75mm.

DUMPING OPERATION:

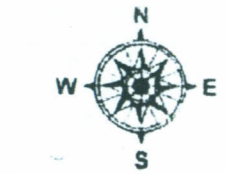
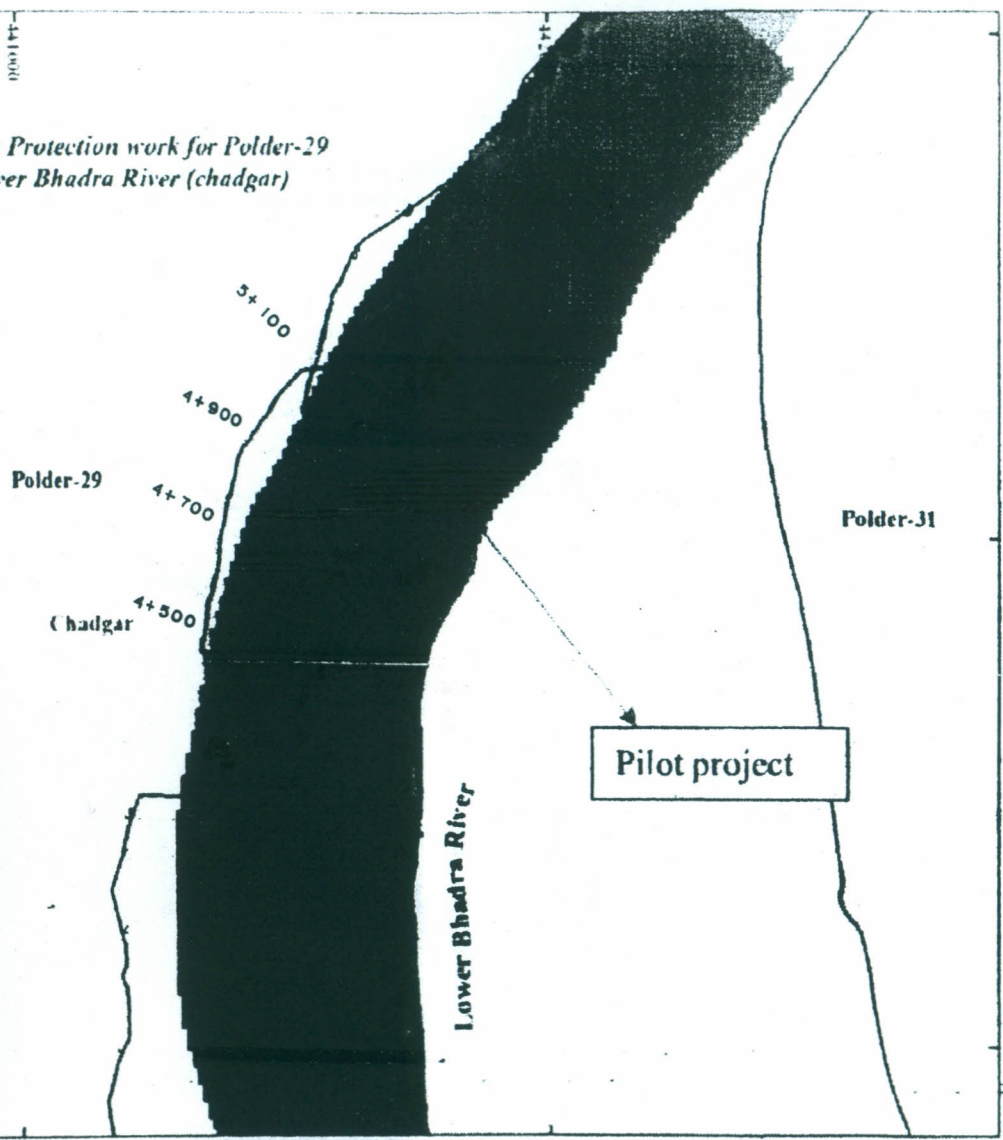
1. GEO BAGS IN LAYERS MUST BE DUMPED UNIFORMLY FROM ANCHORED AND PROPERLY POSITIONED DUMPING BOAT.
2. DUMPING OF GEO-BAGS SHALL BEGIN FROM THE TOE (END) OF THE APRON AND PROCEED TOWARDS BANK.
3. INSPECTION BY DIVING MUST BE DONE TO CONFIRM THAT NO RIVER BED AREA REMAINS EXPOSED AND GEO-BAGS ARE PLACED UNIFORMLY.
4. CROSS SECTIONS SHALL BE TAKEN WITHIN 12 HOURS AFTER DUMPING AT 15.00 METERS APART.
5. GEO BAGS MUST BE HANDLED WITH CARE, NO DAMAGED BAGS SHALL BE USED FOR ANY PART OF THE WORK.

SPECIAL NOTES:

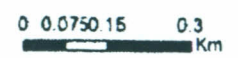
1. THIS DRAWING HAS BEEN PREPARED AS PER THE STUDY OF RIVER BANK EROSION MANAGEMENT IN POLDER 29, KHULNA UNDER "BLUE GOLD PROGRAM" AND AS PER THE MEETING MINUTES OF GBSP VIDE MEMO NO. GBSP/M-1/09/175 DATED. 08.09.2016
2. THE WORK SHALL BE EXECUTED AFTER ADMINISTRATIVE AND FINANCIAL APPROVAL FROM THE COMPETENT AUTHORITY.
3. FOR ANY ERROR, OMISSION OR CONFUSION. PLEASE REFER TO THE CONCERNED DESIGN OFFICE FOR TAKING NECESSARY ACTION.

BANGLADESH WATER DEVELOPMENT BOARD	
OFFICE OF THE SUPERINTENDING ENGINEER	
DESIGN CIRCLE-5	
APPROPRIATE RIVER BANK EROSION PROTECTION IN POLDER 29 ALONG THE RIGHT BANK OF LOWER BHADRA RIVER (FOUR SPURS AT KM 4.500, KM 4.700, KM 4.900 AND KM 5.100) AT DUMURIA UPAZILLA OF DISTRICT KHULNA IN C/W "BLUE GOLD PROGRAM. BWDB"	
LOCATION MAP	
DESIGNED BY:  (MD. SHOHIDUZZAMAN), EE	RECOMMENDED BY:  19.10.16 (MD. ABDUSATTAR), SE
CHECKED BY:  (MD. SHOHIDUZZAMAN), EE	APPROVED BY:  19/10/16 (SAEEDA NAZNEEN) CHIEF ENGINEER

Layout of Bank Protection work for Polder-29 along Lower Bhadra River (chadgar)



- Legend**
- Groyne_Chadgar
 - Groyne_Banina
 - ⬡ Polder
 - ⊞ River_Bangladesh



Bathymetry

█	-11
█	11 - 103
█	103 - 96
█	96 - 89
█	89 - 82
█	82 - 75
█	75 - 68
█	68 - 61
█	61 - 54
█	54 - 47
█	47 - 4
█	4 - 33
█	33 - 26
█	26 - 19
█	19 - 12
█	12 - 05
█	05 - 02
█	02 - 09
█	09 - 16
█	>16

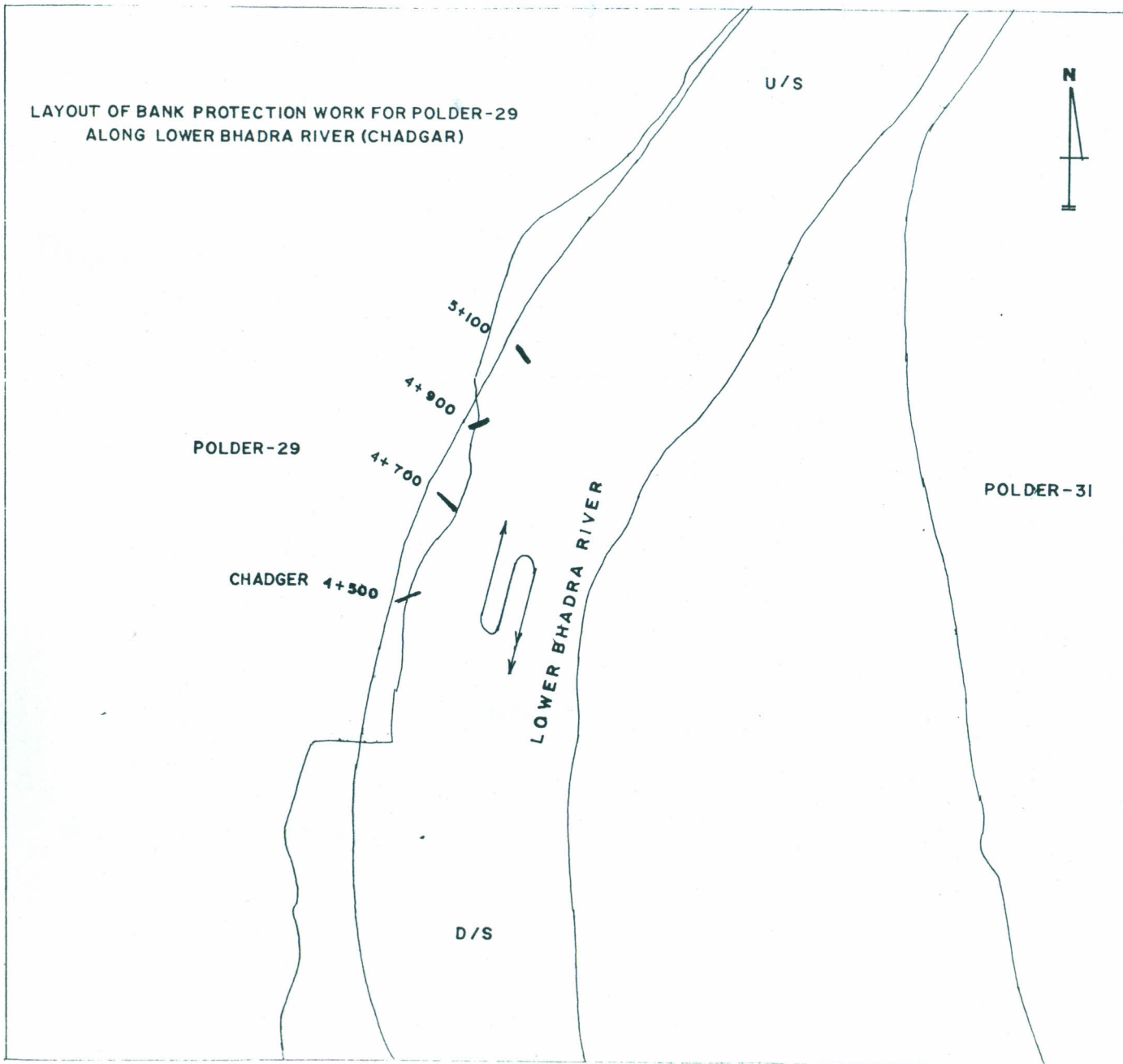
The location of proposed erosion mitigation measures as pilot basis

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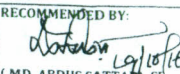


LOCATION MAP

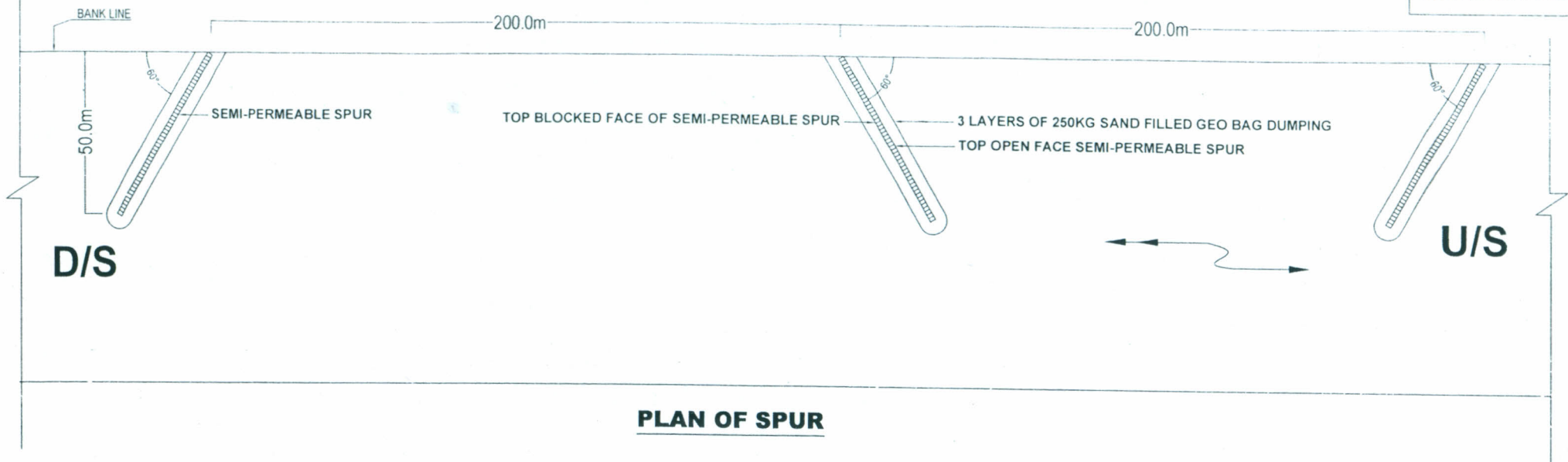
DESIGNED BY: (MD. SHOHIDUZZAMAN), EE	RECOMMENDED BY: (MD. ABDUS SATTAR), SE
CHECKED BY: (MD. SHOHIDUZZAMAN), EE	APPROVED BY: (SAEEDA NAZNEEN) CHIEF ENGINEER

LAYOUT OF BANK PROTECTION WORK FOR POLDER-29
ALONG LOWER BHADRA RIVER (CHADGAR)

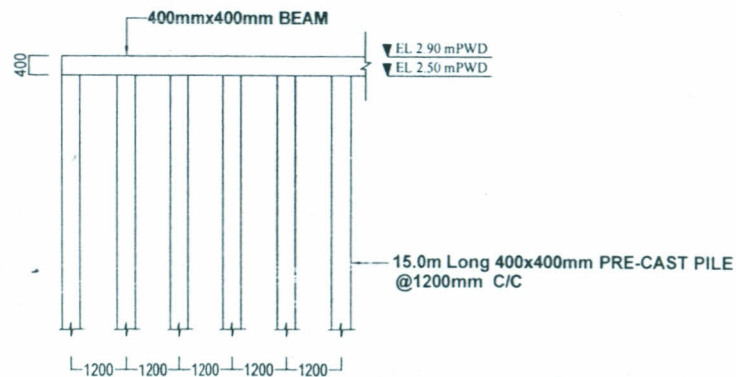


SITE PLAN
NOT TO SCALE

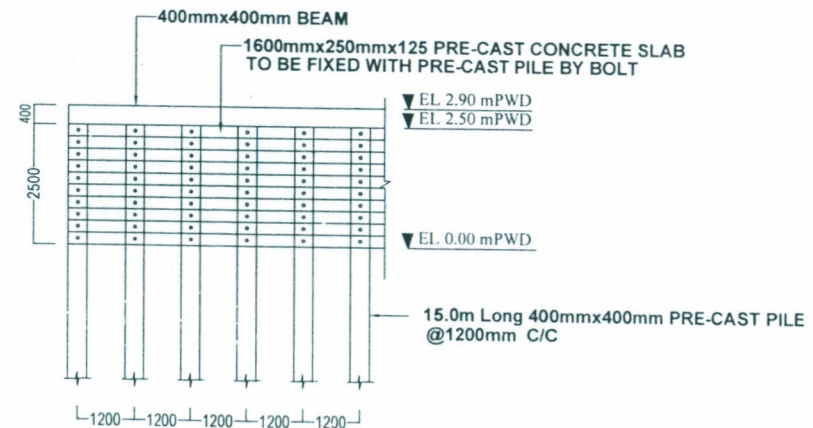
BANGLADESH WATER DEVELOPMENT BOARD OFFICE OF THE SUPERINTENDING ENGINEER DESIGN CIRCLE-5	
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CHECKED BY:  (MD. SHOHIDUZZAMAN), EE	APPROVED BY:  (SAEEDA NAZNEEN) CHIEF ENGINEER
DATE: 19/10/2016	DWG. NO.: DC 5-2760-04/08



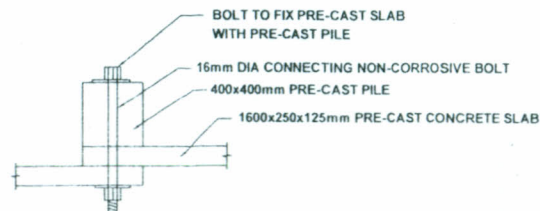
PLAN OF SPUR



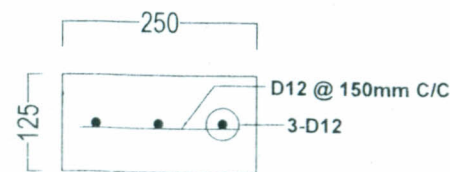
ELEVATION OF TOP OPEN FACE



ELEVATION OF TOP BLOCKED FACE

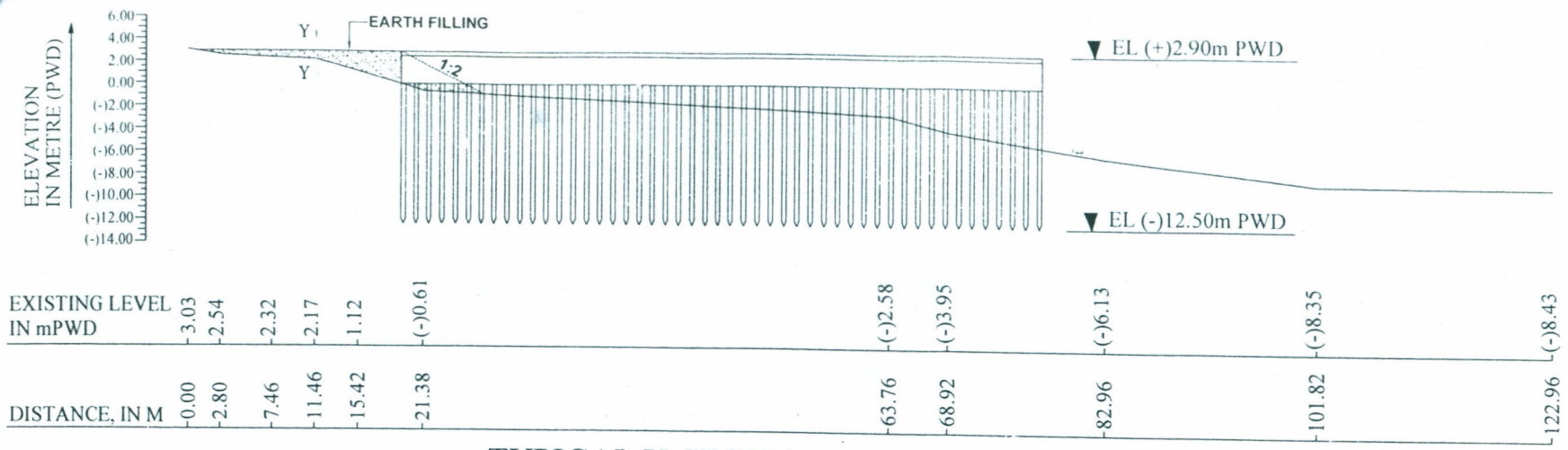


JOINT DETAIL

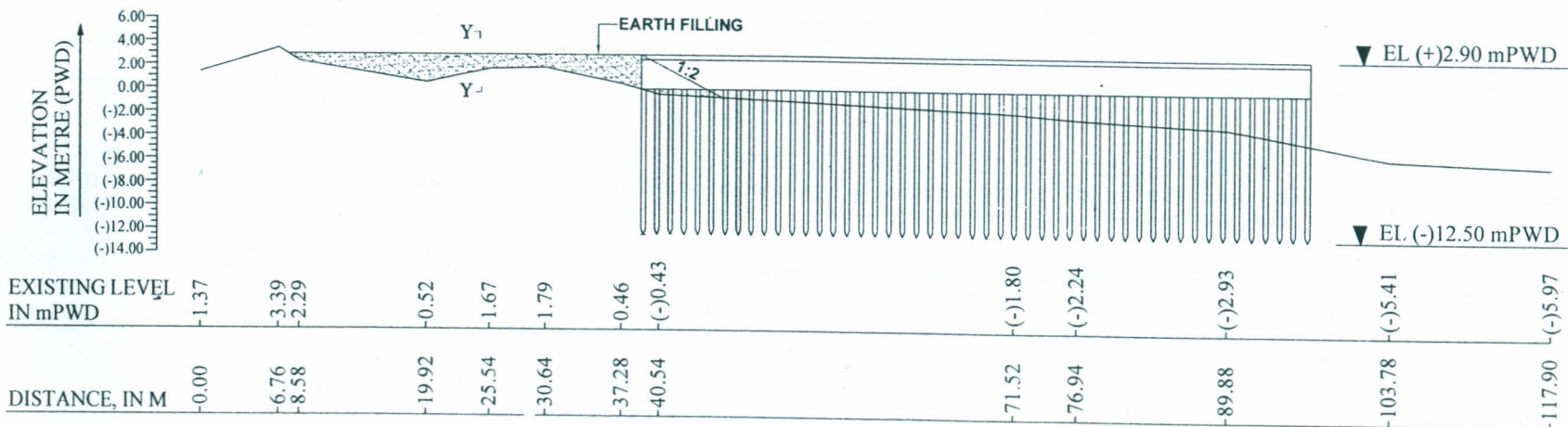


REINFORCEMENT DETAIL OF PRE-CAST SLAB

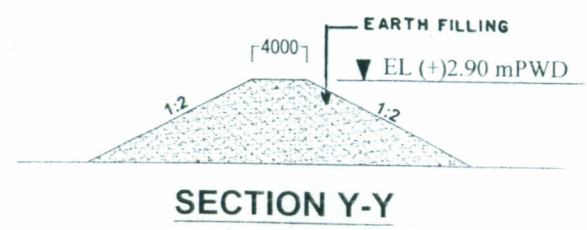
BANGLADESH WATER DEVELOPMENT BOARD OFFICE OF THE SUPERINTENDING ENGINEER DESIGN CIRCLE-5	
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PLAN, ELEVATION & JOINT DETAILS	
DESIGNED BY: (MD. SHOHIDUZZAMAN), EE	RECOMMENDED BY: (MD. ABDUS SAIFUR), SE
CHECKED BY: (MD. SHOHIDUZZAMAN), EE	APPROVED BY: (SAIFEDA SAZREEN) CHIEF ENGINEER
DATE: 19-10-2016	DWG. NO.: DC-5-2760-04/08



TYPICAL X-SECTION AT CHADGAR

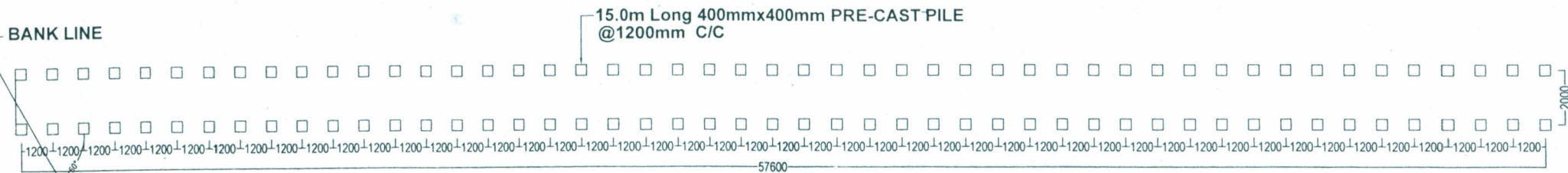


TYPICAL X-SECTION AT CHADGAR



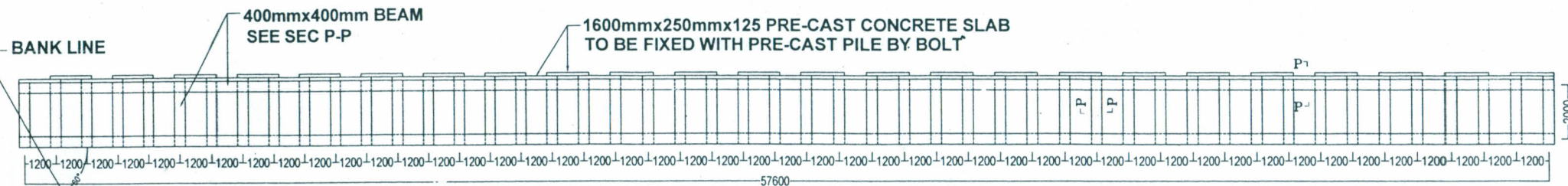
SECTION Y-Y

BANGLADESH WATER DEVELOPMENT BOARD	
OFFICE OF THE SUPERINTENDING ENGINEER DESIGN CIRCLE-5	
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TYPICAL CROSS SECTION	
DESIGNED BY: <i>[Signature]</i> (MD. SHOHIDUZZAMAN), EE	RECOMMENDED BY: <i>[Signature]</i> (MD. ABDUS SATTAR), SE
CHECKED BY: <i>[Signature]</i> (MD. SHOHIDUZZAMAN), EE	APPROVED BY: <i>[Signature]</i> (SAEEDA NAZNEEN) CHIEF ENGINEER
DATE: 19.10.2016	<i>[Signature]</i> 19/10/16

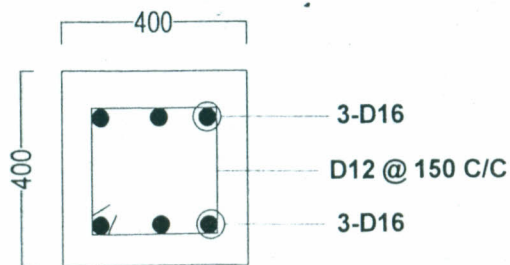


PILE LAYOUT PLAN

(Total Nos. of Pile Per Spur=49x2=98, Pile Length=15.50m & Pile Size 400mm x 400mm)

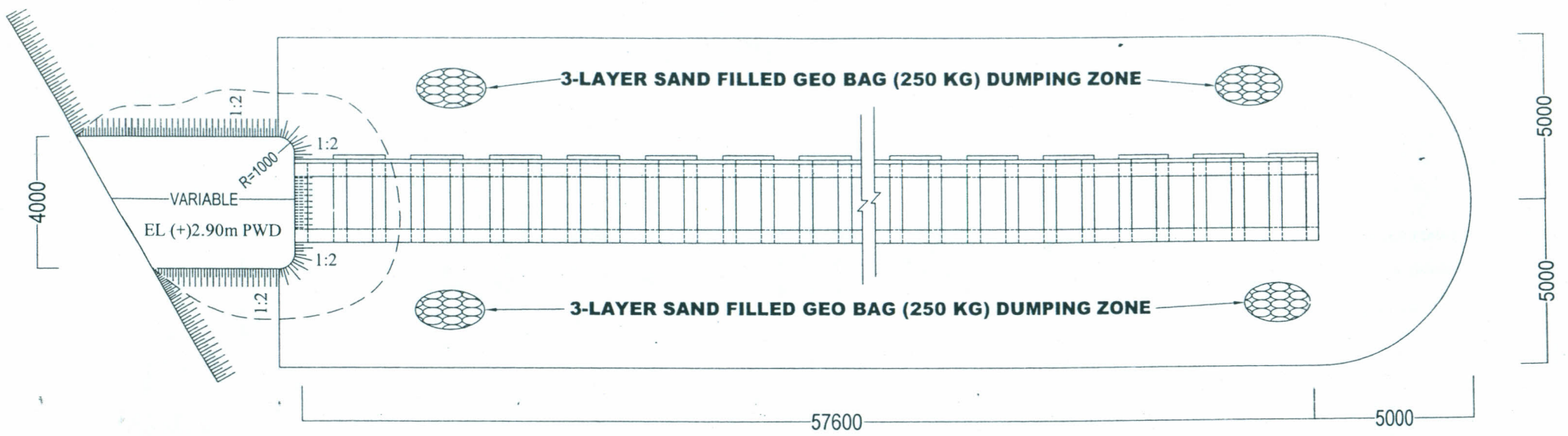


BEAM LAYOUT PLAN (AT PILE TOP)


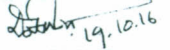
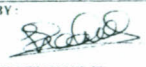



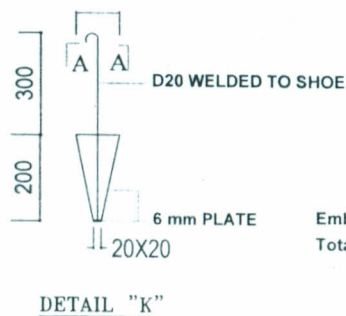
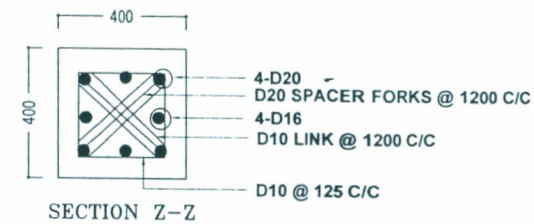
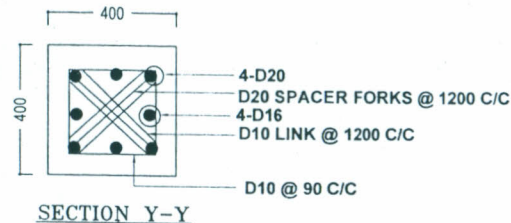
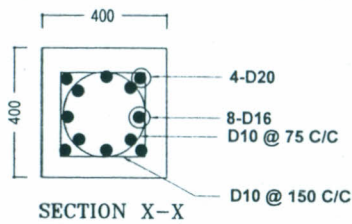
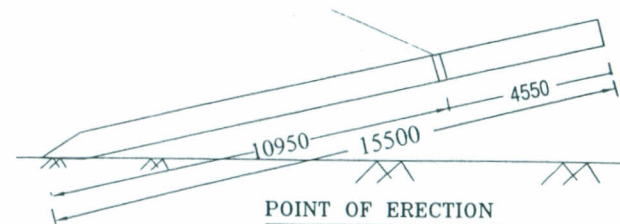
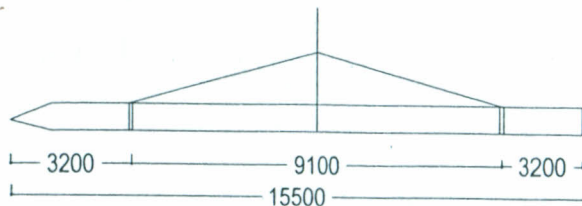
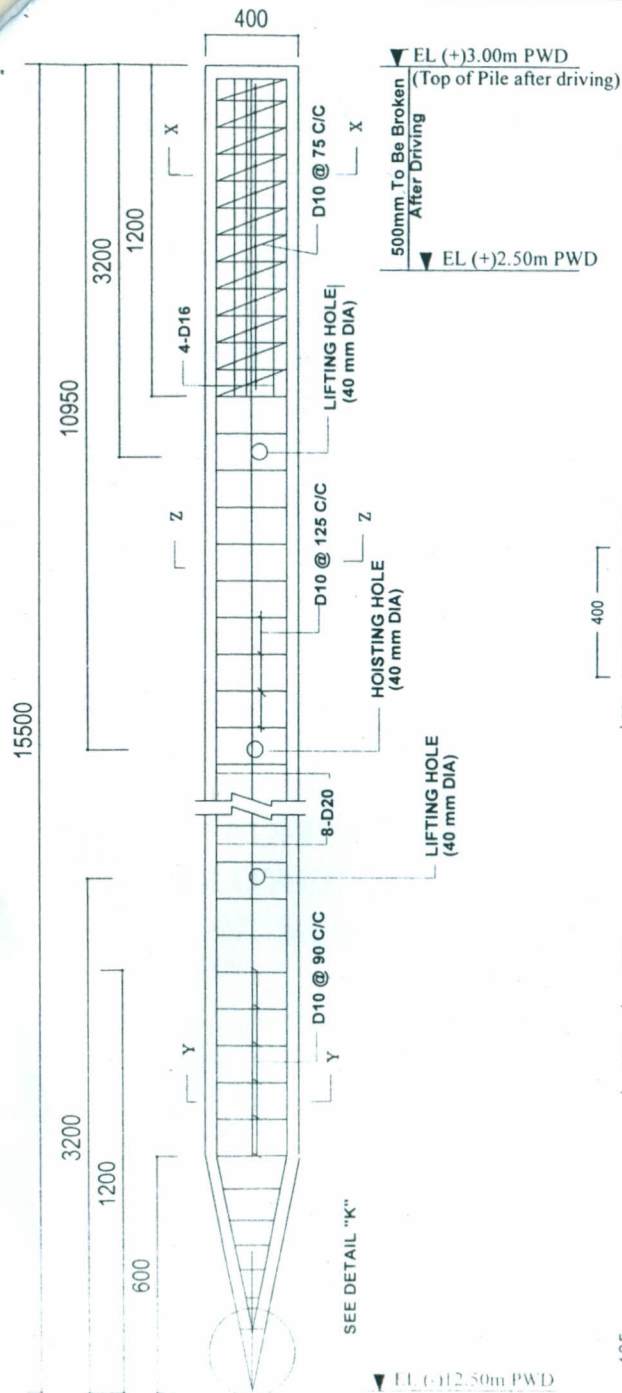
**SECTION P-P
SECTION OF BEAM**

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PILE AND BEAM LAYOUT PLAN & DETAILS	
DESIGNED BY: (MD. SHOHIDUZZAMAN), EE	RECOMMENDED BY: (MD. ABDUS SATTAR), SE
CHECKED BY: (MD. SHOHIDUZZAMAN), EE	APPROVED BY: (SAFEDA NAZNEEN) CHIEF ENGINEER
DATE: 19-10-2016	DWG NO.: DC-5-3769-06/08

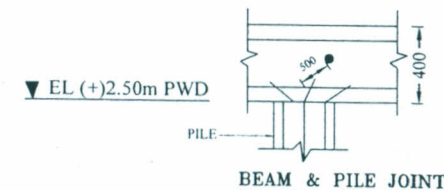
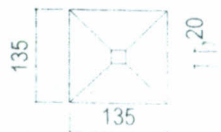


GEO BAG DUMPING PLAN

BANGLADESH WATER DEVELOPMENT BOARD OFFICE OF THE SUPERINTENDING ENGINEER DESIGN CIRCLE-5	
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DATE: 19-10-2016	DWG NO.: DC-5-3769-07-08



Embedded and broken portion=500mm
 Total length of pile=15000mm+500mm
 =15500mm



REINF. DETAILS OF PRE-CAST PILE

BANGLADESH WATER DEVELOPMENT BOARD
 OFFICE OF THE SUPERINTENDING ENGINEER
 DESIGN CIRCLE-5

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PRE-CAST PILE DETAILS

DESIGNED BY: (MD. SHOHIDUZZAMAN), EE	RECOMMENDED BY: (MD. ABDUS SATTAR), SE
CHECKED BY: (MD. SHOHIDUZZAMAN), EE	APPROVED BY: (SAIEDA NAZNEEN) CHIEF ENGINEER
DATE: 19-10-2016	DWG NO: DC-5-3769-08/08