

BANGLADESH WATER DEVELOPMENT BOARD

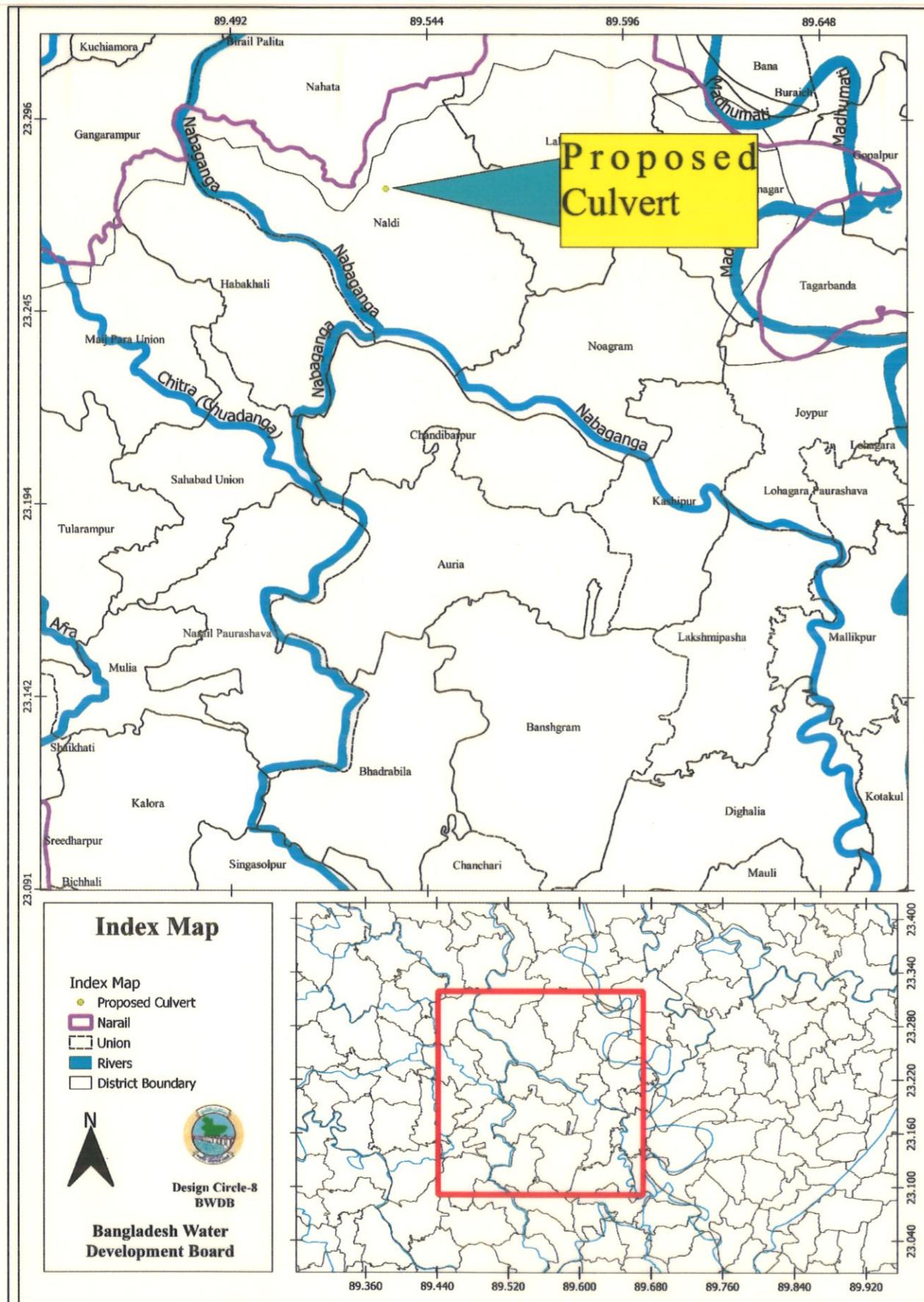


**"REHABILITATION OF MADHUMOTI-NABAGANGA SUB PROJECT AND
RE-EXCAVATION/DREDGING OF NABAGANGA RIVER TO REVIVAL AND CONSERVATION OF
ENVIRONMENTAL BALANCE"**

**DESIGN OF BOX CULVERT (2V- 2.50m X 4.55m), AT KM 6.740 OF MAKRAIL KHAL
UPAZILA-LOHAGARA, DISTRICT-NARAIL UNDER NARAIL O&M DIVISION,
BWDB, NARAIL.**

NARAIL O&M DIVISION, BWDB, NARAIL

**DESIGNED BY: DESIGN CIRCLE-8, BWDB, DHAKA.
APRIL, 2022**

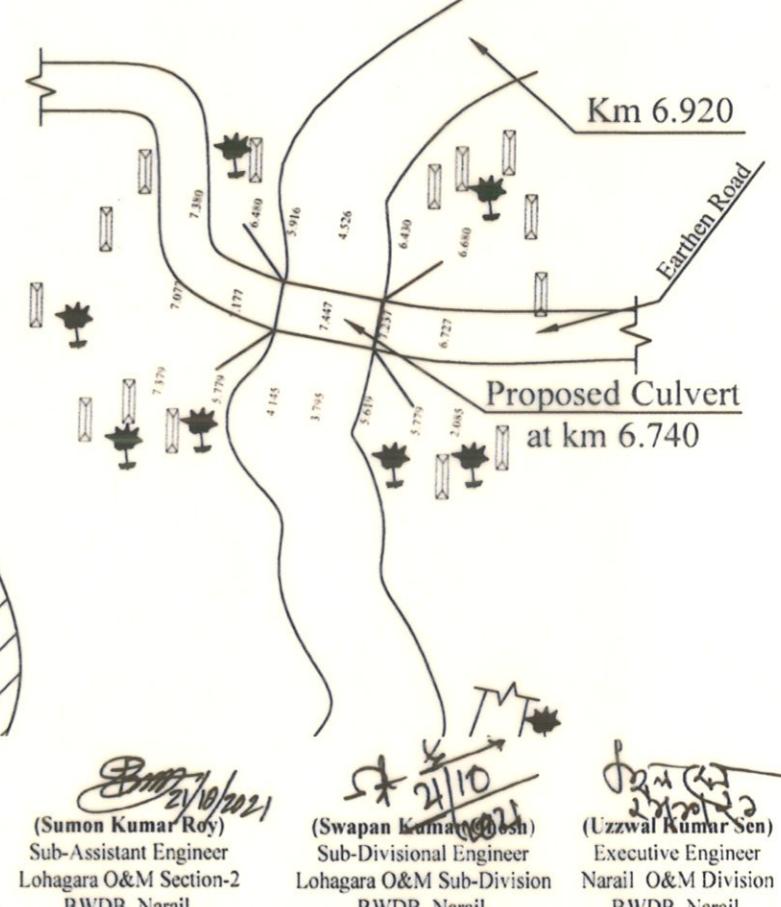
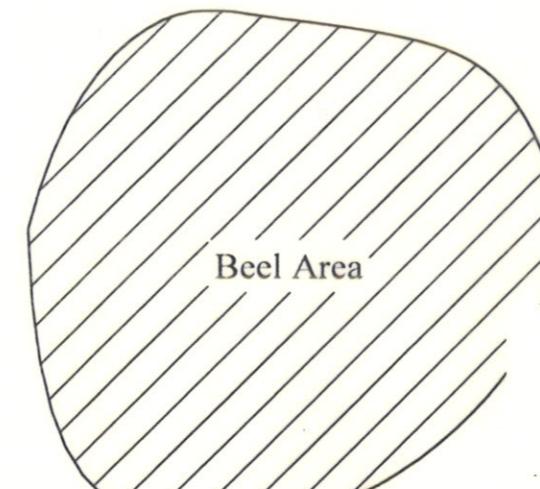


INDEX MAP
(Not to Scale)

Site Plan For Culvert on Makrail Khal

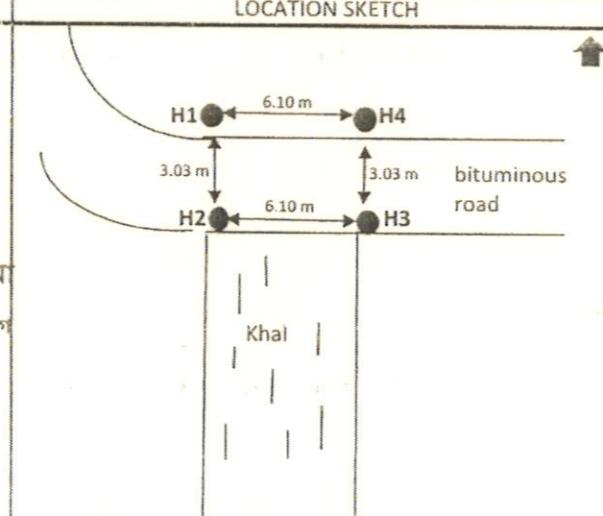


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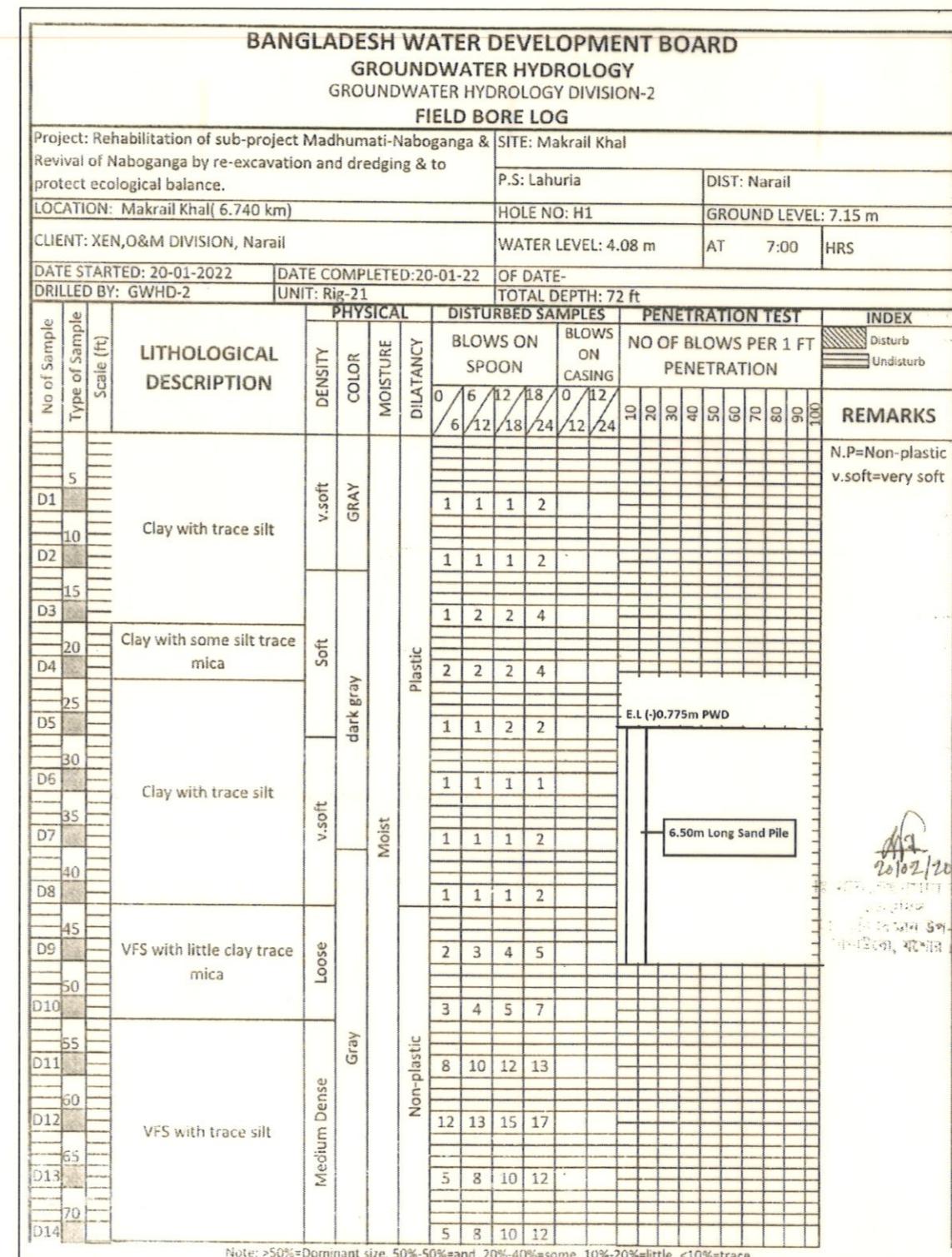


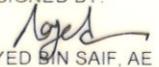
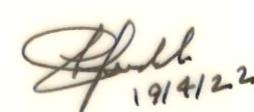
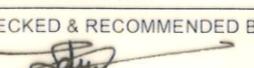
SITE PLAN
(Not to Scale)

BANGLADESH WATER DEVELOPMENT BOARD	
OFFICE OF THE SUPERINTENDING ENGINEER	
DESIGN CIRCLE-8	
REHABILITATION OF MADHUMATI- NABAGONGA SUB- PROJECT & RE-EXCAVATION/ DREDGING OF NABAGONGA RIVER REVIVAL AND CONSERVATION OF ENVIRONMENTAL BALANCE	
DESIGN OF BOX CULVERT (2V- 2.50m X 4.55m), AT KM 6.740 OF MAKRAIL KHAL UPAZILA-LOHAGARA, DISTRICT-NARAIL UNDER NARAIL O&M DIVISION, BWDB, NARAIL.	
TITLE: INDEX MAP AND SITE PLAN	
DESIGNED BY: ZAYED BIN SAIF, AE	APPROVED BY:
CHECKED & RECOMMENDED BY: 	
JAKARIA PERVEZ, EE	MOHAMMAD SAIF UDDIN, SE
DATE: 19-4-2022	
DWG NO : DC-8-0261-01/09	

BANGLADESH WATER DEVELOPMENT BOARD GROUNDWATER HYDROLOGY DIVISION-2 72 GREEN ROAD, DHAKA-1205.	
FIELD BORE LOG	
Project: Rehabilitation of sub-project Madhumati-Naboganga & Revival of Naboganga by re-excavation and dredging & to protect ecological balance. SITE: Makrail Khal P.S: Lahuria DIST: Narail	
LOCATION: Makrail Khal (6.740 km) HOLE NO: H1-H4 GROUND LEVEL: CLIENT: XEN,O&M DIVISION, Narail WATER LEVEL: AT 7:00 HRS DATE STARTED: 20-01-2022 DATE COMPLETED: 23-01-22 OF DATE- DRILLED BY: GWHD-2 UNIT: Rig-21 TOTAL DEPTH: 72 ft	
SOIL SAMPLING	
A) UNDISTURB SAMPLE NOS: DIMENSIONS: NO TAKEN: TYPE: DRILLER: Md. Abu Jaher GEOLOGIST: Md.Maniruzzaman Bhuiyan	
B) DISTURB SAMPLE NOS: D1-D14 DIMENSIONS: 1 3/4 ID X 24 Inch NO TAKEN: 14 Nos TYPE: Split Spoon WEIGHT OF HAMMER: 140 lb AVG. DROP: 30 Inces HOW SAMPLED: WOODEN/BOX/JARS/CANS/ BAGS DESPATCHED ON:	
CASING	
SIZE: LENGTH USED: WT OF HAMMER: AVG. DROP:	
REMARKS Drilling was advanced by Chopping method.	
	
<p>Not drawn to scale</p>	

SITE PLAN
(bore hole)
(Not to Scale)

**Bore Log**

BANGLADESH WATER DEVELOPMENT BOARD OFFICE OF THE SUPERINTENDING ENGINEER DESIGN CIRCLE-8	
REHABILITATION OF MADHUMATI- NABOGANGA SUB- PROJECT & RE-EXCAVATION/ DREDGING OF NABOGANGA RIVER REVIVAL AND CONSERVATION OF ENVIRONMENTAL BALANCE	
DESIGN OF BOX CULVERT (2V- 2.50m X 4.55m), AT KM 6.740 OF MAKRAIL KHAL UPAZILA-LOHAGARA, DISTRICT-NARAIL UNDER NARAIL O&M DIVISION, BWDB, NARAIL.	
TITLE: BORE LOG	
DESIGNED BY:  ZAYED BIN SAIF, AE	
APPROVED BY:  MOHAMMAD SAIF UDDIN, SE	
CHECKED & RECOMMENDED BY:  JAKARIA PERVEZ, EE	
DATE: 19-4-2022 DWG NO : DC-8-0261-02/09	

NOTES & SPECIFICATIONS:

1. ALL DIMENSIONS ARE IN MILLIMETRE AND ALL ELEVATIONS ARE IN METRE PWD UNLESS OTHERWISE MENTIONED IN THE DRAWING.
2. THE SPECIFICATION OF MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE STANDARD TECHNICAL SPECIFICATION OF BWDB IN GENERAL.
3. THE FOLLOWING SPECIFICATION OF MATERIALS AND WORKS SHALL BE FOLLOWED FOR THIS PARTICULAR STRUCTURE.

a) CONCRETE STRENGTH (CYLINDER TEST):

RCC WORKS: 25 N/mm²
BLINDING LAYER CONCRETE: 1:3:6

b) YIELD STRENGTH OF REINFORCING BAR:

DEFORMED BAR (FROM BILLET) : 400 N/ mm² (ITEM NO 76-120-10).

c) SPLICE LENGTH OF REINFORCING BARS SHALL BE 36 BAR DIAMETER.
(FOR TENTION AND COMPRESSION ZONE)

d) 150mm THICK SAND FILTER FM 1.00 TO 1.50 (ITEM NO 40-650-30).

e) GRADING OF KHOA FILTER :

BOTTOM LAYER (100mm): 5mm TO 20mm (40-610-30)

TOP LAYER (100mm) : 20mm TO 40mm (40-610-20)

f) BACK-FILLING MATERIAL: SAND OF FM 0.80. BACK FILLING FOR U-SHAPED WALL SHALL BE DONE SIMULTANEOUSLY ON BOTH WALLS (ITEM NO 16-540-20).

4. CLEAR COVER OF CONCRETE FOR REINFORCEMENT:

a) FOUNDATION SLAB	: 75mm
b) ALL WALLS (RETURN WALL, WING WALL, PIER, TOP SLAB, BARREL ETC)	: 75mm
c) RAILING	: 40mm

5. WORK SHOULD BE EXECUTED WITH THE PRIOR ADMINISTRATIVE AND FINANCIAL APPROVAL FROM THE COMPETENT AUTHORITY AND WITHIN DPP/BUDGET PROVISION.

6. FOR ANY ERROR, OMISSION OR CONFUSION, PLEASE REFER TO THE CONCERNED DESIGN OFFICE FOR NECESSARY ACTION.

7. THIS DRAWING HAS BEEN PREPARED AS PER PROPOSAL AND DESIGN DATA SUBMITTED BY SE, JASHORE O & M CIRCLE, BWDB, KHULNA VIDE HIS OFFICE MEMO NO-543
DATED: 25-10-2021 AND 1395 DATED 24-02-2022

NOTE FOR SAND PILE:

1. SAND PILE OF 6.5m 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. DIAMETER LENGTH CONTINUITY OF PILE SHALL HAVE TO BE CHECKED BY MEASURING SAND FORCE VOLUME FOR EACH EXECUTED PILE. THE SAND FORCE VOLUME PER METER AND PER PILE SHALL NOT BE LESS THAN 0.30 CUBIC METER AND 1.95 CUBIC METER RESPECTIVELY.
4. AFTER EXECUTION OF ALL SAND PILE, SPT VALUES SHALL HAVE TO BE DETERMINED BY THE FIELD TESTS. SPT VALUES ATTAINED AT 1.50 METER INTERVALS SHALL BE DETERMINED.
5. AFTER PILING SPT VALUE IN BETWEEN SAND PILES AT FOUNDATION LEVEL SHALL BE MINIMUM 12 TO 14 .
6. FOR ANY ERROR, OMISSION OR CONFUSION PLEASE REFER TO CONCERNED DESIGN OFFICE THROUGH CONSULTANTS FOR NECESSARY ACTION.

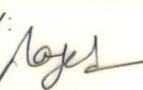
BANGLADESH WATER DEVELOPMENT BOARD

OFFICE OF THE SUPERINTENDING ENGINEER DESIGN CIRCLE-8

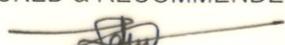
REHABILITATION OF MADHUMATI- NABAGONGA SUB- PROJECT & RE-EXCAVATION/ DREDGING OF NABAGONGA RIVER REVIVAL AND CONSERVATION OF ENVIRONMENTAL BALANCE

DESIGN OF BOX CULVERT (2V- 2.50m X 4.55m), AT KM 6.740 OF MAKRAIL KHAL UPAZILA-LOHAGARA, DISTRICT-NARAIL UNDER NARAIL O&M DIVISION, BWDB, NARAIL.

TITLE: NOTES

DESIGNED BY:

ZAYED BIN SAIF, AE

APPROVED BY:

CHECKED & RECOMMENDED BY:


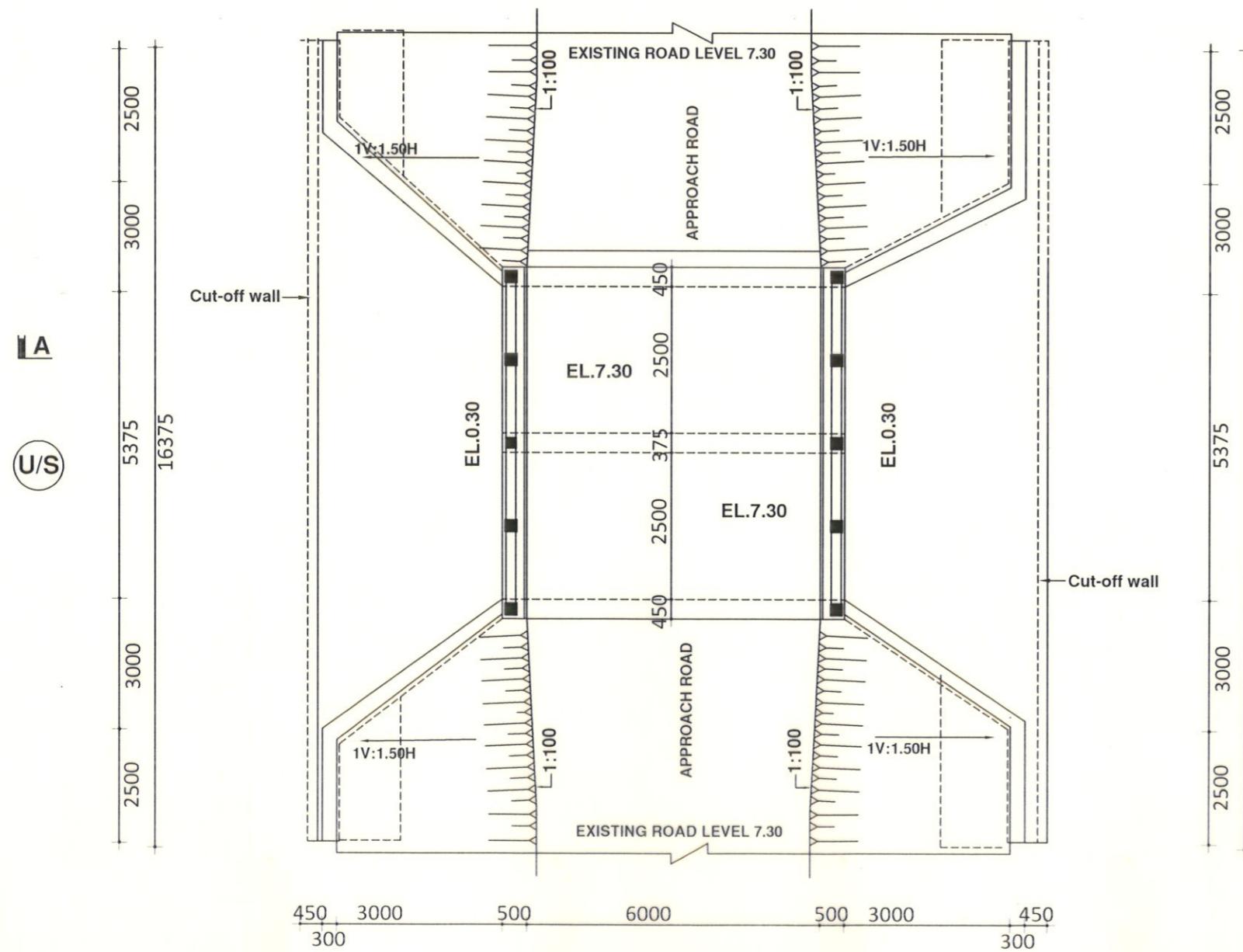
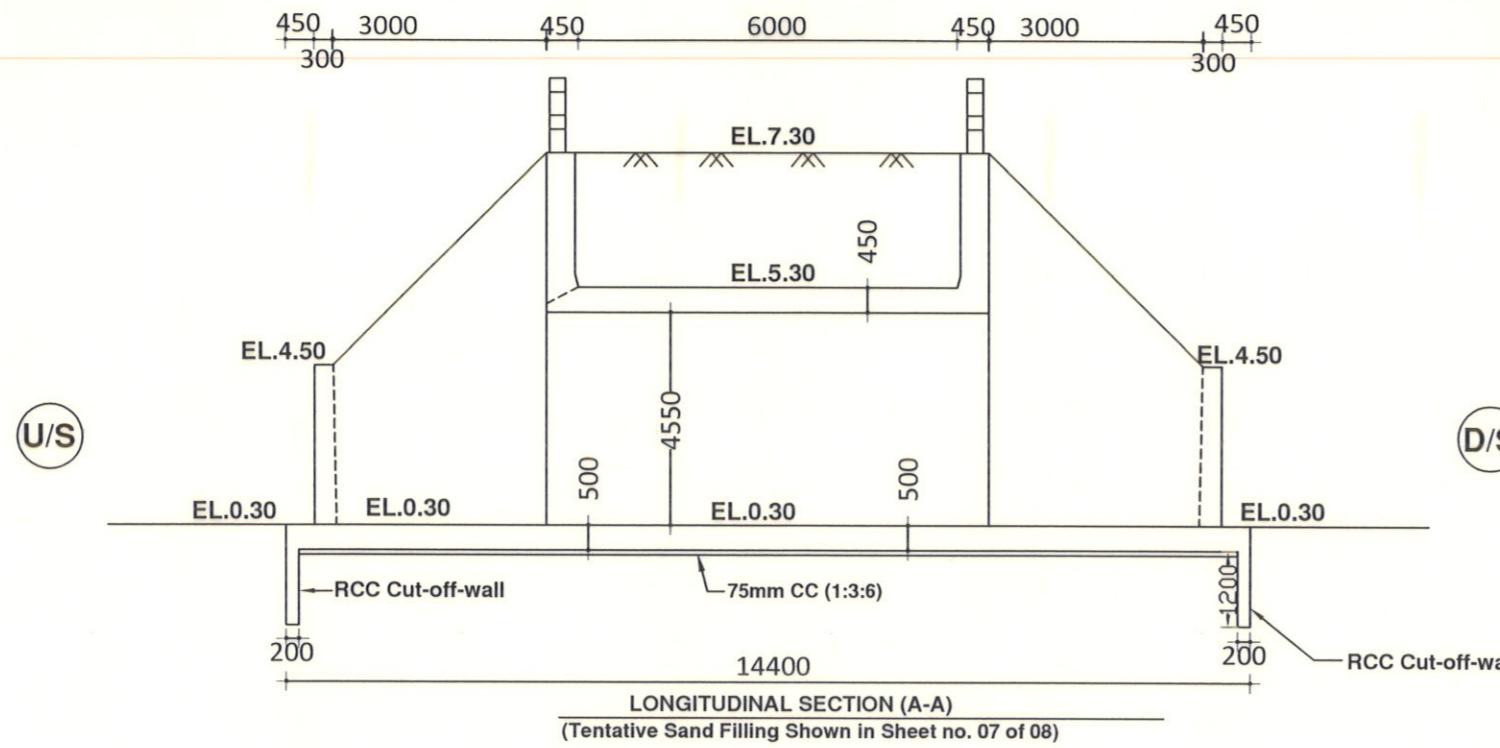
JAKARIA PERVEZ, EE

MOHAMMAD SAIF UDDIN, SE

DATE: 19-4-2022

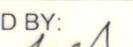
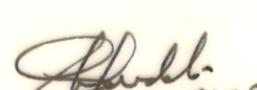
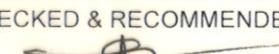
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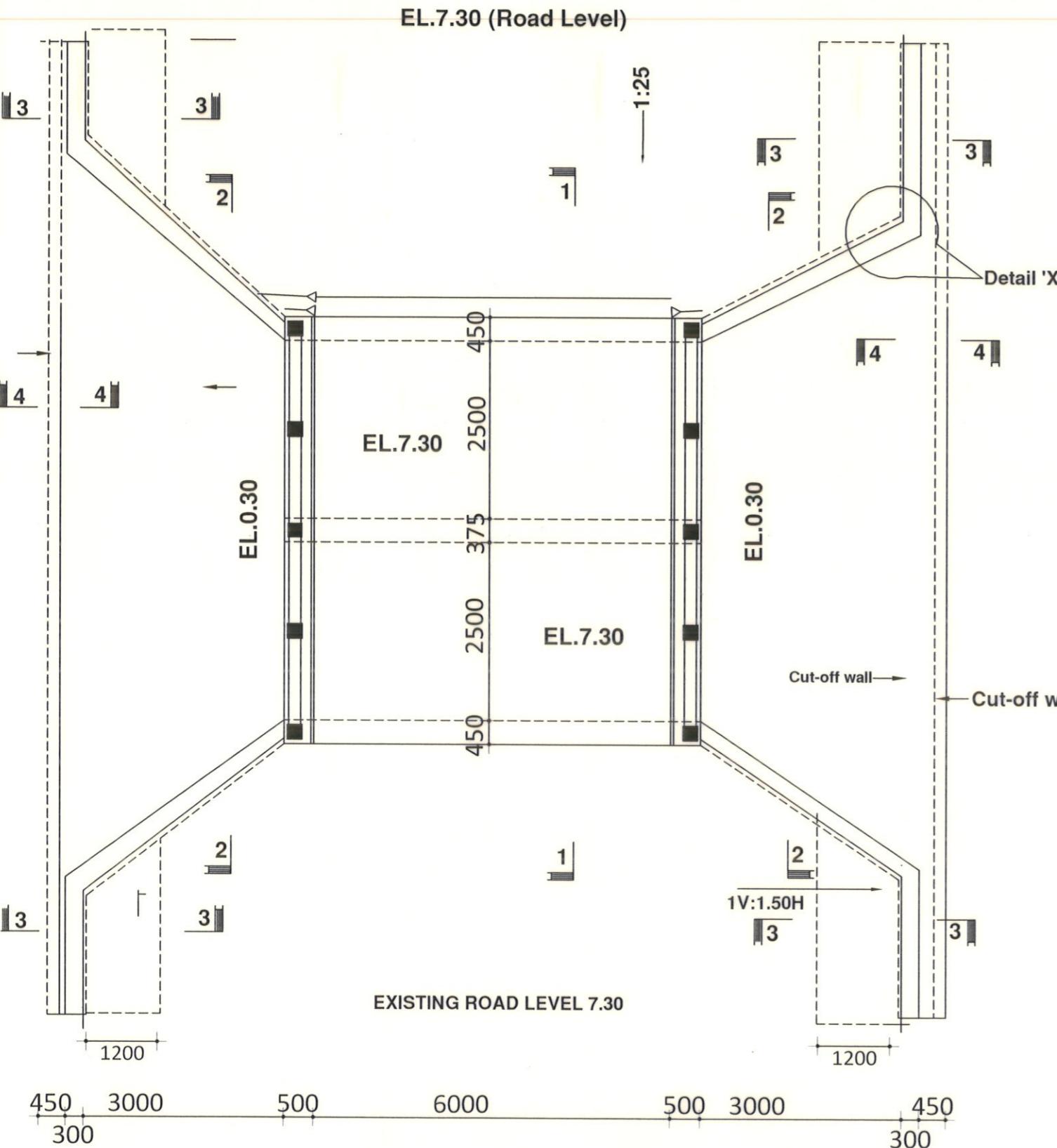

19/4/22



(NOT TO SCALE)

PLAN OF DESIGN OF BOX CULVERT

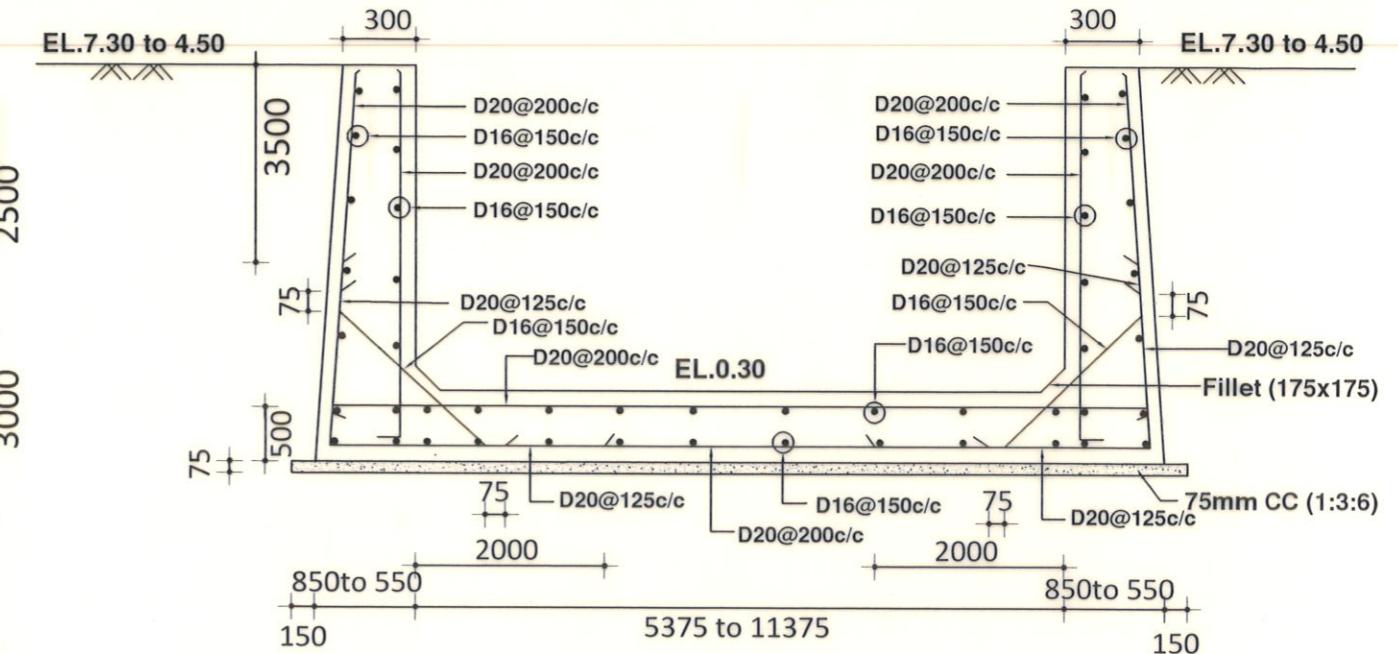
<p style="text-align: center;">BANGLADESH WATER DEVELOPMENT BOARD</p> <p style="text-align: center;">OFFICE OF THE SUPERINTENDING ENGINEER</p> <p style="text-align: center;">DESIGN CIRCLE-8</p> <p style="text-align: center;">REHABILITATION OF MADHUMATI- NABAGONGA SUB- PROJECT & RE-EXCAVATION/ DREDGING OF NABAGONGA RIVER REVIVAL AND CONSERVATION OF ENVIRONMENTAL BALANCE</p> <p style="text-align: center;">DESIGN OF BOX CULVERT (2V- 2.50m X 4.55m), AT KM 6.740 OF MAKRAIL KHAL UPAZILA-LOHAGARA, DISTRICT-NARAIL UNDER NARAIL O&M DIVISION, BWDB, NARAIL.</p>	
<p>TITLE: PLAN AND SECTION</p>	
<p>DESIGNED BY:</p>  <p>ZAYED BIN SAIF, AE</p>	<p>APPROVED BY:</p>  <p>MOHAMMAD SAIF UDDIN, SE</p>
<p>CHECKED & RECOMMENDED BY :</p>  <p>JAKARIA PERVEZ, EE</p>	
<p>DATE: 19-4-2022</p>	<p>DWG NO : DC-8-0261-04/09</p>



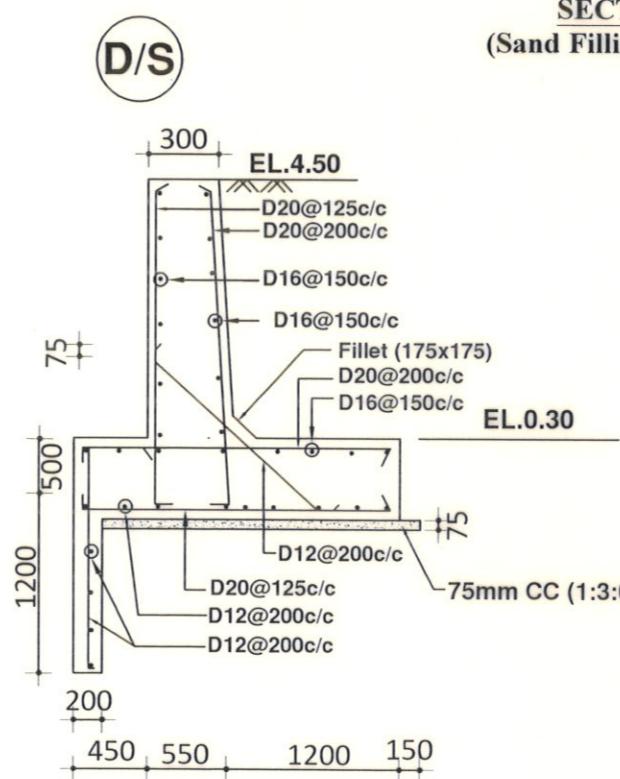
KEY PLAN OF DESIGN OF BOX CULVERT

(Sand Filling Not Shown)

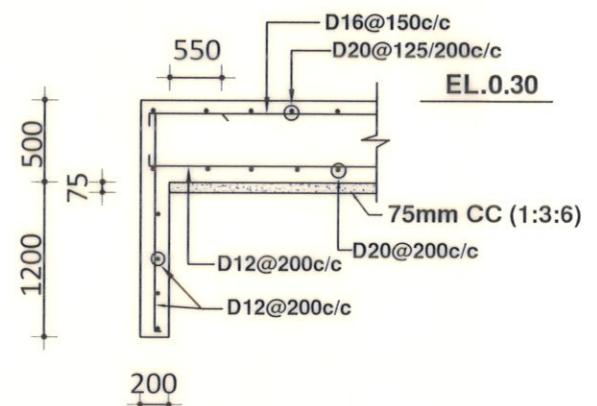
(NOT TO SCALE)



SECTION 2-2
(Sand Filling Not Shown)



SECTION 4-4
(Sand Filling Not Shown)



SECTION 3-3
(Sand Filling Not Shown)

BANGLADESH WATER DEVELOPMENT BOARD

OFFICE OF THE SUPERINTENDING ENGINEER

**OFFICE OF THE SUPERINTENDING ENGINEER
DESIGN CIRCLE-8**

TITLE: PLAN AND SECTION

DESIGNED BY:

ZAYED BIN SAIF AL MULLA

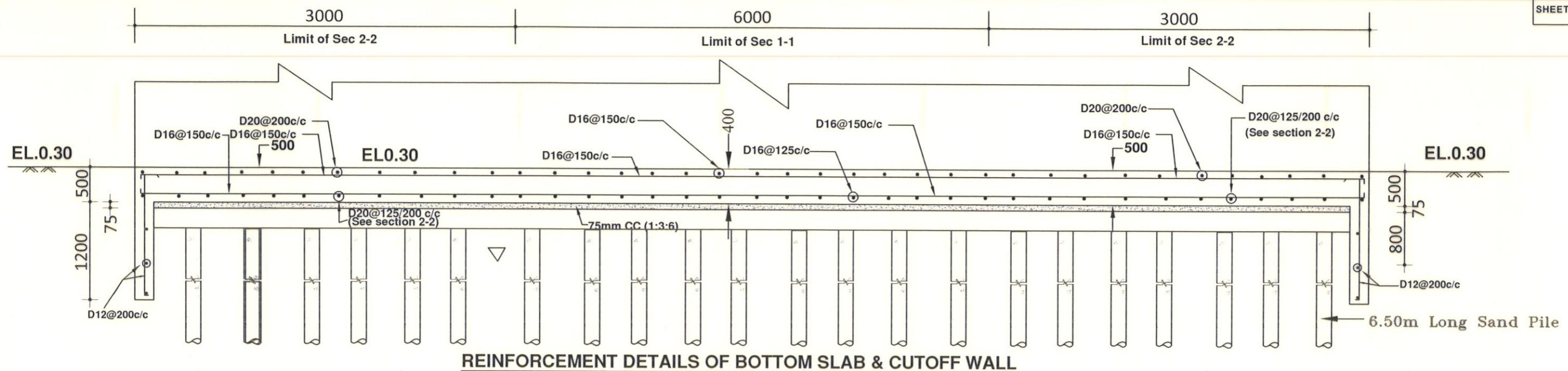
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APPROVED BY:

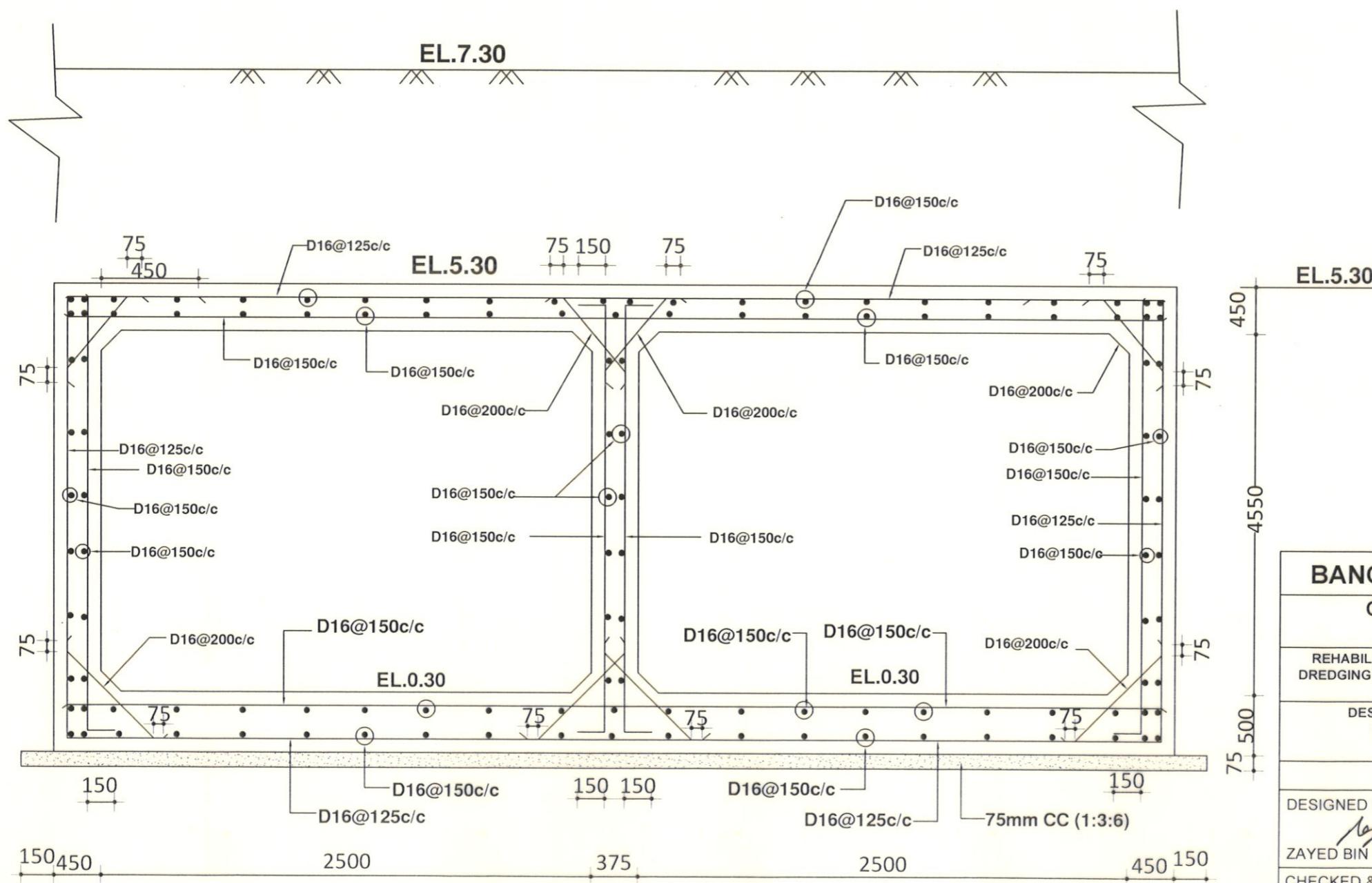
Groth
1914

DATE: 19-4-2022 19-4-2022

DWG NO : DC-8-0261-05/09



REINFORCEMENT DETAILS OF BOTTOM SLAB & CUTOFF WALL



SECTION 1-1(See Sheet No. 5)

(NOT TO SCALE)

BANGLADESH WATER DEVELOPMENT BOARD

**OFFICE OF THE SUPERINTENDING ENGINEER
DESIGN CIRCLE-8**

**REHABILITATION OF MADHUMATI- NABAGONGA SUB- PROJECT & RE-EXCAVATION/
DREDGING OF NABAGONGA RIVER REVIVAL AND CONSERVATION OF ENVIRONMENTAL
BALANCE**

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UPAZILA-LOHAGARA, DISTRICT-NARAIL UNDER NARAIL O&M DIVISION,
BWDB, NARAIL.**

DESIGNED BY:

ZAYED BIN SAIF, AE

CHECKED & RECOMMENDED BY :

JAKARIA PERVEZ, EI

APPROVED BY:

MOHAMMAD SAIF UDDIN, SE

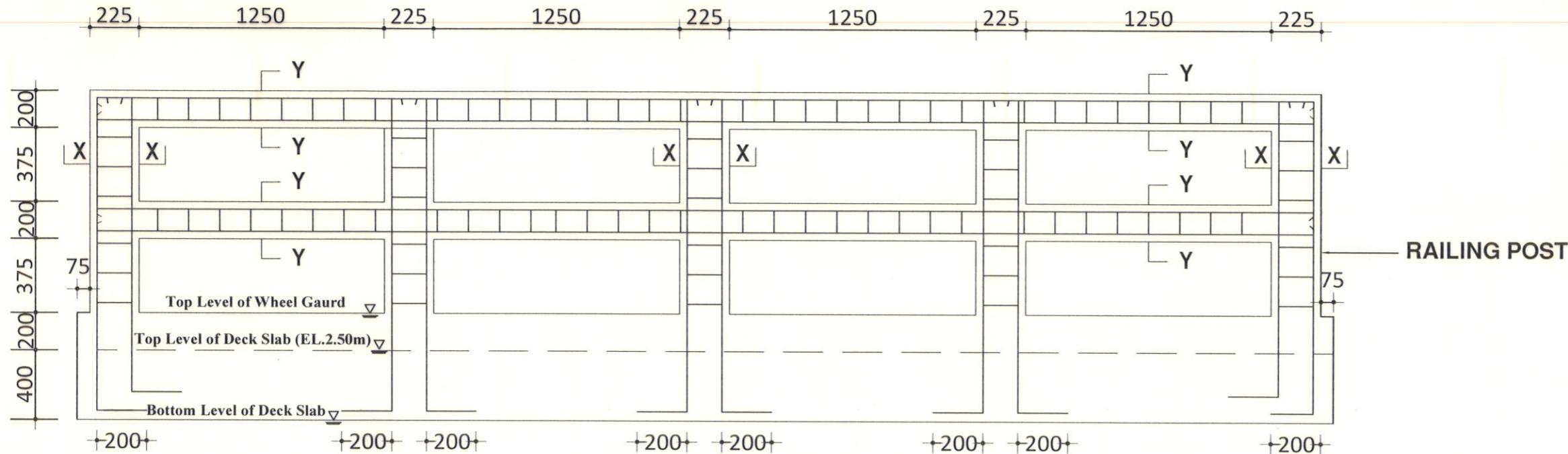
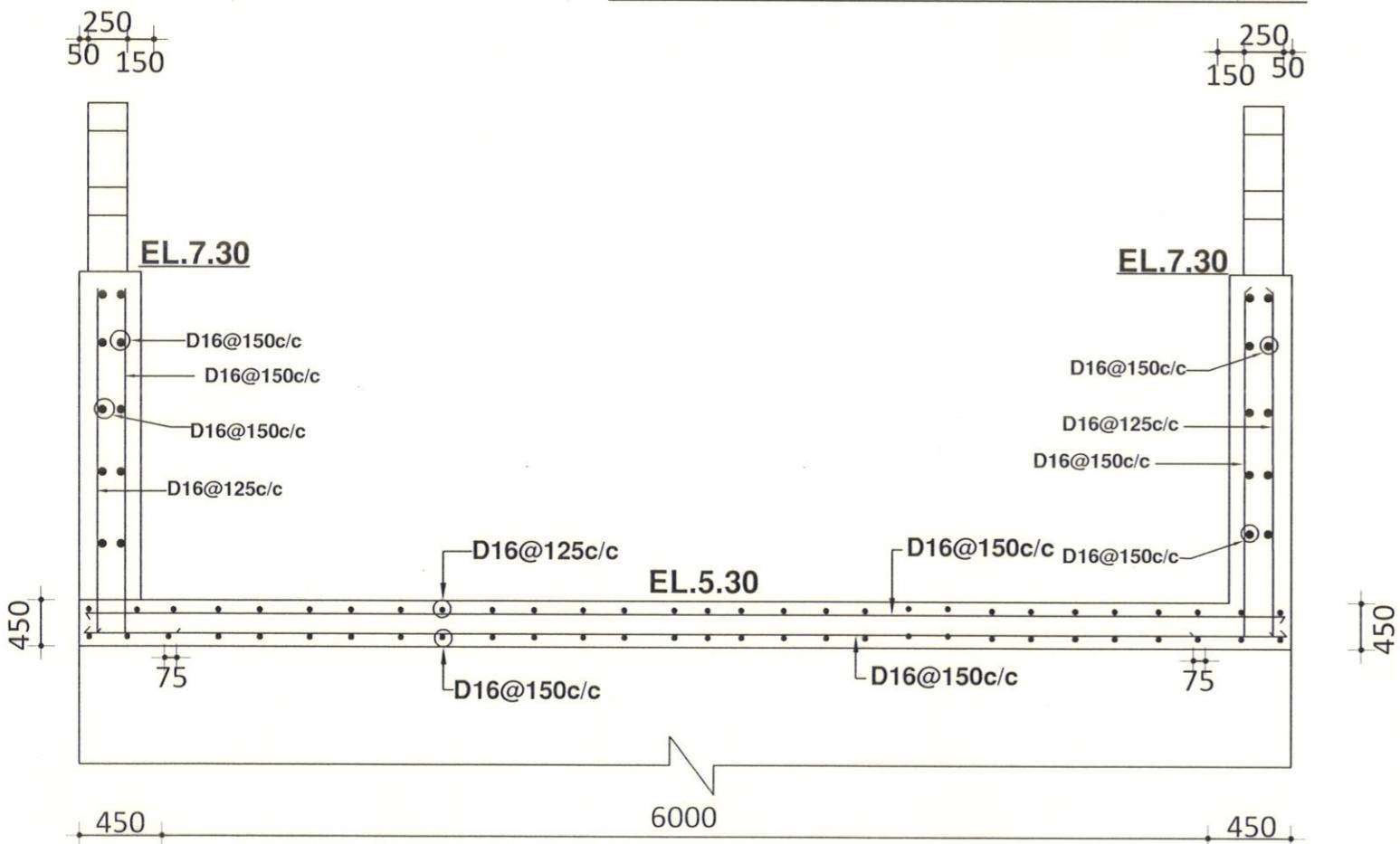
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DATE: 19-4-2022 19-4-2022

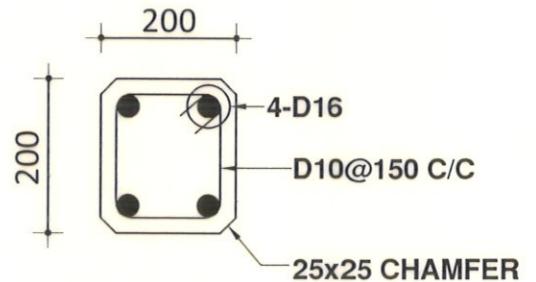
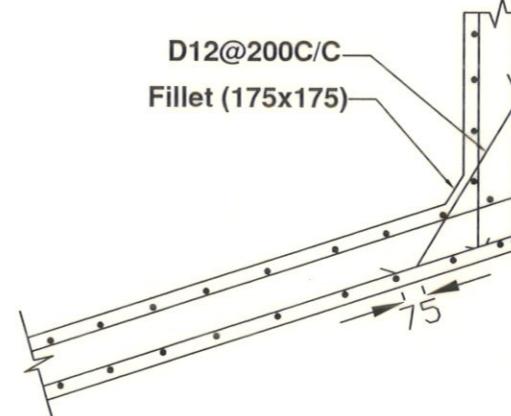
DWG NO : DC-8-0261-06/09

NOTES:

**1. VERTICAL REINFORCEMENT
OF RAILING POST SHALL BE
EMBEDDED UPTO BOTTOM
ROD OF TOP SLAB
AS SHOWN IN FIGURE.**

**DETAILS OF RAILING AND RAILING POST****REINFORCEMENT DETAILS OF TOP SLAB**

(NOT TO SCALE)
NARAIL O&M DIVISION

**SECTION Y-Y
(Railing)****SECTION X-X
(Railing Post)****Detail 'X' (See Sheet No. 04 of 08)**

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

REHABILITATION OF MADHUMATI- NABAGONGA SUB-PROJECT & RE-EXCAVATION/
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UPAZILA-LOHAGARA, DISTRICT-NARAIL UNDER NARAIL O&M DIVISION,
BWDB, NARAIL.

TITLE: RAILING

DESIGNED BY:
ZAYED BIN SAIF, AE

CHECKED & RECOMMENDED BY:
JAKARIA PERVEZ, EE

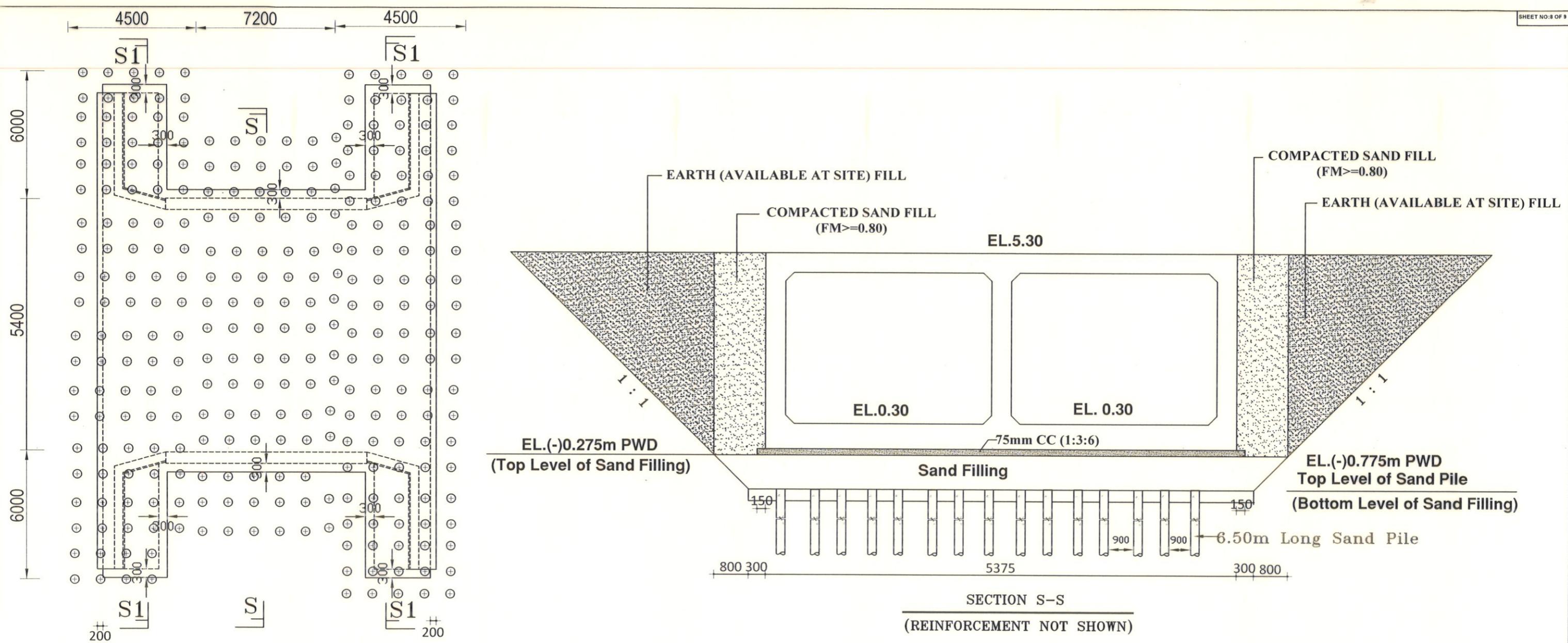
DATE: 19-4-2022

APPROVED BY:

19/4/22

MOHAMMAD SAIF UDDIN, SE

DWG NO : DC-8-0261-07/09

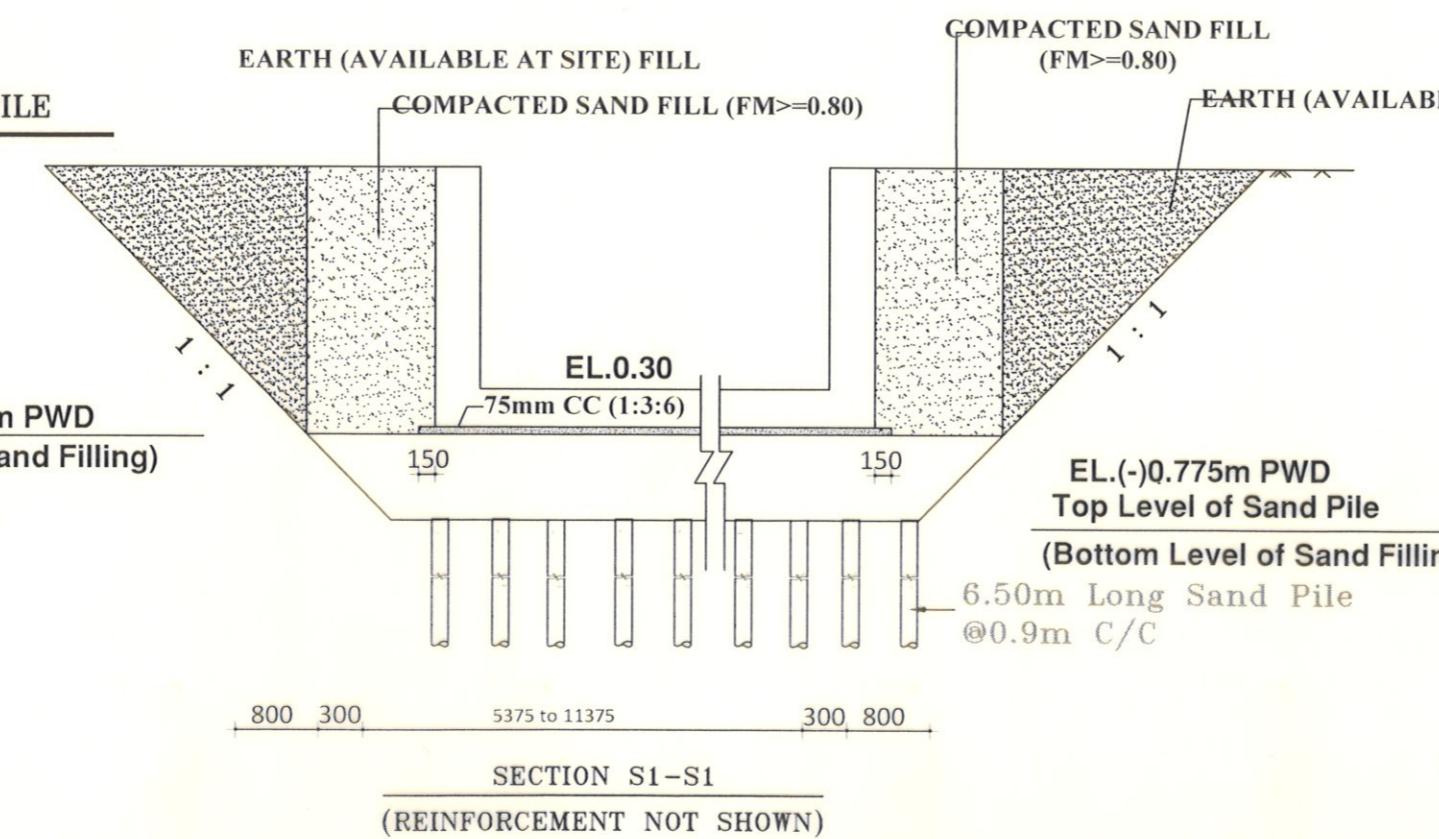


AYOUT PLAN OF SAND PILE

(TENTATIVE)

EL.(-)0.275m PWD
(Top Level of Sand Filling)

(NOT TO SCALE)



(REINFORCEMENT NOT SHOWN)

BANGLADESH WATER DEVELOPMENT BOARD

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DESIGNED BY

DESIGNED BY:

ZAYED BIN SAIF AL MAKTOUM

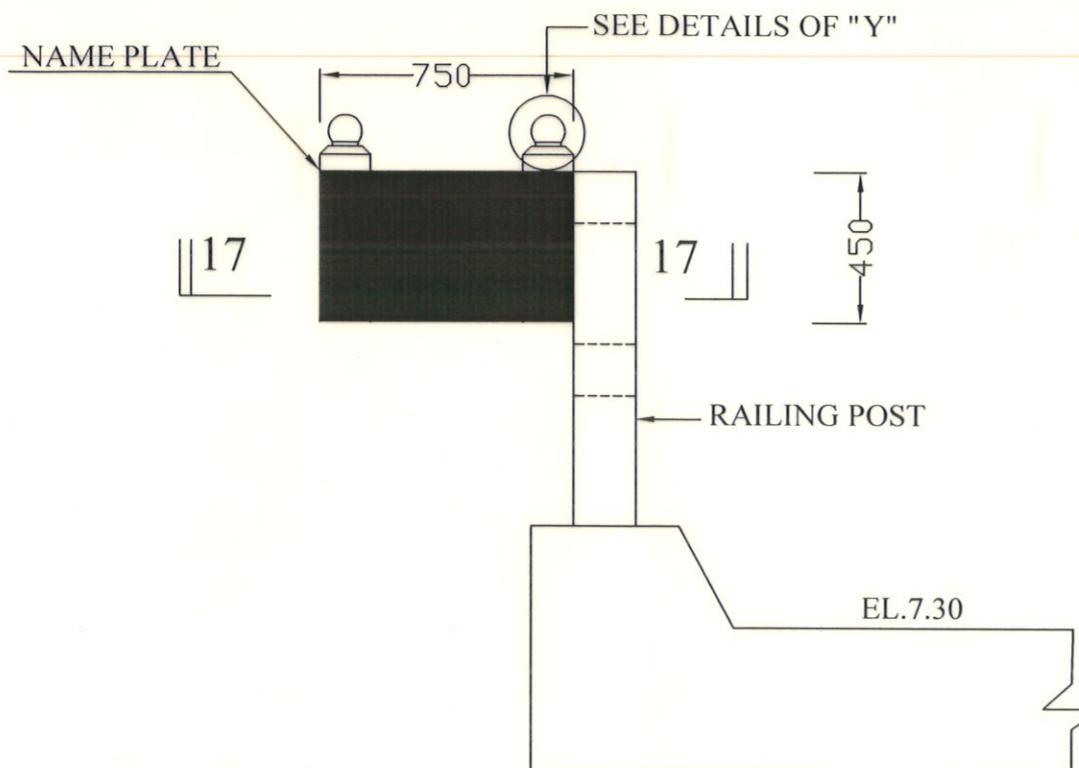
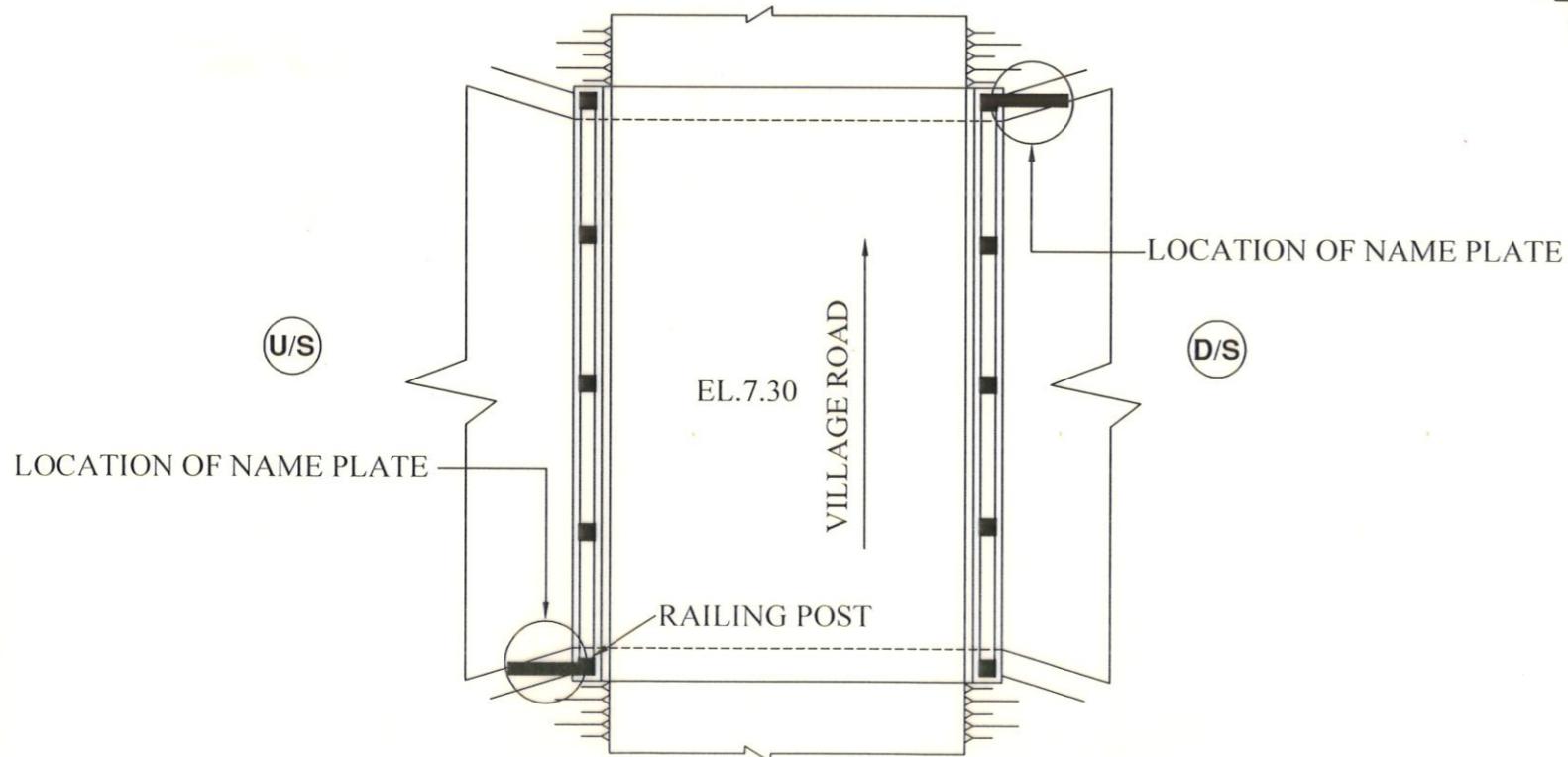
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SEARCHED & RECD

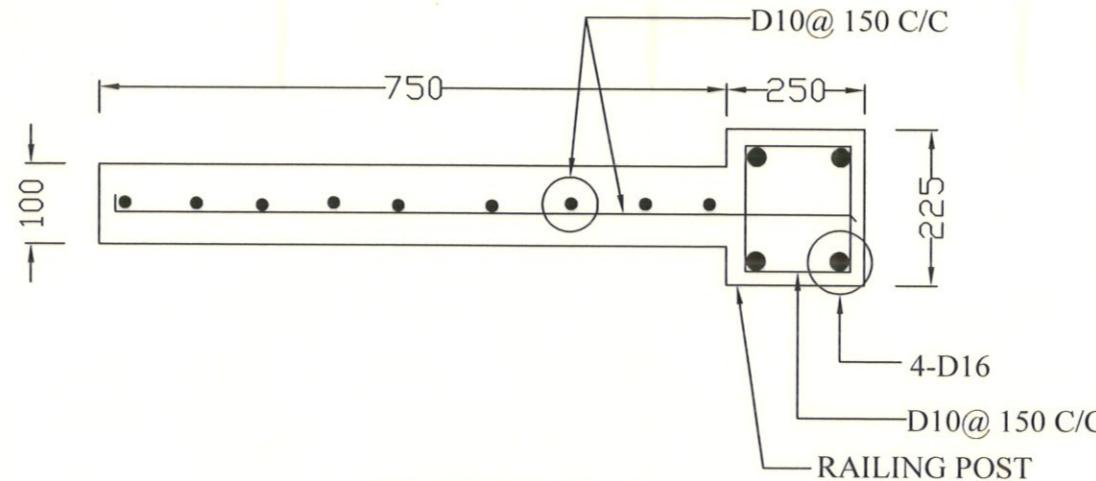
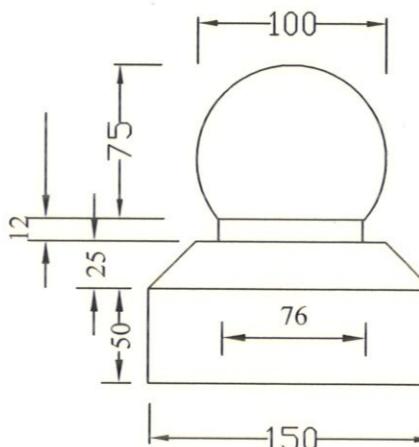
APPROVED BY

APPROVED BY:

MOHAMMAD SAIE UDDIN, SE

**DETAILS OF NAME PLATE****PLAN SHOWING NAME PLATE LOCATION ON CULVERT**

(NOT TO SCALE)

**SECTION 17-17****DETAILS OF "Y"**

- NOTES**
1. THE NAME PLATE SHALL BE PLACED AT THE LEFT SIDE OF BOTH APPROACHES.
 2. THE SIZE OF LETTER SHOULD BE 30 mm TO 40 mm & IT SHOULD BE ENGRAVED IN THE PLATE.
 3. THE COLOR OF THE LETTER SHOULD BE WHITE ON MEDIUM BLUE SURFACE.
 4. THE NAME PLATE SHOULD BE CAST MONOLITHICALLY WITH THE POST AND THE WRITINGS SHOULD BE WRITTEN ON THE PLATE AFTER PLASTERING.

TYPICAL NAME PLATE

BANGLADESH WATER DEVELOPMENT BOARD	
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DESIGN CIRCLE-8	
REHABILITATION OF MADHUMATI- NABAGONGA SUB- PROJECT & RE-EXCAVATION/ DREDGING OF NABAGONGA RIVER REVIVAL AND CONSERVATION OF ENVIRONMENTAL BALANCE	
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ZAYED BIN SAIF, AE 	
CHECKED & RECOMMENDED BY:	
JAKARIA PERVEZ, EE 	
DATE: 19-4-2022	DWG NO : DC-8-0261-09/09