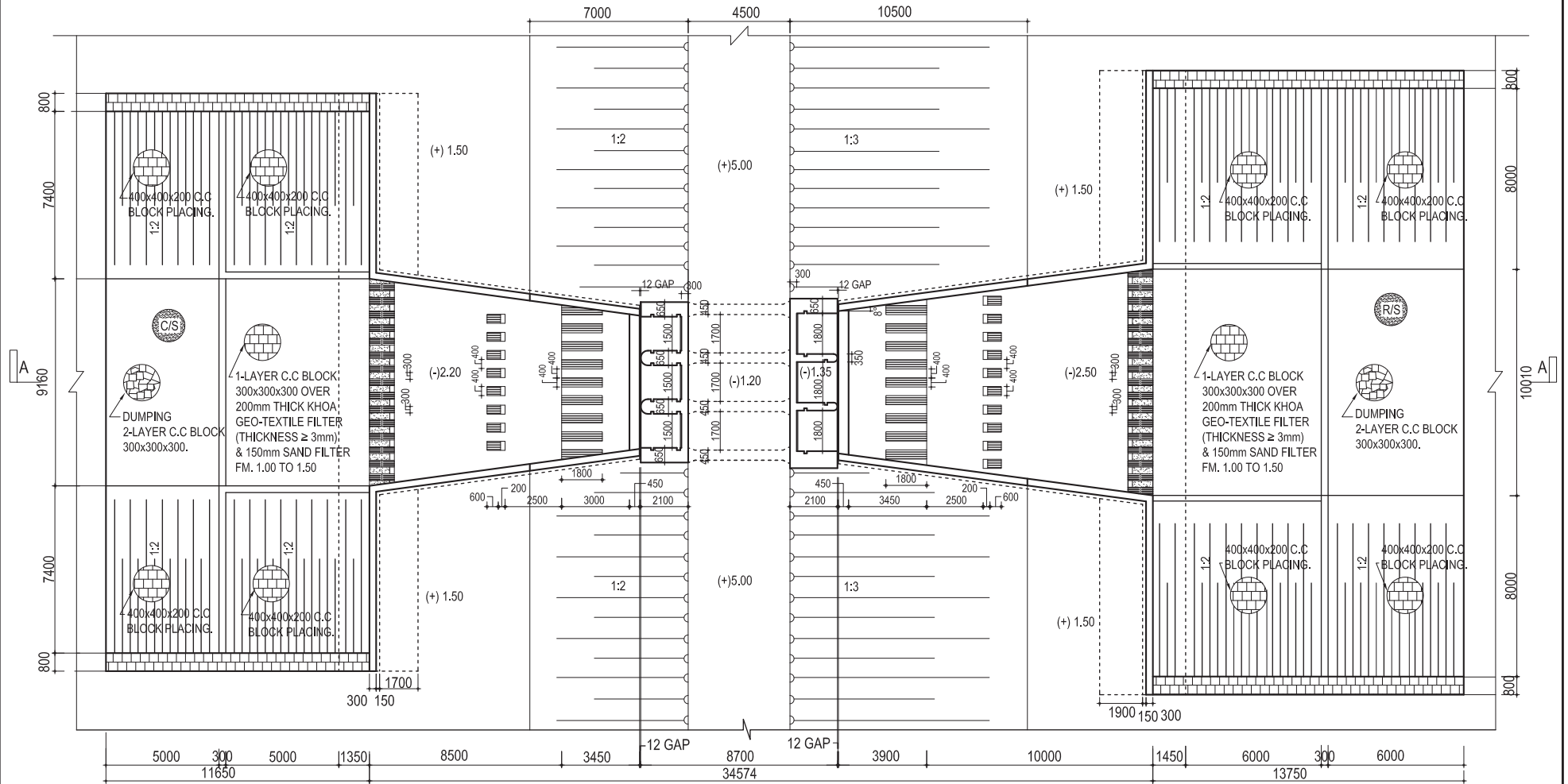


Bangladesh Water Development Board (BWDB)

Coastal Embankment Improvement Project, Phase-I (CEIP-I)

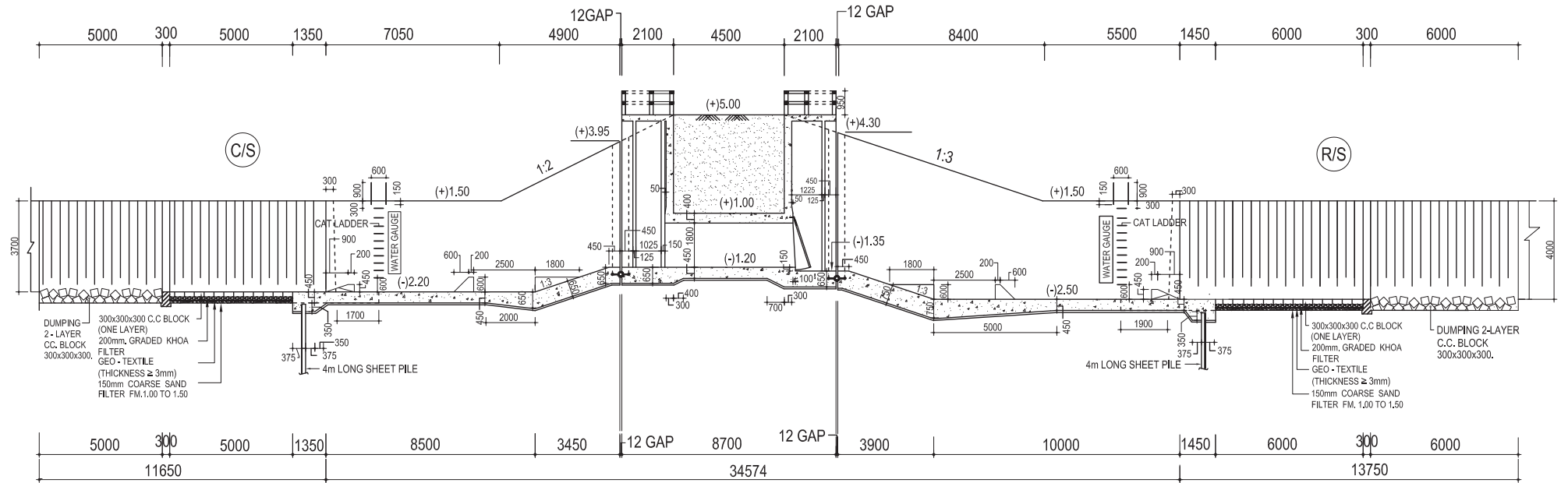
Detailed Design of Infrastructure of Polder -32



PLAN OF DRAINAGE SLUICE

SCALE = 1:200

BANGLADESH WATER DEVELOPMENT BOARD			CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM		
DESIGN CIRCLE -5			DESIGNED BY	CHECKED BY	RECOMMENDED BY
CHECKED BY	REVIEWED BY	APPROVED BY	MD. MAHBUBUR RAHMAN SENIOR DESIGN ENGINEER	MD. HABIBUR RAHMAN	MD. HABIBUR RAHMAN
				DEPUTY TEAM LEADER	ACTING TEAM LEADER
MD. RAKIBUL HASAN ASSISTANT ENGINEER	MD. MAHFUZUR RAHMAN EXECUTIVE ENGINEER	MD. KUDRAT ALI SUPERINTENDING ENGINEER	MARJAN MOLLIQ DRAWN BY-JUNIOR DESIGN ENGINEER	DATED: MAY, 2013 SHEET NO : 6 OF 16	DRG. NO : CEIP/DS-10, AT km. 0.10/P- 32



SECTIONAL ELEVATION ON (A-A)

SCALE = 1:200

ATTENTION

SAND PILE UNDER BARREL & APRONS ARE NOT SHOWN ON THIS DRG.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

MINISTRY OF WATER RESOURCES

BANGLADESH WATER DEVELOPMENT BOARD

COASTAL EMBANKMENT IMPROVEMENT PROJECT, PHASE-1 (CEIP-1)

POLDER-32, KHULNA

DRAINAGE SLUICE-10 (DS-10) AT Km 0.10, 3V-1.50mx1.80m

SECTIONAL ELEVATION ON (A-A)

BANGLADESH WATER DEVELOPMENT BOARD

DESIGN CIRCLE -5

CHECKED BY

REVIEWED BY

APPROVED BY

CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM

DESIGNED BY

CHECKED BY

RECOMMENDED BY

MD. MAHBUBUR RAHMAN

SENIOR DESIGN ENGINEER

MD. HABIBUR RAHMAN

DEPUTY TEAM LEADER

MD. HABIBUR RAHMAN

ACTING TEAM LEADER

MD. RAKIBUL HASAN
ASSISTANT ENGINEER

MD. MAHFUZUR RAHMAN
EXECUTIVE ENGINEER

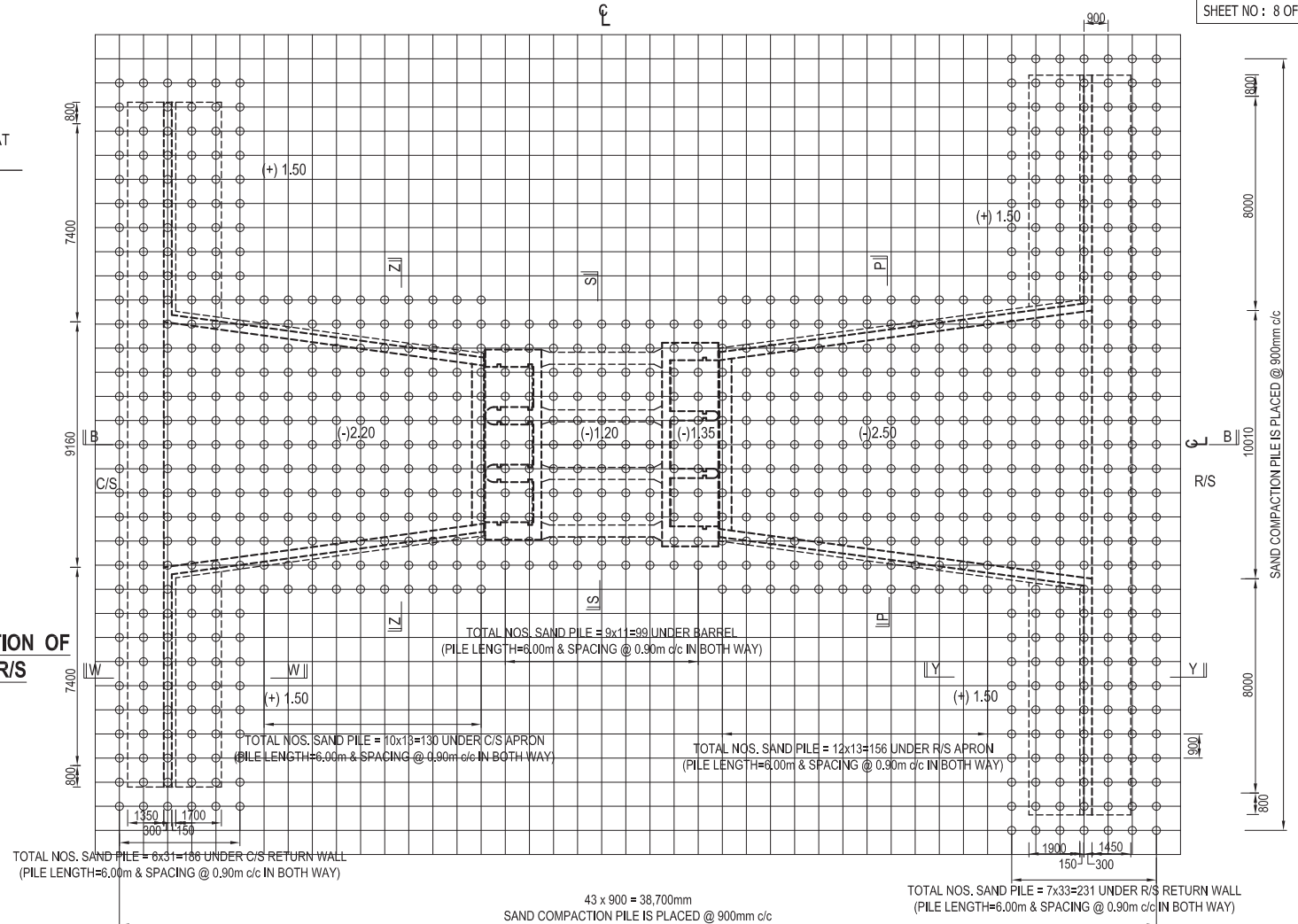
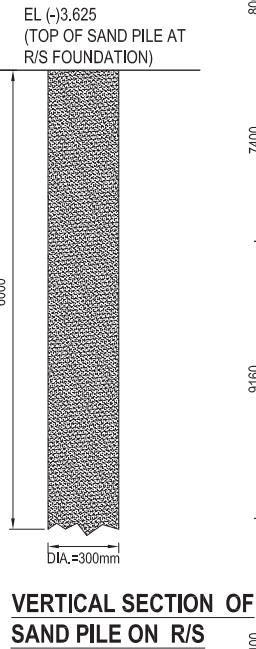
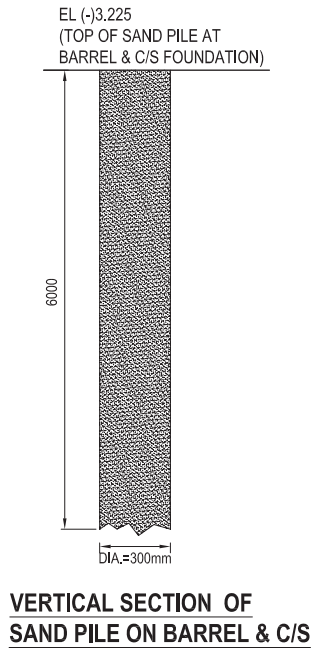
MD. KUDRAT ALI
SUPERINTENDING ENGINEER

MARJAN MOLLIQ
DRAWN BY-JUNIOR DESIGN ENGINEER

DATED: MAY, 2013

SHEET NO : 7 OF 16

DRG. NO :
CEIP/DS-10, AT Km. 0.10/P- 32



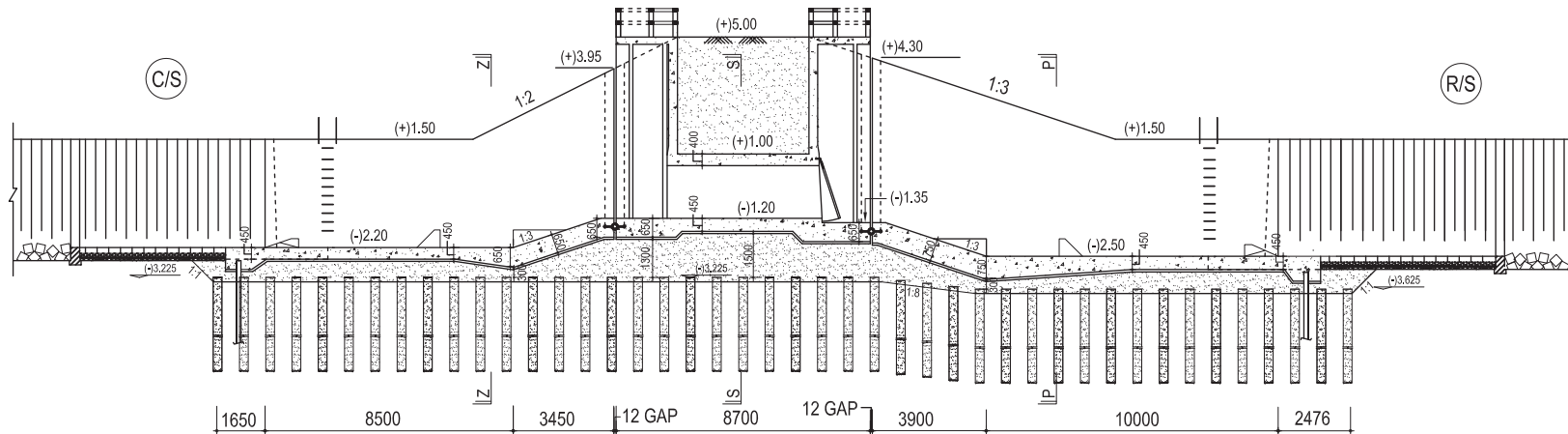
LAY-OUT PLAN OF SAND PILE IN BARREL, C/S, R/S APRON & RETURN WALL

NOTE:- FOR SECTION (B-B), (W-W), (Z-Z), (S-S), (P-P) & (Y-Y) DETAIL DRG. DRG. SEE SHEET NO. 9 OF 16

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH		
MINISTRY OF WATER RESOURCES		
BANGLADESH WATER DEVELOPMENT BOARD		
COASTAL EMBANKMENT IMPROVEMENT PROJECT, PHASE-1 (CEIP-1)		
POLDER-32, KHULNA		
DRAINAGE SLUICE-10 (DS-10) AT Km 0.10, 3V-1.50mx1.80m		
SAND PILE LAY-OUT PLAN		
CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM		
DESIGNED BY	CHECKED BY	RECOMMENDED BY
MD, MAHBUBUR RAHMAN SENIOR DESIGN ENGINEER	MD, HABIBUR RAHMAN DEPUTY TEAM LEADER	MD, HABIBUR RAHMAN ACTING TEAM LEADER
DATED: MAY, 2013	DRG. NO : CEIP/DS-10, AT Km. 0.10/P- 32	
SHEET NO : 8 OF 16		

BANGLADESH WATER DEVELOPMENT BOARD		
DESIGN CIRCLE -5		
CHECKED BY	REVIEWED BY	APPROVED BY
MD, RAKIBUL HASAN ASSISTANT ENGINEER	MD, MAHFUZUR RAHMAN EXECUTIVE ENGINEER	MD. KUDRAT ALI SUPERINTENDING ENGINEER

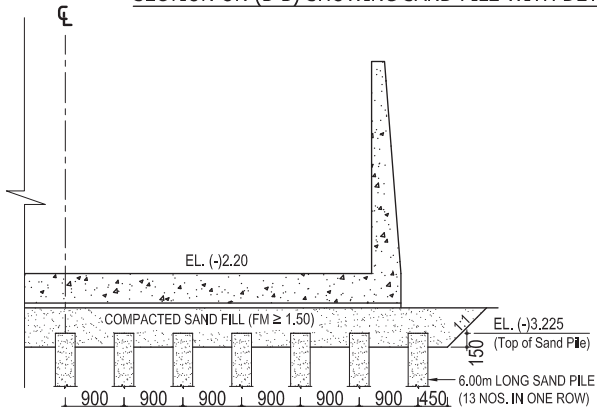
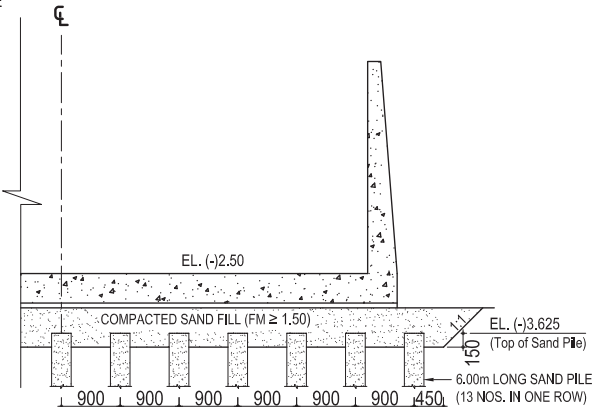
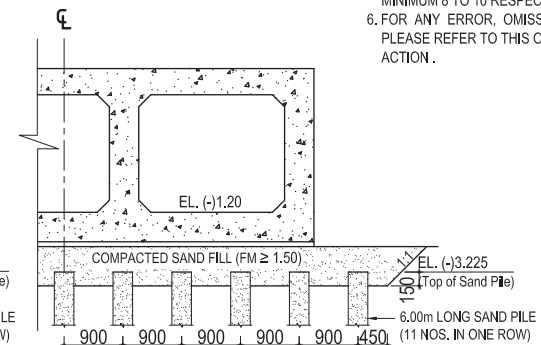
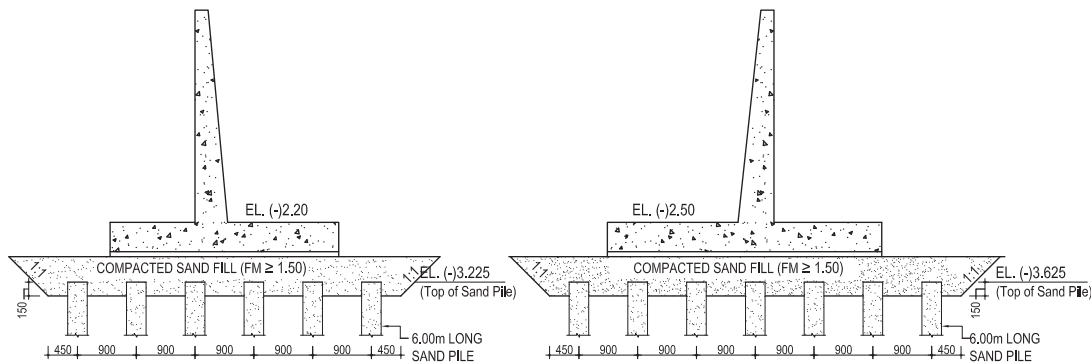
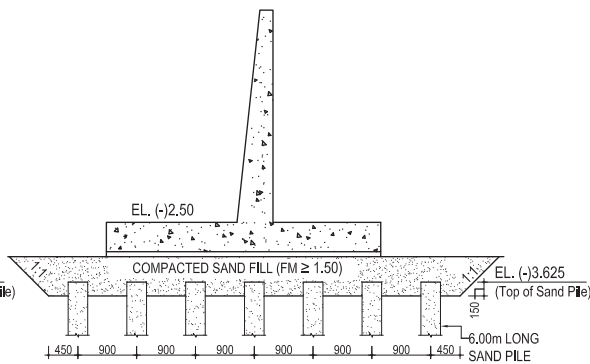
CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM		
DESIGNED BY	CHECKED BY	RECOMMENDED BY
MD, MAHBUBUR RAHMAN SENIOR DESIGN ENGINEER	MD, HABIBUR RAHMAN DEPUTY TEAM LEADER	MD, HABIBUR RAHMAN ACTING TEAM LEADER
DATED: MAY, 2013	DRG. NO : CEIP/DS-10, AT Km. 0.10/P- 32	
SHEET NO : 8 OF 16		



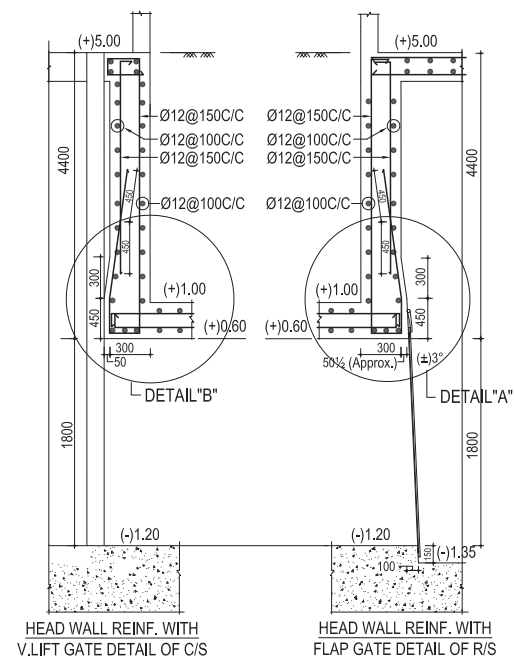
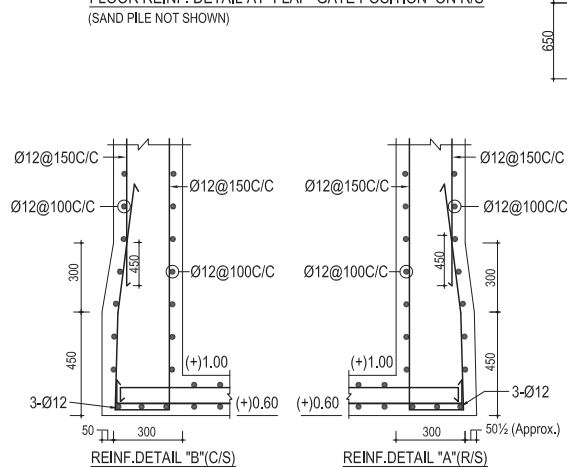
SECTION ON (B-B) SHOWING SAND PILE WITH DETAIL

NOTES FOR SAND PILE:

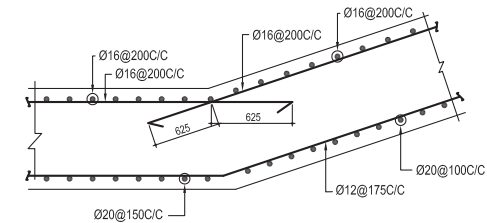
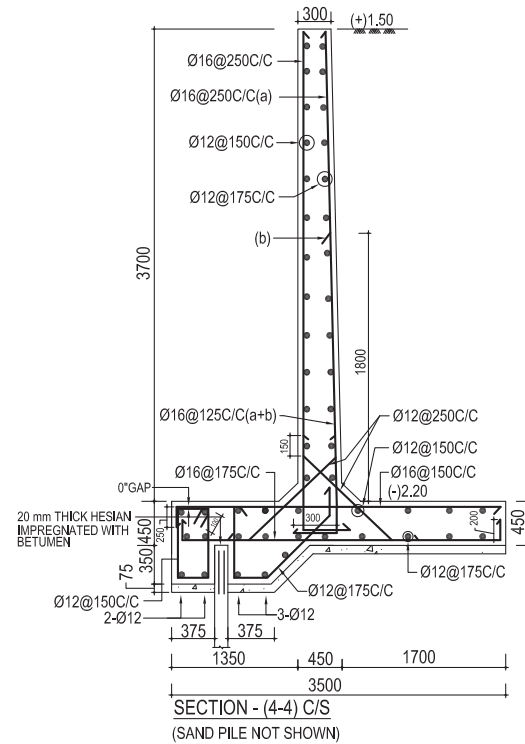
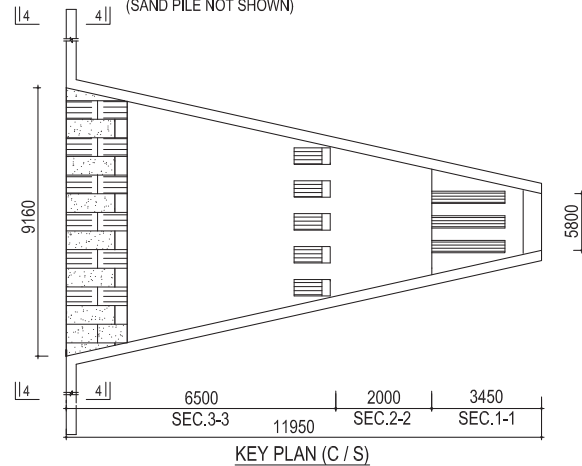
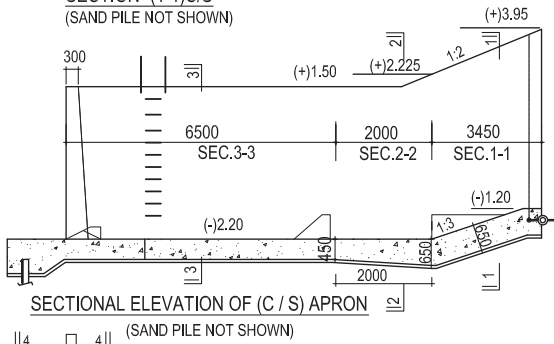
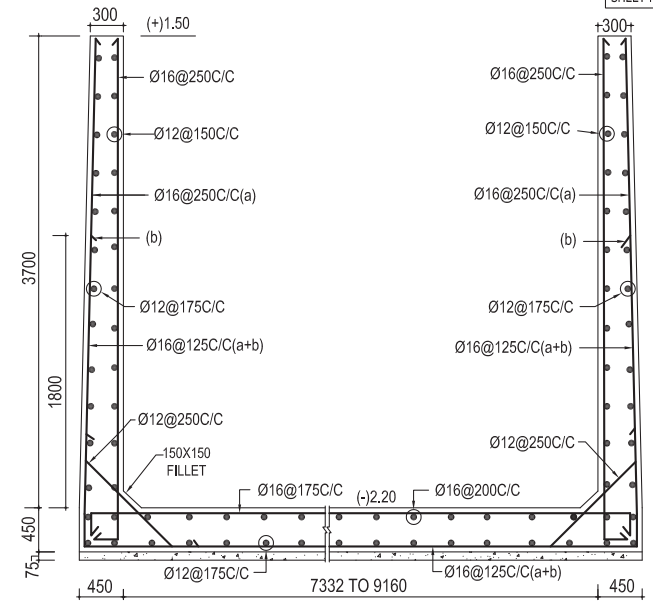
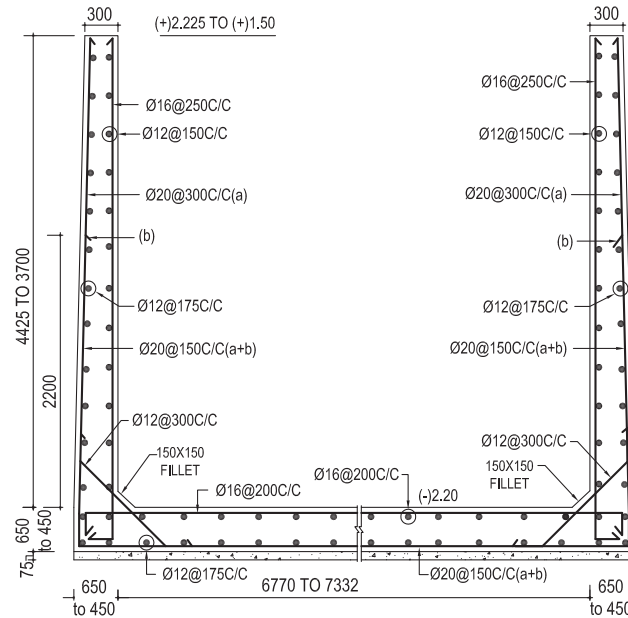
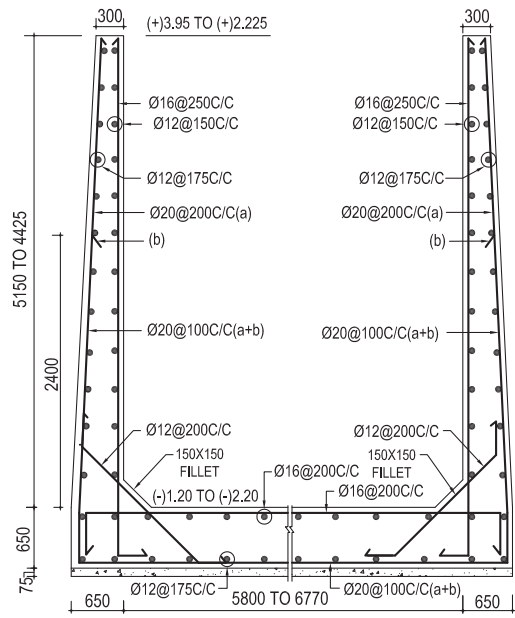
1. SAND PILE OF 6.00m LENGTH WITH 300mm CASING DIA. AS SPECIFIED IN THE DRAWING SHALL HAVE TO BE CONSTRUCTED AS PER STANDARD DISPLACEMENT METHOD.
2. SAND TO BE USED IN PILING SHALL BE FREE FROM ALL ORGANIC AND FOREIGN MATERIALS AND SHALL HAVE FM. ≥ 2.00
3. DIA. LENGTH CONTINUITY OF PILE SHALL HAVE TO BE CHECKED BY MEASURING SAND FORCE VOLUME FOR EACH EXECUTED PILE. THE SAND FORCE VOLUME PER METRE AND PER PILE SHALL NOT BE LESS THAN 0.35m³ AND 2.10m³ RESPECTIVELY.
4. AFTER EXECUTION OF ALL SAND PILE SPT VALUES SHALL HAVE TO BE DETERMINED BY THE FIELD TESTS SPT VALUES ATTAINED AT 1.50m INTERVALS UPTO A DEPTH OF 6.50m AT RANDOM LOCATIONS OF BARREL U/S FLOOR, D/S FLOOR AND RETURN WALLS SHALL BE DETERMINED.
5. AFTER PILING SPT VALUE IN BETWEEN AND AT THE CENTRE OF PILE AT FOUNDATION LEVEL SHALL BE MINIMUM 8 TO 10 RESPECTIVELY
6. FOR ANY ERROR, OMISSION OR CONFUSION. PLEASE REFER TO THIS OFFICE FOR NECESSARY ACTION.

TYPICAL SECTION OF SAND PILING
UNDER WING WALL (C/S) ON (Z-Z)TYPICAL SECTION OF SAND PILING
UNDER WING WALL (R/S) ON (P-P)TYPICAL SECTION OF SAND PILING
UNDER BARREL ON (S-S)TYPICAL SECTION OF SAND PILING
UNDER (C/S) RETURN WALL ON (W-W)TYPICAL SECTION OF SAND PILING
UNDER (R/S) RETURN WALL ON (Y-Y)

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH			DESIGNED BY		
MINISTRY OF WATER RESOURCES			CHECKED BY		
BANGLADESH WATER DEVELOPMENT BOARD			RECOMMENDED BY		
COASTAL EMBANKMENT IMPROVEMENT PROJECT, PHASE-1 (CEIP-1)			MD. MAHBUBUR RAHMAN		
POLDER-32, KHULNA			MD. HABIBUR RAHMAN		
DRAINAGE SLUICE-10 (DS-10) AT Km 0.10, 3V-1.50mx1.80m			DEPUTY TEAM LEADER		
SECTIONAL ELEVATION ON (B-B) WITH CROSS-SECTION			DATED: MAY, 2013		
CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM			SHEET NO : 9 OF 16		
DESIGN CIRCLE -5			DRG. NO : CEIP/DS-10, AT km. 0.10/P-32		
CHECKED BY	REVIEWED BY	APPROVED BY			
MD. RAKIBUL HASAN	MD. MAHFUZUR RAHMAN	MD. KUDRAT ALI			
ASSISTANT ENGINEER	EXECUTIVE ENGINEER	SUPERINTENDING ENGINEER			
MARJAN MOLLIICK					
DRAWN BY-JUNIOR DESIGN ENGINEER					

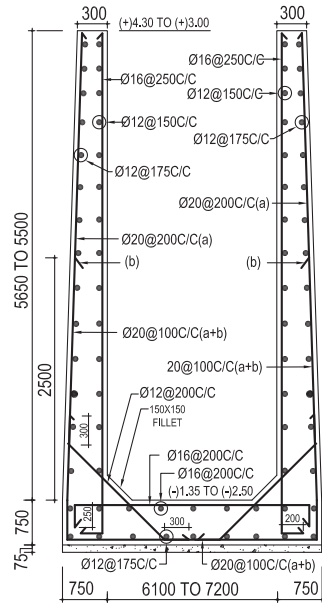
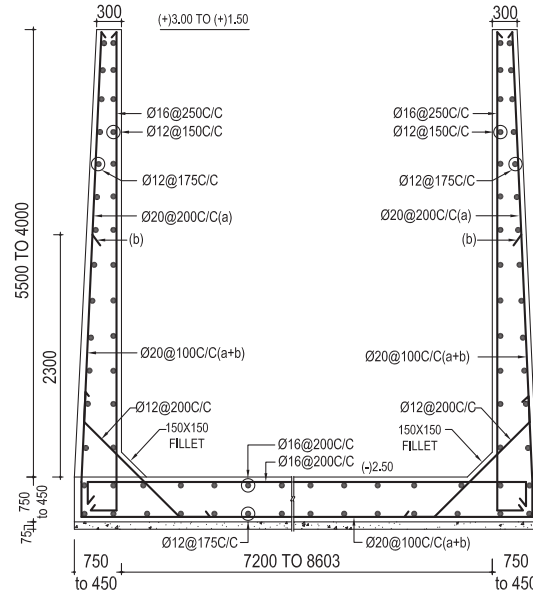
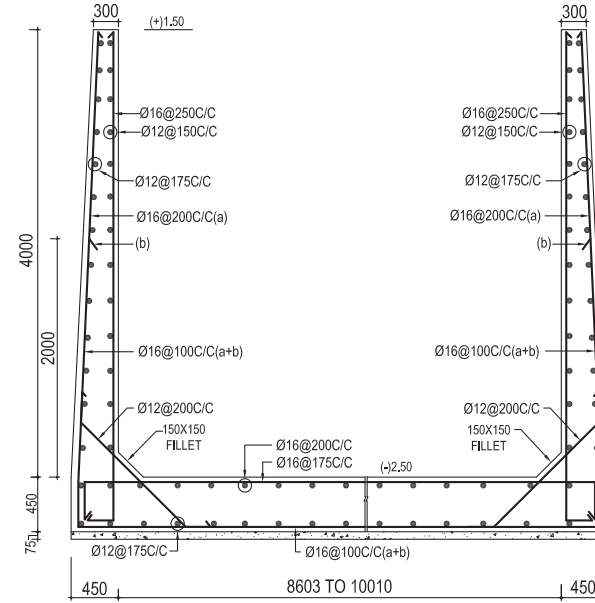
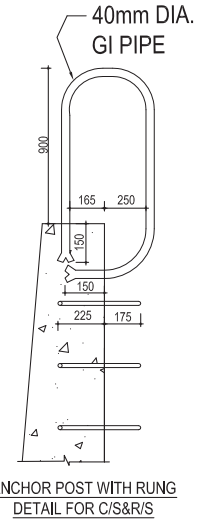
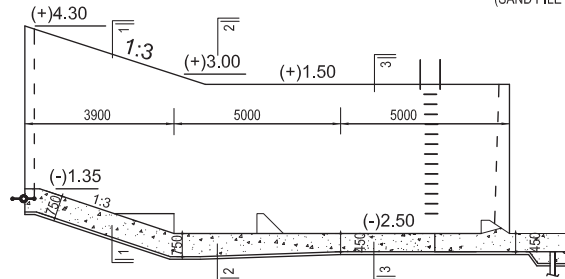
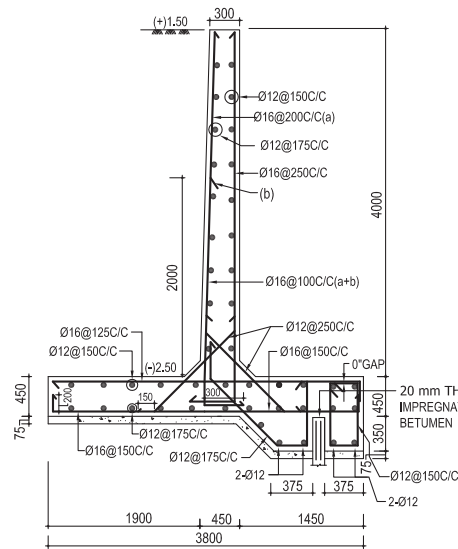
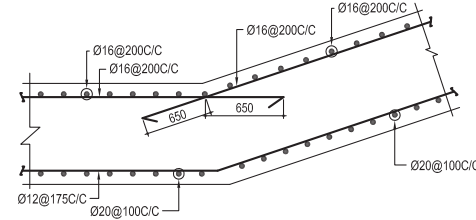
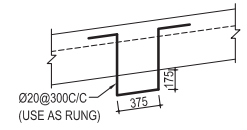


GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH		
MINISTRY OF WATER RESOURCES		
BANGLADESH WATER DEVELOPMENT BOARD		
COASTAL EMBANKMENT IMPROVEMENT PROJECT, PHASE-1 (CEIP-1)		
POLDER-32, KHULNA		
DRAINAGE SLOUCE-10 (DS-10) AT Km 0.10, 3V-1.50mx1.80m		
BOX & EXTENDED PART REINF. DETAIL		
CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM		
DESIGNED BY	CHECKED BY	RECOMMENDED BY
MD. MAHBUBUR RAHMAN	MD. HABIBUR RAHMAN	MD. HABIBUR RAHMAN
SENIOR DESIGN ENGINEER	DEPUTY TEAM LEADER	ACTING TEAM LEADER
MARJAN MOLLIICK DRAWN BY JUNIOR DESIGN ENGINEER	DATED: MAY, 2013	DRG. NO : CEIP/DS-10, AT km. 0.10/P-32
	SHEET NO : 10 OF 16	

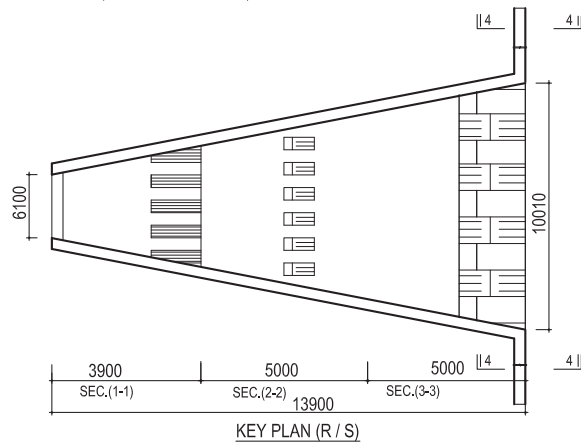


BANGLADESH WATER DEVELOPMENT BOARD		
DESIGN CIRCLE - 5		
CHECKED BY	REVIEWED BY	APPROVED BY
MD. RAKIBUL HASAN ASSISTANT ENGINEER	MD. MAHFUZUR RAHMAN EXECUTIVE ENGINEER	MD. KUDRAT ALI SUPERINTENDING ENGINEER

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH		
MINISTRY OF WATER RESOURCES		
BANGLADESH WATER DEVELOPMENT BOARD		
COASTAL EMBANKMENT IMPROVEMENT PROJECT, PHASE-1 (CEIP-1)		
POLDER-32, KHULNA		
DRAINAGE SLUTICE-10 (DS-10) AT Km 0.10, 3V-1.50mx1.80m		
C/S APRON REINF. DETAIL		
CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM		
DESIGNED BY	CHECKED BY	RECOMMENDED BY
MD. MAHBUBUR RAHMAN SENIOR DESIGN ENGINEER	MD. HABIBUR RAHMAN DEPUTY TEAM LEADER	MD. HABIBUR RAHMAN ACTING TEAM LEADER
MARJAN MOLLIICK DRAWN BY JUNIOR DESIGN ENGINEER	DATED: MAY, 2013 SHEET NO : 11 OF 16	DRG. NO : CEIP/DS-10, AT km. 0.10/P- 32

SECTION -(1-1) R/S
(SAND PILE NOT SHOWN)SECTION -(2-2) R/S
(SAND PILE NOT SHOWN)SECTION -(3-3) R/S
(SAND PILE NOT SHOWN)ANCHOR POST WITH RUNG
DETAIL FOR C/S&R/SSECTIONAL ELEVATION OF (R/S) APRON
(SAND PILE NOT SHOWN)SECTION -(4-4) R/S
(SAND PILE NOT SHOWN)REINF. DETAIL OF JUNCTION BETN APRON & GLACIS (R/S)
(SAND PILE NOT SHOWN)

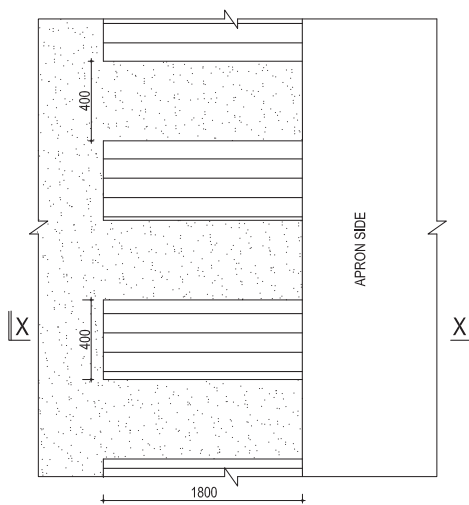
RUNG DETAIL FOR CAT LADDER



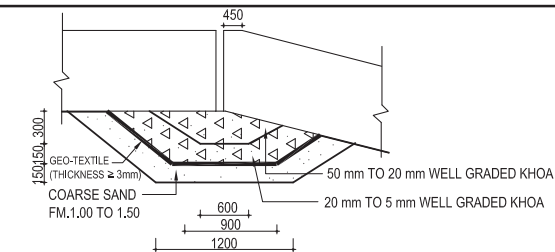
KEY PLAN (R/S)

BANGLADESH WATER DEVELOPMENT BOARD		
DESIGN CIRCLE -5		
CHECKED BY	REVIEWED BY	APPROVED BY
MD. RAKIBUL HASAN ASSISTANT ENGINEER	MD. MAHFUZUR RAHMAN EXECUTIVE ENGINEER	MD. KUDRAT ALI SUPERINTENDING ENGINEER

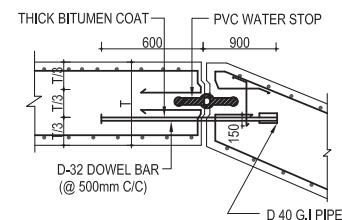
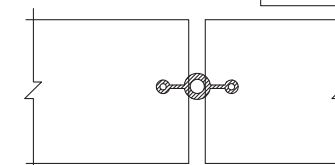
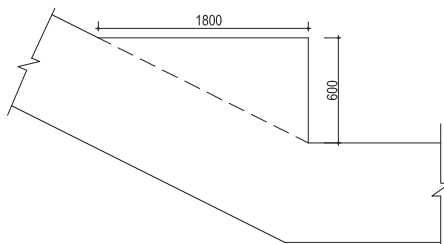
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH		
MINISTRY OF WATER RESOURCES		
BANGLADESH WATER DEVELOPMENT BOARD		
COASTAL EMBANKMENT IMPROVEMENT PROJECT, PHASE-1 (CEIP-1)		
POLDER-32, KHULNA		
DRAINAGE SLUICE-10 (DS-10) AT Km 0.10, 3V-1.50mx1.80m		
R/S APRON REINF. DETAIL		
CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM		
DESIGNED BY	CHECKED BY	RECOMMENDED BY
MD. MAHBUBUR RAHMAN SENIOR DESIGN ENGINEER	MD. HABIBUR RAHMAN DEPUTY TEAM LEADER	MD. HABIBUR RAHMAN ACTING TEAM LEADER
MARJAN MOLLIICK DRAWN BY JUNIOR DESIGN ENGINEER	DATED: MAY, 2013 SHEET NO : 12 OF 16	DRG. NO : CEIP/DS-10, AT km. 0.10/P- 32



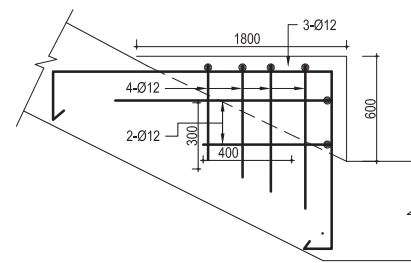
PART PLAN OF CHUTE BLOCK



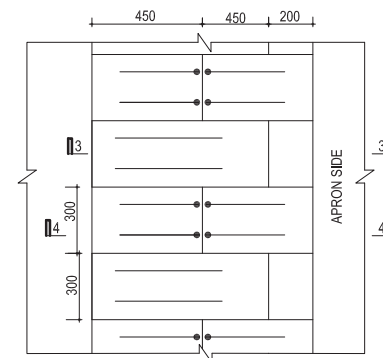
FILTER DESIGN ON EXPANSION JOINT

EXTENDED PART & APRON FLOOR
EXPANSION JOINT DETAILVERTICAL WALL EXPANSION
JOINT DETAIL

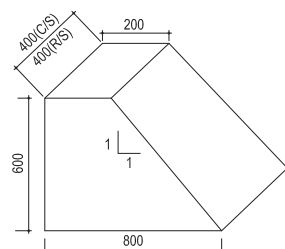
PART PLAN OF CHUTE BLOCK



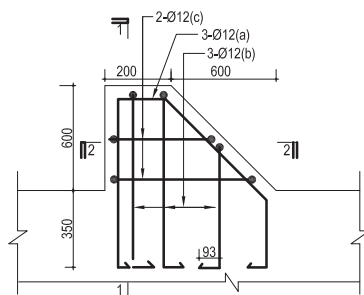
REINF.DETAILS CHUTE BLOCK(X-X)



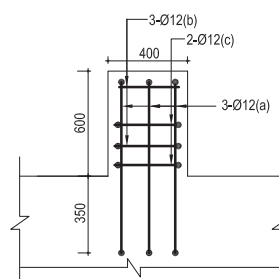
PART PLAN OF END SILL



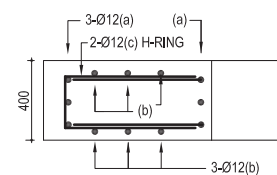
BAFFLE BLOCK DETAIL



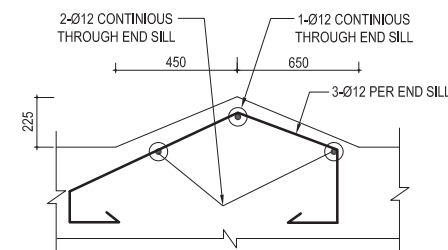
REINF.DETAILS OF BAFFLE BLOCK



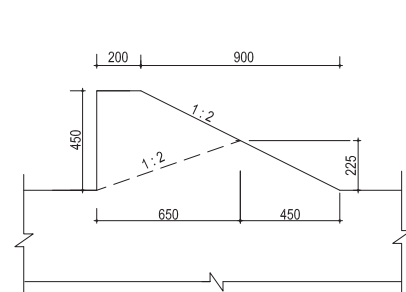
SEC.ON 1-1



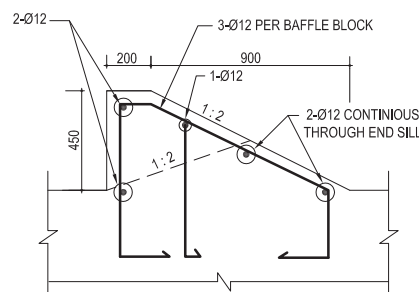
SEC.ON 2-2



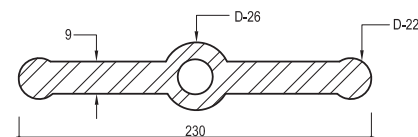
SECTION 4-4



SEC.OF END SILL



SECTION 3-3

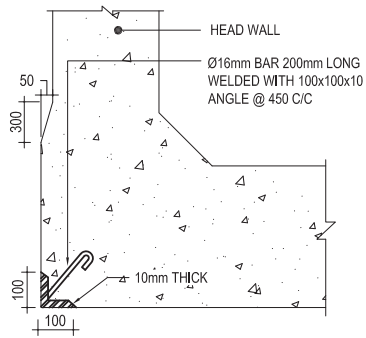


DETAILS OF P.V.C WATER STOPPER

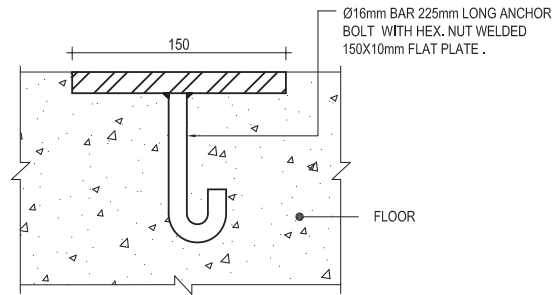
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH			GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH		
MINISTRY OF WATER RESOURCES			MINISTRY OF WATER RESOURCES		
BANGLADESH WATER DEVELOPMENT BOARD			BANGLADESH WATER DEVELOPMENT BOARD		
COASTAL EMBANKMENT IMPROVEMENT PROJECT, PHASE-1 (CEIP-1)			COASTAL EMBANKMENT IMPROVEMENT PROJECT, PHASE-1 (CEIP-1)		
POLDER-32, KHULNA			POLDER-32, KHULNA		
DRAINAGE SLUICE-10 (DS-10) AT Km 0.10, 3V-1.50mx1.80m			DRAINAGE SLUICE-10 (DS-10) AT Km 0.10, 3V-1.50mx1.80m		
CHUTE, ENDSILL & BAFFLE REINF. DETAIL			CHUTE, ENDSILL & BAFFLE REINF. DETAIL		
CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM			CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM		
DESIGNED BY		CHECKED BY	DESIGNED BY		RECOMMENDED BY
MD. MAHBUBUR RAHMAN		MD. HABIBUR RAHMAN	MD. MAHBUBUR RAHMAN		MD. HABIBUR RAHMAN
SENIOR DESIGN ENGINEER		DEPUTY TEAM LEADER	SENIOR DESIGN ENGINEER		ACTING TEAM LEADER
DATED: MAY, 2013			DATED: MAY, 2013		
SHEET NO : 13 OF 16			SHEET NO : 13 OF 16		
DRG. NO : CEIP/DS-10, AT km. 0.10/P- 32			DRG. NO : CEIP/DS-10, AT km. 0.10/P- 32		

BANGLADESH WATER DEVELOPMENT BOARD		
DESIGN CIRCLE -5		
CHECKED BY	REVIEWED BY	APPROVED BY
MD. RAKIBUL HASAN ASSISTANT ENGINEER	MD. MAHFUZUR RAHMAN EXECUTIVE ENGINEER	MD. KUDRAT ALI SUPERINTENDING ENGINEER

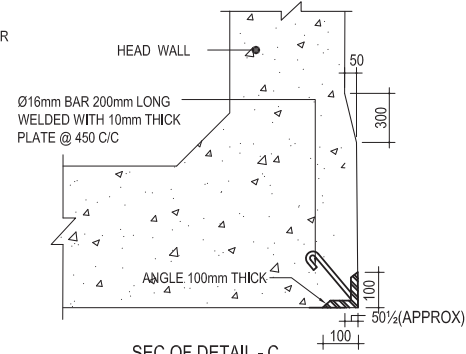
MARJAN MOLICK
DRAWN BY-JUNIOR DESIGN ENGINEER



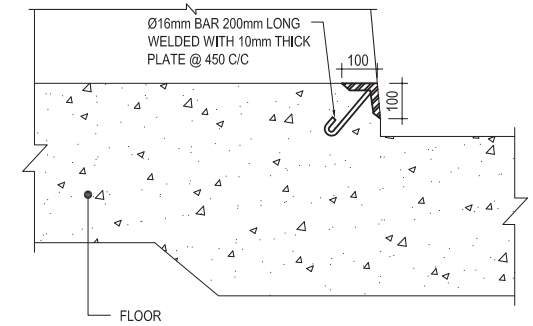
SEC. OF DETAIL - A



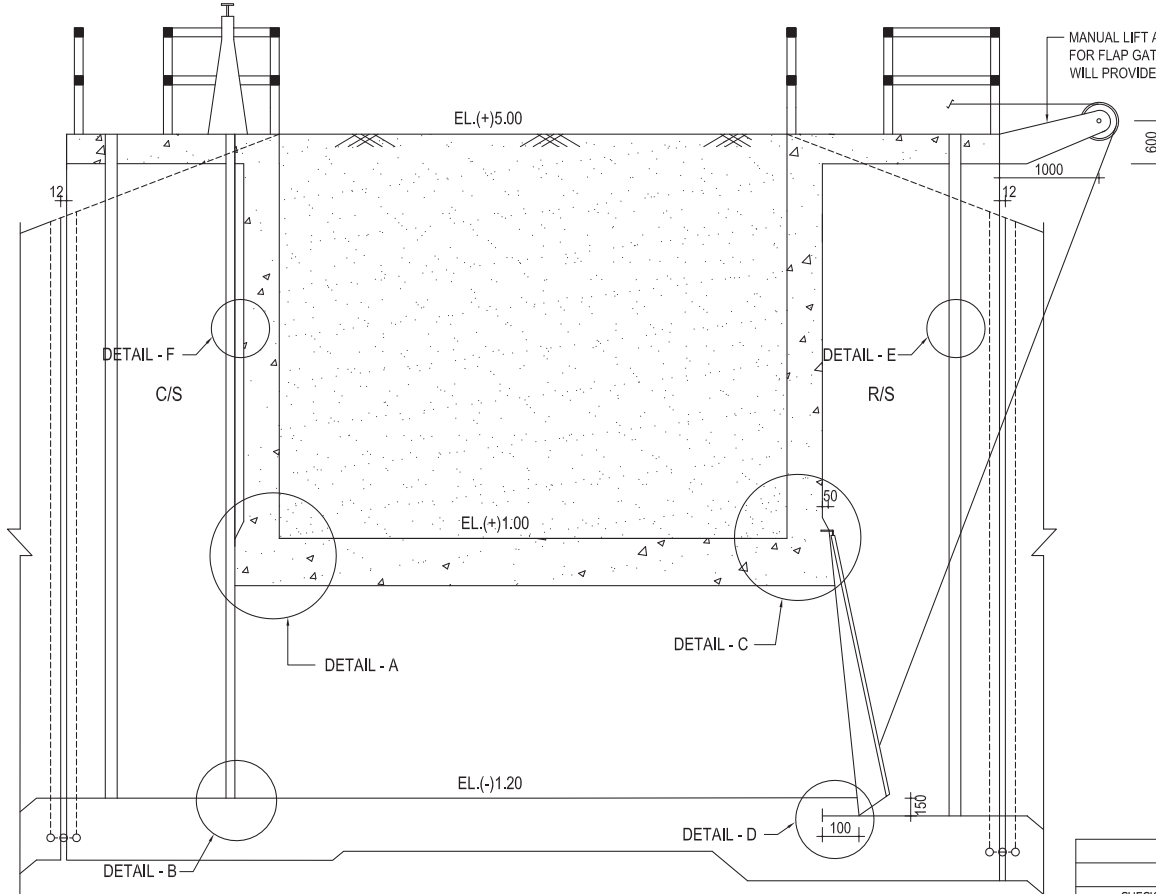
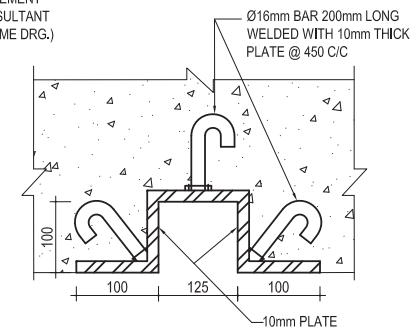
SEC. OF DETAIL - B



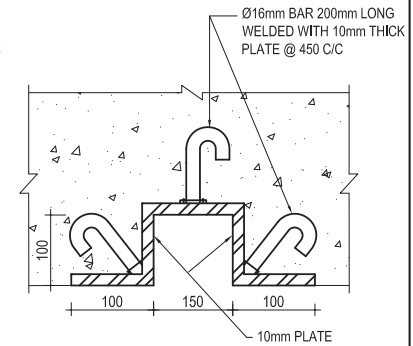
SEC. OF DETAIL - C



SEC. OF DETAIL - D

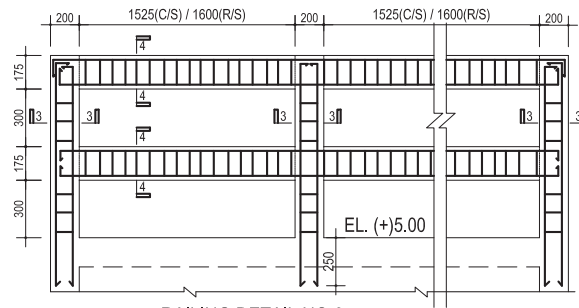
SECTION OF CENTRAL PART
SHOWING EMBEDDED PARTS

SEC. OF DETAIL - E

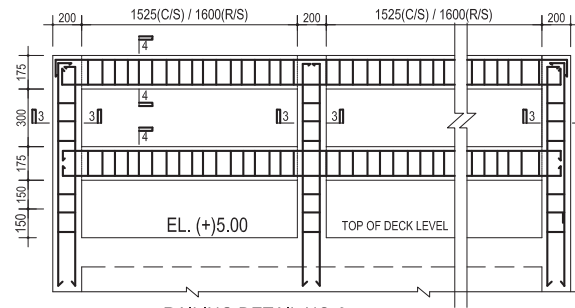


SEC. OF DETAIL - F

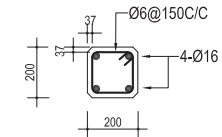
BANGLADESH WATER DEVELOPMENT BOARD			GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH		
DESIGN CIRCLE -5			MINISTRY OF WATER RESOURCES		
CHECKED BY			BANGLADESH WATER DEVELOPMENT BOARD		
REVIEWED BY			COASTAL EMBANKMENT IMPROVEMENT PROJECT, PHASE-1 (CEIP-1)		
APPROVED BY			POLDER-32, KHULNA		
			DRAINAGE SLUICE-10 (DS-10) AT Km 0.10, 3V-1.50mx1.80m		
			MISCELLANEOUS METAL DETAIL		
			CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM		
			DESIGNED BY	CHECKED BY	RECOMMENDED BY
			MD. MAHBUBUR RAHMAN	MD. HABIBUR RAHMAN	MD. HABIBUR RAHMAN
			SENIOR DESIGN ENGINEER	DEPUTY TEAM LEADER	ACTING TEAM LEADER
			DATED: MAY, 2013		
MD. RAKIBUL HASAN	MD. MAHFUZUR RAHMAN	MD. KUDRAT ALI	MARJAN MOLLIICK		DRG. NO :
ASSISTANT ENGINEER	EXECUTIVE ENGINEER	SUPERINTENDING ENGINEER	DRAWN BY: JUNIOR DESIGN ENGINEER	SHEET NO : 14 OF 16	CEIP/DS-10, AT km. 0.10/P- 32



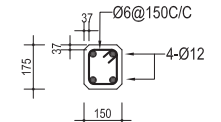
RAILING DETAIL NO-3



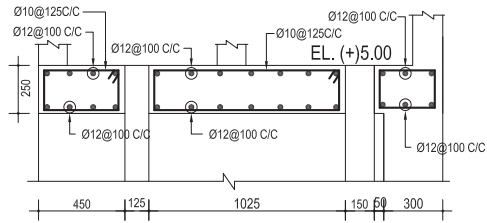
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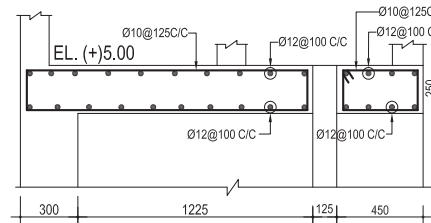
SECTION 3-3



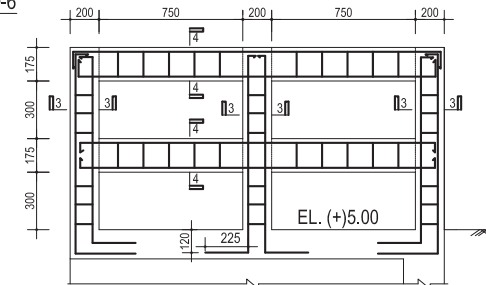
SECTION 4-4



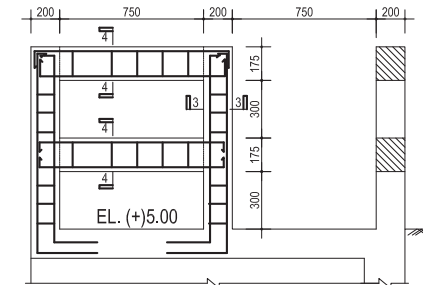
SECTION 1-1 ON C/S



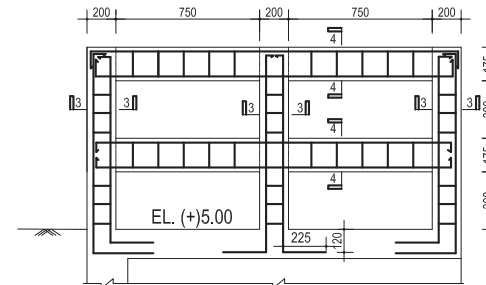
SECTION 2-2 ON R/S



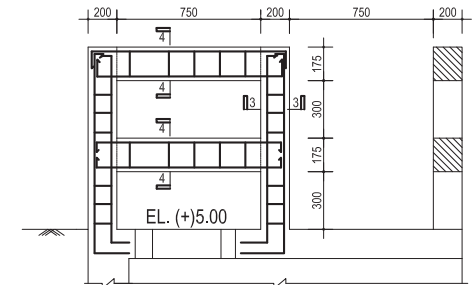
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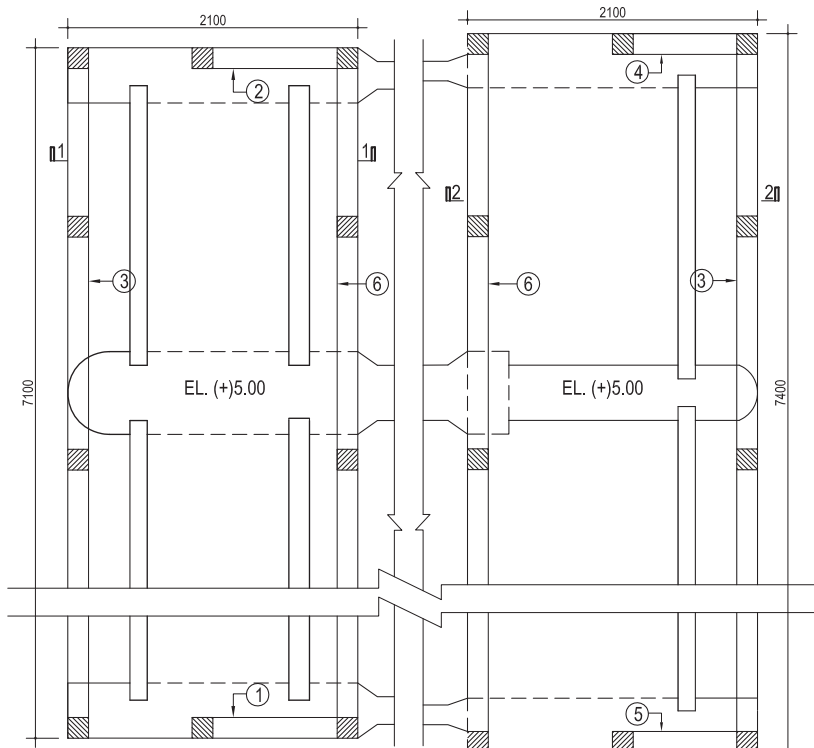
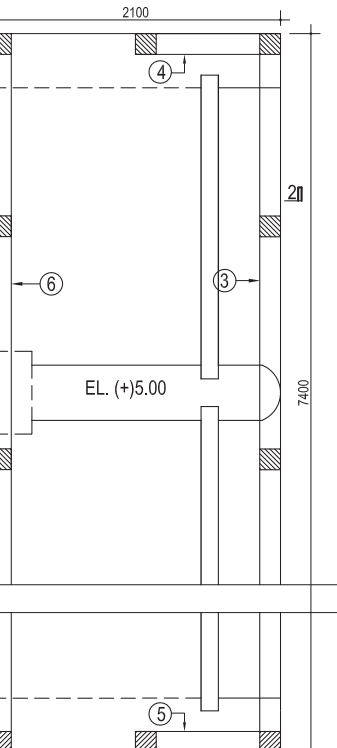
RAILING DETAIL NO-4(R/S)



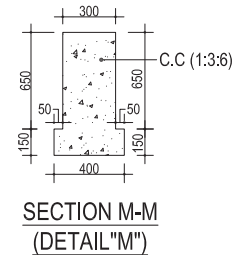
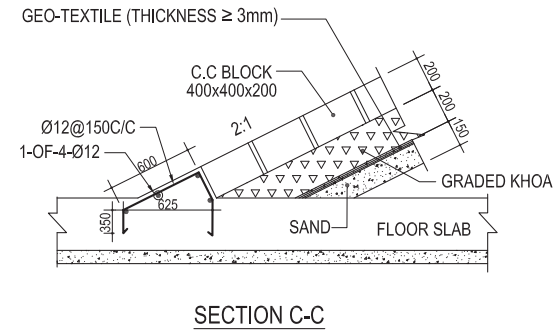
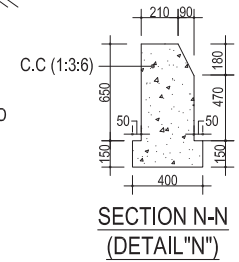
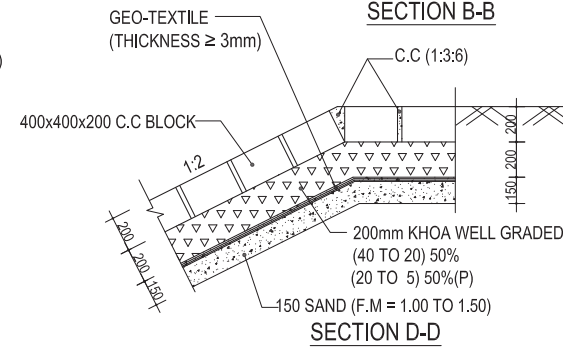
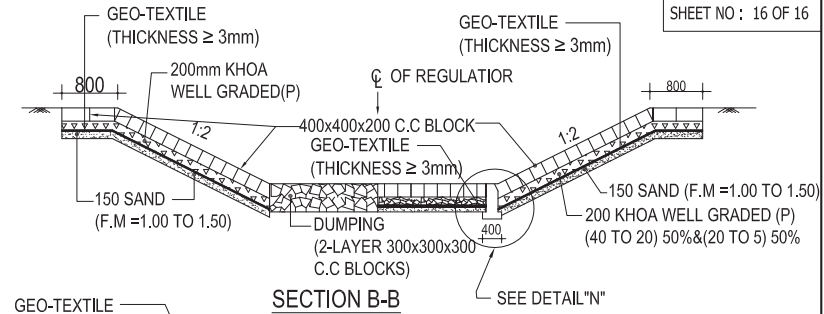
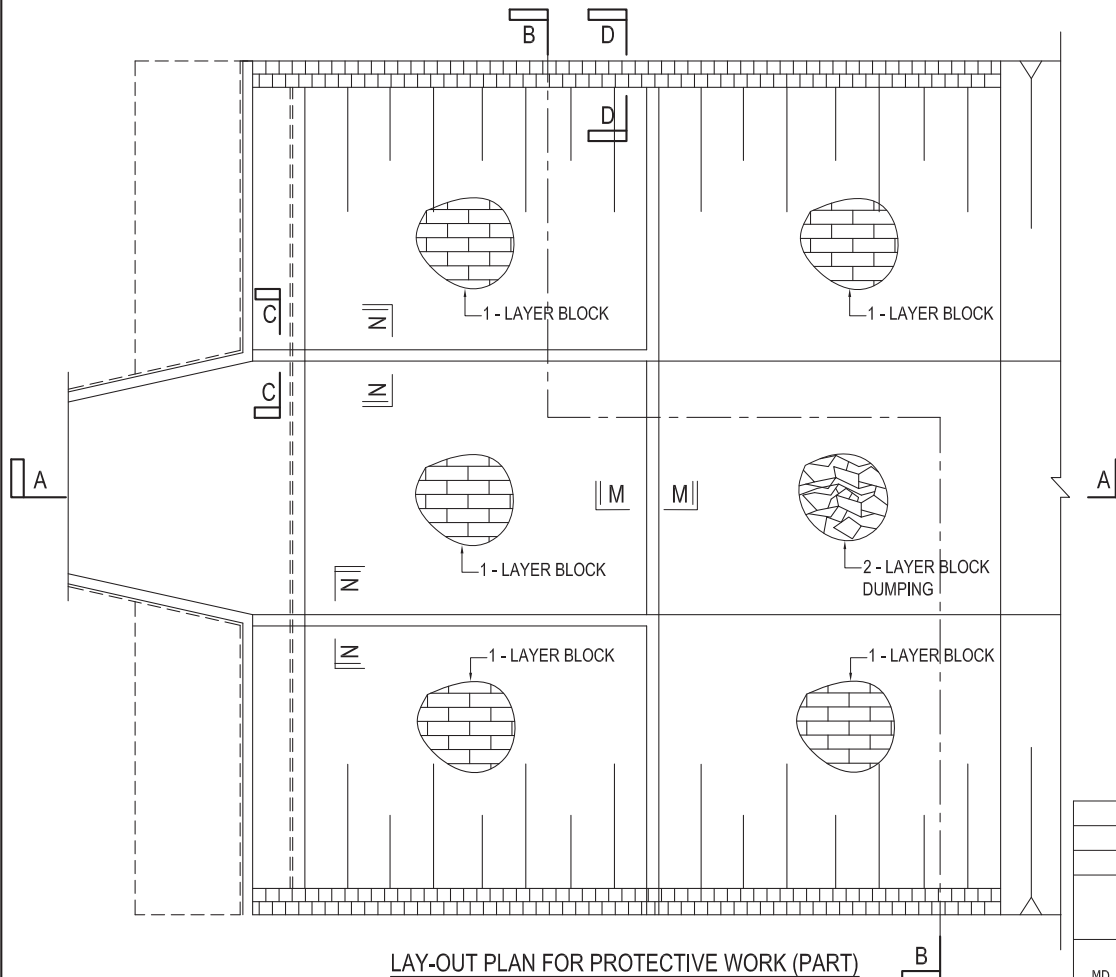
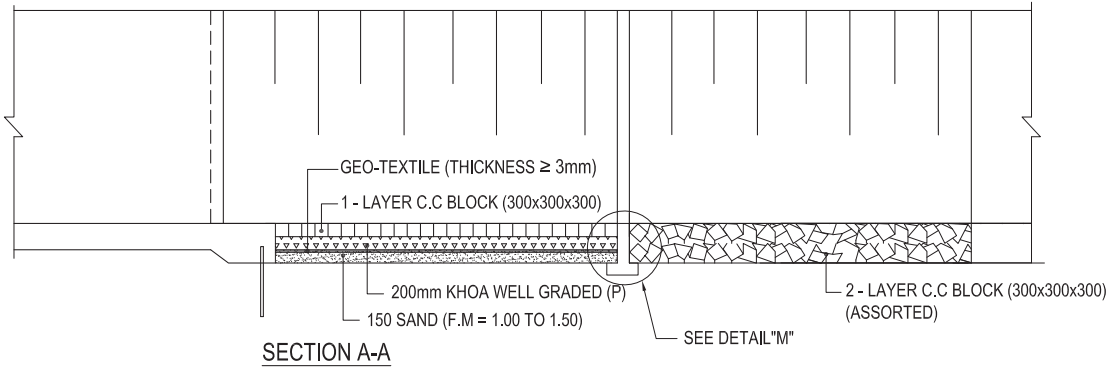
RAILING DETAIL NO-1(C/S)



RAILING DETAIL NO-2(C/S)

PLAN OF OPERATING SLAB (C/S) FOR
VERTICAL GATE & RAILING LAY-OUTPLAN OF OPERATING SLAB (R/S) FOR
VERTICAL GATE & RAILING LAY-OUT

BANGLADESH WATER DEVELOPMENT BOARD			CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM		
DESIGN CIRCLE -5			DESIGNED BY	CHECKED BY	RECOMMENDED BY
CHECKED BY	REVIEWED BY	APPROVED BY	MD. MAHBUBUR RAHMAN SENIOR DESIGN ENGINEER	MD. HABIBUR RAHMAN DEPUTY TEAM LEADER	MD. HABIBUR RAHMAN ACTING TEAM LEADER
MD. RAKIBUL HASAN ASSISTANT ENGINEER	MD. MAHFUZUR RAHMAN EXECUTIVE ENGINEER	MD. KUDRAT ALI SUPERINTENDING ENGINEER	MARJAN MOLICK DRAWN BY-JUNIOR DESIGN ENGINEER	DATED: MAY, 2013 SHEET NO : 15 OF 16	DRG. NO : CEIP/DS-10, AT km. 0.10/P- 32



BANGLADESH WATER DEVELOPMENT BOARD			GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH		
DESIGN CIRCLE -5			MINISTRY OF WATER RESOURCES		
			BANGLADESH WATER DEVELOPMENT BOARD		
			COASTAL EMBANKMENT IMPROVEMENT PROJECT, PHASE-1 (CEIP-1)		
			POLDER-32, KHULNA		
			DRAINAGE SLUICE-10 (DS-10) AT Km 0.10, 3V-1.50mx1.80m		
			DETAIL OF PROTECTIVE WORK		
			CONSULTANT : JV OF CES, DEVCON, KRANTI & DPM		
			DESIGNED BY	CHECKED BY	RECOMMENDED BY
CHECKED BY	REVIEWED BY	APPROVED BY	MD. MAHBUBUR RAHMAN	MD. HABIBUR RAHMAN	MD. HABIBUR RAHMAN
			SENIOR DESIGN ENGINEER	DEPUTY TEAM LEADER	ACTING TEAM LEADER
MD. RAKIBUL HASAN ASSISTANT ENGINEER	MD. MAHFUZUR RAHMAN EXECUTIVE ENGINEER	MD. KUDRAT ALI SUPERINTENDING ENGINEER	MARJAN MOLLIICK DRAWN BY-JUNIOR DESIGN ENGINEER	DATED: MAY, 2013	DRG. NO : CEIP/DS-10, AT km. 0.10/P-32
				SHEET NO : 16 OF 16	