

TENDER NO: WAP/NK/JHK/RMC-PKG-2/BALANCE/2026

TENDER DOCUMENT

FOR

**Lining, Repair and Construction of Balance Works of Right Main Canal
& its Structures of Package-2 (RD 17.16 to 31.40 km) under North Koel
Reservoir Project, Jharkhand**

Estimated Cost (Rs. 43.97 Crores)

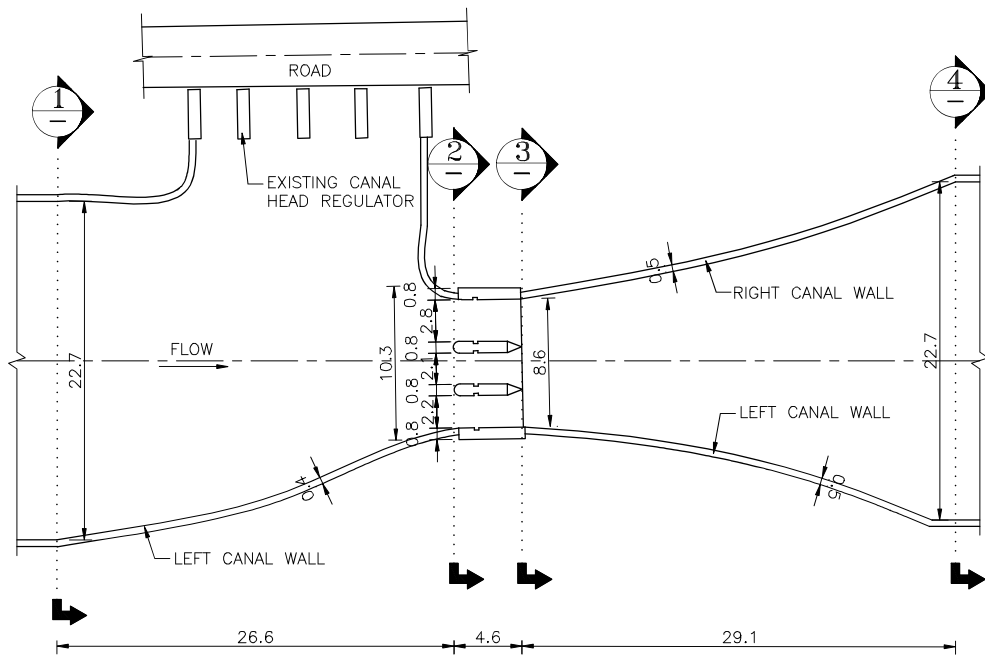
TENDER NO: WAP/NK/JHK/RMC-PKG-2/BALANCE/2026

TENDER DRAWINGS

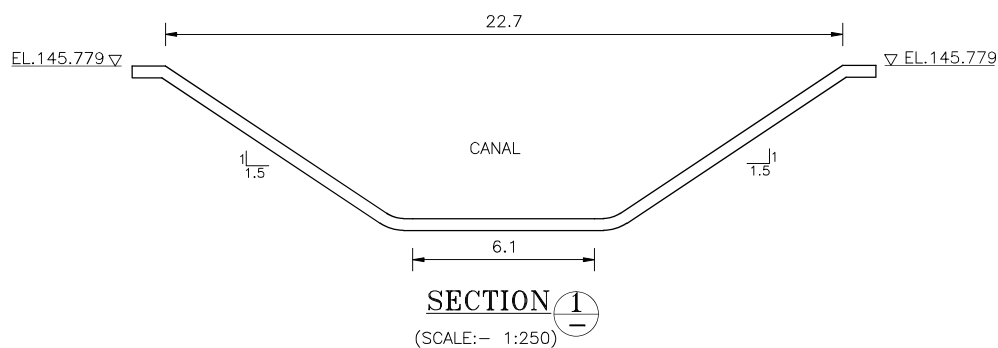




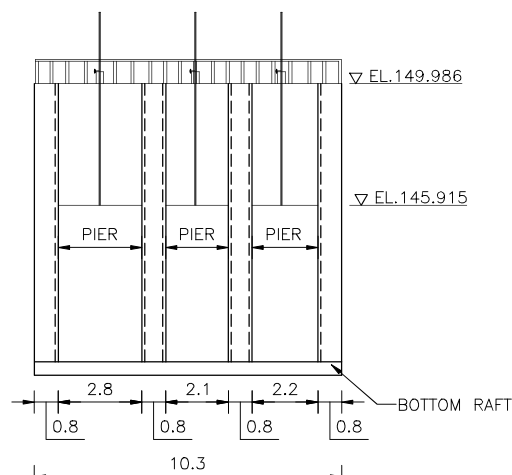
RD 19.58 HEADREGULATOR



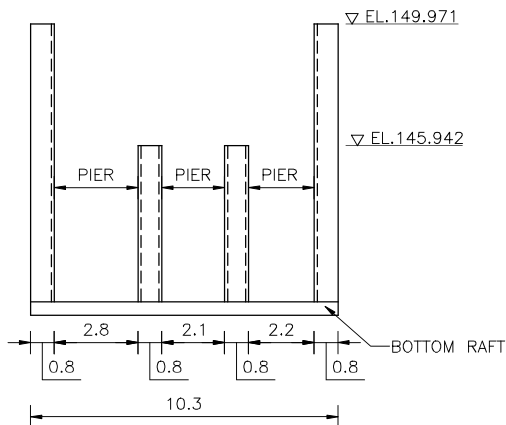
PLAN
(SCALE:- 1:500)



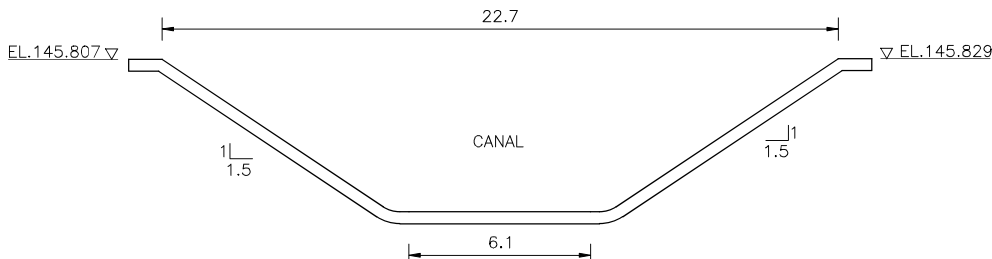
SECTION 1
(SCALE:- 1:250)



SECTION 2
(SCALE:- 1:250)



SECTION 3
(SCALE:- 1:250)



SECTION 4
(SCALE:- 1:250)

NOTES:-

1. ALL DIMENSIONS & ELEVATION ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWING ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. TOP WIDTH OF CANAL & LENGTH OF TRANSITION IN THIS DRAWING ARE AS MEASURED AT SITE.
4. BED WIDTH /BED LEVEL IS ARRIVED BY ASSUMING 1:1.5 SIDE SLOPE.

TENDER DRAWING



IMPLEMENTING AGENCY :-

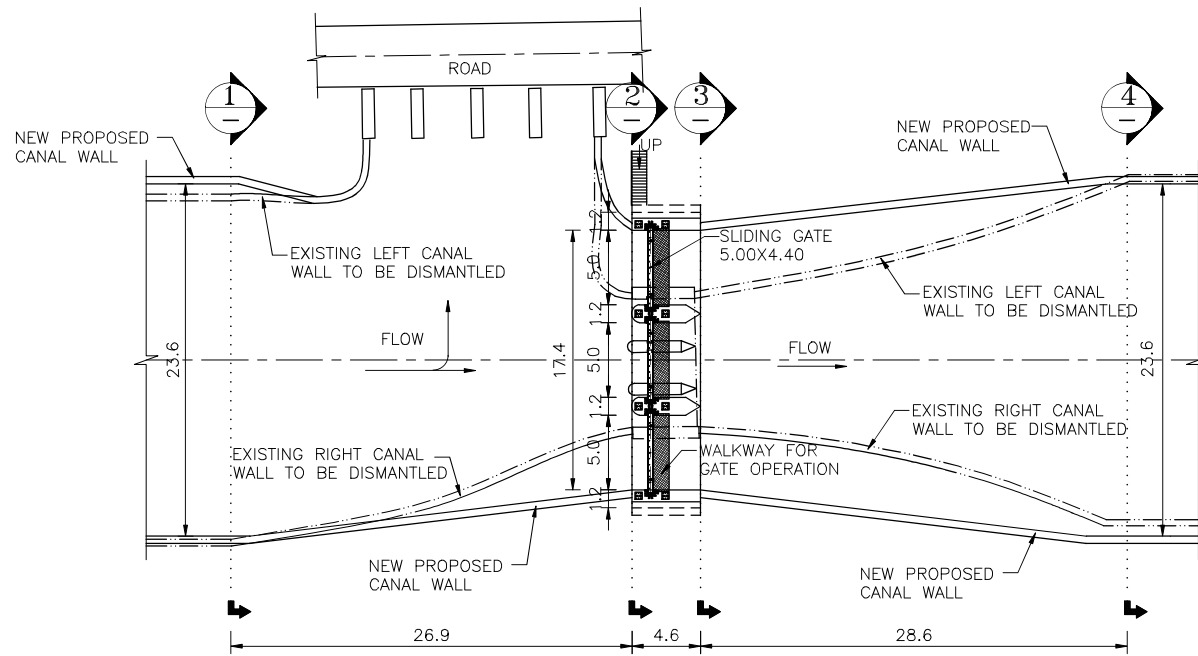


PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND

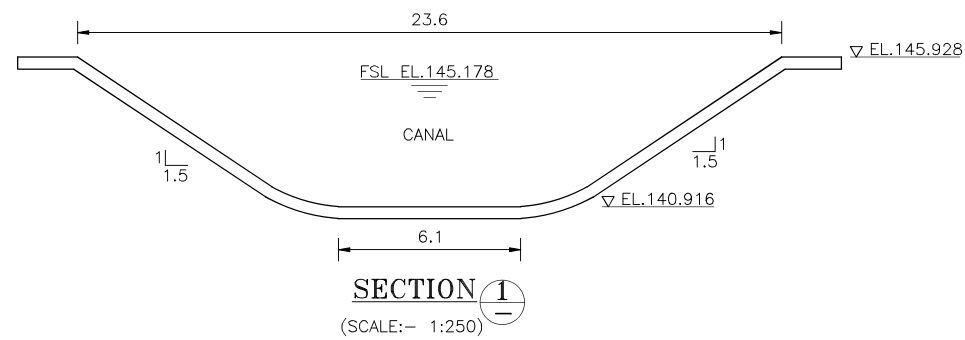
DRAWING TITLE :- HR + CR AT RD: 19.58 GENERAL ARRANGEMENT- ORIGINAL

DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-008 (1/7)

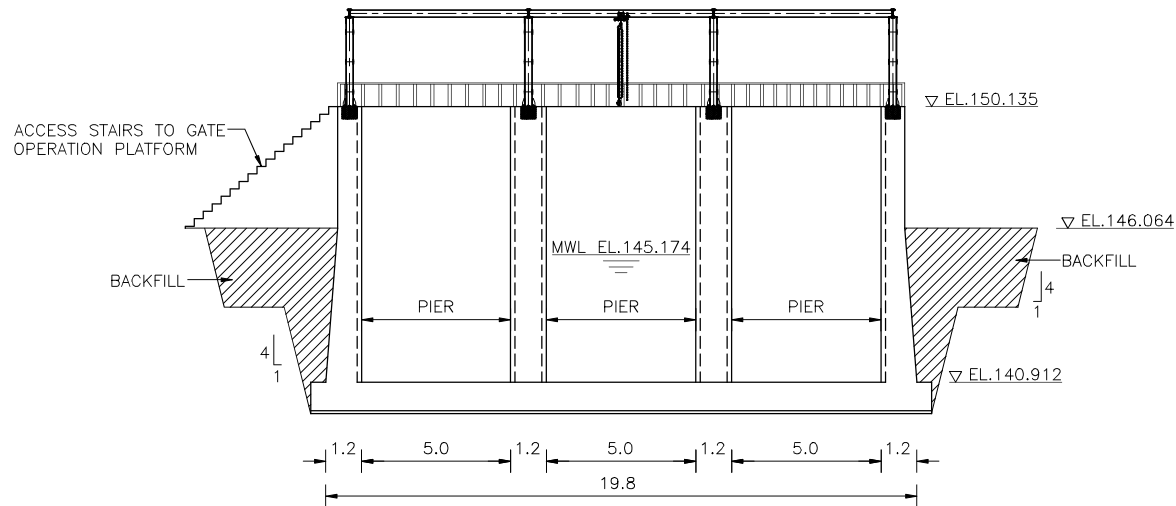
DRAWN BY:- CHECKED BY:- APPROVED BY:-



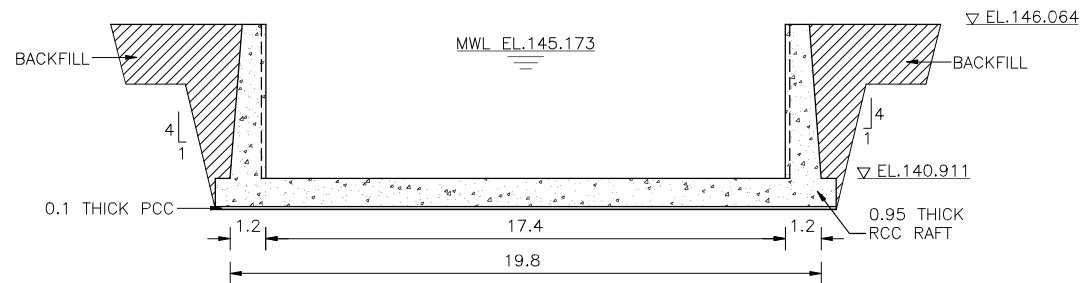
PLAN
(SCALE:- 1:500)



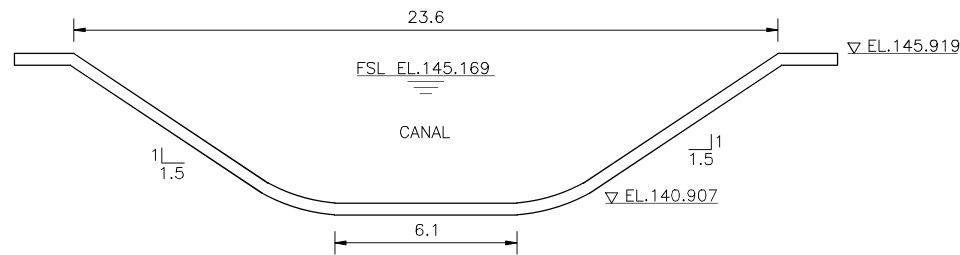
SECTION 1
(SCALE:- 1:250)



SECTION 2
(SCALE:- 1:250)



SECTION 3
(SCALE:- 1:250)



SECTION 4
(SCALE:- 1:250)

NOTES:-

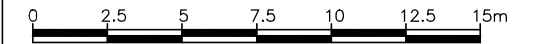
1. ALL DIMENSIONS & ELEVATION ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWING ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. BED WIDTH/FULL SUPPLY DEPTH ARE OBTAINED FROM THE HYDRAULIC ANALYSIS CARRIED OUT FOR THE PROJECT.
4. RCC SHALL BE OF GRADE M25 A20 AND PCC SHALL BE OF GRADE M10 A40 CONFORMING TO IS: 456-2000.

HEAD REGULATOR PARTICULARS

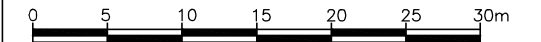
S.NO.	PARAMETERS	PARTICULARS
1	FSL (m)	145.174
2	BED LEVEL (m)	140.912
3	FSD (m)	4.262
4	DISCHARGE (m³/s)	80.90
5	VELOCITY (m/s)	1.28

TENDER DRAWING

SCALE 1:250



SCALE 1:500



IMPLEMENTING AGENCY :-

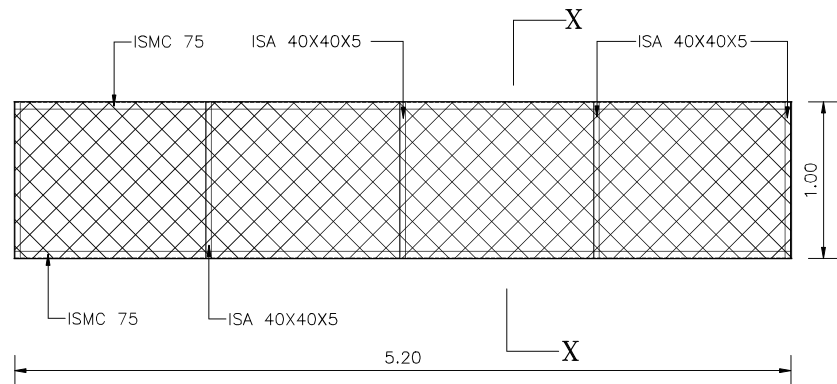


PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND

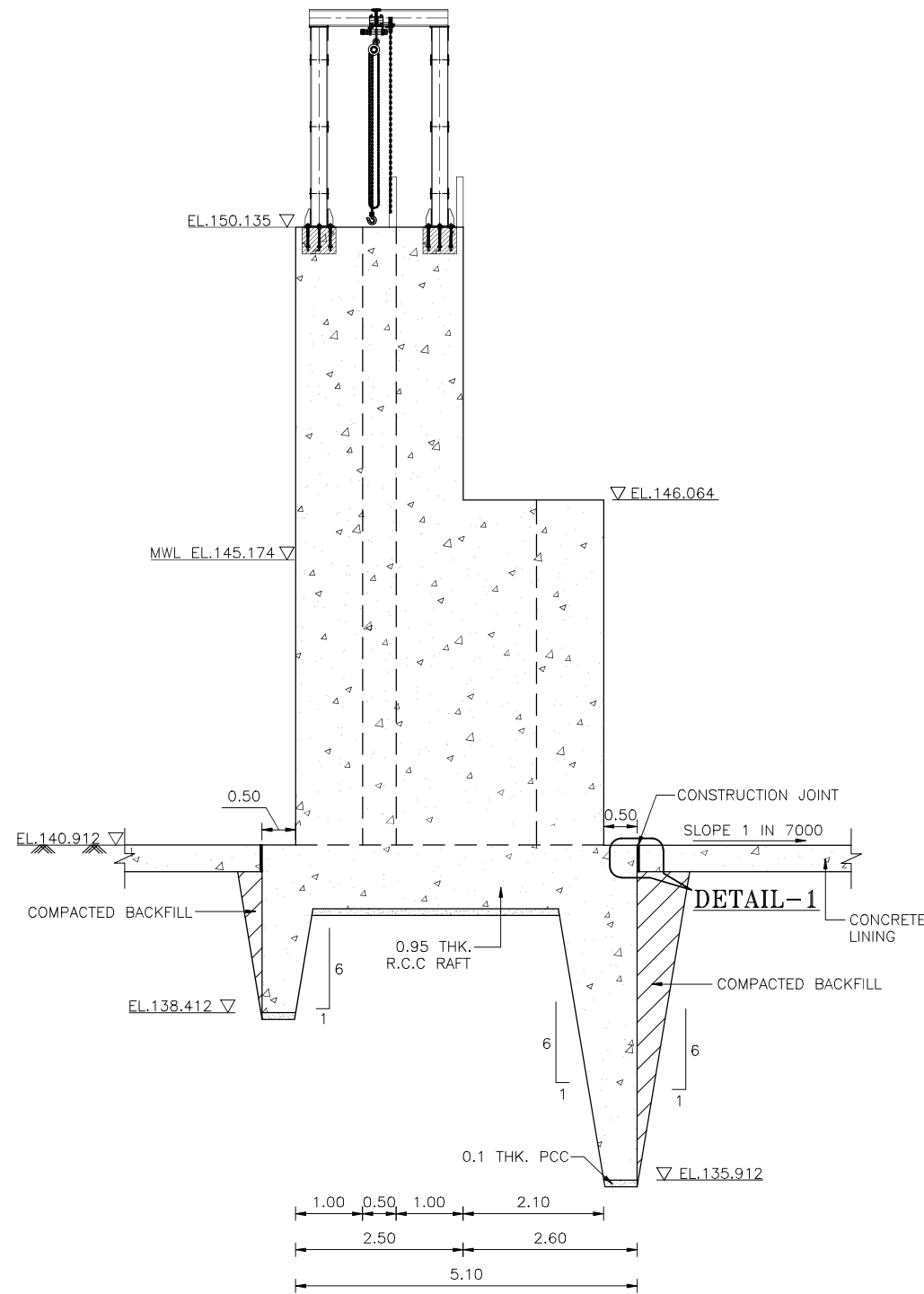
DRAWING TITLE :- HR + CR AT RD: 19.58
GENERAL ARRANGEMENT- MODIFIED

DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-008 (2/7)

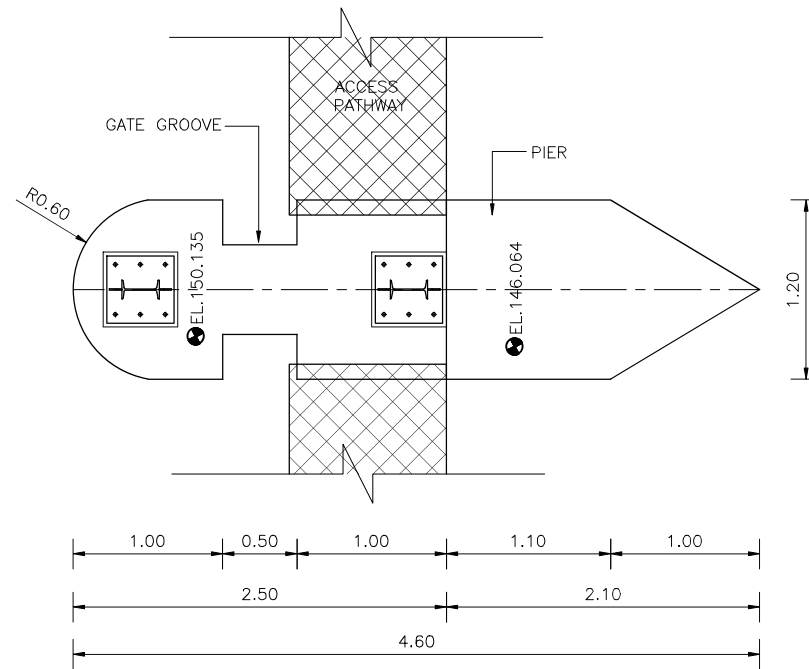
DRAWN BY:- CHECKED BY:- APPROVED BY:-



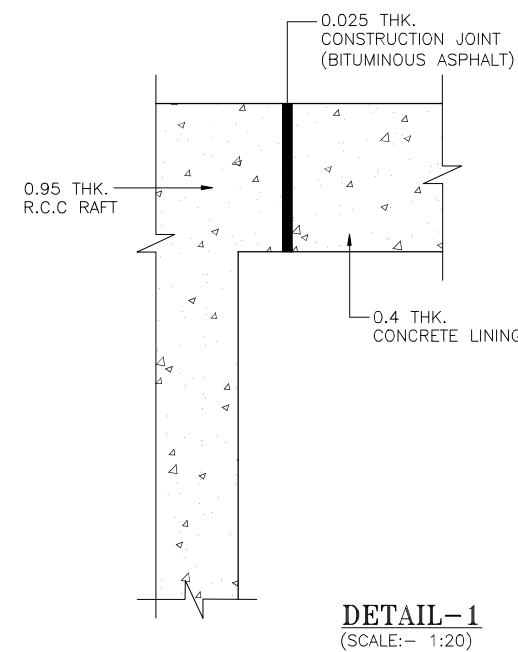
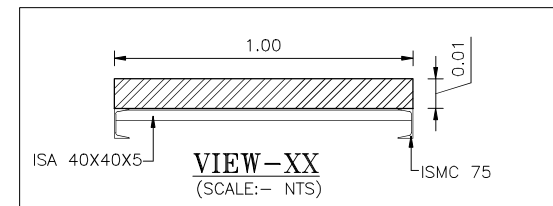
CHEQUERED PLATE
(SCALE:- 1:50)



L-SECTION
(SCALE:- 1:100)



MID PIER
(SCALE:- 1:50)

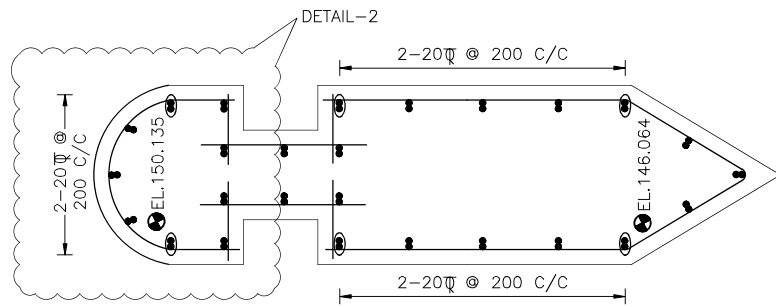


- NOTES:-**
1. ALL DIMENSIONS & ELEVATION ARE IN METER UNLESS OTHERWISE SPECIFIED.
 2. NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWING ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 3. BED WIDTH/FULL SUPPLY DEPTH ARE OBTAINED FROM THE HYDRAULIC ANALYSIS CARRIED OUT FOR THE PROJECT.
 4. RCC SHALL BE OF GRADE M25 A20 AND PCC SHALL BE OF GRADE M10 A40 CONFORMING TO IS: 456-2000.
 5. ALL STRUCTURAL STEEL CONFORMS TO IS: 2062.
 6. CONSIDERABLE CARE SHOULD BE TAKEN WHILE PROVIDING SEALING BETWEEN EXISTING CANAL LINING AND RAFT.
 7. SBC OF THE SOIL IS 296 kN/m² CONSIDERED AT 2m DEPTH FOR RAFT FOUNDATION SUBMITTED BY IIT(INDIAN SCHOOL OF MINES)DNANBAD.
 8. REFER SEPARATE DRAWING FOR H&M ARRANGEMENT.

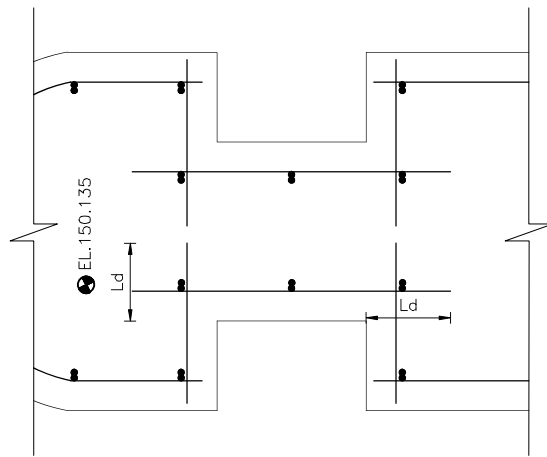
TENDER DRAWING



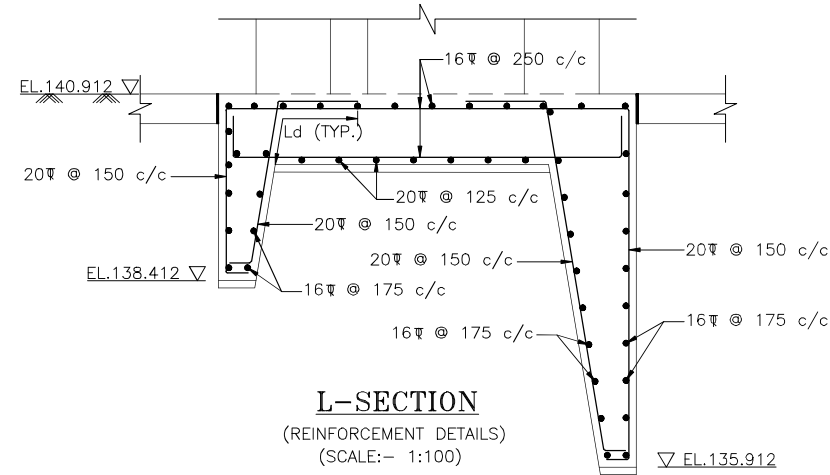
IMPLEMENTING AGENCY :-  WAPCOS LIMITED वाष्कोस लिमिटेड		
PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND		
DRAWING TITLE :- HR + CR AT RD: 19.58 CONCRETE OUTLINE DETAILS		
DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-008 (3/7)		
DRAWN BY:-	CHECKED BY:-	APPROVED BY:-



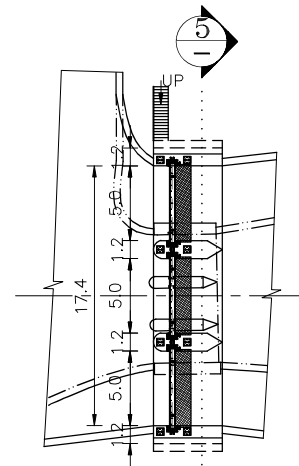
MID PIER
(SCALE:- 1:50)



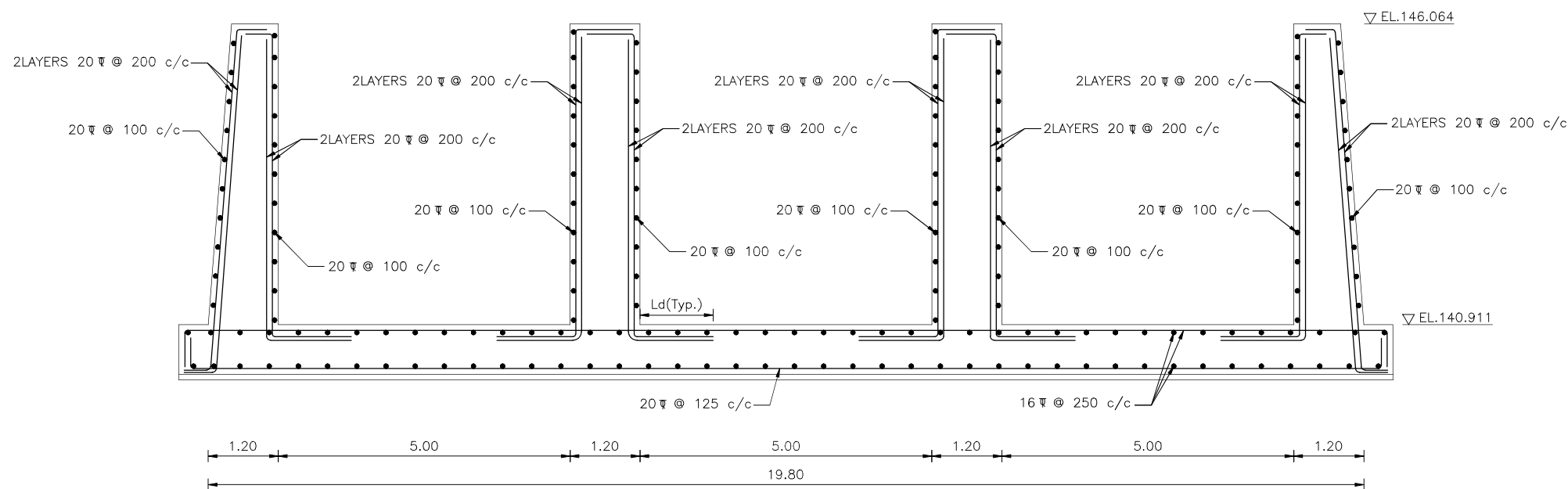
DETAIL-2
(SCALE:- 1:25)



L-SECTION
(REINFORCEMENT DETAILS)
(SCALE:- 1:100)



KEY PLAN
(SCALE:- 1:500)



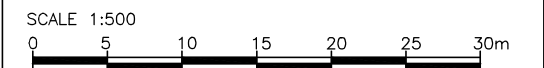
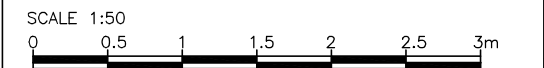
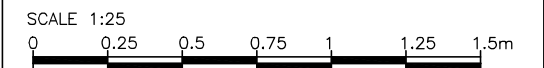
SECTION-5
(SCALE:- 1:100)

NOTES:-

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- CONSIDERABLE CARE SHOULD BE TAKEN WHILE PROVIDING SEALING BETWEEN EXISTING CANAL LINING AND RAFT.
- A CLEAR COVER TO THE REINFORCEMENT SHOULD BE AS FOLLOWS:

4:1 SLAB	25mm
4:2 SLAB	75mm
4:3 SLAB	75mm
- LAP LENGTH OF BARS SHALL NOT BE LESS THAN 50 TIMES DIA. OF LARGER DIA. BARS TO BE LAPPED. NOT MORE THAN 50% OF LAP IS DONE AT ONE LOCATION.
- DETAILING OF REINFORCEMENT SHALL BE DONE AS PER CODAL PROVISIONS AND STANDARD DESIGN PRACTICES.
- REINFORCEMENT SHALL BE OF GRADE Fe 500 CONFORMING TO IS: 1786.
- SBC OF THE SOIL IS 296 kN/m² CONSIDERED AT 2m DEPTH FOR RAFT FOUNDATION SUBMITTED BY IIT(INDIAN SCHOOL OF MINES)DNANBAD.

TENDER DRAWING



IMPLEMENTING AGENCY :-

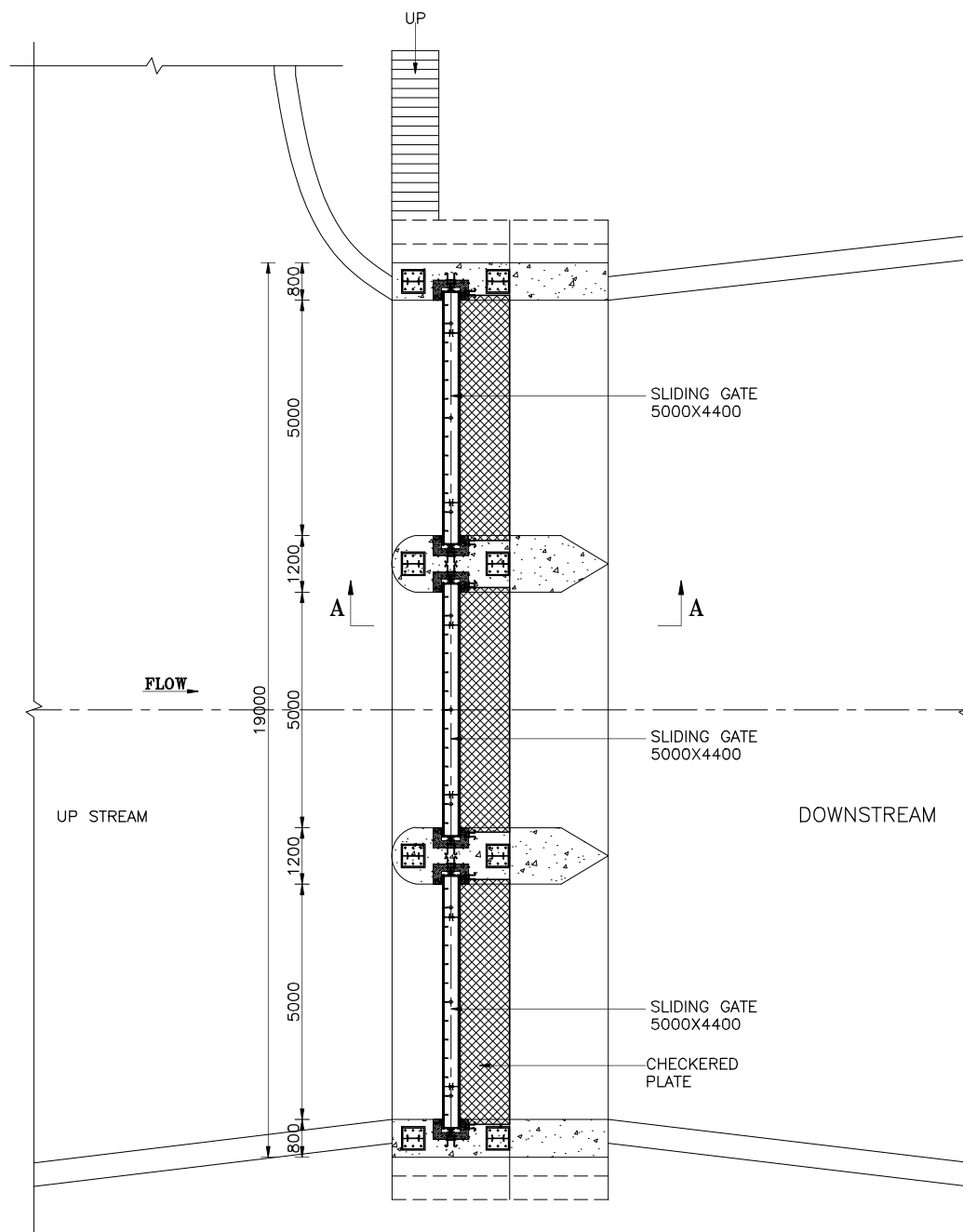


PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND

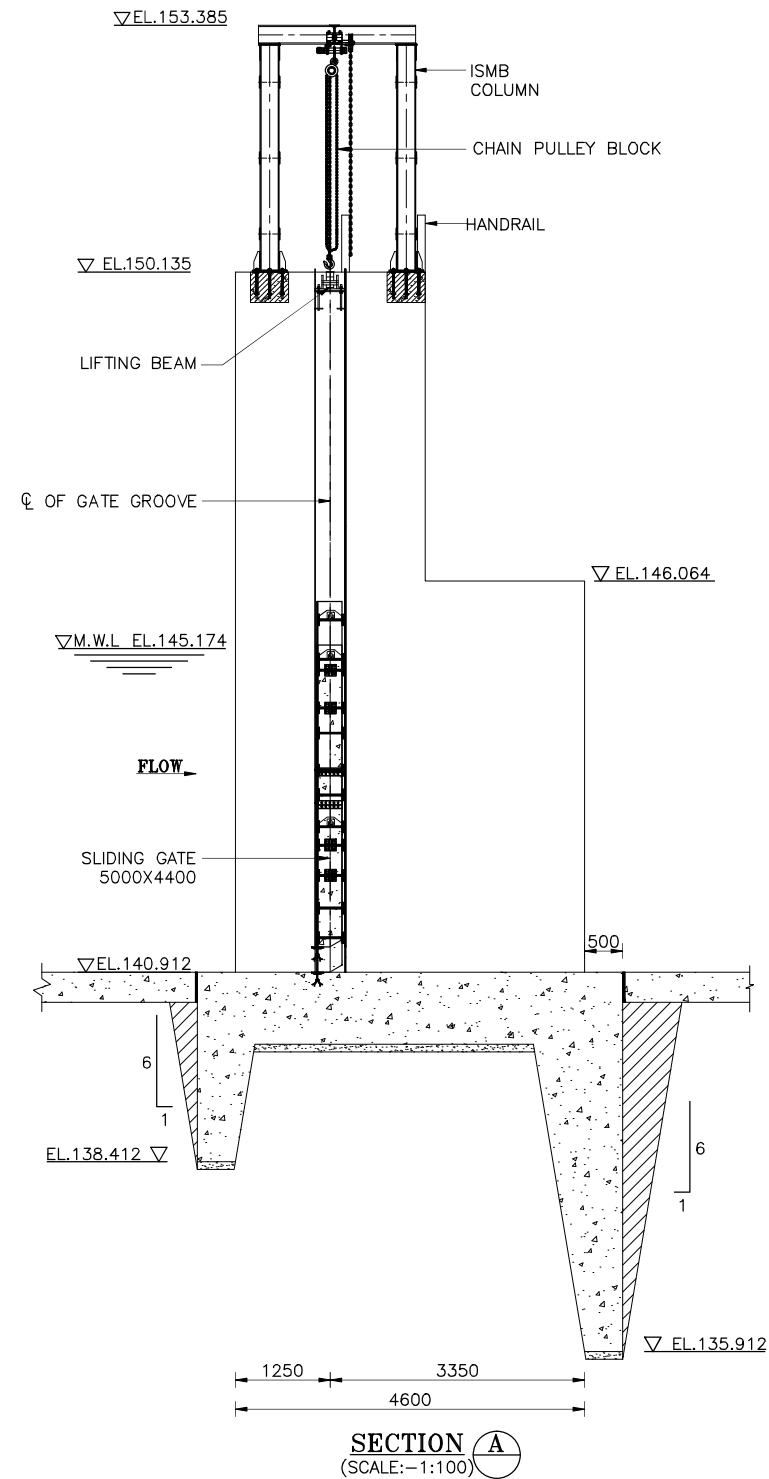
DRAWING TITLE :- HR + CR AT RD: 19.58 REINFORCEMENT DETAILS

DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-008 (5/7)

DRAWN BY:- CHECKED BY:- APPROVED BY:-



PLAN AT EL.150.135
(SCALE:-1:150)



SECTION A
(SCALE:-1:100)

NOTES :-

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- FOR PROPER BONDING BETWEEN 1st & 2nd STAGE CONCRETE, FIRST STAGE CONCRETE THOROUGHLY ROUGHENED AND SUITABLE DOWELS SHALL BE PROVIDED AND ALSO LEFT IN THE 1st STAGE CONCRETE.
- GROOVE DETAILS ARE FOR PLANNING PURPOSE ONLY AND SHALL BE FINALIZED BY THE MANUFACTURER.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT CIVIL DRAWINGS.

LEGENDS:-

- 1st STAGE CONCRETE
- 2nd STAGE CONCRETE

REFERENCE DRAWINGS:-

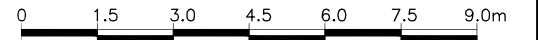
WAP/INFRA/NORTH KOEL /RMC-008 (2/7)	HR + CR AT RD : 19.58 GENERAL ARRANGEMENT-MODIFIED
WAP/INFRA/NORTH KOEL /RMC-008 (3/7)	HR + CR AT RD : 19.58 CONCRETE OUTLINE DETAILS

TENDER DRAWING

SCALE:- 1:100



SCALE:- 1:150



IMPLEMENTING AGENCY :-



PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND

DRAWING TITLE :- SLIDING GATE GENERAL ARRANGEMENT FOR RD : 19.58

DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-008 (6/7)

DRAWN BY:- CHECKED BY:- APPROVED BY:-



RD 28.97 HEADREGULATOR

1 2 3 4 5 6 7 8

A

B

C

D

E

F

A

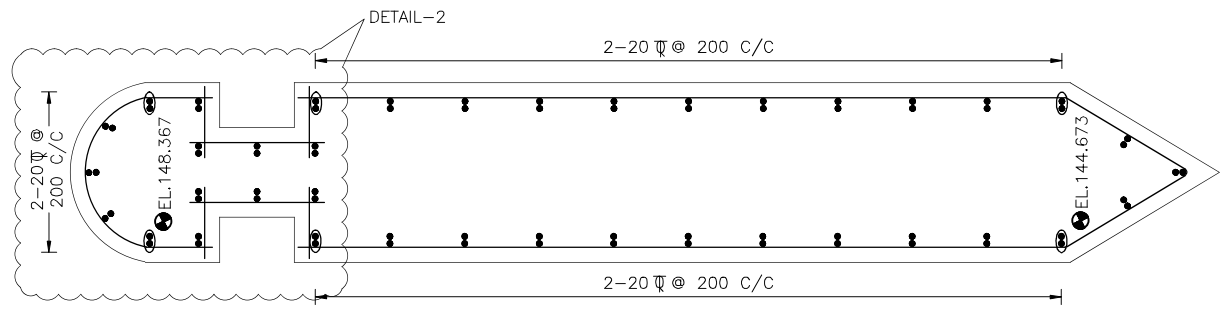
B

C

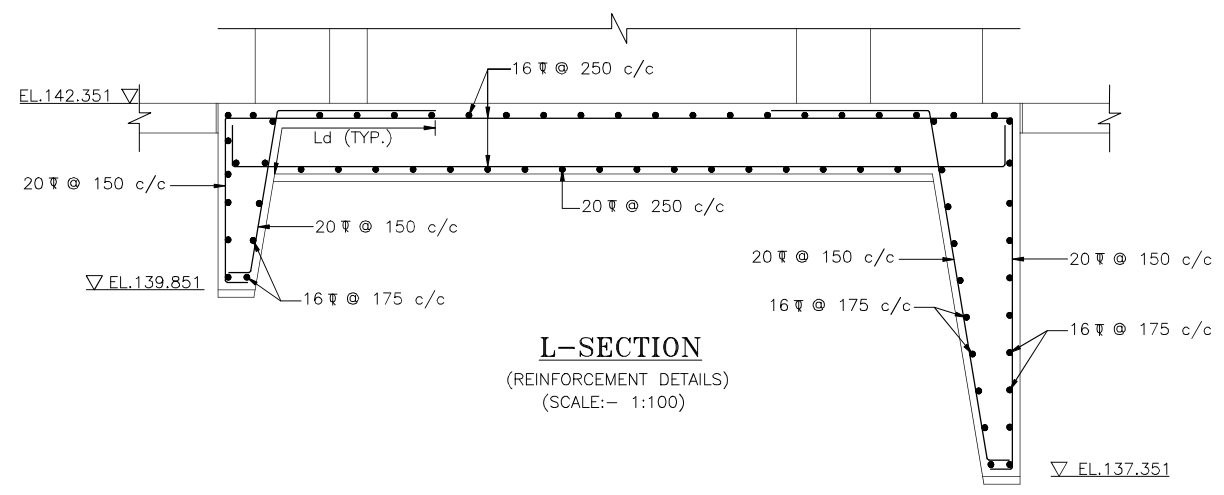
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E

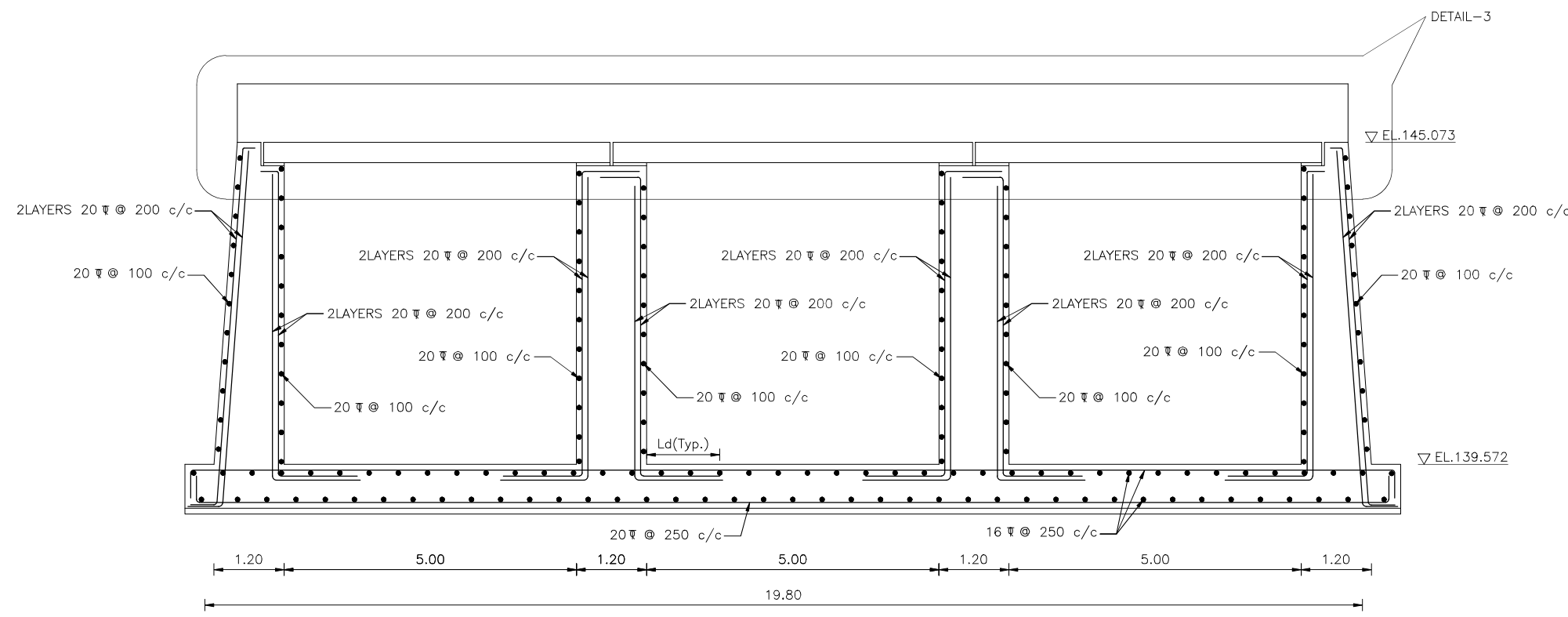
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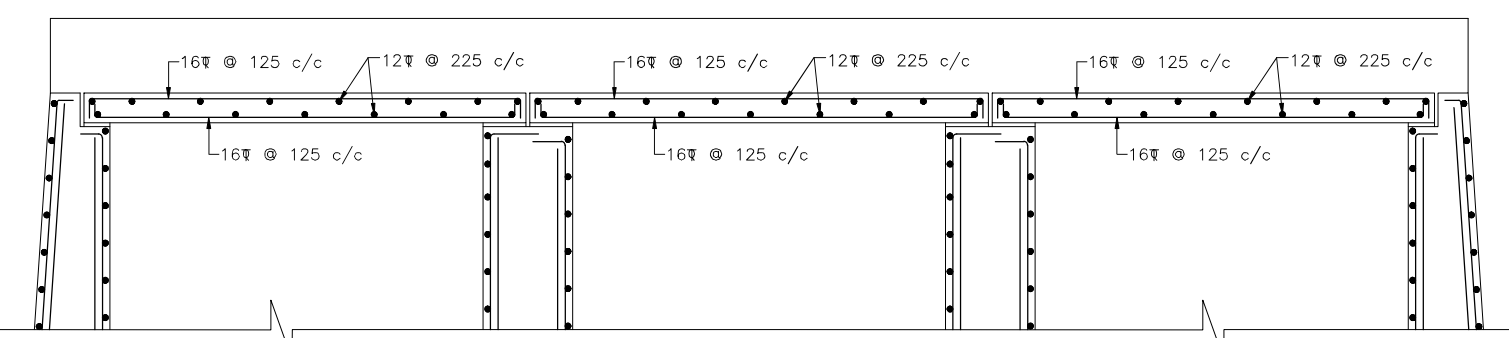
MID PIER
(SCALE:- 1:50)



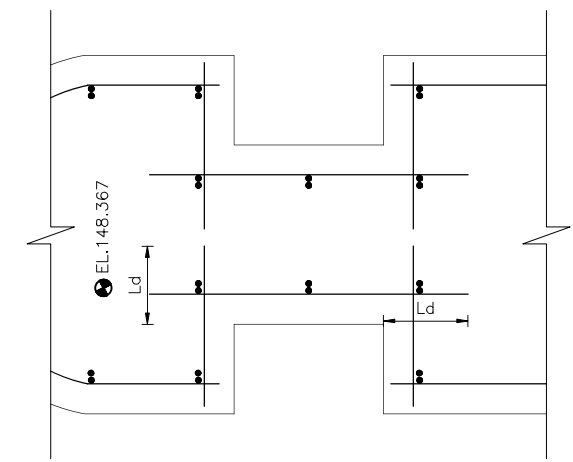
L-SECTION
(REINFORCEMENT DETAILS)
(SCALE:- 1:100)



SECTION-3
(SCALE:- 1:100)



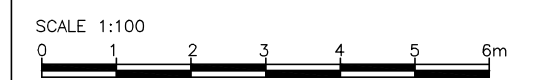
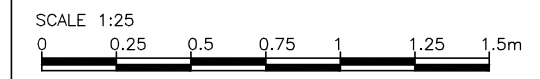
DETAIL-3
(SCALE:- 1:100)



DETAIL-2
(SCALE:- 1:25)

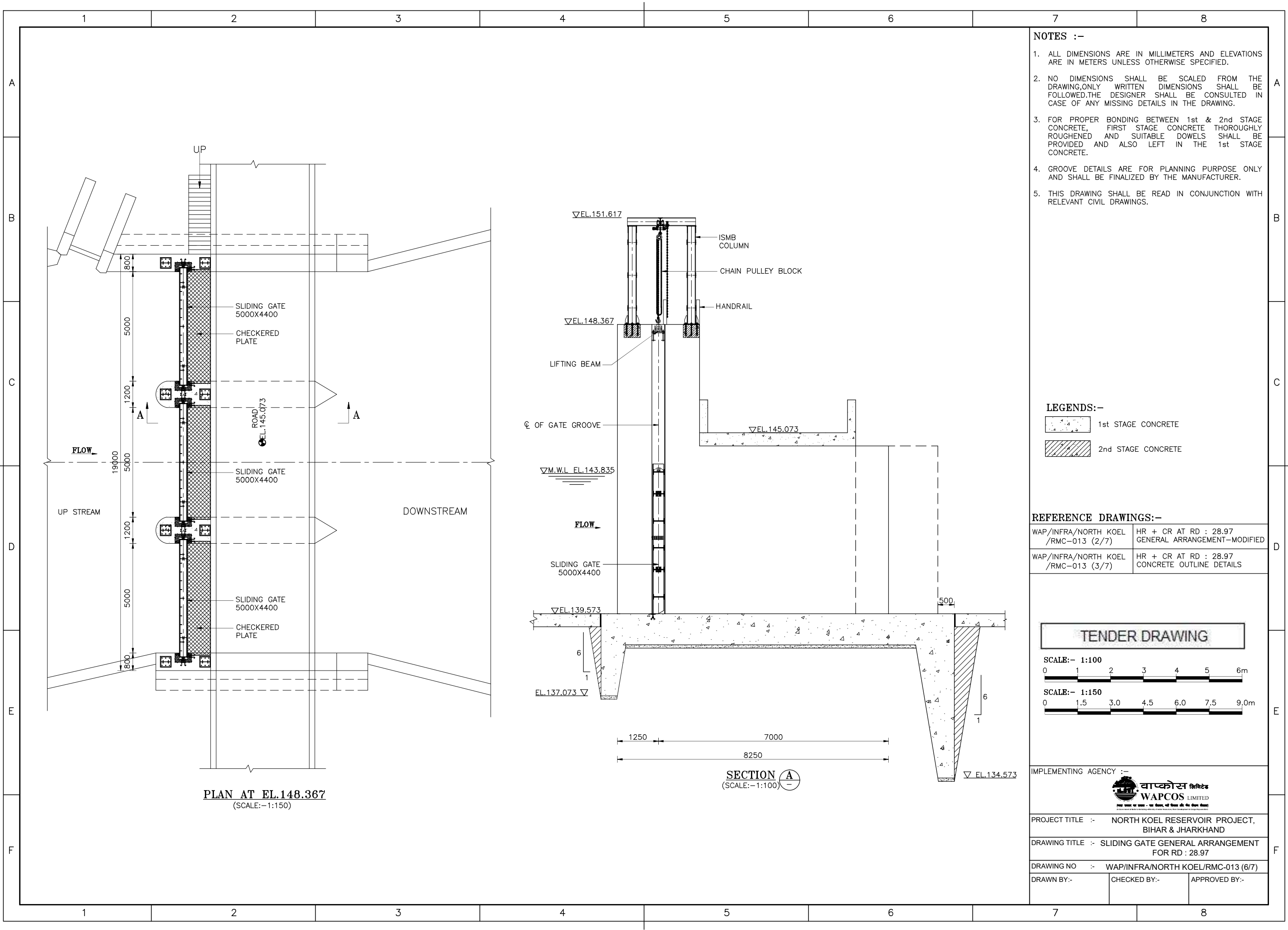
- NOTES:-**
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 - NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWING ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - CONSIDERABLE CARE SHOULD BE TAKEN WHILE PROVIDING SEALING BETWEEN EXISTING CANAL LINING AND RAFT.
 - A CLEAR COVER TO THE REINFORCEMENT SHOULD BE AS FOLLOWS:

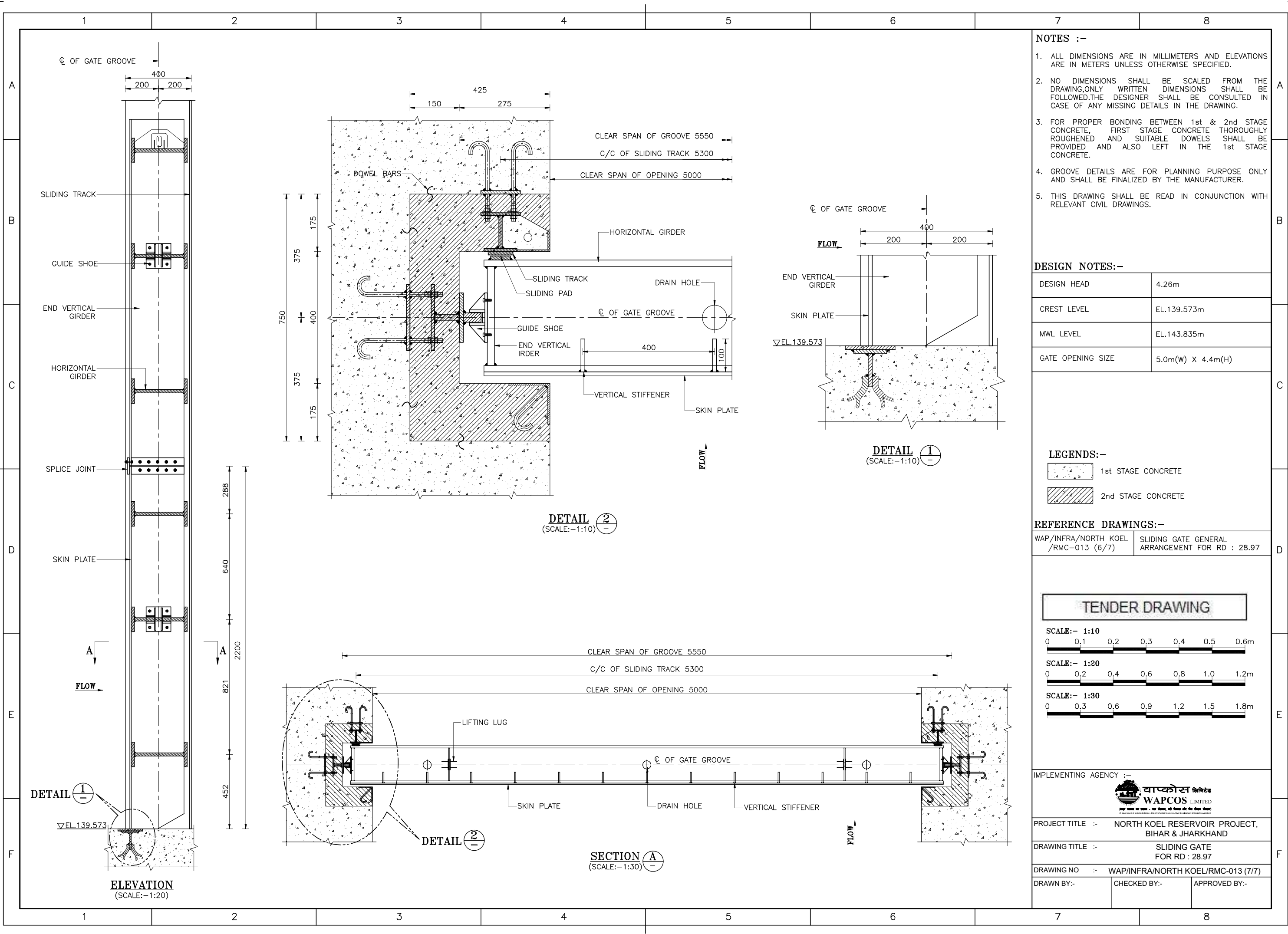
4:1 SLAB	25mm
4:2 SLAB	75mm
4:3 SLAB	75mm
 - LAP LENGTH OF BARS SHALL NOT BE LESS THAN 50 TIMES DIA. OF LARGER DIA. BARS TO BE LAPPED. NOT MORE THAN 50% OF LAP IS DONE AT ONE LOCATION.
 - DETAILING OF REINFORCEMENT SHALL BE DONE AS PER CODAL PROVISIONS AND STANDARD DESIGN PRACTICES.
 - REINFORCEMENT SHALL BE OF GRADE Fe 500 CONFORMING TO IS: 1786.
 - SBC OF THE SOIL IS 188.9 kN/m² CONSIDERED AT 2m DEPTH FOR RAFT FOUNDATION SUBMITTED BY IIT(INDIAN SCHOOL OF MINES)DANBAD.



TENDER DRAWING

IMPLEMENTING AGENCY :-		
		
PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND		
DRAWING TITLE :- HR + CR AT RD: 28.97 REINFORCEMENT DETAILS		
DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-013 (5/7)		
DRAWN BY:-	CHECKED BY:-	APPROVED BY:-





NOTES :-

1. ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWING, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. THE DESIGNER SHALL BE CONSULTED IN CASE OF ANY MISSING DETAILS IN THE DRAWING.
3. FOR PROPER BONDING BETWEEN 1st & 2nd STAGE CONCRETE, FIRST STAGE CONCRETE THOROUGHLY ROUGHENED AND SUITABLE DOWELS SHALL BE PROVIDED AND ALSO LEFT IN THE 1st STAGE CONCRETE.
4. GROOVE DETAILS ARE FOR PLANNING PURPOSE ONLY AND SHALL BE FINALIZED BY THE MANUFACTURER.
5. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT CIVIL DRAWINGS.

DESIGN NOTES:-

DESIGN HEAD	4.26m
CREST LEVEL	EL.139.573m
MWL LEVEL	EL.143.835m
GATE OPENING SIZE	5.0m(W) X 4.4m(H)

LEGENDS:-

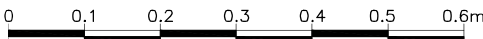
- 1st STAGE CONCRETE
- 2nd STAGE CONCRETE

REFERENCE DRAWINGS:-

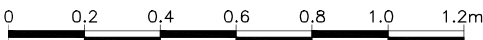
WAP/INFRA/NORTH KOEL /RMC-013 (6/7)	SLIDING GATE GENERAL ARRANGEMENT FOR RD : 28.97
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TENDER DRAWING

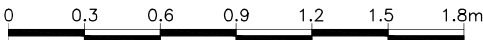
SCALE:- 1:10



SCALE:- 1:20



SCALE:- 1:30



IMPLEMENTING AGENCY :-



PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND

DRAWING TITLE :- SLIDING GATE FOR RD : 28.97

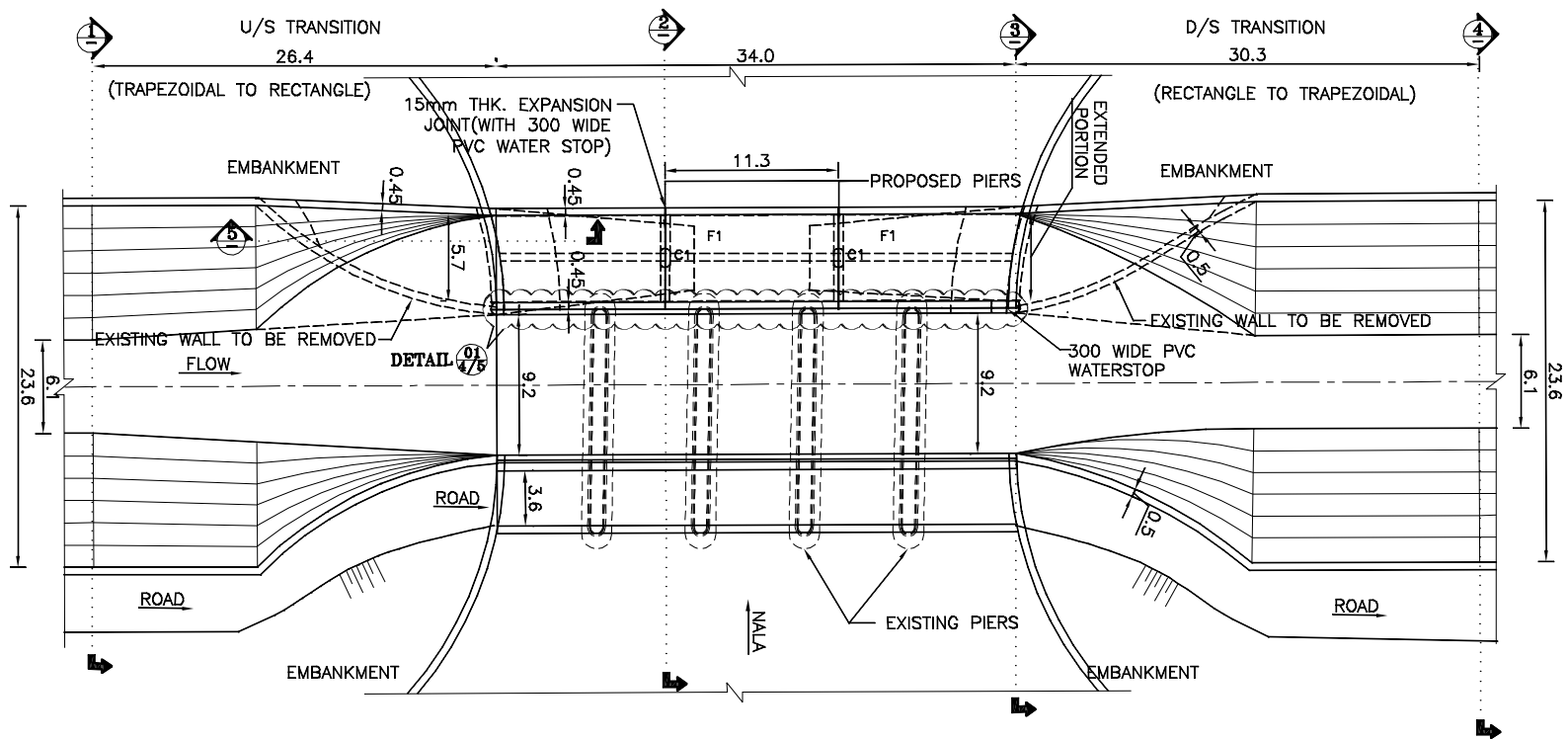
DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-013 (7/7)

DRAWN BY:- CHECKED BY:- APPROVED BY:-

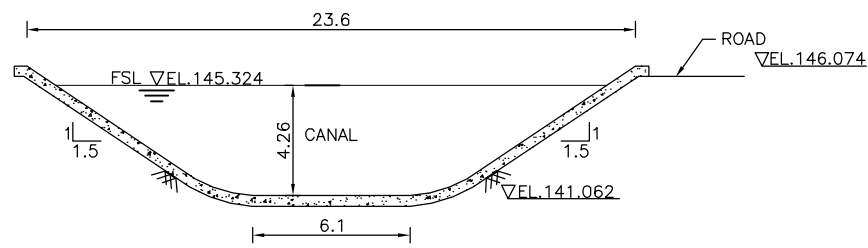
AQUEDUCT



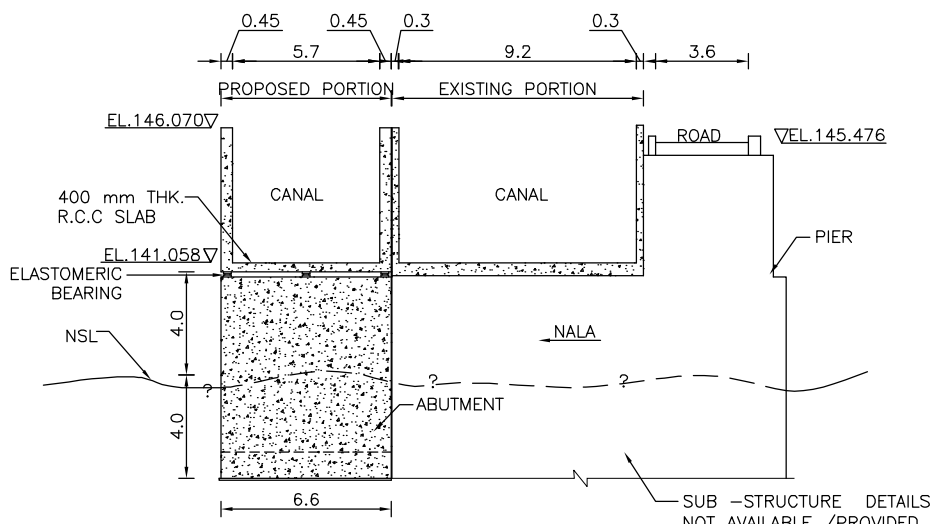
RD 18.56 AQUEDUCT OVER NALLA



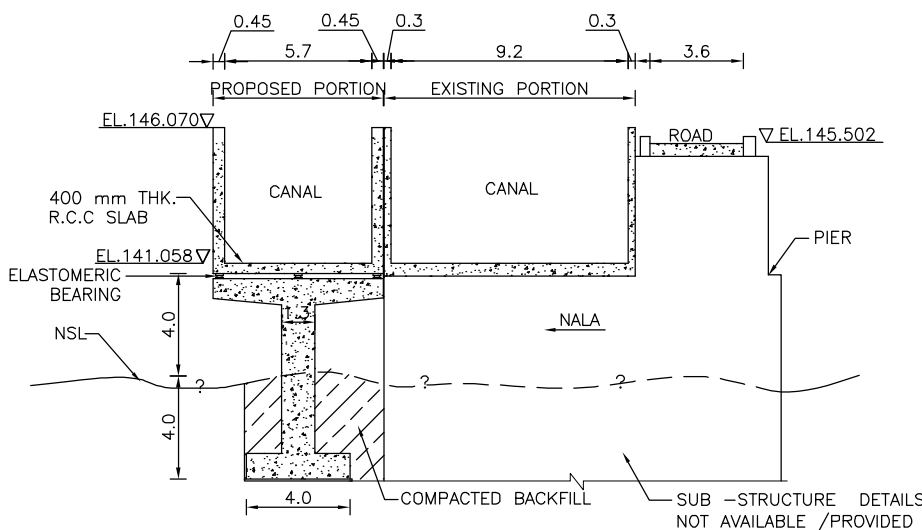
PLAN
(MODIFIED ARRANGEMENT)
(SCALE 1:500)



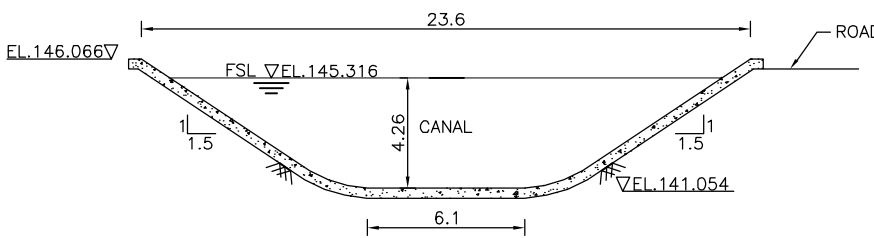
SECTION 1
(SCALE 1:300)



SECTION 3
(SCALE 1:300)



SECTION 2
(SCALE 1:300)



SECTION 4
(SCALE 1:300)

NOTES:-

1. ALL DIMENSIONS & ELEVATIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWINGS ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. SBC HAS BEEN CONSIDERED AS 211.5KN/m² AT 4m DEPTH AS PER GEO-TECHNICAL INVESTIGATION REPORT.
5. BED WIDTH / FULL SUPPLY DEPTH ARE OBTAINED FROM THE HYDRAULIC CALCULATIONS CARRIED OUT FOR THE PROJECT.

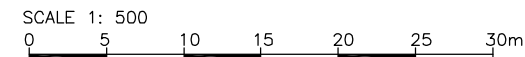
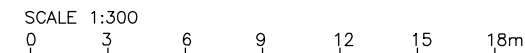
CANAL PARTICULARS

S.NO.	PARAMETERS	CANAL	AQUEDUCT
1	FSL (m)	145.324	145.320
2	BED LEVEL (m)	141.062	141.058
3	BED WIDTH (m)	6.1	15.65
4	FSD (m)	4.262	4.262
5	BED SLOPE	1 IN 7000	—
6	SIDE SLOPE	1:1.5	—
7	DISCHARGE (m ³ /s)	80.90	80.90
8	VELOCITY (m/s)	1.28	1.28
9	FREE BOARD (m)	0.75	0.75

DRAINAGE PARTICULARS

1	SILT FACTOR	1.31
2	BEARING PRESSURE (kN/m ²)	211.5

TENDER DRAWING



IMPLEMENTING AGENCY :-

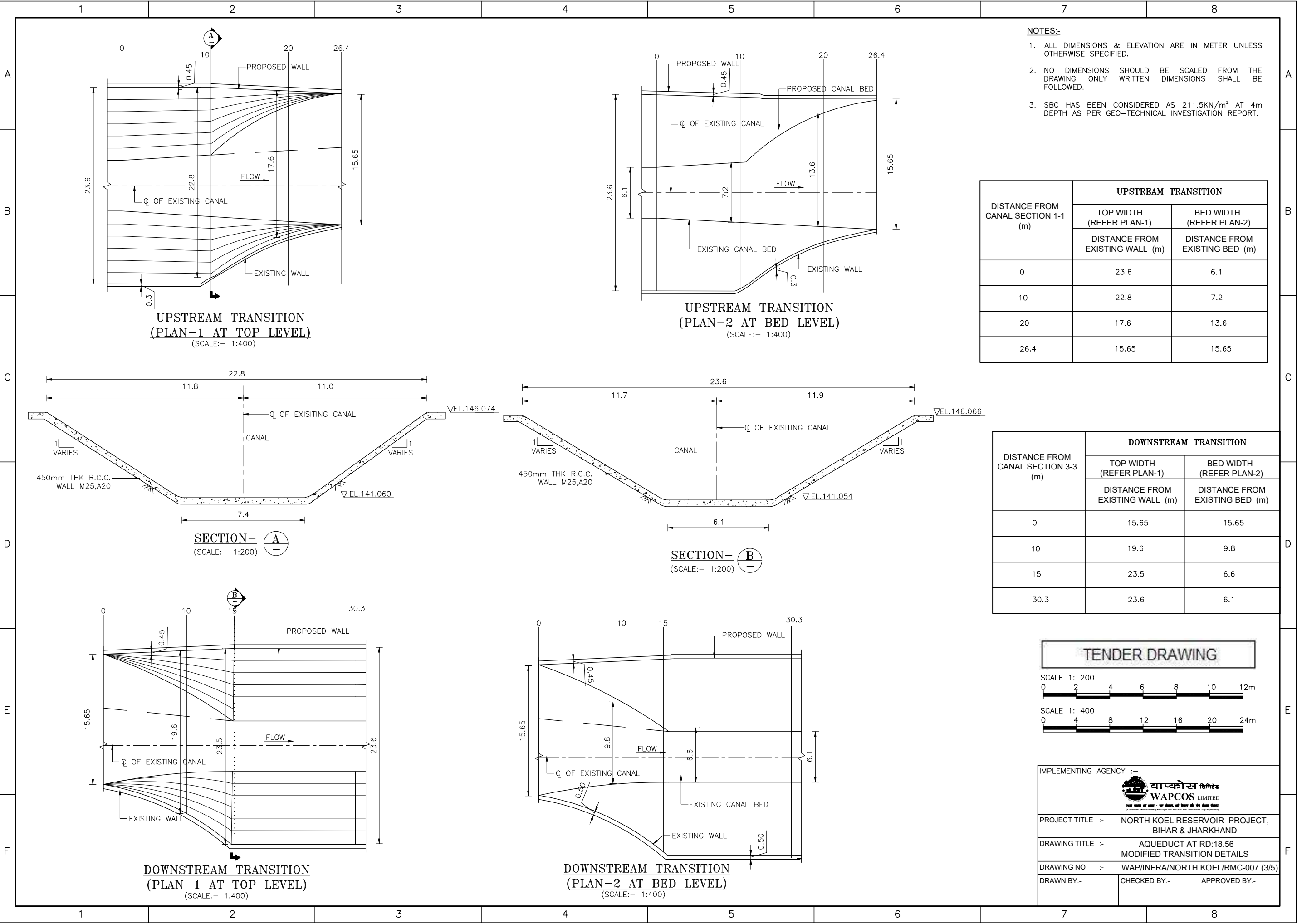


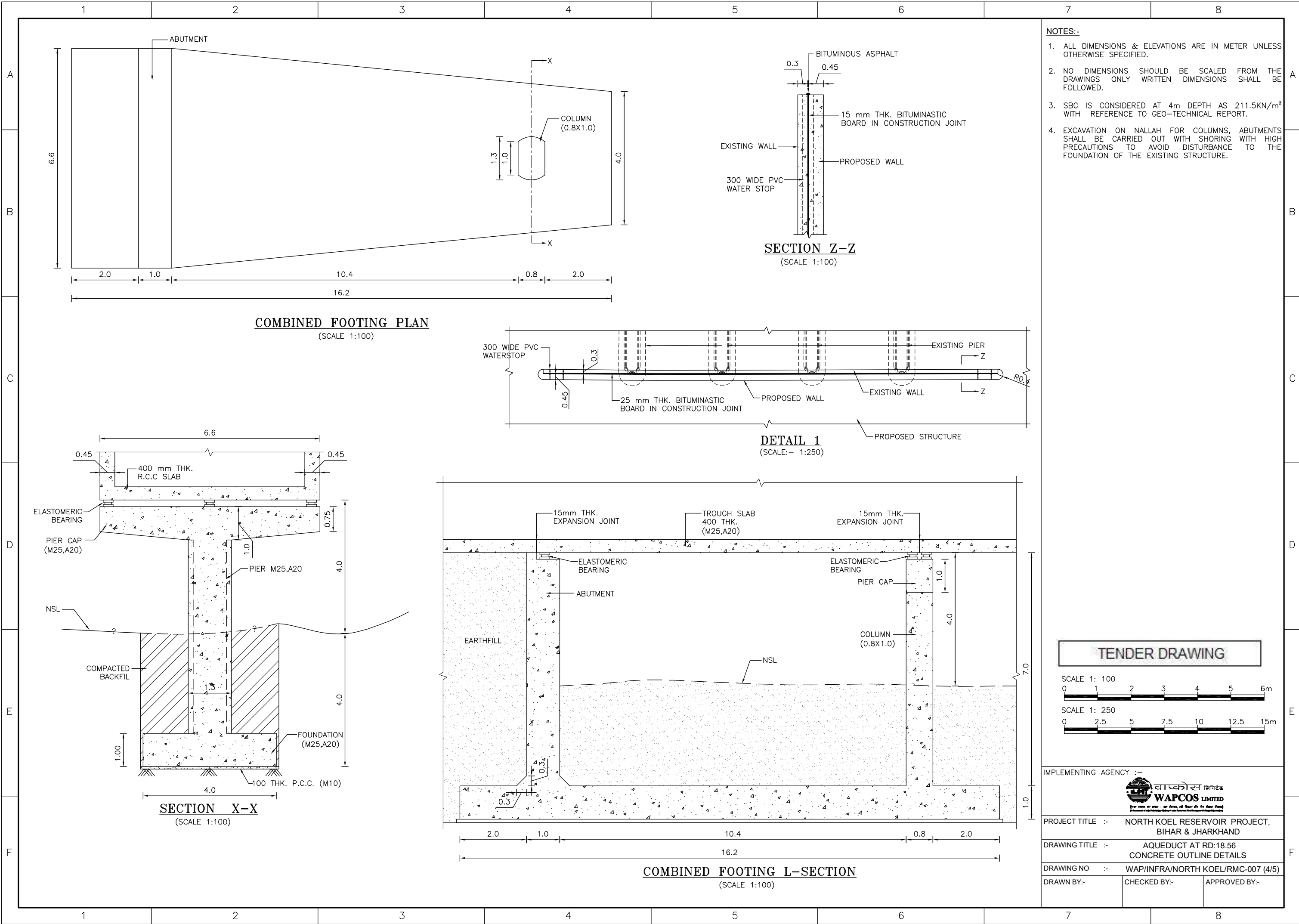
PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND

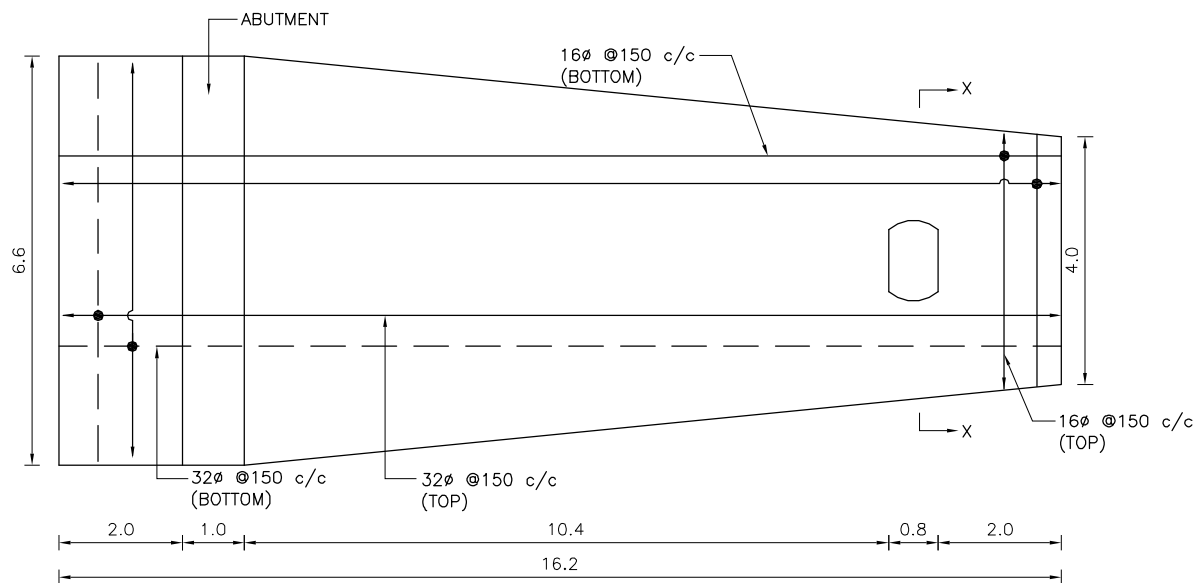
DRAWING TITLE :- AQUEDUCT AT RD: 18.56
GENERAL ARRANGEMENT - MODIFIED

DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-007 (2/5)

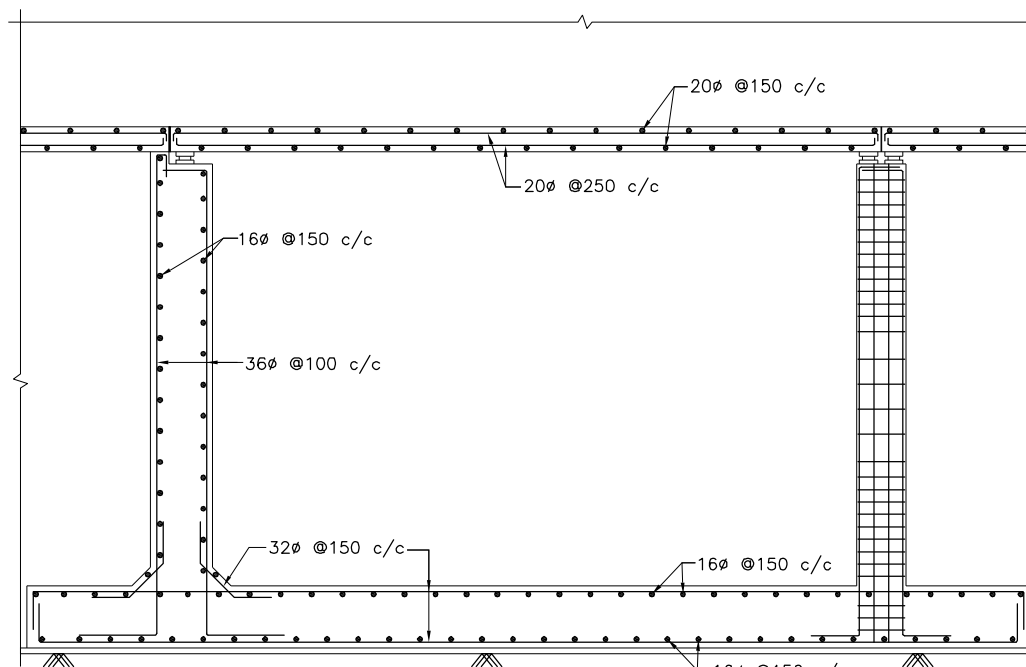
DRAWN BY:- CHECKED BY:- APPROVED BY:-



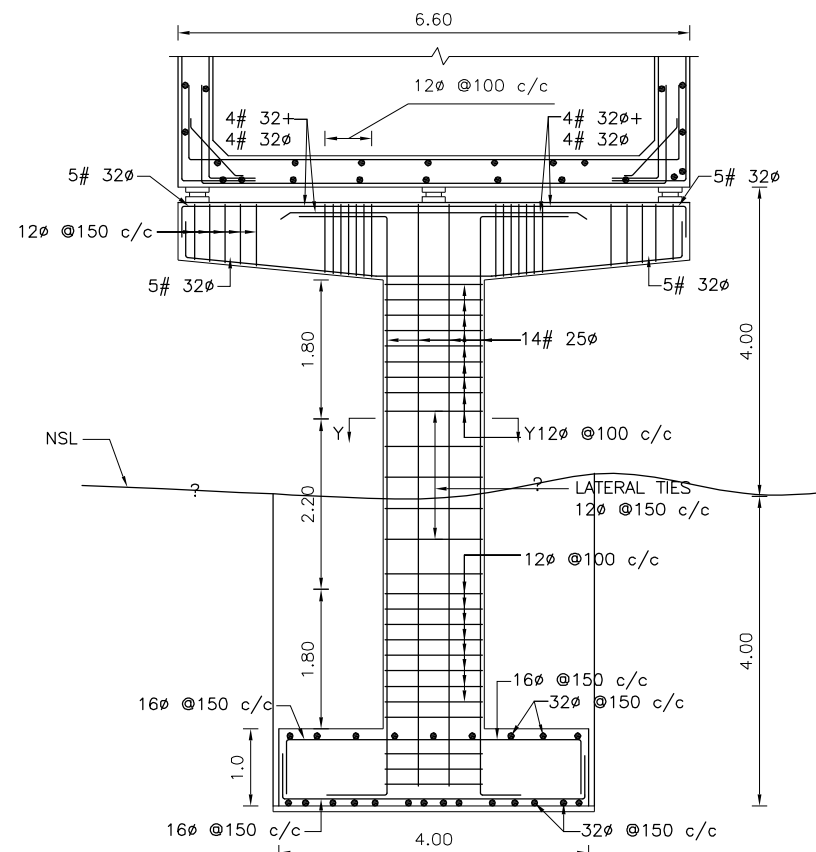




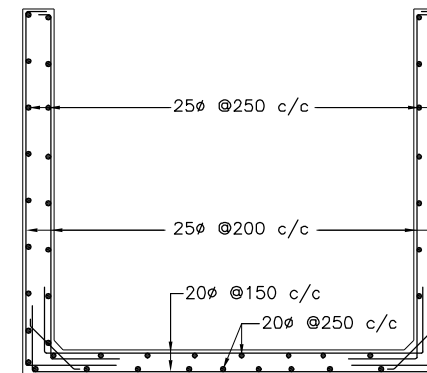
COMBINED FOOTING - PLAN
(SCALE 1:125)



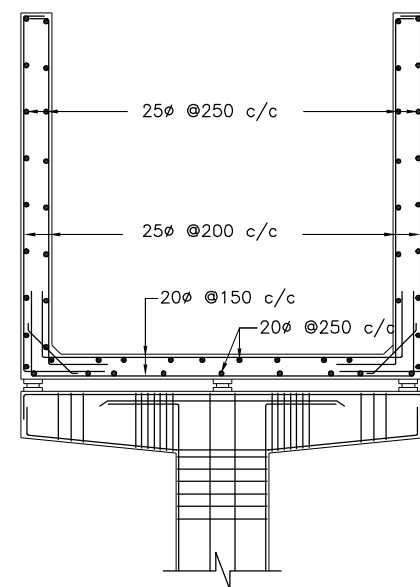
COMBINED FOOTING - L-SECTION
(SCALE 1:125)



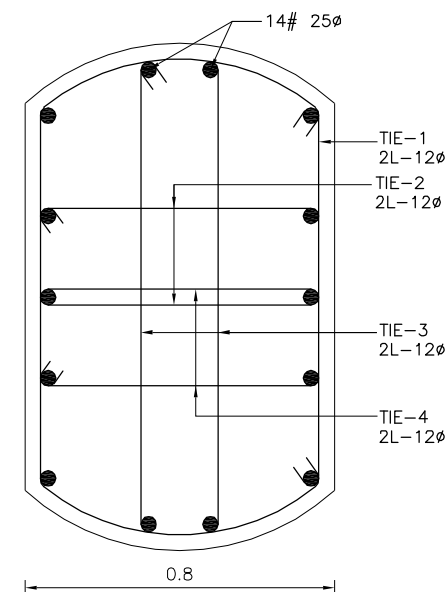
SECTION X-X
(PIER AND PIER CAP CONNECTION DETAILS)
(SCALE 1:100)



AQUEDUCT-SECTION
(MID SPAN)
(SCALE:- 1:125)



AQUEDUCT-SECTION
(AT SUPPORT)
(SCALE:- 1:125)



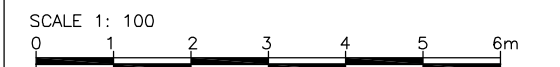
SECTION Y-Y
(SCALE:- 1:20)

NOTES:-

1. THIS DRAWING SHOWS THE REINFORCEMENT DETAILS OF AQUEDUCT.
2. ALL DIMENSIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
3. NO DIMENSIONS SHALL BE MEASURED FROM THE DRAWING; ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
4. REINFORCEMENT BARS SHALL BE OF HIGH YIELD STRENGTH COLD TWISTED DEFORMED BARS OF GRADE Fe-500 CONFORMING TO IS:1786.
5. REINFORCEMENT BARS SHALL NOT BE COUNTED.
6. DEVELOPMENT LENGTH AND LAP LENGTH OF REINFORCEMENT BARS SHALL BE AS PER SP 34.

S. NO.	MEMBER	MINIMUM COVER OF REINFORCEMENT
1.	FOOTING	75mm FOR CONCRETE DEPOSITED AGAINST THE GROUND AND 50mm FOR OTHER SURFACES.
2.	PIER	50mm
3.	PIER CAP	25mm
4.	SLAB & WALL	50mm

TENDER DRAWING



IMPLEMENTING AGENCY :-



PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND

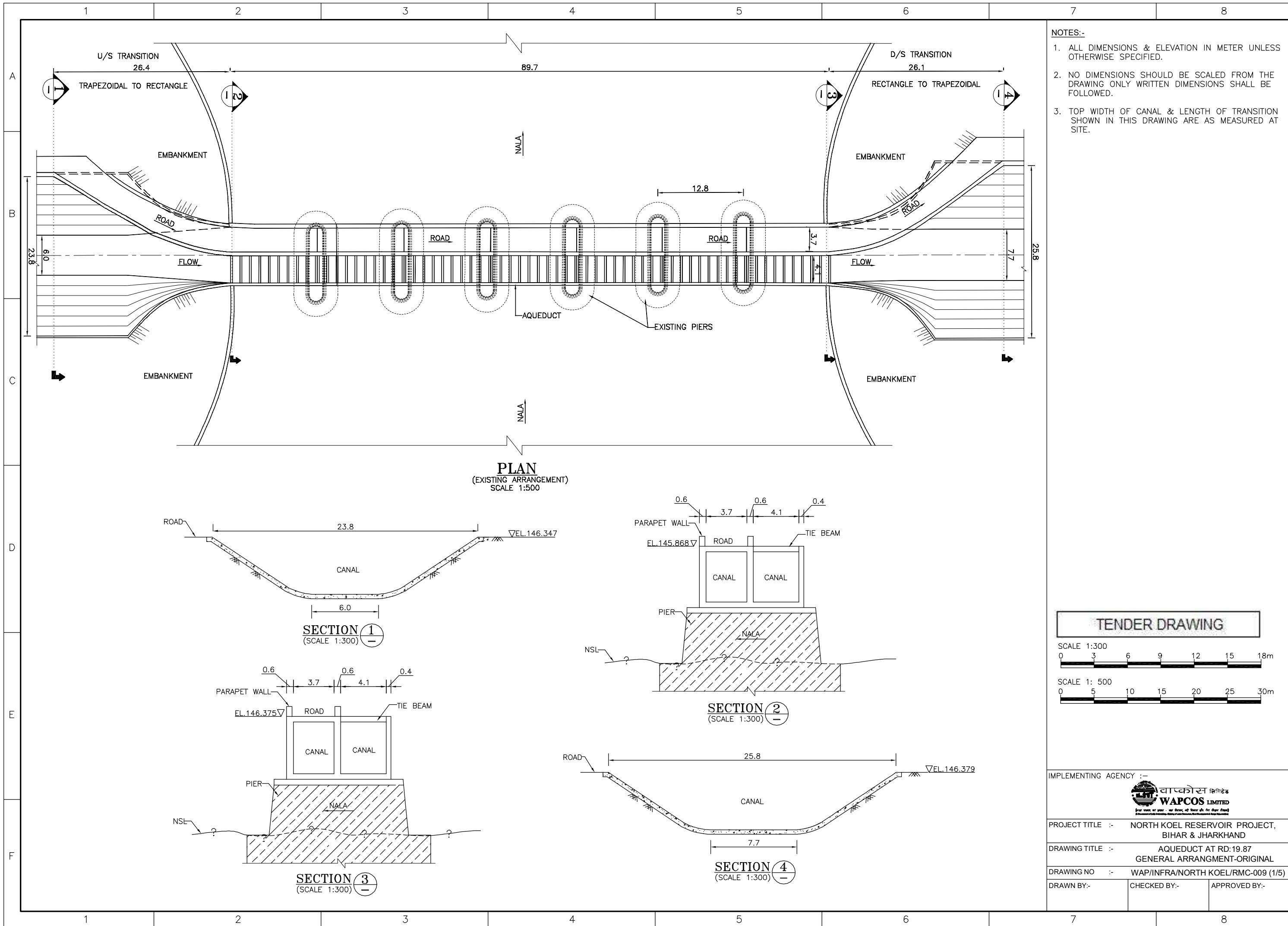
DRAWING TITLE :- AQUEDUCT AT RD:18.56 REINFORCEMENT DETAILS

DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-007 (5/5)

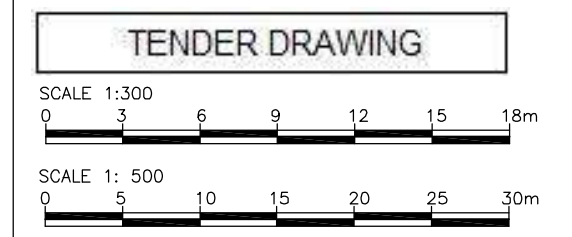
DRAWN BY:- CHECKED BY:- APPROVED BY:-



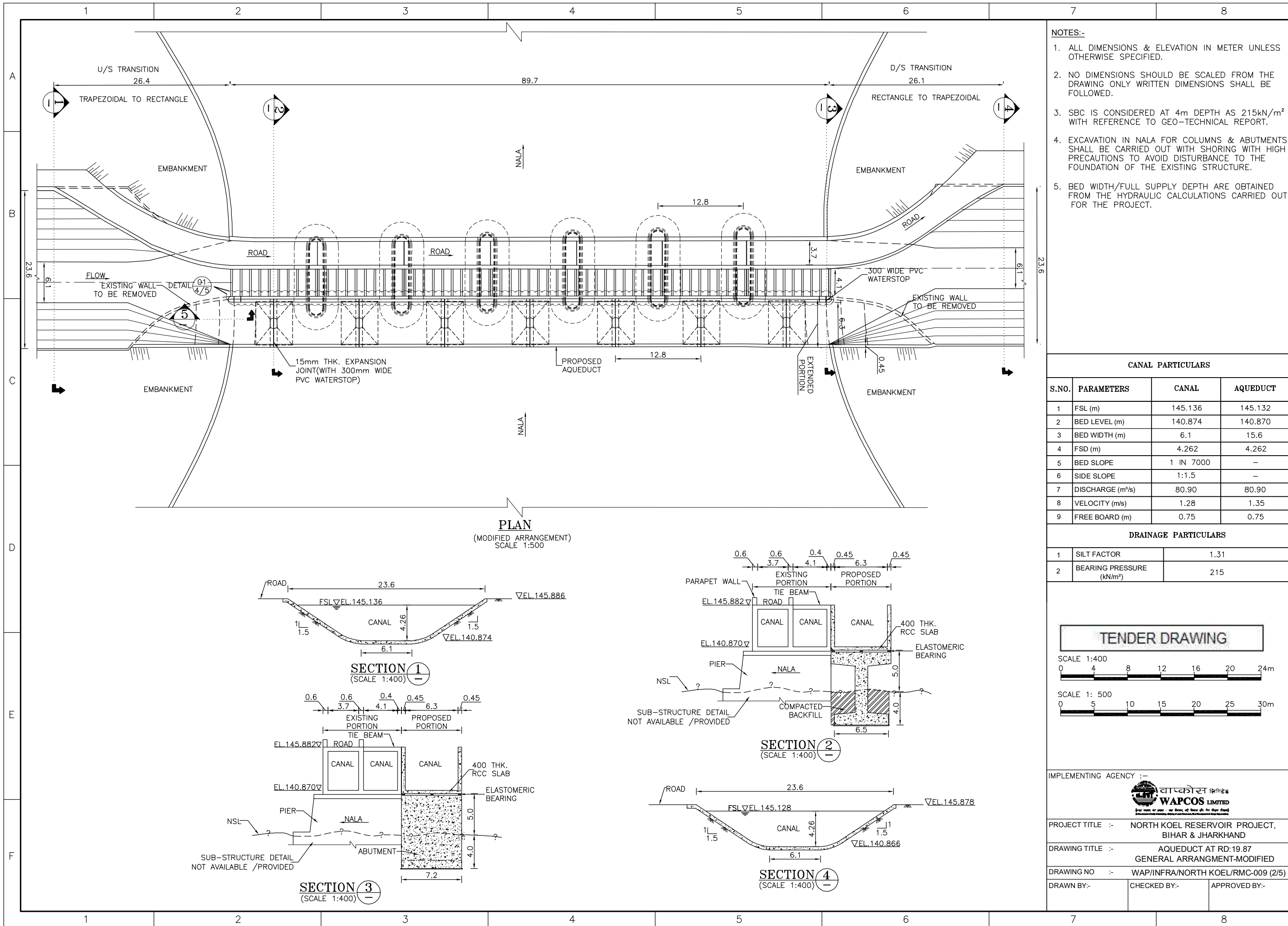
RD 19.87 AQUEDUCT OVER KUKHI RIVER



- NOTES:-**
1. ALL DIMENSIONS & ELEVATION IN METER UNLESS OTHERWISE SPECIFIED.
 2. NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWING ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 3. TOP WIDTH OF CANAL & LENGTH OF TRANSITION SHOWN IN THIS DRAWING ARE AS MEASURED AT SITE.



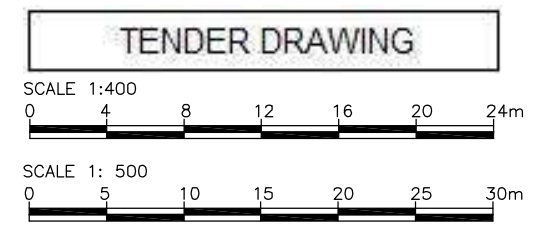
IMPLEMENTING AGENCY :-  वापकोस लिमिटेड WAPCOS LIMITED एन सी ई सी - एन सी ई सी - एन सी ई सी - एन सी ई सी		
PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND		
DRAWING TITLE :- AQUEDUCT AT RD:19.87 GENERAL ARRANGMENT-ORIGINAL		
DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-009 (1/5)		
DRAWN BY:-	CHECKED BY:-	APPROVED BY:-



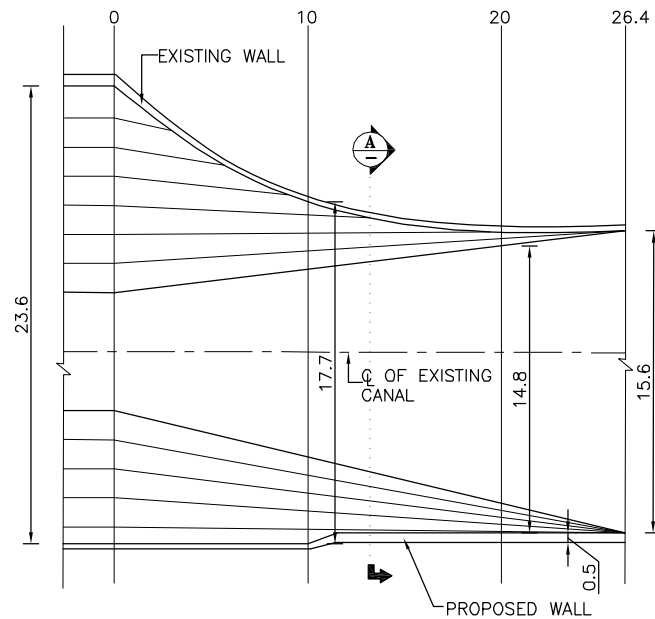
- NOTES:-**
1. ALL DIMENSIONS & ELEVATION IN METER UNLESS OTHERWISE SPECIFIED.
 2. NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWING ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 3. SBC IS CONSIDERED AT 4m DEPTH AS 215kN/m² WITH REFERENCE TO GEO-TECHNICAL REPORT.
 4. EXCAVATION IN NALA FOR COLUMNS & ABUTMENTS SHALL BE CARRIED OUT WITH SHORING WITH HIGH PRECAUTIONS TO AVOID DISTURBANCE TO THE FOUNDATION OF THE EXISTING STRUCTURE.
 5. BED WIDTH/FULL SUPPLY DEPTH ARE OBTAINED FROM THE HYDRAULIC CALCULATIONS CARRIED OUT FOR THE PROJECT.

CANAL PARTICULARS			
S.NO.	PARAMETERS	CANAL	AQUEDUCT
1	FSL (m)	145.136	145.132
2	BED LEVEL (m)	140.874	140.870
3	BED WIDTH (m)	6.1	15.6
4	FSD (m)	4.262	4.262
5	BED SLOPE	1 IN 7000	—
6	SIDE SLOPE	1:1.5	—
7	DISCHARGE (m ³ /s)	80.90	80.90
8	VELOCITY (m/s)	1.28	1.35
9	FREE BOARD (m)	0.75	0.75

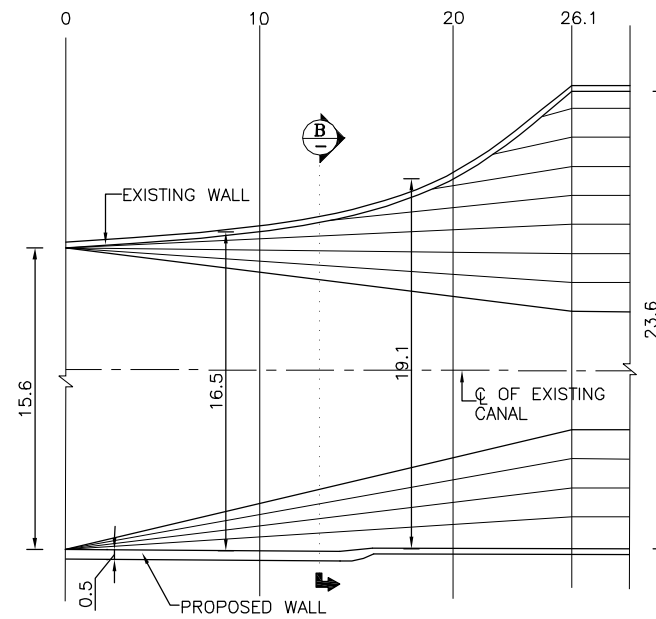
DRAINAGE PARTICULARS		
1	SILT FACTOR	1.31
2	BEARING PRESSURE (kN/m ²)	215



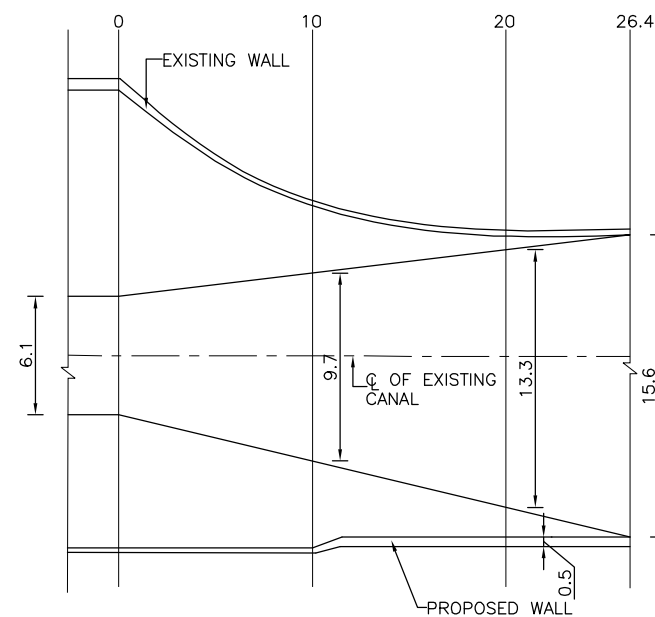
IMPLEMENTING AGENCY :-  वापकोस लिमिटेड WAPCOS LIMITED एन सी ई सी - एन सी ई सी, एन सी ई सी, एन सी ई सी		
PROJECT TITLE :-	NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND	
DRAWING TITLE :-	AQUEDUCT AT RD:19.87 GENERAL ARRANGMENT-MODIFIED	
DRAWING NO :-	WAP/INFRA/NORTH KOEL/RMC-009 (2/5)	
DRAWN BY:-	CHECKED BY:-	APPROVED BY:-



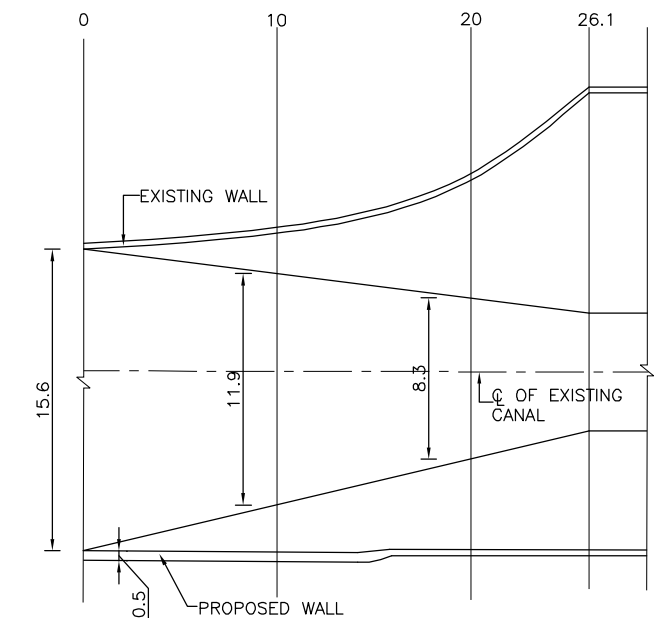
**UPSTREAM TRANSITION
PLAN-1 AT TOP**
(SCALE:- 1:400)



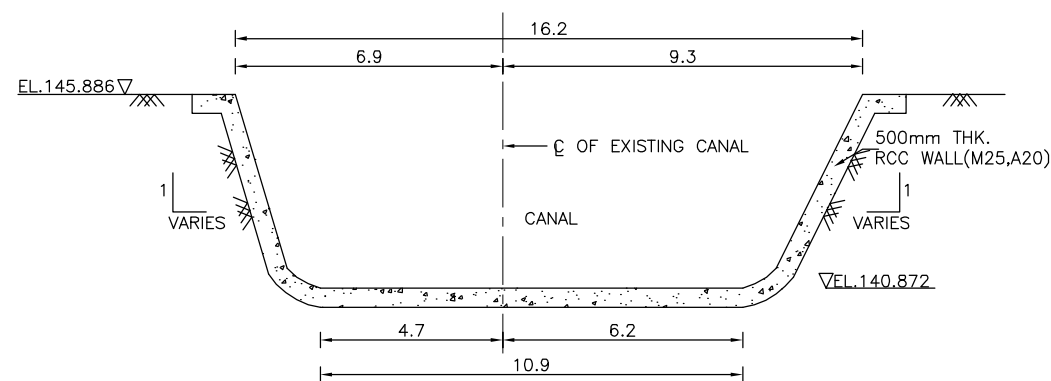
**DOWNSTREAM TRANSITION
PLAN-1 AT TOP**
(SCALE:- 1:400)



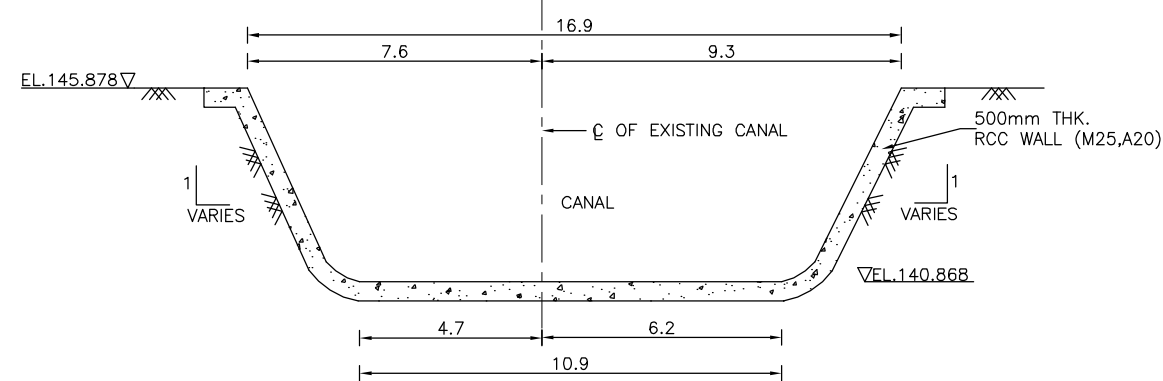
**UPSTREAM TRANSITION
PLAN-2 AT BED LEVEL**
(SCALE:- 1:400)



**DOWNSTREAM TRANSITION
PLAN-2 AT BED LEVEL**
(SCALE:- 1:400)



SECTION-A
(SCALE:- 1:200)



SECTION-B
(SCALE:- 1:200)

NOTES:-

1. ALL DIMENSIONS & ELEVATION IN METER UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWING ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

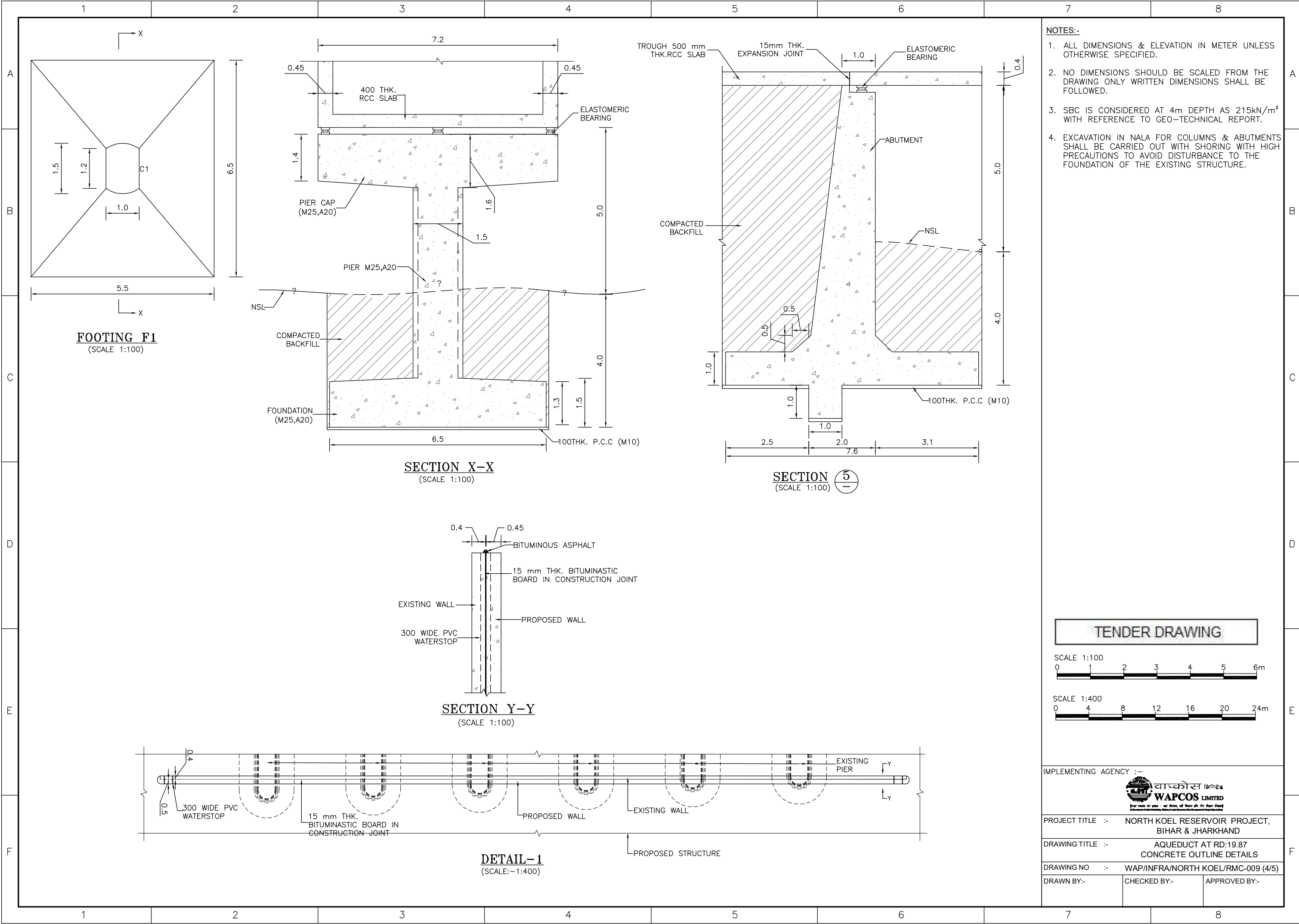
DISTANCE FROM CANAL SECTION 1-1 (m)	UPSTREAM TRANSITION	
	TOP WIDTH (REFER PLAN-1)	BED WIDTH (REFER PLAN-2)
	DISTANCE FROM EXISTING WALL (m)	DISTANCE FROM EXISTING BED (m)
0	23.6	6.1
10	17.7	9.7
20	14.8	13.3
26.4	15.6	15.6

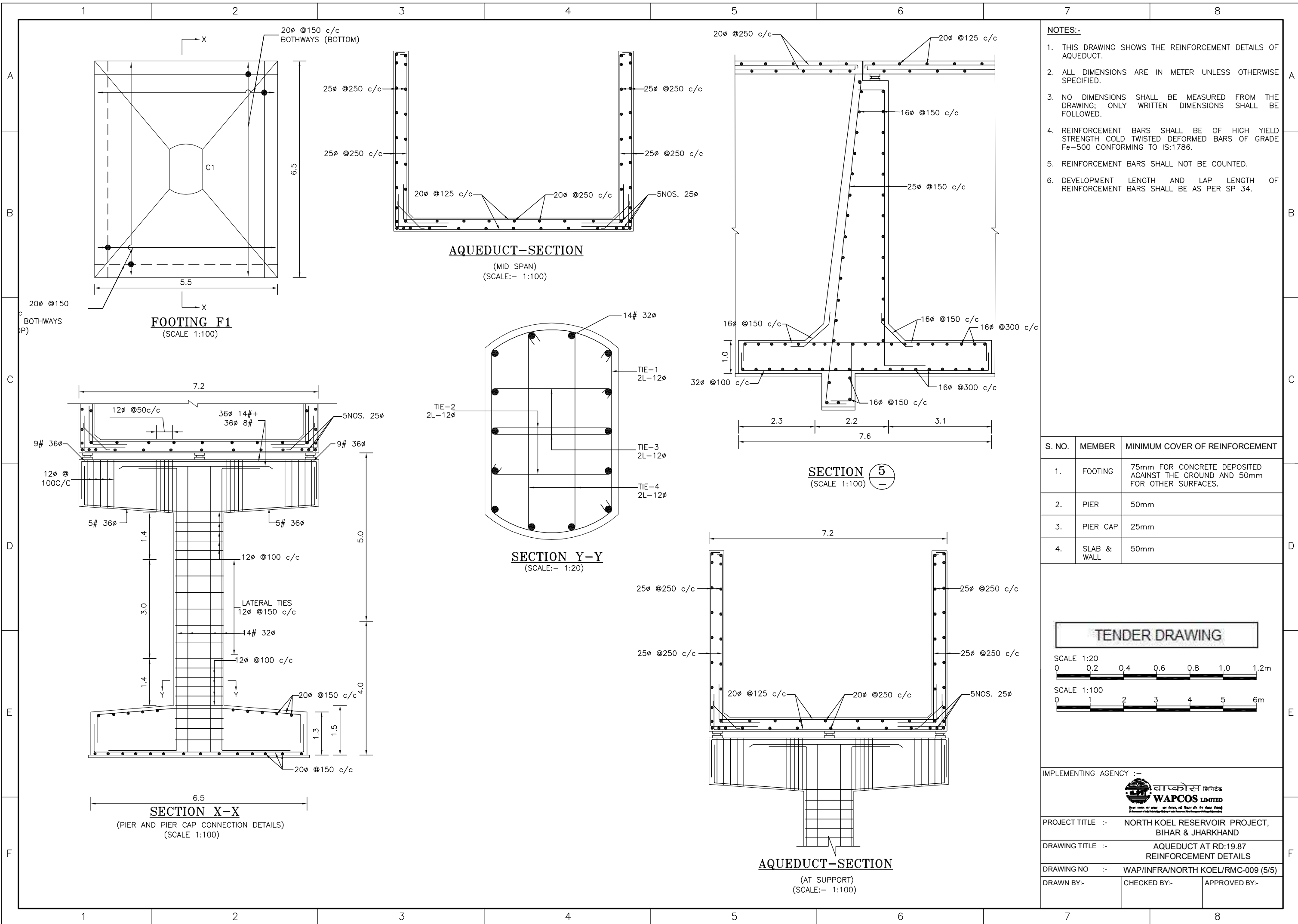
DISTANCE FROM CANAL SECTION 3-3 (m)	DOWNSTREAM TRANSITION	
	TOP WIDTH (REFER PLAN-1)	BED WIDTH (REFER PLAN-2)
	DISTANCE FROM EXISTING WALL (m)	DISTANCE FROM EXISTING BED (m)
0	15.6	15.6
10	16.5	11.9
20	19.1	8.3
26.1	23.6	6.1



TENDER DRAWING

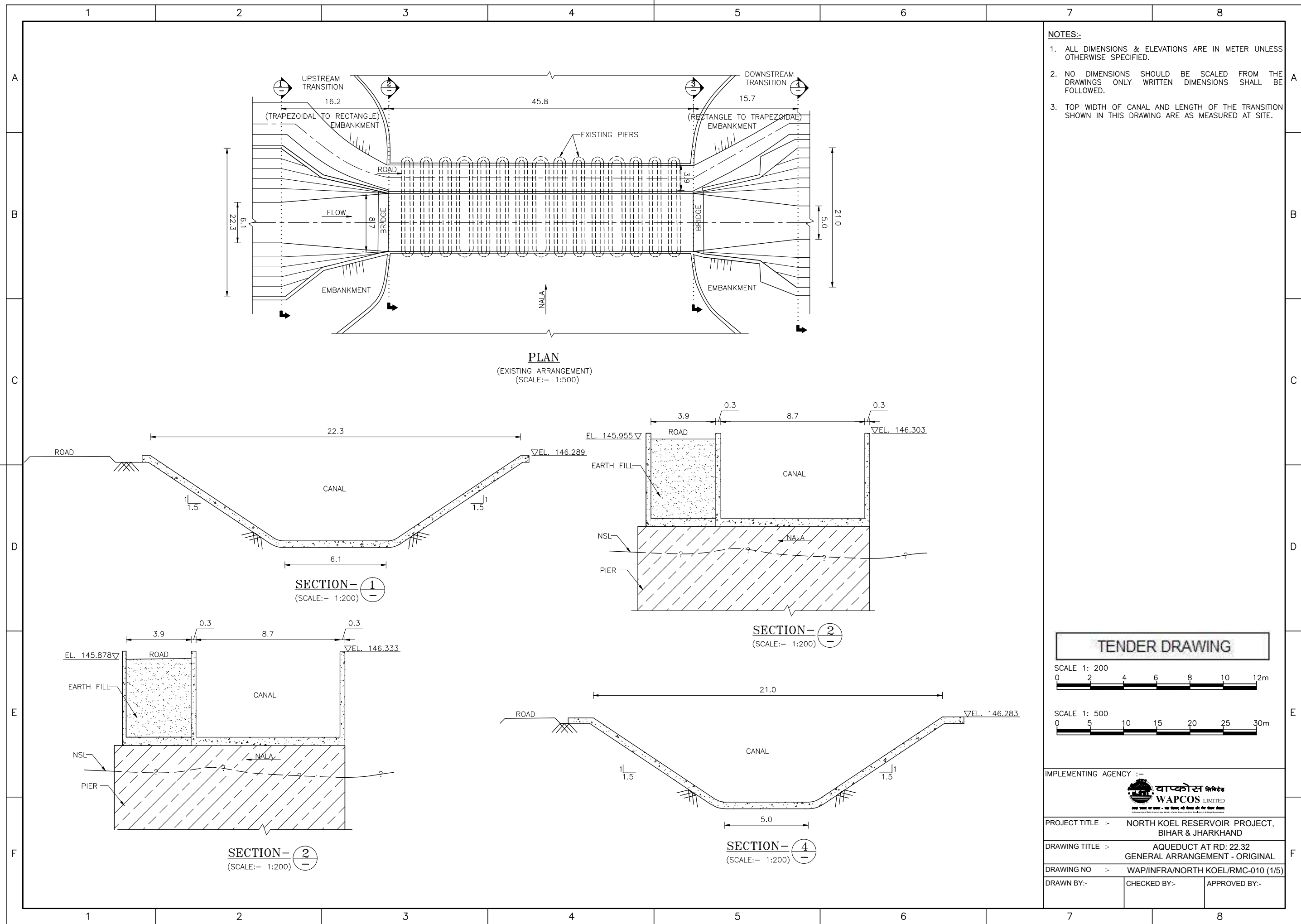
IMPLEMENTING AGENCY :-  WAPCOS LIMITED एन सी ई सी - एन सी ई सी, एन सी ई सी, एन सी ई सी		
PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND		
DRAWING TITLE :- AQUEDUCT AT RD:19.87 MODIFIED TRANSITIONS DETAILS		
DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-009 (3/5)		
DRAWN BY:-	CHECKED BY:-	APPROVED BY:-

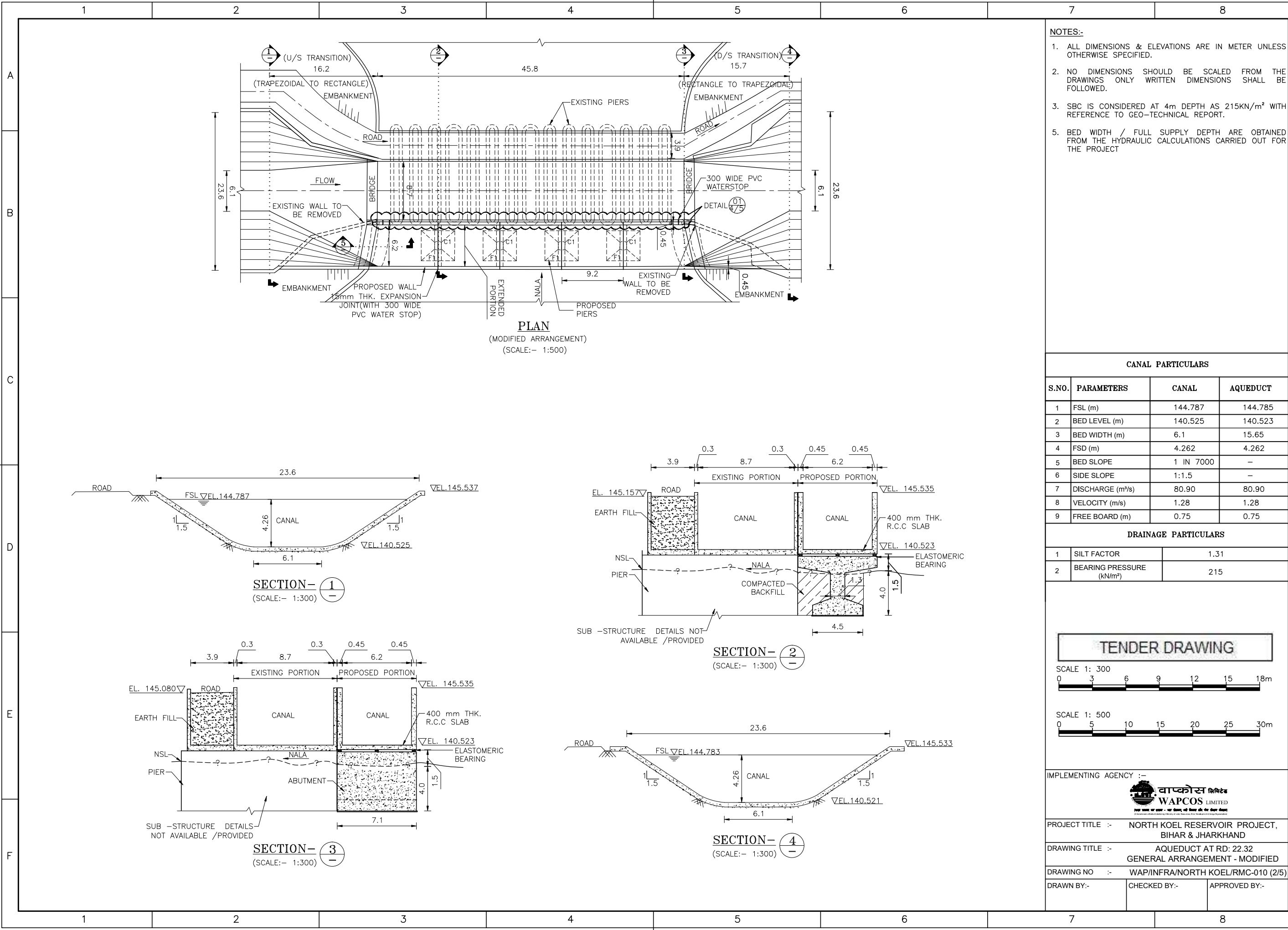


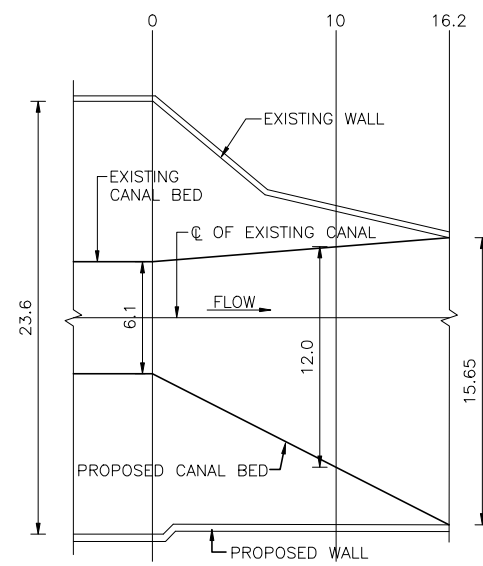
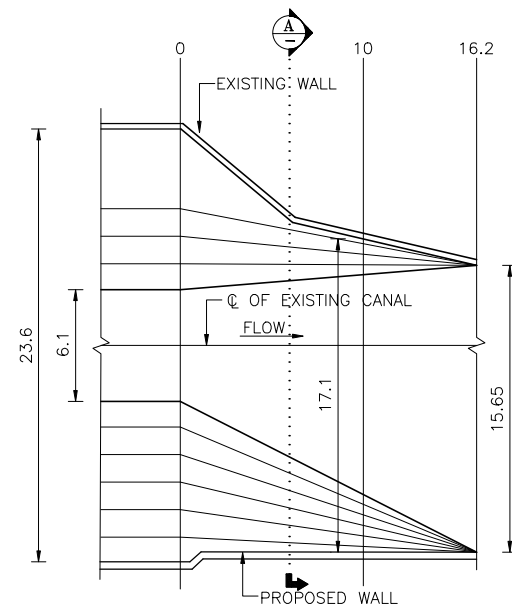




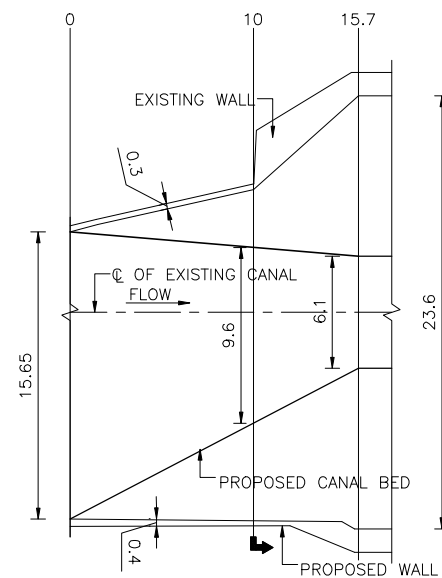
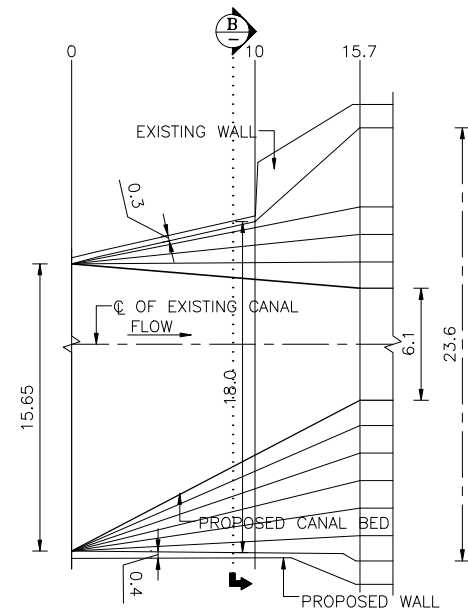
RD 22.32 AQUEDUCT



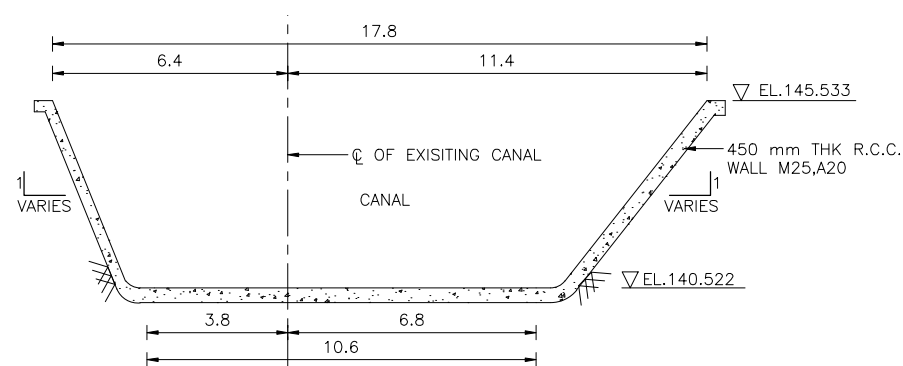
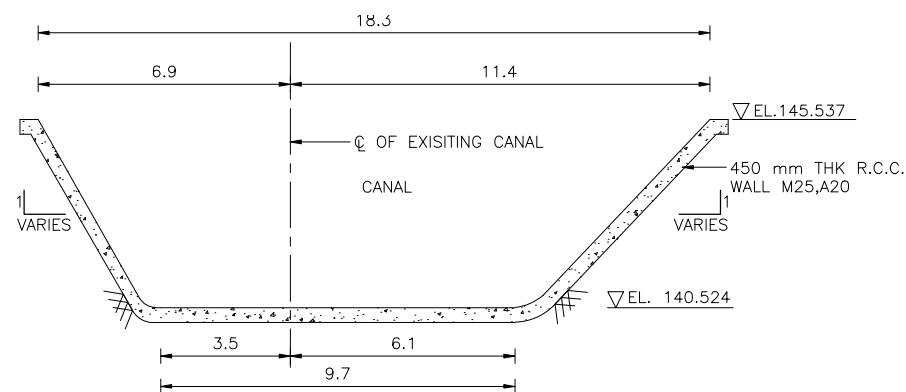




DISTANCE FROM CANAL SECTION 1-1 (m)	UPSTREAM TRANSITION	
	"TOP WIDTH (REFER PLAN 1)"	"BED WIDTH (REFER PLAN 2)"
	DISTANCE FROM EXISTING WALL (m)	DISTANCE FROM EXISTING BED (m)
0	23.6	6.1
10	17.1	12.0
16.2	15.65	15.65



DISTANCE FROM CANAL SECTION 3-3 (m)	DOWNSTREAM TRANSITION	
	"TOP WIDTH (REFER PLAN 1)"	"BED WIDTH (REFER PLAN 2)"
	DISTANCE FROM EXISTING WALL (m)	DISTANCE FROM EXISTING BED (m)
0	15.65	15.65
10	18.0	9.6
15.7	23.6	6.1



NOTES:-

1. ALL DIMENSIONS & ELEVATIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWINGS ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

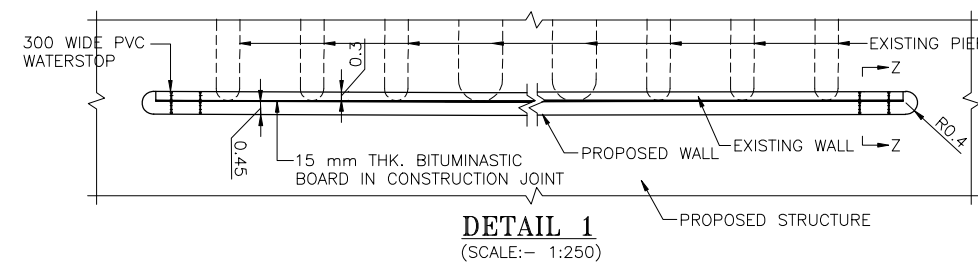
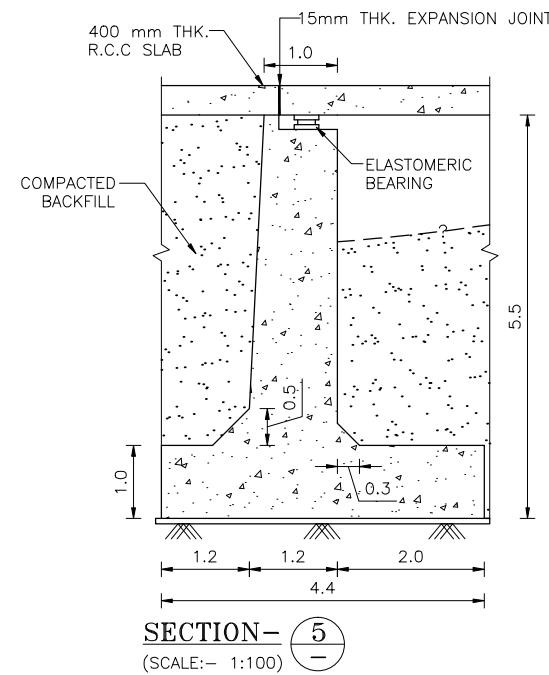
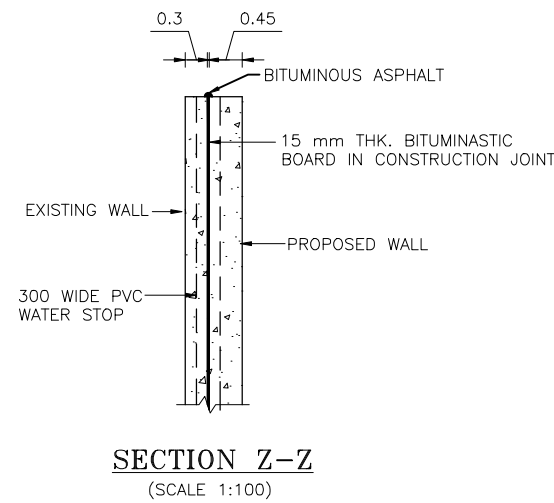
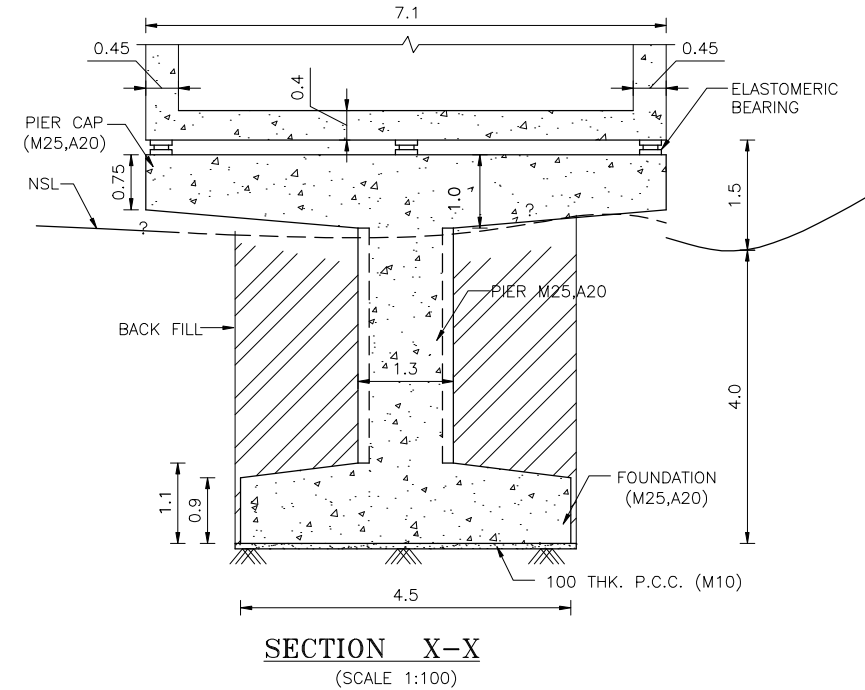
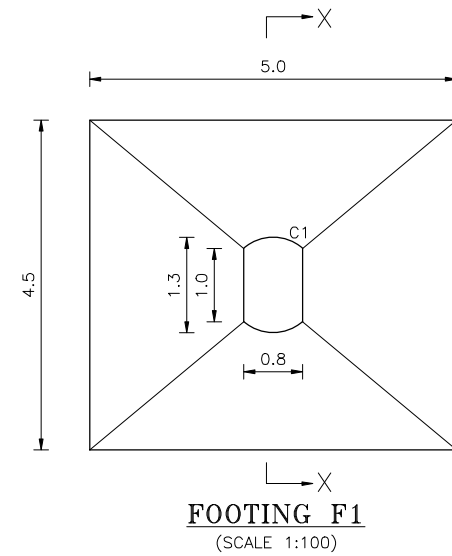
A

TENDER DRAWING

SCALE 1: 200
0 2 4 6 8 10 12m

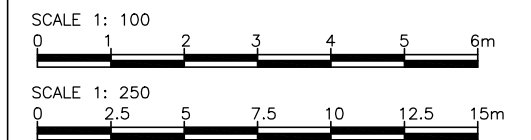
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0 4 8 12 16 20 24m

IMPLEMENTING AGENCY :-  वाप्कोस लिमिटेड WAPCOS LIMITED एक स्वतंत्र एवं स्वयं - सहायक, नई दिल्ली एवं पुरे भारत में An Associate of Public Works Engineering & Construction, New Delhi and in Charge throughout		
PROJECT TITLE :-	NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND	
DRAWING TITLE :-	AQUEDUCT AT RD: 22.32 MODIFIED TRANSITION DETAILS	
DRAWING NO :-	WAP/INFRA/NORTH KOEL/RMC-010 (3/5)	
DRAWN BY:-	CHECKED BY:-	APPROVED BY:-

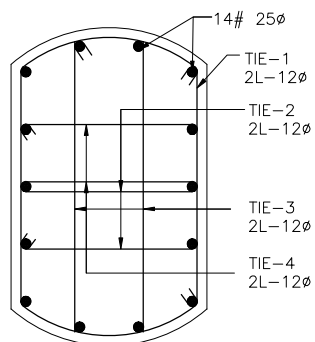


- NOTES:-**
1. ALL DIMENSIONS & ELEVATIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
 2. NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWINGS ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 3. SBC IS CONSIDERED AT 4m DEPTH AS 215KN/m² WITH REFERENCE TO GEO-TECHNICAL REPORT.
 4. EXCAVATION ON NALLAH FOR COLUMNS, ABUTMENTS SHALL BE CARRIED OUT WITH SHORING WITH HIGH PRECAUTIONS TO AVOID DISTURBANCE TO THE FOUNDATION OF THE EXISTING STRUCTURE.

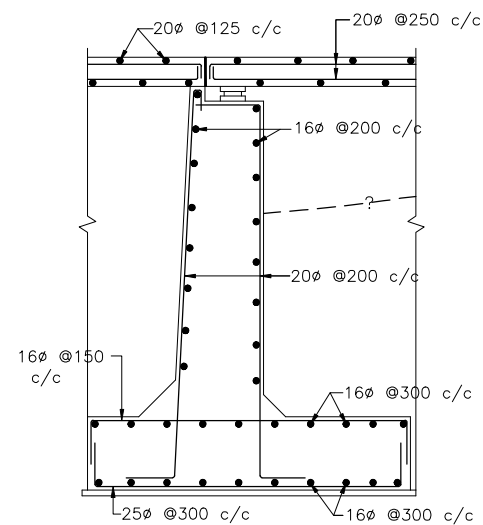
TENDER DRAWING



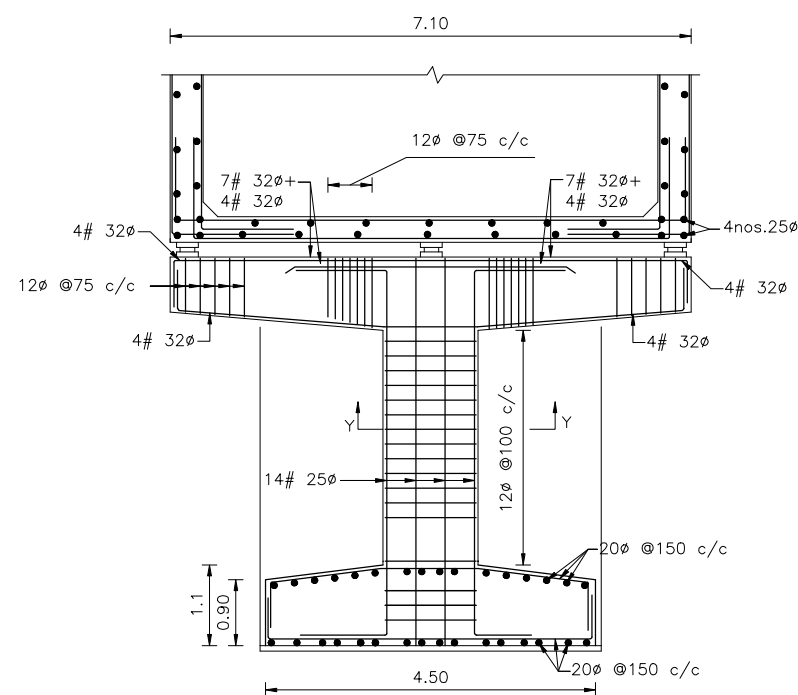
IMPLEMENTING AGENCY :-		
PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND		
DRAWING TITLE :- AQUEDUCT AT RD: 22.32 CONCRETE OUTLINE DETAILS		
DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-010 (4/5)		
DRAWN BY:-	CHECKED BY:-	APPROVED BY:-



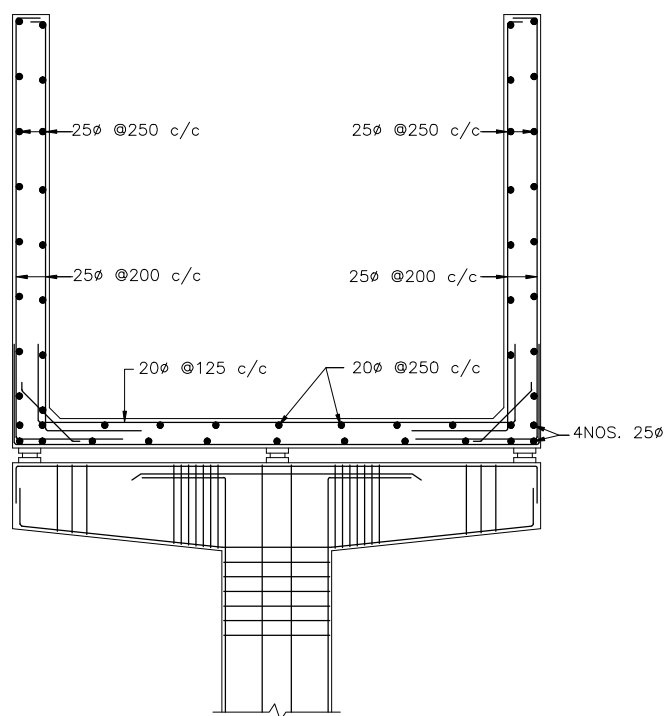
SECTION Y-Y
(SCALE:- 1:30)



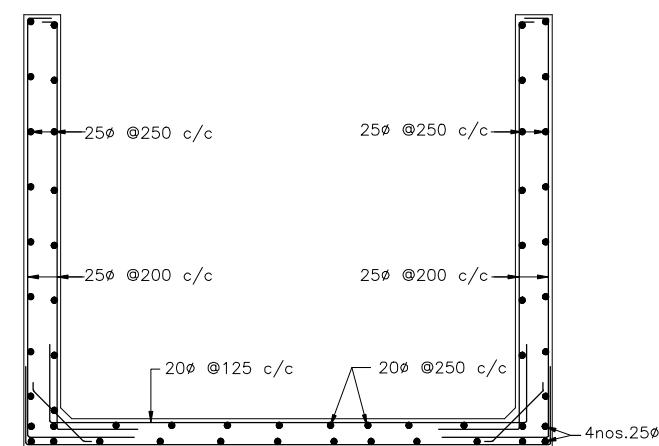
SECTION- (5)
(SCALE:- 1:100) -



SECTION X-X
(PIER AND PIER CAP CONNECTION DETAILS)
(SCALE 1:100)



AQUEDUCT-SECTION
(AT SUPPORT)
(SCALE:- 1:100)

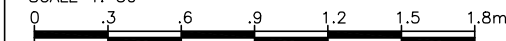


AQUEDUCT-SECTION
(MID SPAN)
(SCALE:- 1:100)

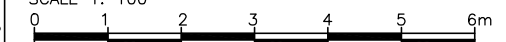
- | S. NO. | MEMBER | MINIMUM COVER OF REINFORCEMENT |
|--------|-------------|---|
| 1. | FOOTING | 75mm FOR CONCRETE DEPOSITED AGAINST THE GROUND AND 50mm FOR OTHER SURFACES. |
| 2. | PIER | 50mm |
| 3. | PIER CAP | 25mm |
| 4. | SLAB & WALL | 50mm |

TENDER DRAWING

SCALE 1: 30



SCALE 1: 100



IMPLEMENTING AGENCY :-



PROJECT TITLE :-	NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND
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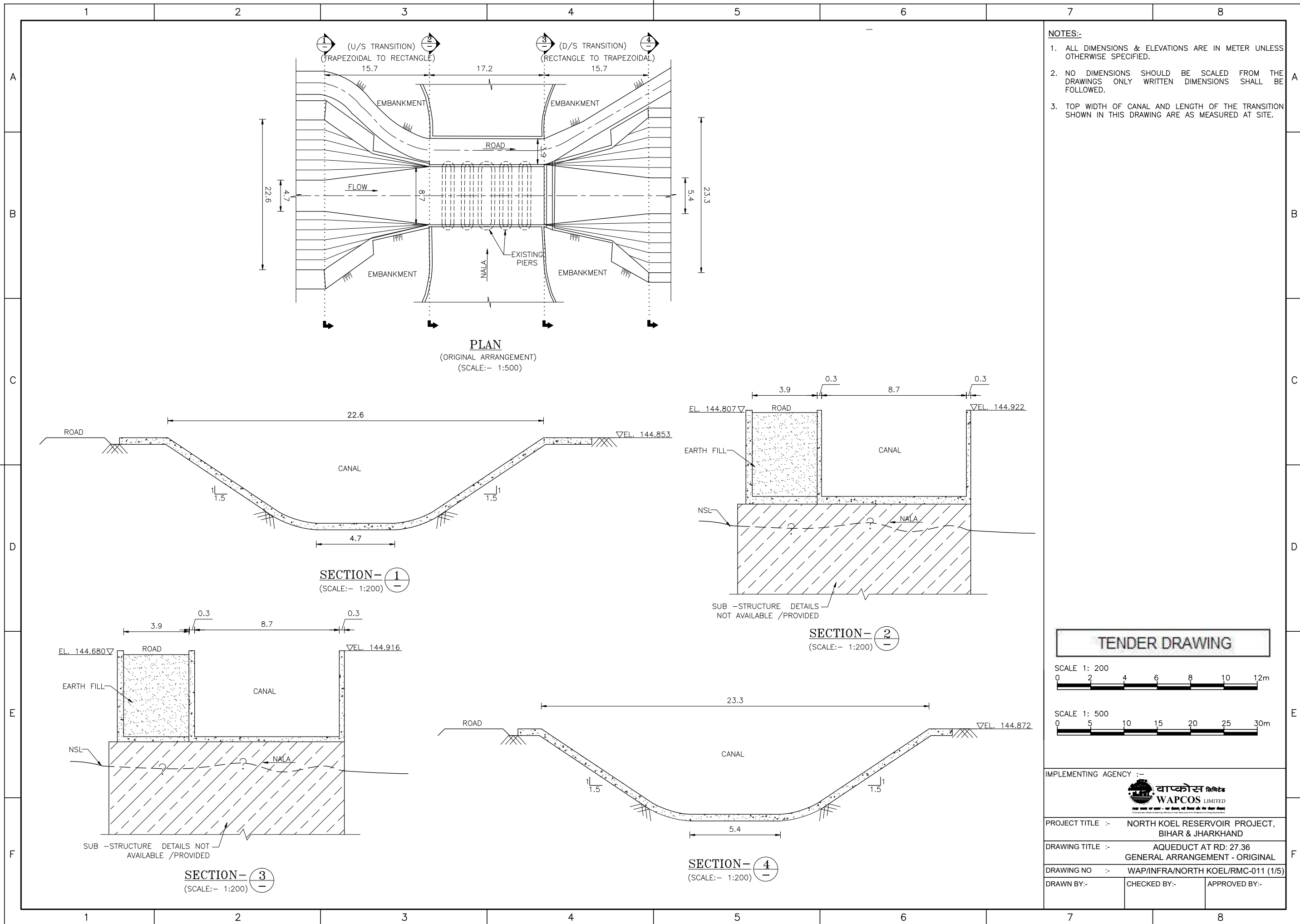
DRAWING TITLE :-	AQUEDUCT AT RD: 22.32 REINFORCEMENT DETAILS
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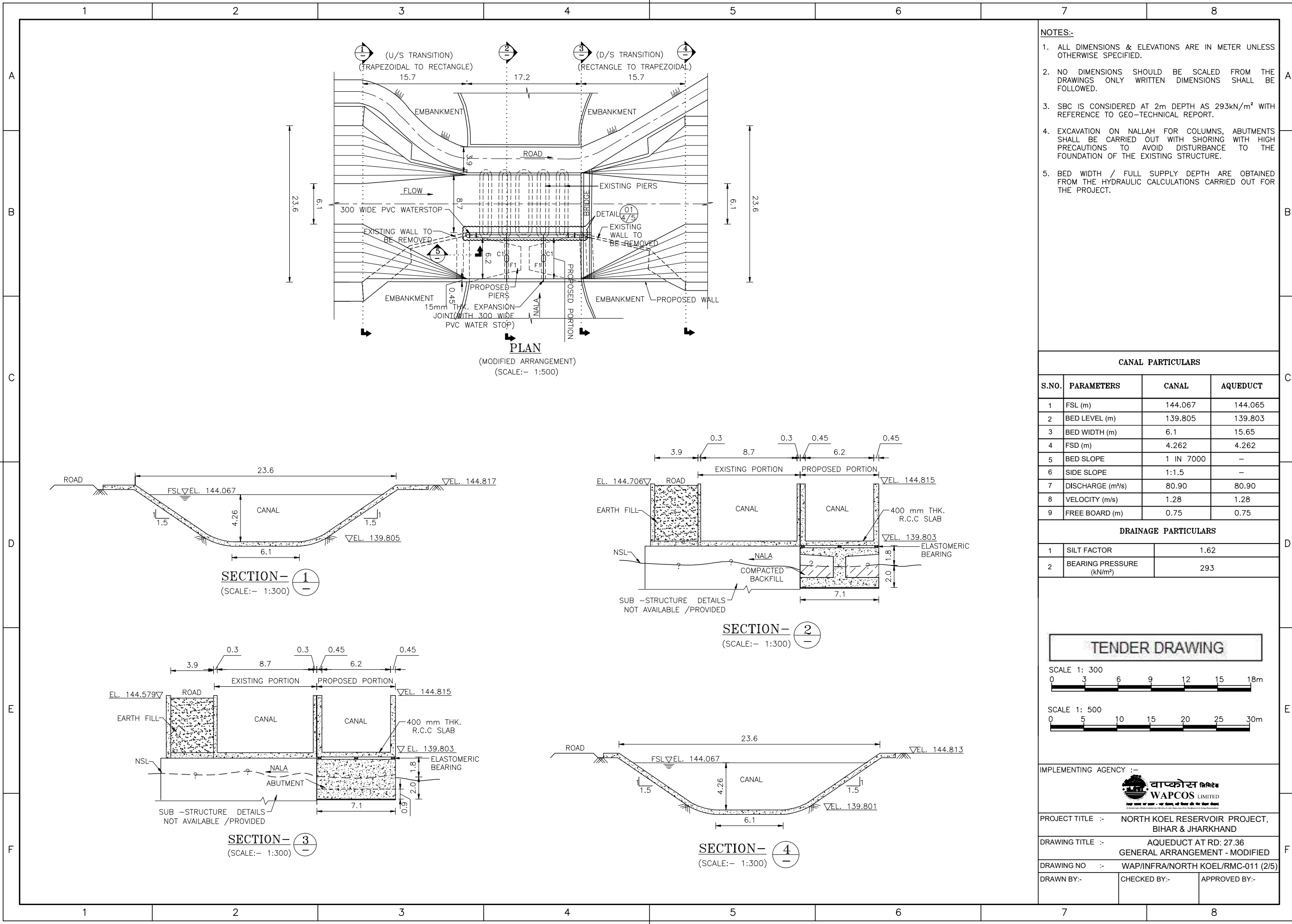
DRAWING NO	:-	WAP/INFRA/NORTH KOEL/RMC-010 (5/5)
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DRAWN BY:-	CHECKED BY:-	APPROVED BY:-
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RD 27.36 AQUEDUCT

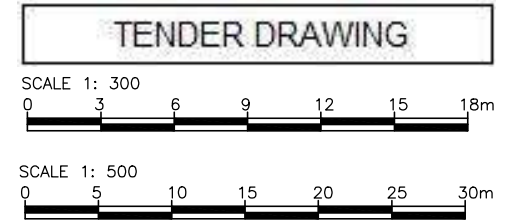




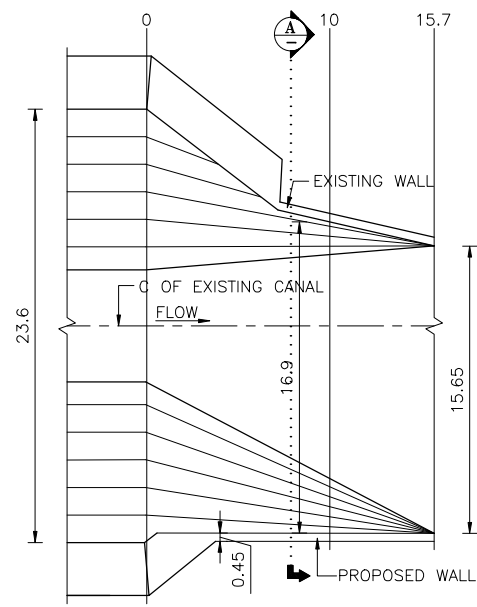
- NOTES:-
1. ALL DIMENSIONS & ELEVATIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
 2. NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWINGS ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 3. SBC IS CONSIDERED AT 2m DEPTH AS 293kN/m² WITH REFERENCE TO GEO-TECHNICAL REPORT.
 4. EXCAVATION ON NALLAH FOR COLUMNS, ABUTMENTS SHALL BE CARRIED OUT WITH SHORING WITH HIGH PRECAUTIONS TO AVOID DISTURBANCE TO THE FOUNDATION OF THE EXISTING STRUCTURE.
 5. BED WIDTH / FULL SUPPLY DEPTH ARE OBTAINED FROM THE HYDRAULIC CALCULATIONS CARRIED OUT FOR THE PROJECT.

CANAL PARTICULARS			
S.NO.	PARAMETERS	CANAL	AQUEDUCT
1	FSL (m)	144.067	144.065
2	BED LEVEL (m)	139.805	139.803
3	BED WIDTH (m)	6.1	15.65
4	FSD (m)	4.262	4.262
5	BED SLOPE	1 IN 7000	—
6	SIDE SLOPE	1:1.5	—
7	DISCHARGE (m ³ /s)	80.90	80.90
8	VELOCITY (m/s)	1.28	1.28
9	FREE BOARD (m)	0.75	0.75

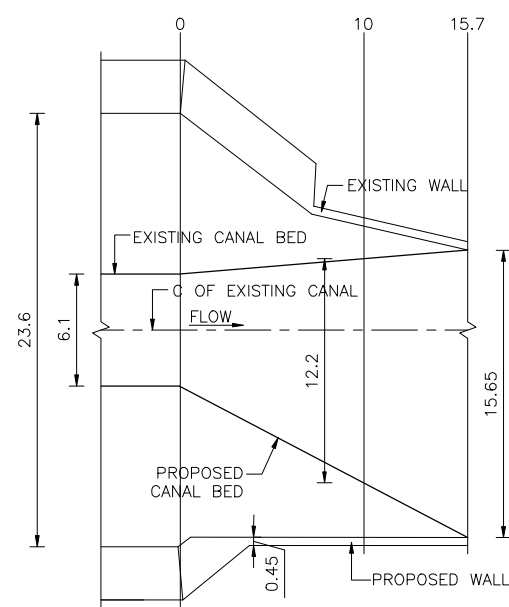
DRAINAGE PARTICULARS	
1	SILT FACTOR
2	BEARING PRESSURE (kN/m ²)
	1.62
	293



IMPLEMENTING AGENCY :-		
		
PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND		
DRAWING TITLE :- AQUEDUCT AT RD: 27.36 GENERAL ARRANGEMENT - MODIFIED		
DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-011 (2/5)		
DRAWN BY:-	CHECKED BY:-	APPROVED BY:-

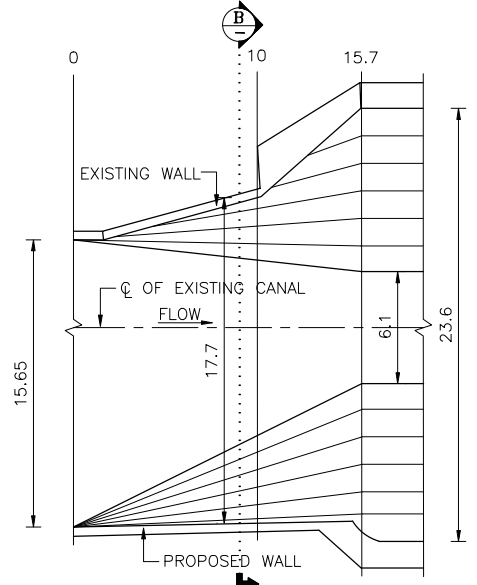


UPSTREAM TRANSITION
PLAN-1 AT TOP
(SCALE:- 1:400)

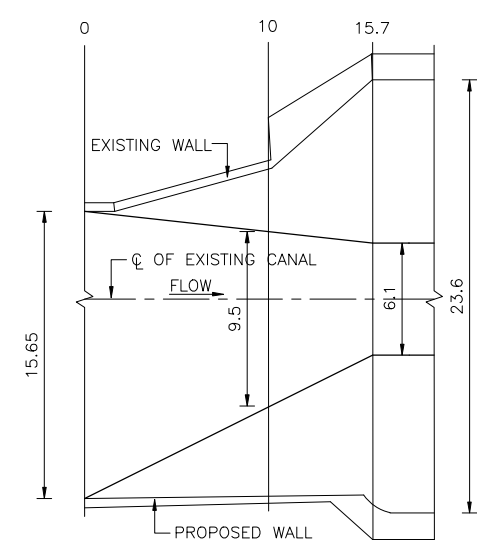


UPSTREAM TRANSITION
PLAN-2 AT BED LEVEL
(SCALE:- 1:400)

DISTANCE FROM CANAL SECTION 1-1 (m)	UPSTREAM TRANSITION	
	"TOP WIDTH (REFER PLAN-1)"	"BED WIDTH (REFER PLAN-2)"
	DISTANCE FROM EXISTING WALL (m)	DISTANCE FROM EXISTING BED (m)
0	23.6	6.1
10	16.9	12.2
15.7	15.65	15.65

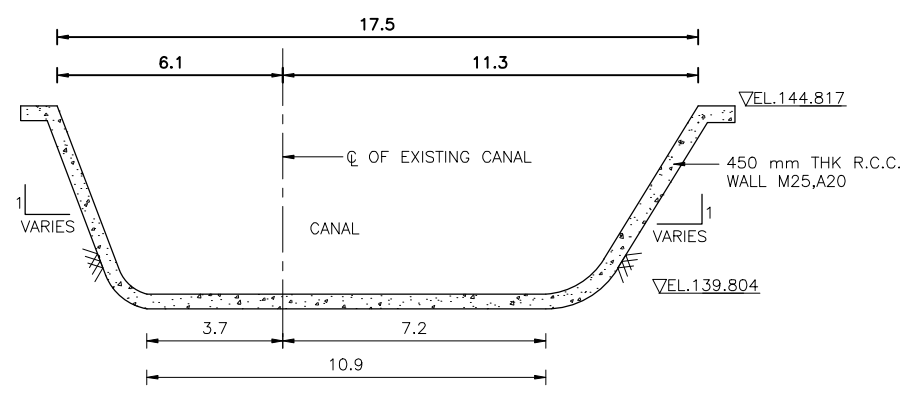


DOWNSTREAM TRANSITION
PLAN-1 AT TOP
(SCALE:- 1:400)

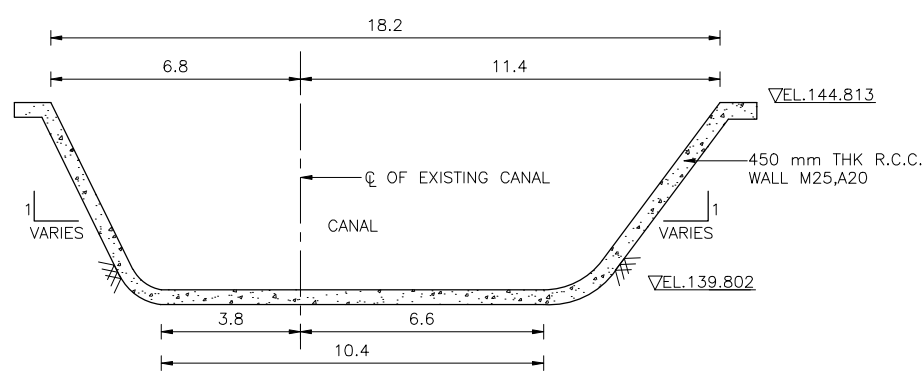


DOWNSTREAM TRANSITION
PLAN-2 AT BED LEVEL
(SCALE:- 1:400)

DISTANCE FROM CANAL SECTION 3-3 (m)	DOWNSTREAM TRANSITION	
	"TOP WIDTH (REFER PLAN-1)"	"BED WIDTH (REFER PLAN-2)"
	DISTANCE FROM EXISTING WALL (m)	DISTANCE FROM EXISTING BED (m)
0	15.65	15.65
10	17.7	9.5
15.7	23.6	6.1

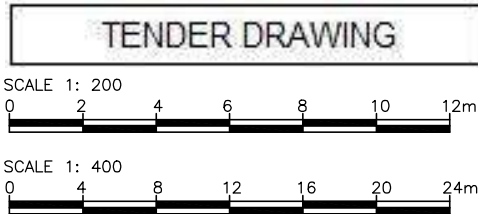


SECTION-A
(SCALE:- 1:200)



SECTION-B
(SCALE:- 1:200)

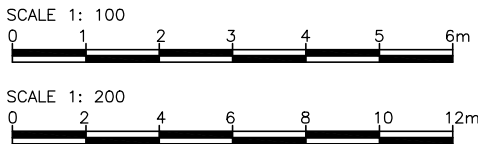
- NOTES:-
- ALL DIMENSIONS & ELEVATIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
 - NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWINGS ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.



IMPLEMENTING AGENCY :-  WAPCOS LIMITED		
PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND		
DRAWING TITLE :- AQUEDUCT AT RD: 27.36 MODIFIED TRANSITION DETAILS		
DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-011 (3/5)		
DRAWN BY:-	CHECKED BY:-	APPROVED BY:-



- ## TENDER DRAWING



IMPLEMENTING AGENCY :-



PROJECT TITLE :-	NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND
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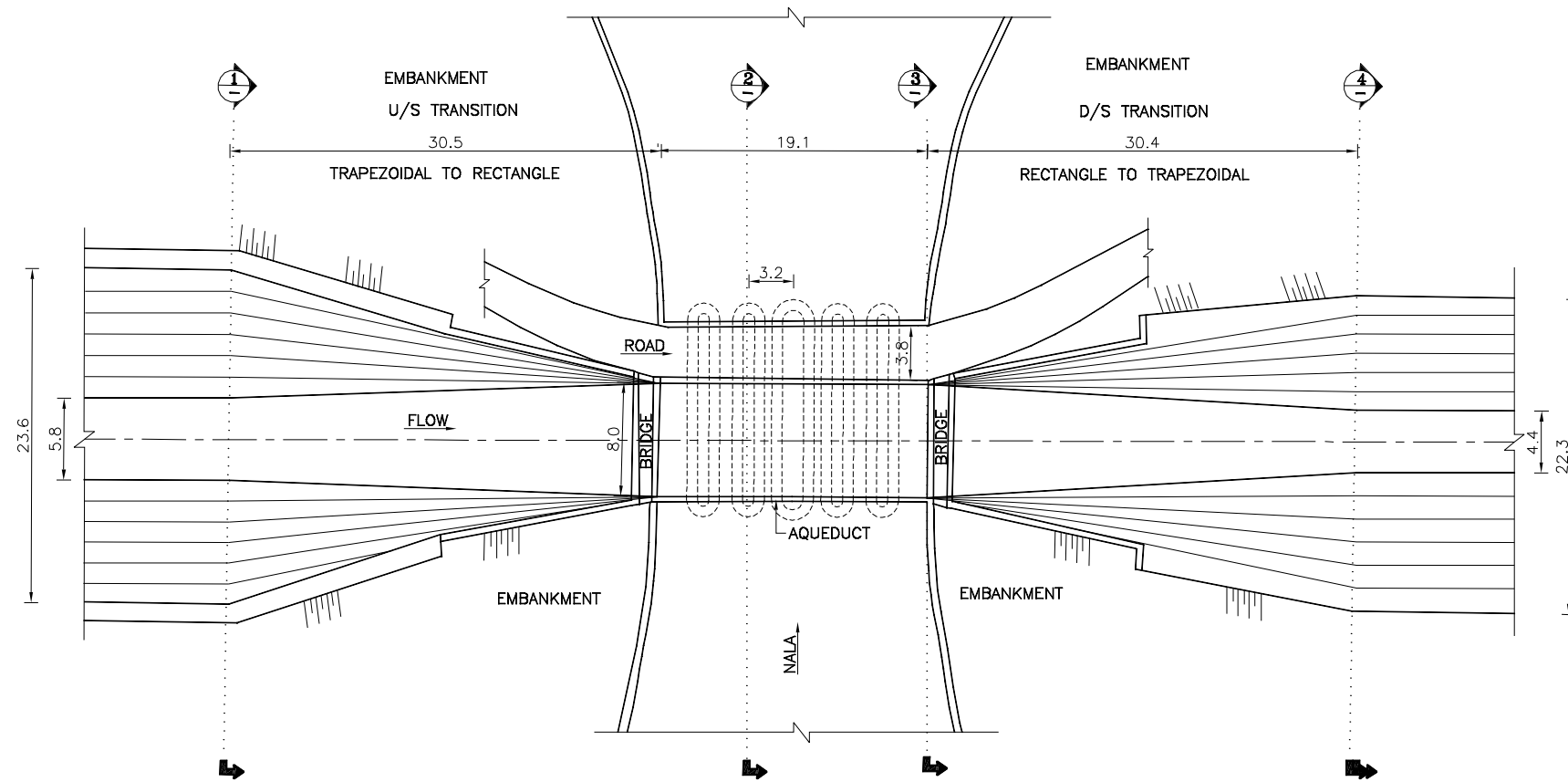
DRAWING TITLE :- AQUEDUCT AT RD: 27.36
CONCRETE OUTLINE DETAILS

DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-011 (4/5)

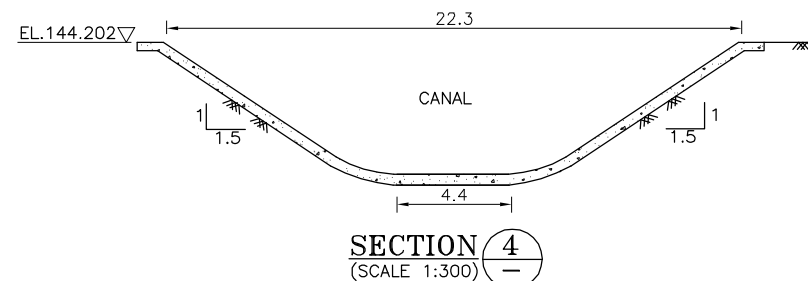
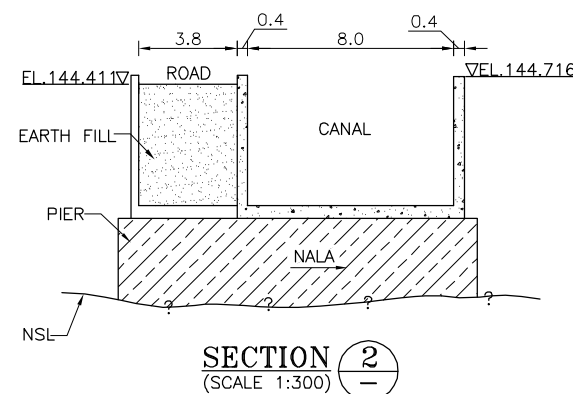
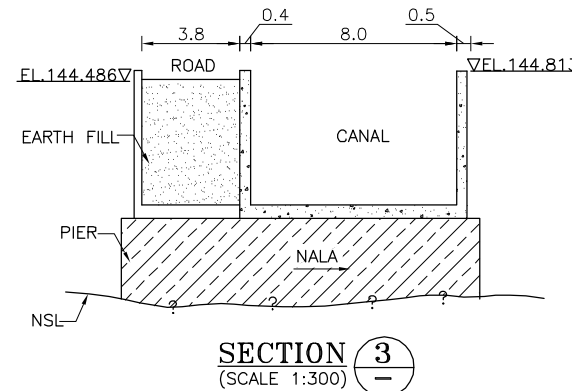
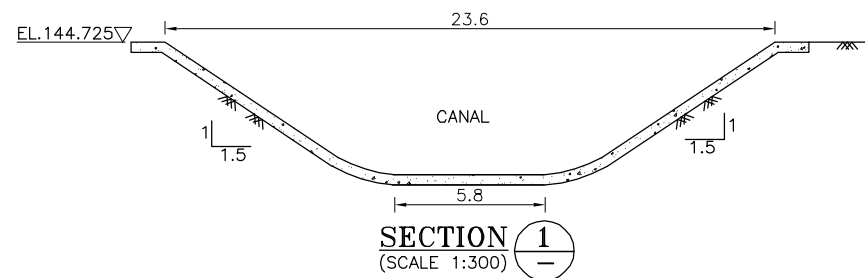
DRAWN BY:-	CHECKED BY:-	APPROVED BY:-
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**RD 28.33 SYPHON AQUEDUCT
OVER CHARIWA NALLA**



PLAN
EXISTING ARRANGEMENT
SCALE 1:500



NOTES:-

1. ALL DIMENSIONS & ELEVATION ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWING ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. TOP WIDTH OF CANAL & LENGTH OF TRANSITION SHOWN IN THIS DRAWING ARE AS MEASURED AT SITE.

TENDER DRAWING



IMPLEMENTING AGENCY :-

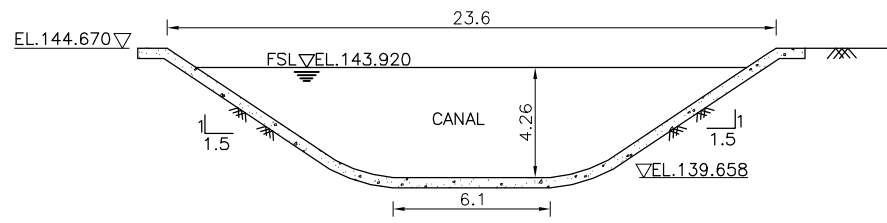
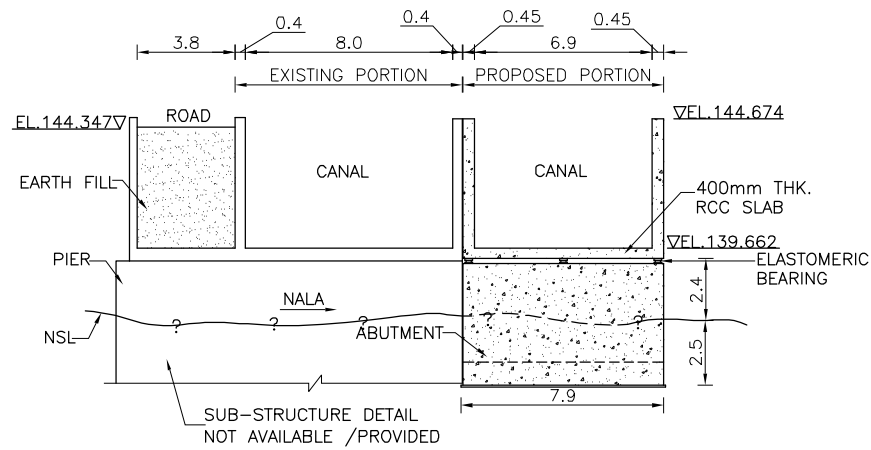
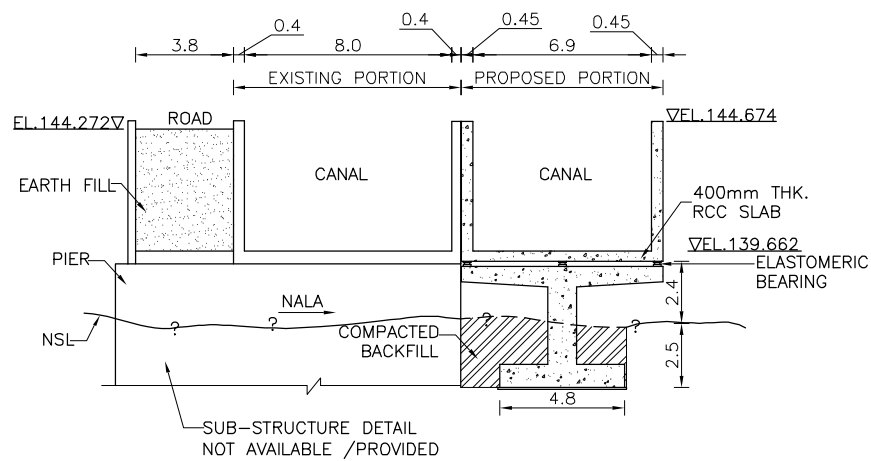
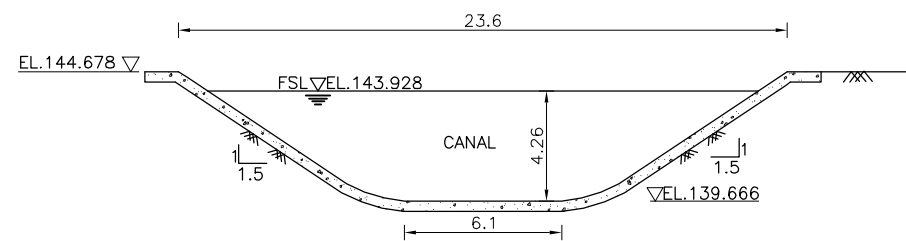
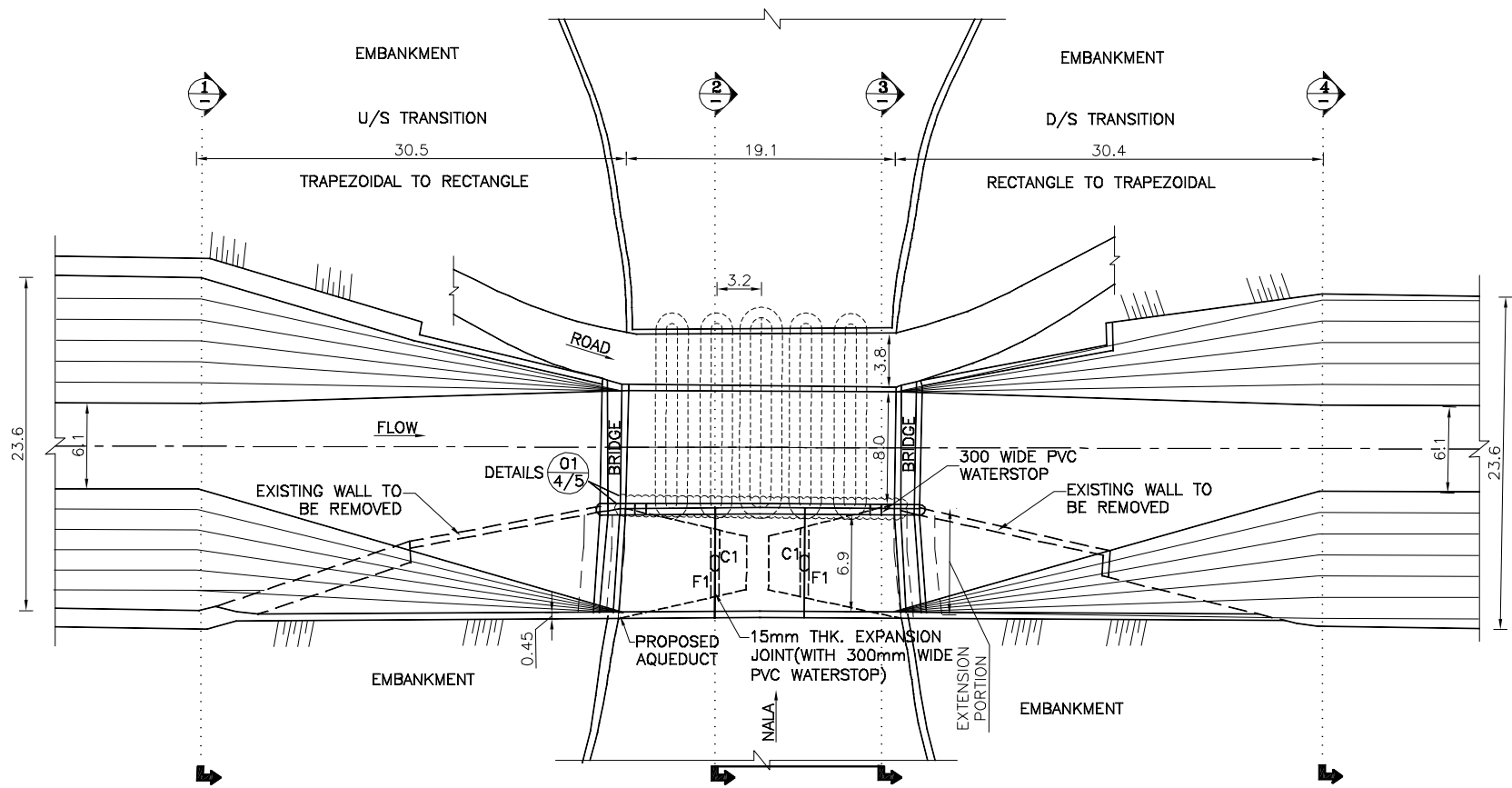


PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND

DRAWING TITLE :- SYPHON AQUEDUCT AT RD:28.33 GENERAL ARRANGMENT-MODIFIED

DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-012 (1/5)

DRAWN BY:- CHECKED BY:- APPROVED BY:-



NOTES:-

- ALL DIMENSIONS & ELEVATION ARE IN METER UNLESS OTHERWISE SPECIFIED.
- NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWING ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- SBC IS CONSIDERED AT 2.5m DEPTH AS 188.9KN/m² WITH REFERENCE TO GEO-TECHNICAL REPORT.
- EXCAVATION IN NALA FOR COLUMNS & ABUTMENTS SHALL BE CARRIED OUT WITH SHORING WITH HIGH PRECAUTIONS TO AVOID DISTURBANCE TO THE FOUNDATION OF THE EXISTING STRUCTURE.
- BED WIDTH/FULL SUPPLY DEPTH ARE OBTAINED FROM THE HYDRAULIC CALCULATIONS CARRIED OUT FOR THE PROJECT.

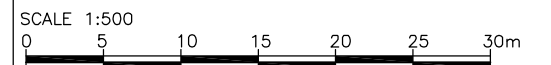
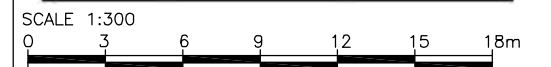
CANAL PARTICULARS

S.NO.	PARAMETERS	CANAL	AQUEDUCT
1	FSL (m)	143.928	143.924
2	BED LEVEL (m)	139.666	139.662
3	BED WIDTH (m)	6.1	15.75
4	FSD (m)	4.262	4.262
5	BED SLOPE	1 IN 7000	—
6	SIDE SLOPE	1:1.5	—
7	DISCHARGE (m ³ /s)	80.90	80.90
8	VELOCITY (m/s)	1.28	1.28
9	FREE BOARD (m)	0.75	0.75

DRAINAGE PARTICULARS

1	SILT FACTOR	1.62
2	BEARING PRESSURE (kN/m ²)	188.9

TENDER DRAWING



IMPLEMENTING AGENCY :-

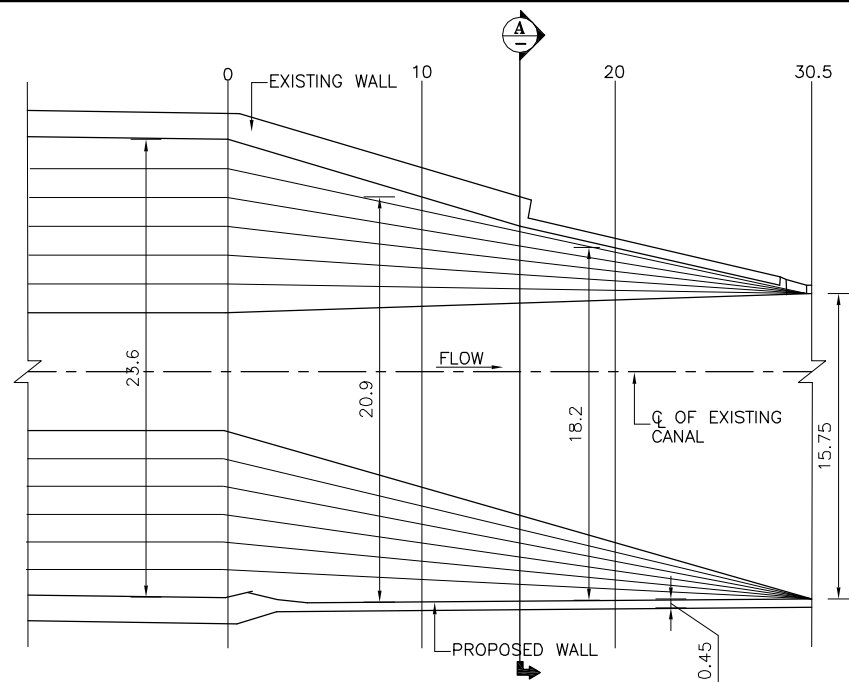


PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND

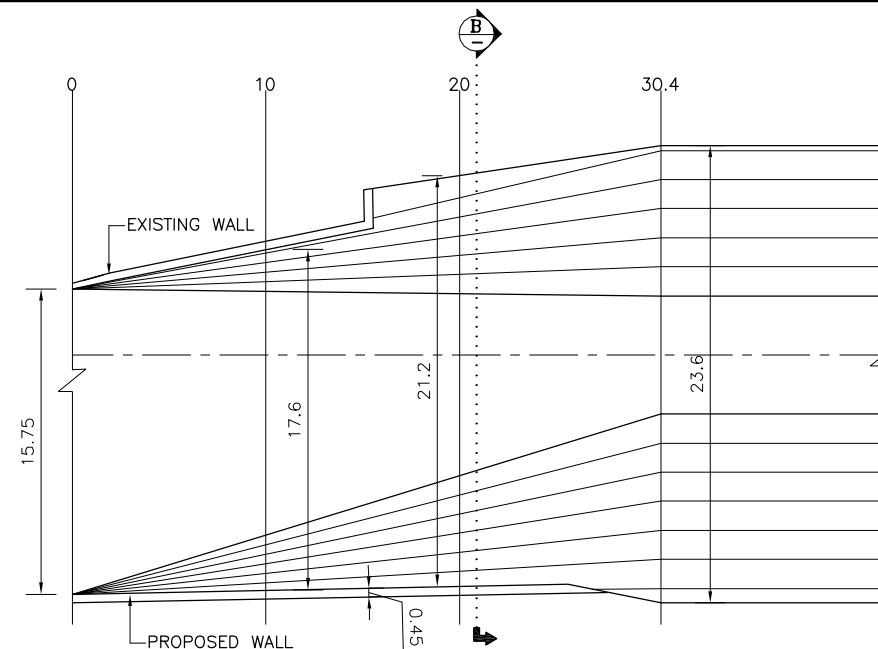
DRAWING TITLE :- SYPHON AQUEDUCT AT RD:28.33 GENERAL ARRANGMENT-MODIFIED

DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-012 (2/5)

DRAWN BY:- CHECKED BY:- APPROVED BY:-



**UPSTREAM TRANSITION
PLAN-1 AT TOP**
(SCALE:- 1:400)

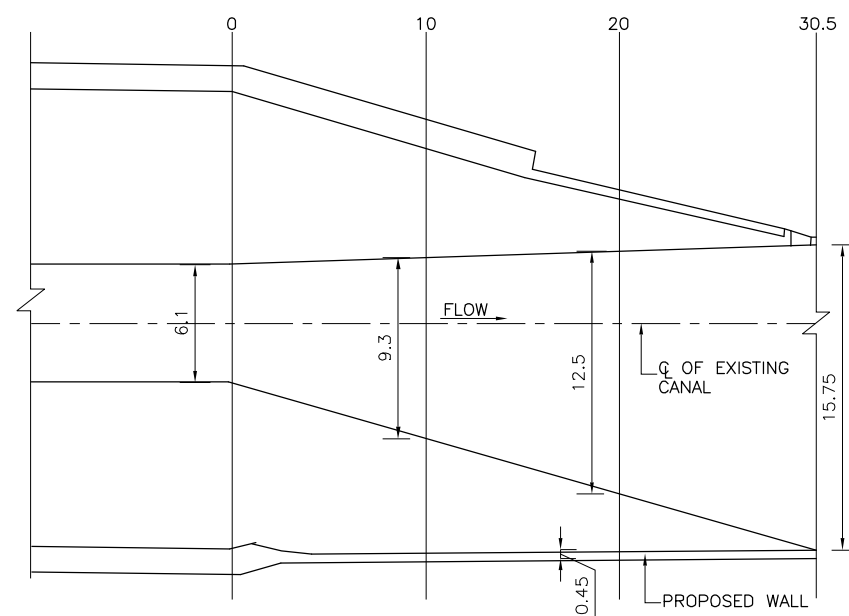


**DOWNSTREAM TRANSITION
PLAN-1 AT TOP**
(SCALE:- 1:400)

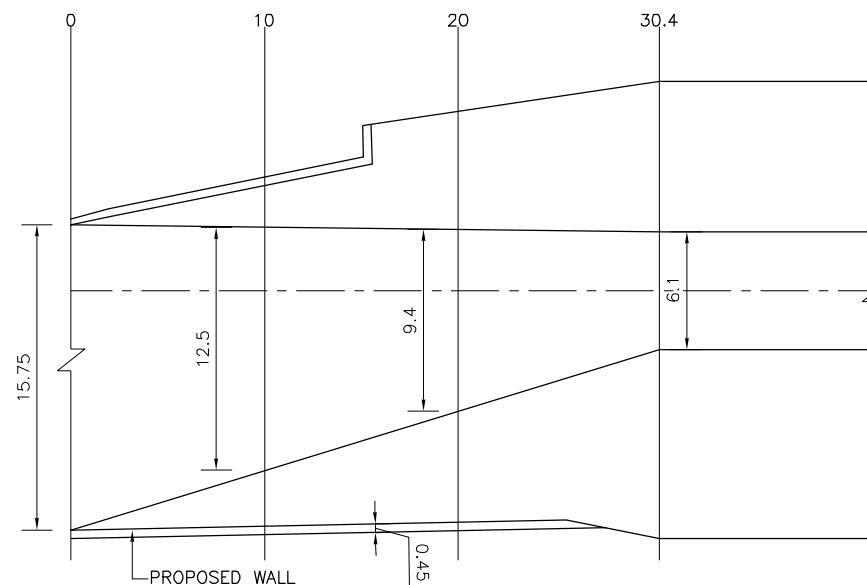
NOTES:-

1. ALL DIMENSIONS & ELEVATION ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSIONS SHOULD BE SCALED FROM THE DRAWING ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

DISTANCE FROM CANAL SECTION 1-1 (m)	UPSTREAM TRANSITION	
	TOP WIDTH (REFER PLAN-1)	BED WIDTH (REFER PLAN-2)
	DISTANCE FROM EXISTING WALL (m)	DISTANCE FROM EXISTING BED (m)
0	23.6	6.1
10	20.9	9.3
20.0	18.2	12.5
30.5	15.75	15.75



**UPSTREAM TRANSITION
PLAN-2 AT BED LEVEL**
(SCALE:- 1:400)



**DOWNSTREAM TRANSITION
PLAN-2 AT BED LEVEL**
(SCALE:- 1:400)

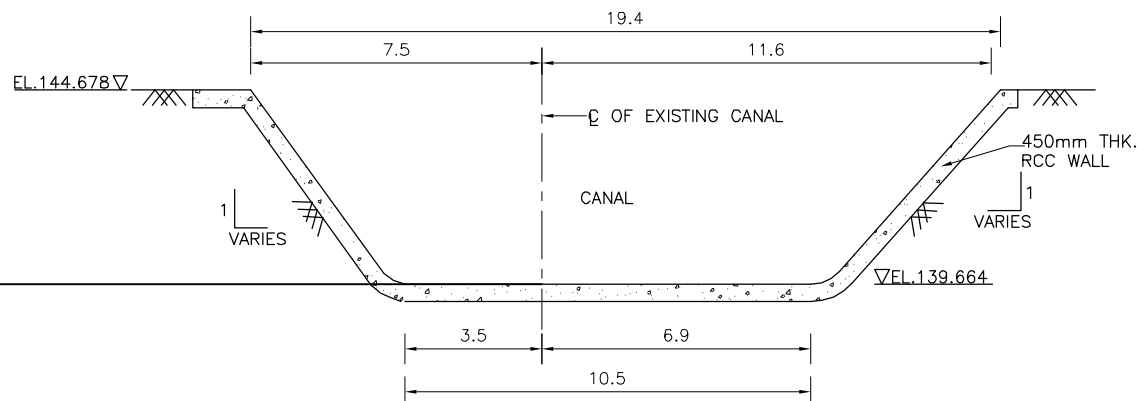
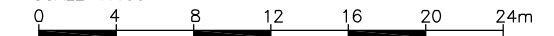
DISTANCE FROM CANAL SECTION 3-3 (m)	DOWNSTREAM TRANSITION	
	TOP WIDTH (REFER PLAN-1)	BED WIDTH (REFER PLAN-2)
	DISTANCE FROM EXISTING WALL (m)	DISTANCE FROM EXISTING BED (m)
0	15.75	15.75
10	17.6	12.5
20.0	21.2	9.4
30.4	23.6	6.1

TENDER DRAWING

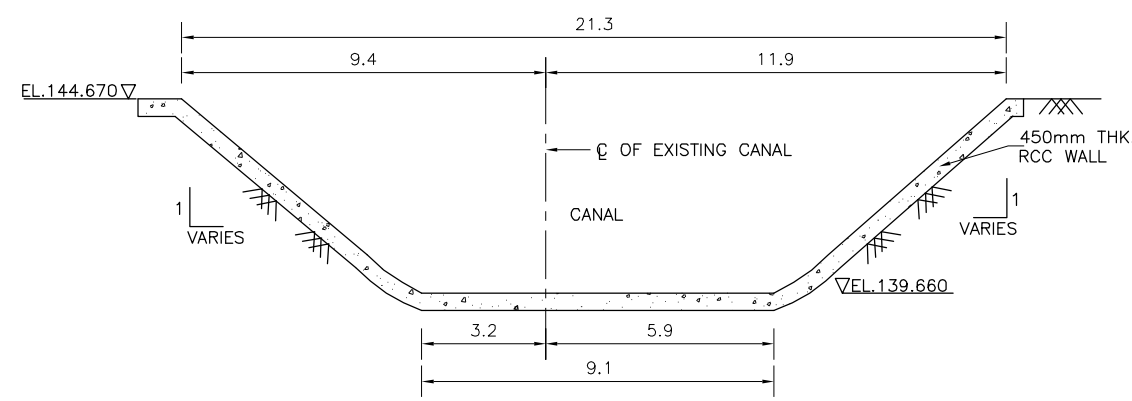
SCALE 1:200



SCALE 1:400

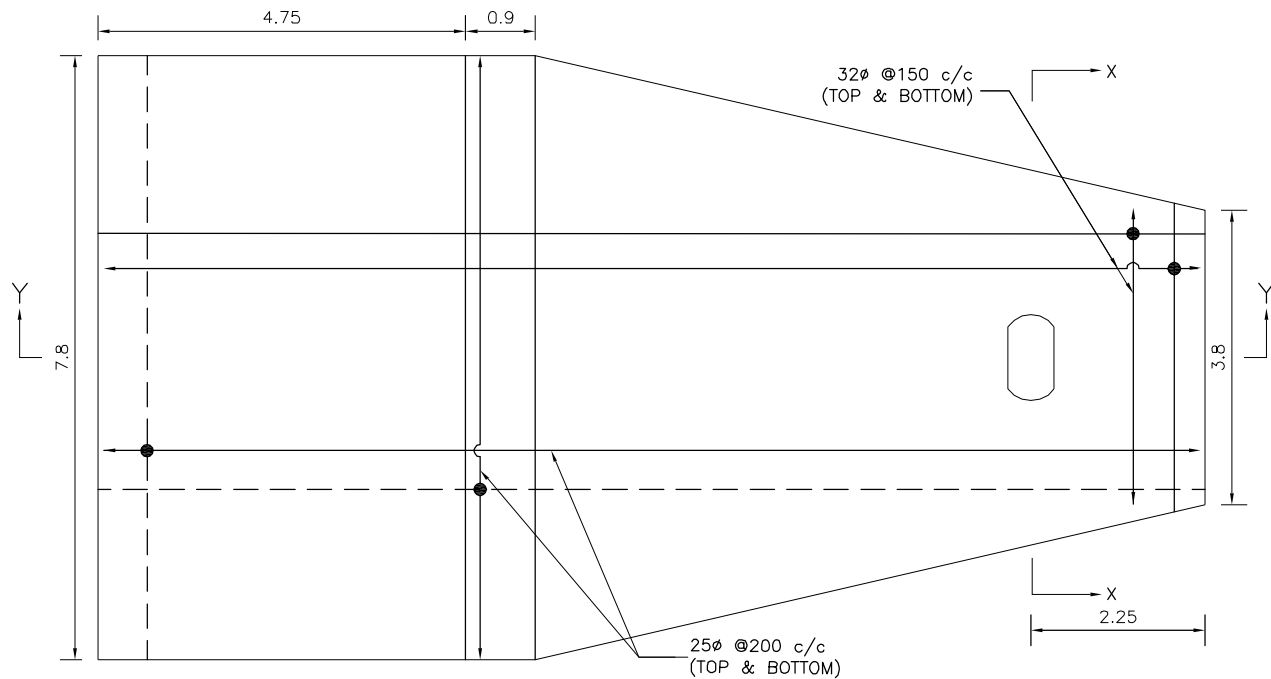


SECTION-A
(SCALE:- 1:200)

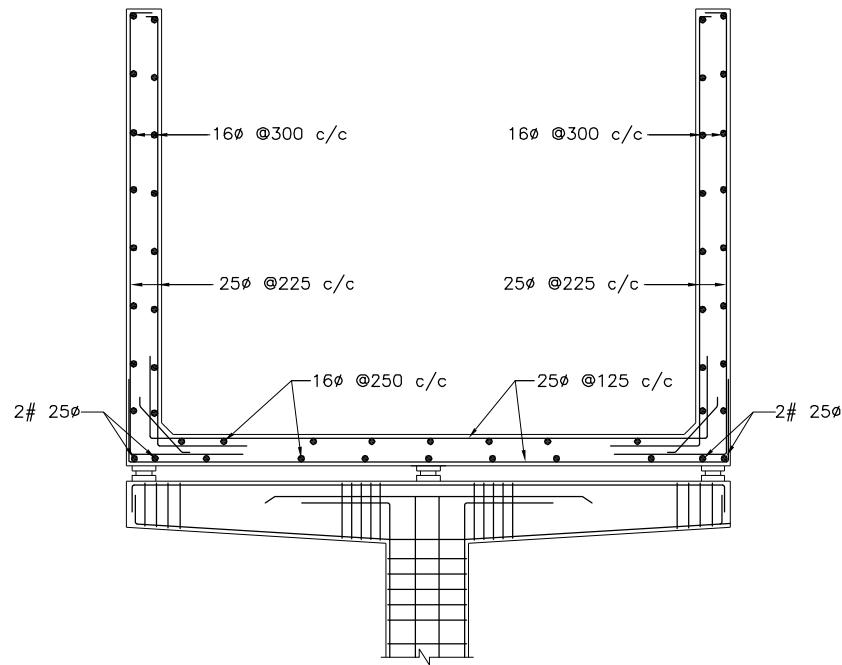


SECTION-B
(SCALE:- 1:200)

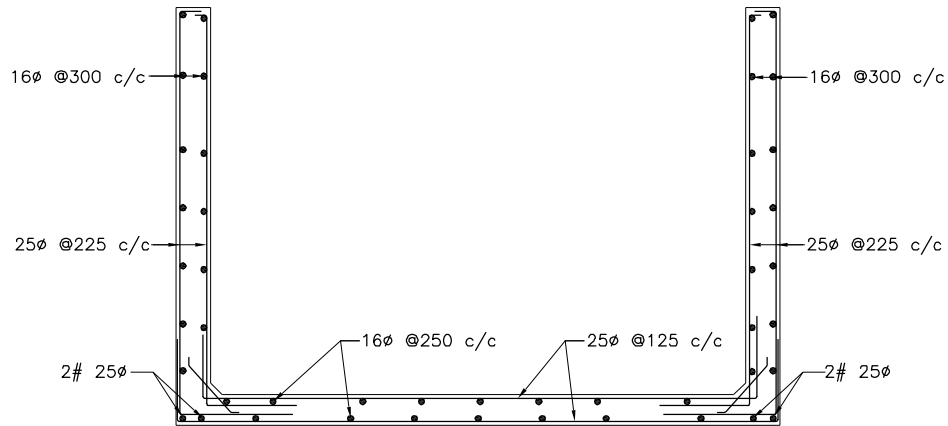
IMPLEMENTING AGENCY :-  WAPCOS LIMITED एन सी ई सी - एन सी ई सी - एन सी ई सी - एन सी ई सी		
PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND		
DRAWING TITLE :- SYPHON AQUEDUCT AT RD:28.33 MODIFIED TRANSITION DETAILS		
DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-012 (3/5)		
DRAWN BY:-	CHECKED BY:-	APPROVED BY:-



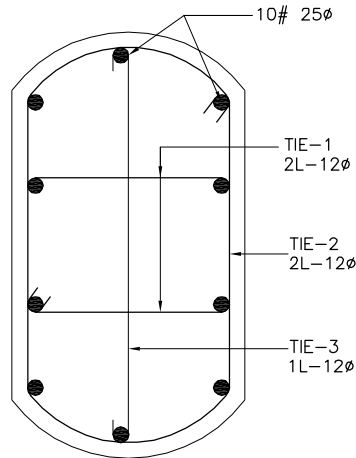
FOOTING F1
(SCALE 1:100)



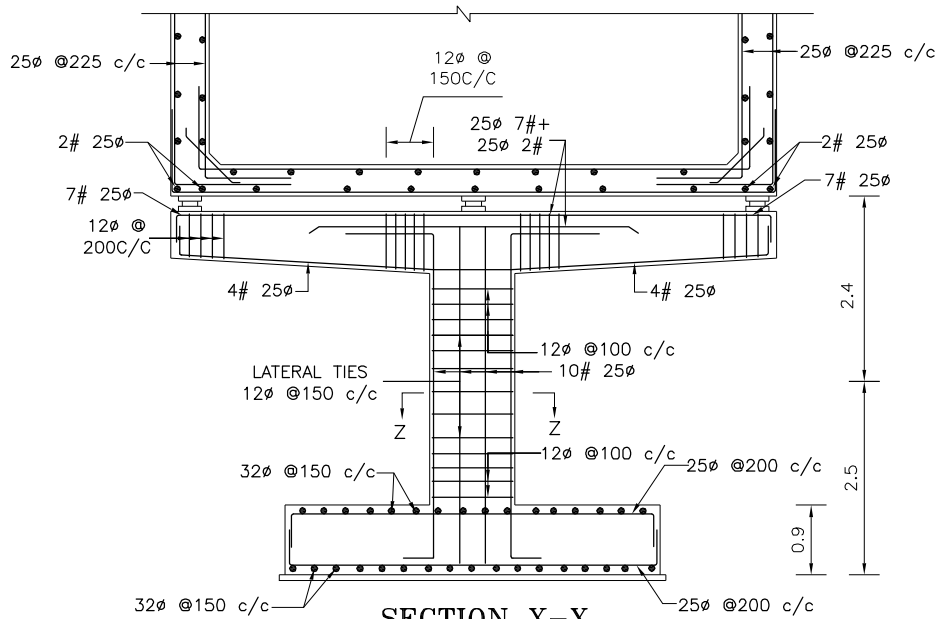
AQUEDUCT-SECTION
(AT SUPPORT)
(SCALE:- 1:100)



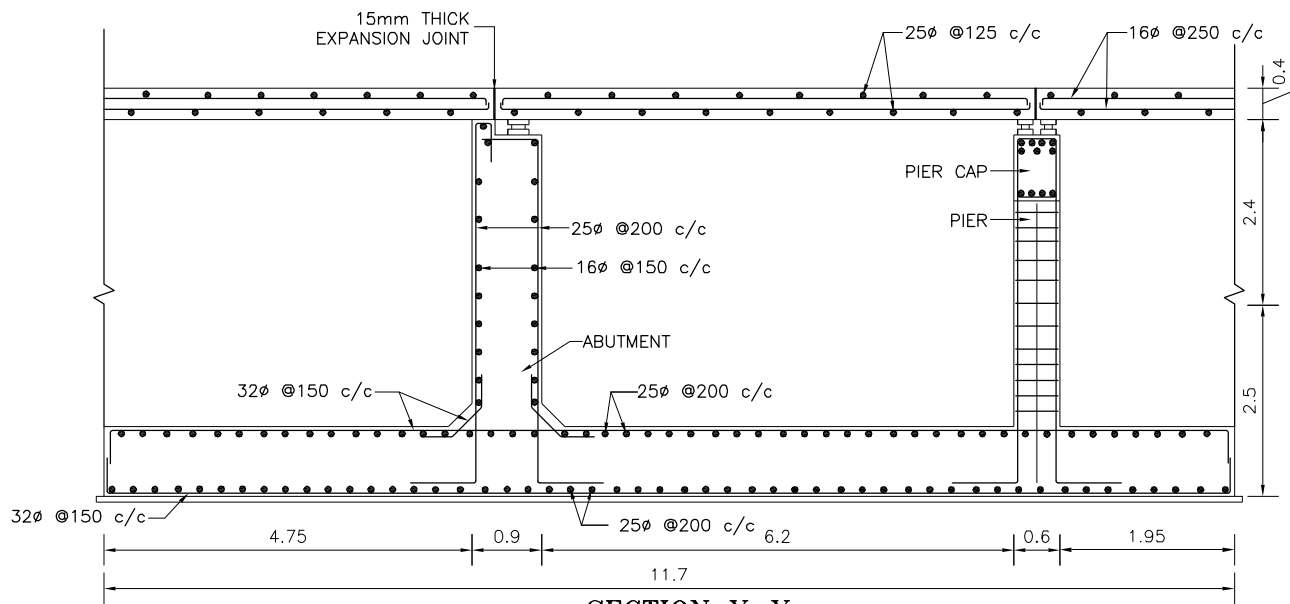
AQUEDUCT-SECTION
(MID SPAN)
(SCALE:- 1:100)



SECTION Z-Z
(SCALE:- 1:20)



SECTION X-X
(PIER AND PIER CAP CONNECTION DETAILS)
(SCALE 1:100)



SECTION Y-Y
(SCALE:- 1:100)

NOTES:-

1. THIS DRAWING SHOWS THE REINFORCEMENT DETAILS OF. SYPHON AQUEDUCT
2. ALL DIMENSIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
3. NO DIMENSIONS SHALL BE MEASURED FROM THE DRAWING; ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
4. REINFORCEMENT BARS SHALL BE OF HIGH YIELD STRENGTH COLD TWISTED DEFORMED BARS OF GRADE Fe-500 CONFORMING TO IS:1786.
5. REINFORCEMENT BARS SHALL NOT BE COUNTED.
6. DEVELOPMENT LENGTH AND LAP LENGTH OF REINFORCEMENT BARS SHALL BE AS PER SP 34.

S. NO.	MEMBER	MINIMUM COVER OF REINFORCEMENT
1.	FOOTING	75mm FOR CONCRETE DEPOSITED AGAINST THE GROUND AND 50mm FOR OTHER SURFACES.
2.	PIER	50mm
3.	PIER CAP	25mm
4.	SLAB & WALL	50mm

TENDER DRAWING



IMPLEMENTING AGENCY :-



PROJECT TITLE :- NORTH KOEL RESERVOIR PROJECT, BIHAR & JHARKHAND

DRAWING TITLE :- SYPHON AQUEDUCT AT RD:28.33 REINFORCEMENT DETAILS

DRAWING NO :- WAP/INFRA/NORTH KOEL/RMC-012 (6/5)

DRAWN BY:- CHECKED BY:- APPROVED BY:-