

TENDER DOCUMENT

FOR

**Distribution Network for Aurangabad Division of Right Main
Canal (RMC), Bihar Portion under North Koel Reservoir
Project, Jharkhand and Bihar
Estimated Cost (Rs. 50.81 Crores)**

TENDER NO: WAP/NK/RMC/DIST/AURANGABAD/2025

TENDER DRAWINGS

Issued to M/s



NORTH KOEL RESERVOIR PROJECT

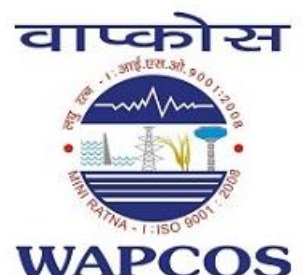
FEBRUARY 2025

Completion of Balance
Works of North Koel
Reservoir Project

DRAWING REPORT – KATAIYA MINOR
(OFFTAKING FROM RIGHT MAIN CANAL AT
64.610 KM)



WAPCOS LIMITED
(GOVT. OF INDIA UNDERTAKING)
76- C SECTOR-18 INDUSTRIAL AREA,
GURUGRAM-122015 (HARYANA)



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1	L-SECTION - KATAIYA MINOR	1
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L-SECTION

L- SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
FROM CH 0+000 TO 1+500

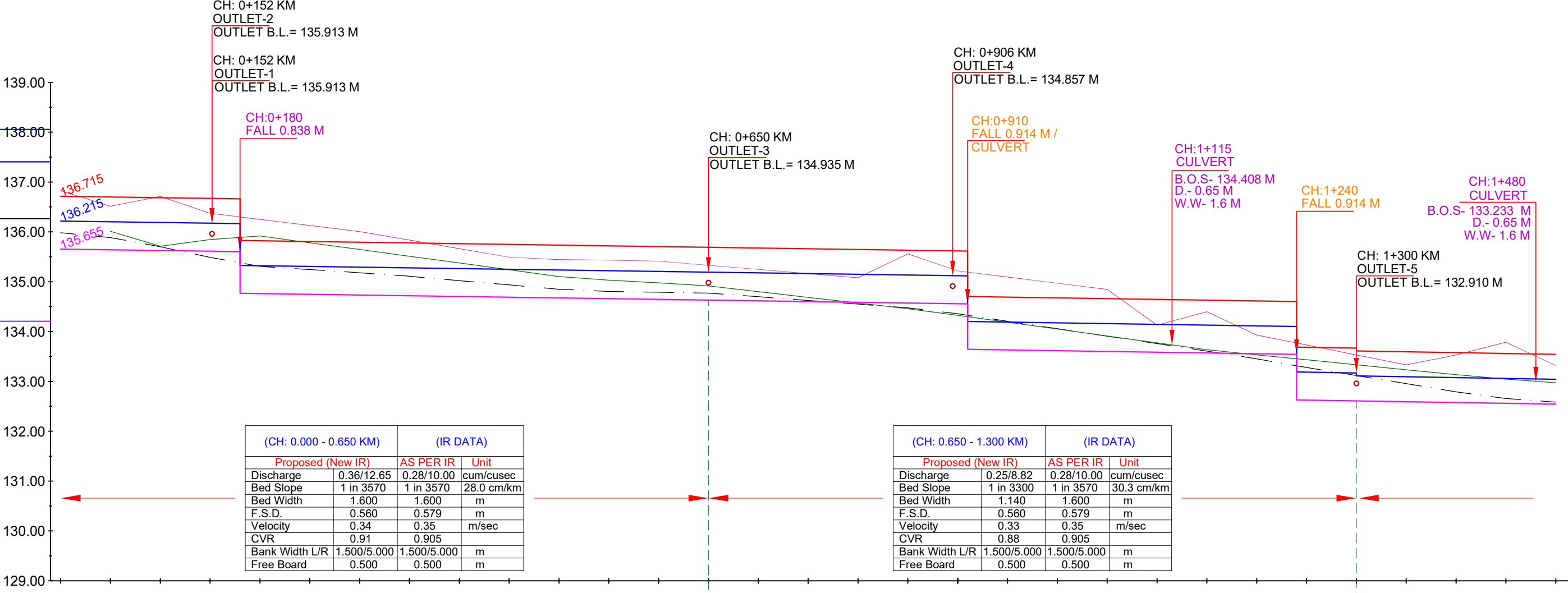
DATA OF
PARENT
CANAL

FSL @ FULL
DISCH. = 138.055

FSL @ 2/3
DISCH. = 137.405

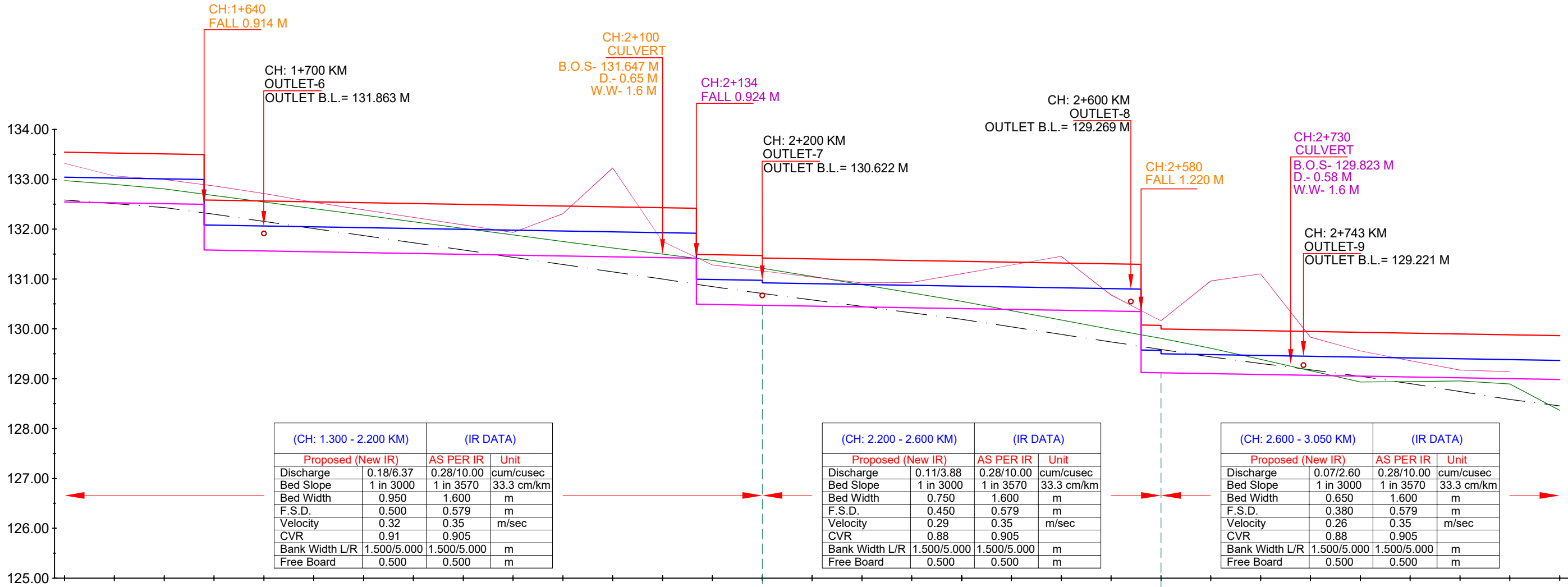
CREST LEVEL OF
HR = 136.265 M

B.L. = 134.205 M



	EXISTING DATA			DESIGN DATA		
	NSL	TOP OF BANK LEVEL	Bed Level	Proposed Bed Level	F.S.L.	TOP OF BANK LEVEL
Chainage IN KM						
+ 0+000		136.827	135.982	135.655	136.215	136.715
+ 0+050	136.012	136.514	135.885	135.641	136.201	136.701
+ 0+100	135.714	136.711	135.703	135.627	136.187	136.687
+ 0+150	135.845	136.374	135.488	135.613	136.173	136.673
+ 0+200	135.917	136.251	135.308	135.605 134.671	136.165 135.321	136.665 135.821
+ 0+250	135.782	136.129	135.243	134.747	135.307	135.807
+ 0+300	135.647	136.006	135.180	134.733	135.293	135.793
+ 0+350	135.512	135.837	135.109	134.719	135.279	135.779
+ 0+400	135.377	135.665	135.022	134.705	135.265	135.765
+ 0+450	135.241	135.493	134.936	134.691	135.251	135.751
+ 0+500	135.105	135.444	134.849	134.677	135.237	135.737
+ 0+550	135.032	135.434	134.804	134.663	135.223	135.723
+ 0+600	134.977	135.413	134.789	134.649	135.209	135.709
+ 0+650	134.915	135.350	134.774	134.635	135.195	135.695
+ 0+700	134.800	135.247	134.698	134.620	135.180	135.680
+ 0+750	134.686	135.164	134.623	134.605	135.165	135.665
+ 0+800	134.572	135.081	134.551	134.590	135.150	135.650
+ 0+850	134.458	135.559	134.476	134.574	135.134	135.634
+ 0+900	134.326	135.219	134.356	134.559 133.642	135.119 135.116	135.619 135.616
+ 0+950	134.189	135.095	134.207	133.630	134.190	134.690
+ 1+000	134.051	134.970	134.058	133.615	134.175	134.675
+ 1+050	133.912	134.846	133.908	133.600	134.160	134.660
+ 1+100	133.774	134.129	133.758	133.585	134.145	134.645
+ 1+150	133.636	134.400	133.608	133.570	134.130	134.630
+ 1+200	133.532	133.931	133.452	133.554	134.114	134.614
+ 1+250	133.436	133.731	133.280	133.542 132.628	134.102 133.188	134.602 133.688
+ 1+300	133.335	133.531	133.118	132.625	133.185	133.685
+ 1+350	133.234	133.332	132.955	132.619	133.170 133.110	133.670 133.610
+ 1+400	133.134	133.531	132.791	132.577	133.077	133.577
+ 1+450	133.045	133.788	132.657	132.560	133.060	133.560
+ 1+500	132.972	133.319	132.583	132.543	133.043	133.543

L- SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
FROM CH 1+500 TO 3+000



CHAINAGE IN KM	DESIGN DATA		EXISTING DATA	
	TOP OF BANK LEVEL	F.S.L.	Bed Level	TOP OF BANK LEVEL
1+500	133.543	133.043	132.583	133.319
1+550	133.527	133.027	132.511	133.068
1+600	133.510	133.010	132.432	132.996
1+650	133.497	132.993	132.298	132.844
1+700	132.563	132.063	132.155	132.692
1+750	132.546	132.046	132.012	132.541
1+800	132.529	132.029	131.869	132.389
1+850	132.513	132.013	131.726	132.237
1+900	132.496	131.996	131.583	132.086
1+950	132.479	131.979	131.434	131.934
2+000	132.463	131.963	131.292	132.308
2+050	132.446	131.946	131.142	133.228
2+100	132.429	131.929	130.997	131.751
2+150	132.418	131.918	130.847	131.281
2+200	131.472	130.972	130.709	131.161
2+250	131.405	130.905	130.580	131.041
2+300	131.389	130.889	130.450	130.921
2+350	131.372	130.872	130.321	130.931
2+400	131.355	130.855	130.190	131.106
2+450	131.339	130.839	130.041	131.280
2+500	131.322	130.822	129.888	131.455
2+550	131.305	130.805	129.738	130.680
2+600	131.295	130.795	129.588	130.162
2+650	129.982	129.482	129.437	130.962
2+700	129.965	129.465	129.306	131.103
2+750	129.951	129.451	129.179	129.834
2+800	129.932	129.432	129.049	129.558
2+850	129.915	129.415	128.902	129.360
2+900	129.899	129.399	128.743	129.175
2+950	129.882	129.382	128.583	129.143
3+000	129.865	129.365	128.455	

LEGEND

	NSL		EXISTING BED LEVEL
	EXISTING TOP OF BANK		PROPOSED BED LEVEL
	EXISTING STRUCTURE		PROPOSED FSL
	MODIFIED STRUCTURE		PROPOSED TOP OF BANK LEVEL
	NEW STRUCTURE		

IMPLEMENTING AGENCY :-

WAPCOS LTD.



PROJECT TITLE :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

DRAWING TITLE :-

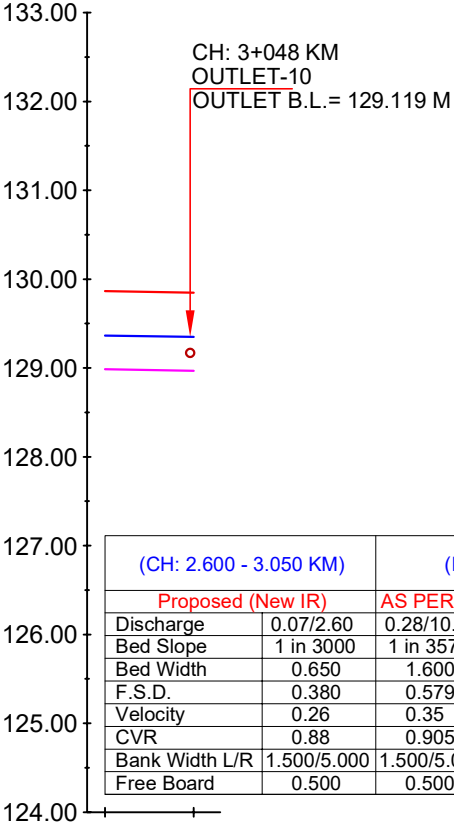
L- SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)

DRAWING NO. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ LSEC-

02 of 03

L- SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
FROM CH 3+000 TO 3+050



(CH: 2.600 - 3.050 KM)		(IR DATA)	
Proposed (New IR)		AS PER IR	Unit
Discharge	0.07/2.60	0.28/10.00	cum/cusec
Bed Slope	1 in 3000	1 in 3570	33.3 cm/km
Bed Width	0.650	1.600	m
F.S.D.	0.380	0.579	m
Velocity	0.26	0.35	m/sec
CVR	0.88	0.905	
Bank Width L/R	1.500/5.000	1.500/5.000	m
Free Board	0.500	0.500	m

DESIGN DATA	TOP OF BANK LEVEL	129.865	129.849
	F.S.L.	129.365	129.349
	Proposed Bed Level	128.985	128.969
EXISTING DATA	Bed Level	128.455	
	TOP OF BANK LEVEL		
	NSL		
Chainage IN KM		3+000	3+050

LEGEND			
	NSL		EXISTING BED LEVEL
	EXISTING TOP OF BANK		PROPOSED BED LEVEL
	EXISTING STRUCTURE		PROPOSED FSL
	MODIFIED STRUCTURE		PROPOSED TOP OF BANK LEVEL
	NEW STRUCTURE		

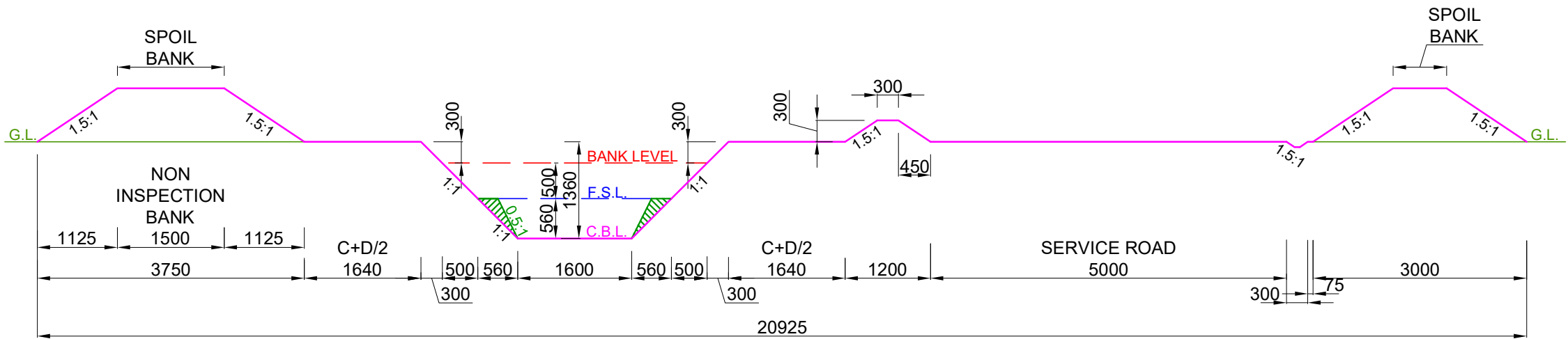
IMPLEMENTING AGENCY :-
WAPCOS LTD.



PROJECT TITLE :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
DRAWING TITLE :-	L- SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)		
DRAWING NO. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ LSEC- 03 of 03		

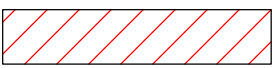
TYPICAL X-SECTION

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING

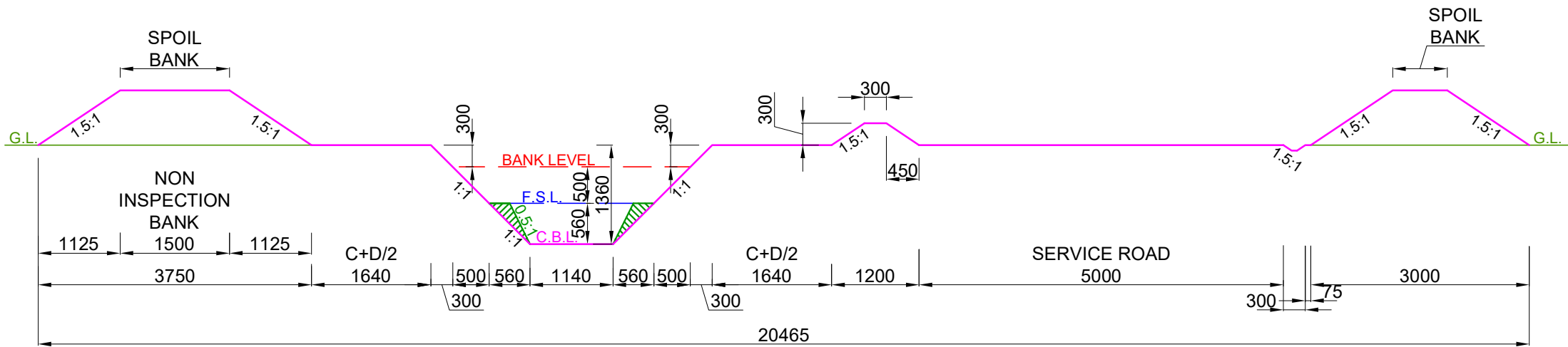


DESIGN SECTION FROM CH: 0.000 KM TO CH: 0.650 KM

- NOTE:-
- 1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
 - 2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
 - 3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND			
	CUT AREA		Drawing Title :-	X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)			
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(FC)			

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING



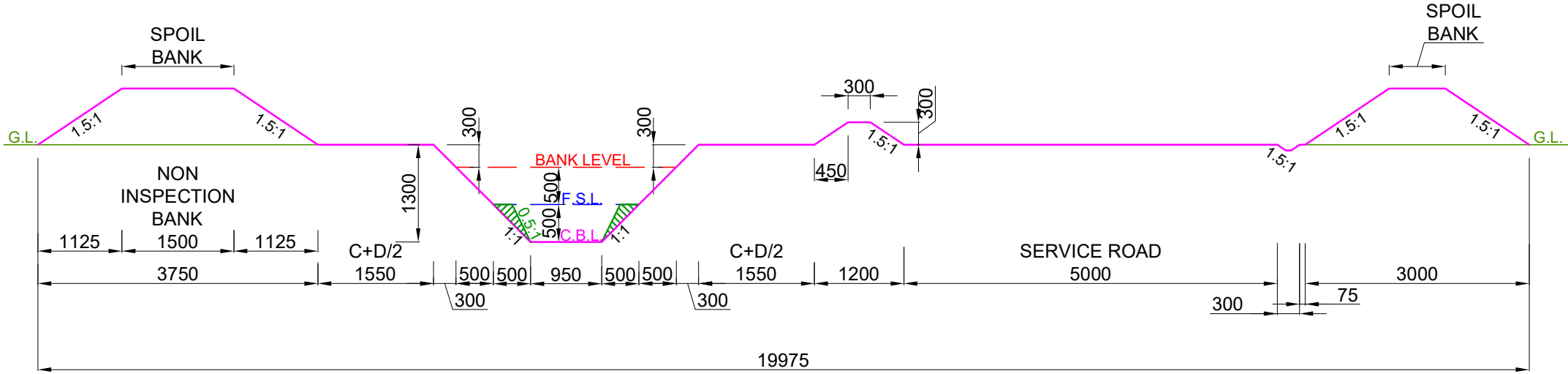
DESIGN SECTION FROM CH: 0.650 KM TO CH: 1.300 KM

- NOTE:-
- 1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
 - 2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
 - 3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND CUT AREA FILL AREA		Prepared by :- WAPCOS LTD. 	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
			Drawing Title :- X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
			Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(FC)

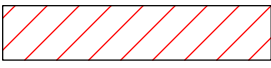
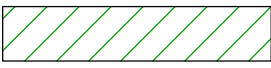
2 of 5

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING

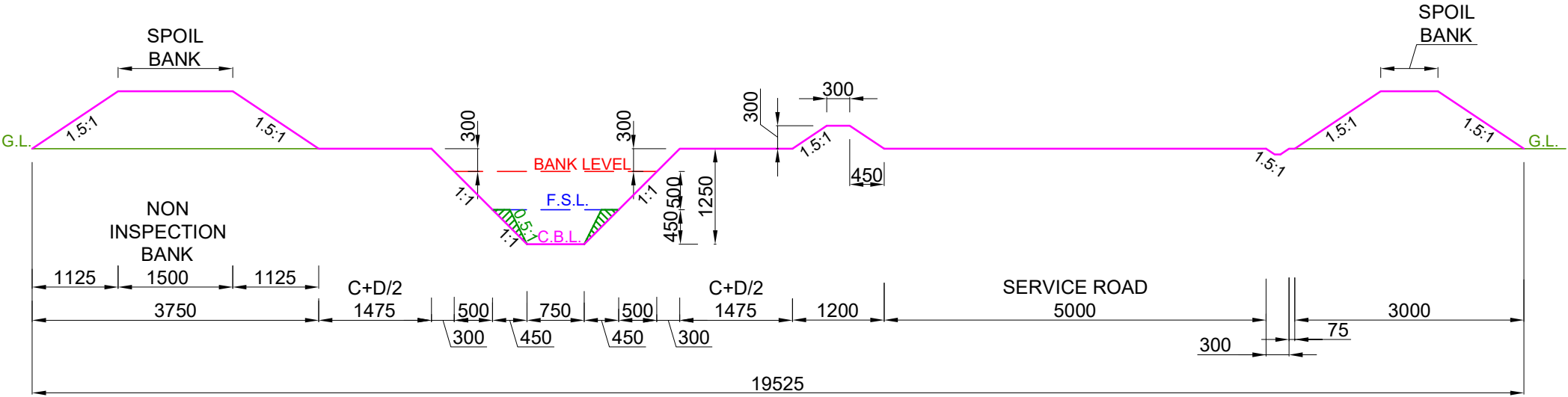


DESIGN SECTION FROM CH: 1.300 KM TO CH: 2.200 KM

- NOTE:-
- 1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
 - 2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
 - 3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

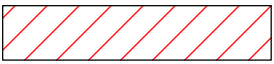
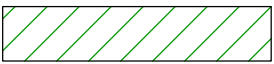
LEGEND		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	CUT AREA		Drawing Title :-	X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)	
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(FC)	

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING

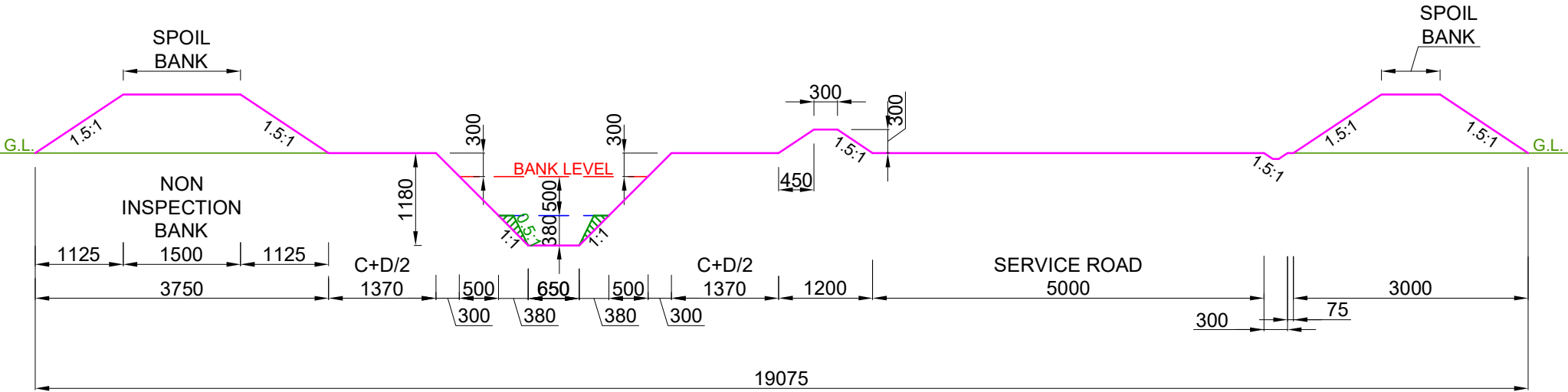


DESIGN SECTION FROM CH: 2.200 KM TO CH: 2.600 KM

- NOTE:-
- 1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
 - 2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
 - 3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	CUT AREA		Drawing Title :-	X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)	
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(FC) 4 of 5	

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING



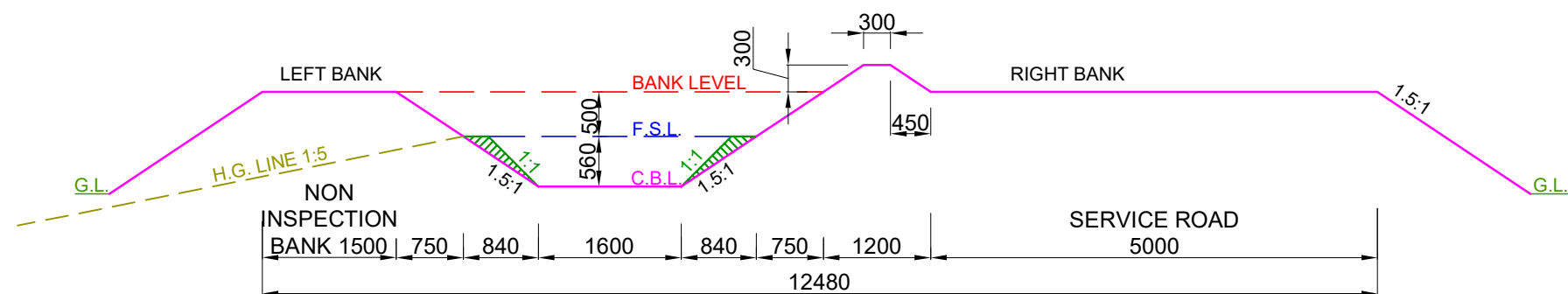
DESIGN SECTION FROM CH: 2.600 KM TO CH: 3.050 KM

- NOTE:-
- 1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
 - 2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
 - 3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND CUT AREA FILL AREA		Prepared by :- WAPCOS LTD. 	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
			Drawing Title :- X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
			Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(FC)

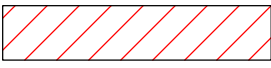
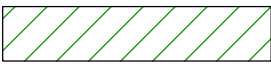
5 of 5

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL FILLING

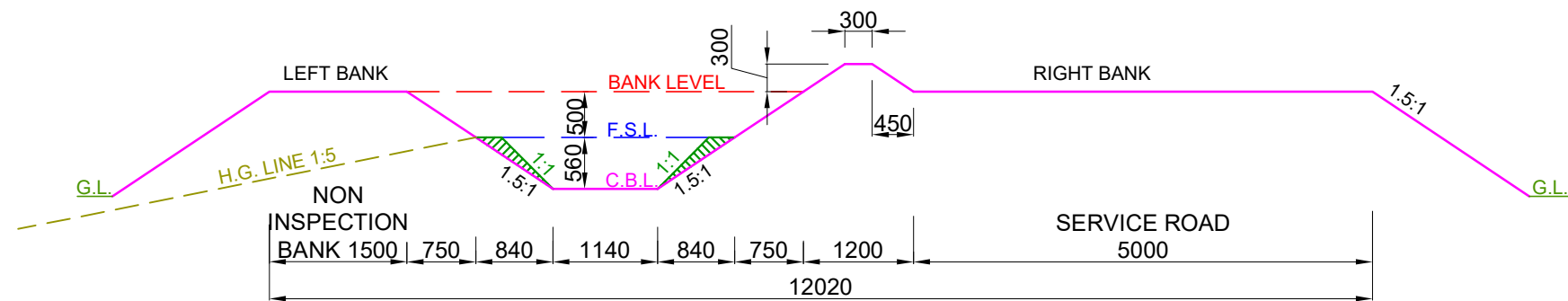


DESIGN SECTION FROM CH: 0.000 KM TO CH: 0.650 KM

- NOTE:-
- 1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
 - 2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
 - 3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND				
	CUT AREA		Drawing Title :-	X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)				
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(FF) 1 of 5				

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL FILLING



DESIGN SECTION FROM CH: 0.650 KM TO CH: 1.300 KM

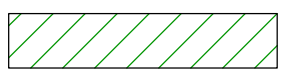
NOTE:-

1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND



CUT AREA



FILL AREA

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

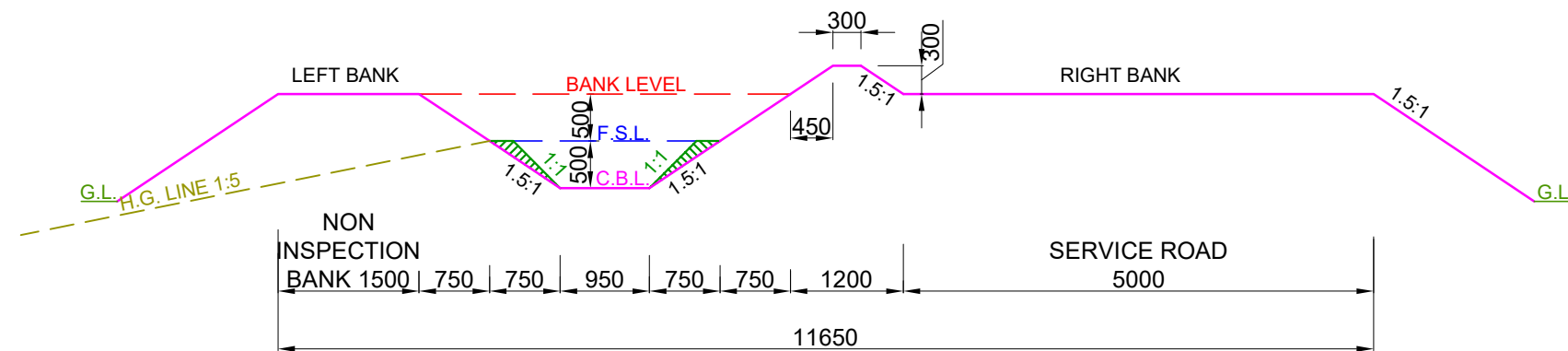
X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(FF)

2 of 5

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL FILLING



DESIGN SECTION FROM CH: 1.300 KM TO CH: 2.200 KM

NOTE:-

1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND



CUT AREA



FILL AREA

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

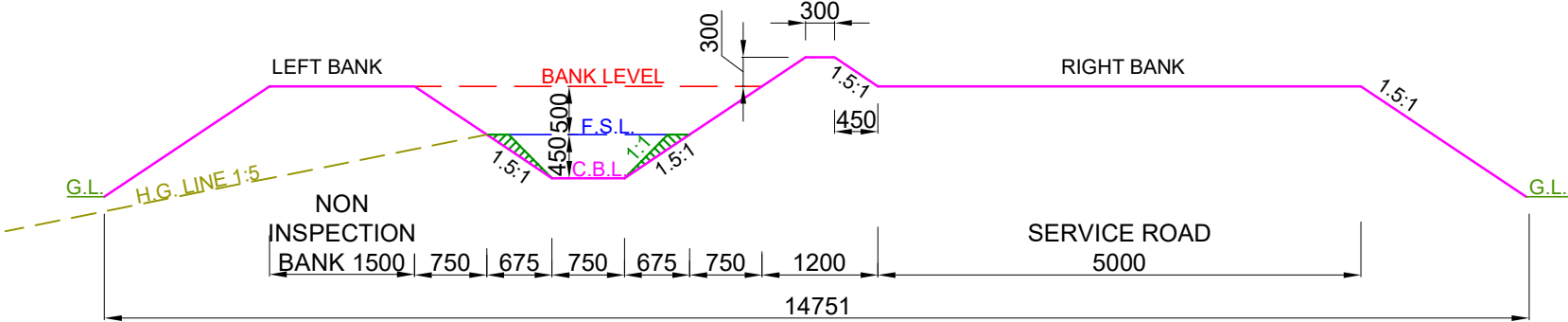
X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(FF)

3 of 5

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL FILLING

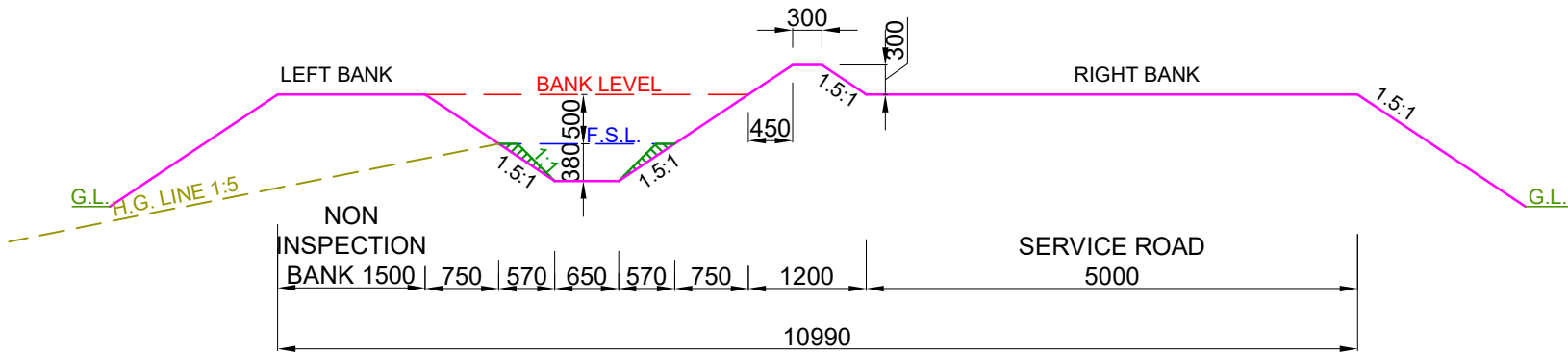


DESIGN SECTION FROM CH: 2.200 KM TO CH: 2.600 KM

- NOTE:-
- 1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
 - 2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
 - 3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND CUT AREA FILL AREA		Prepared by :- WAPCOS LTD.	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
			Drawing Title :- X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
			Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(FF)

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL FILLING

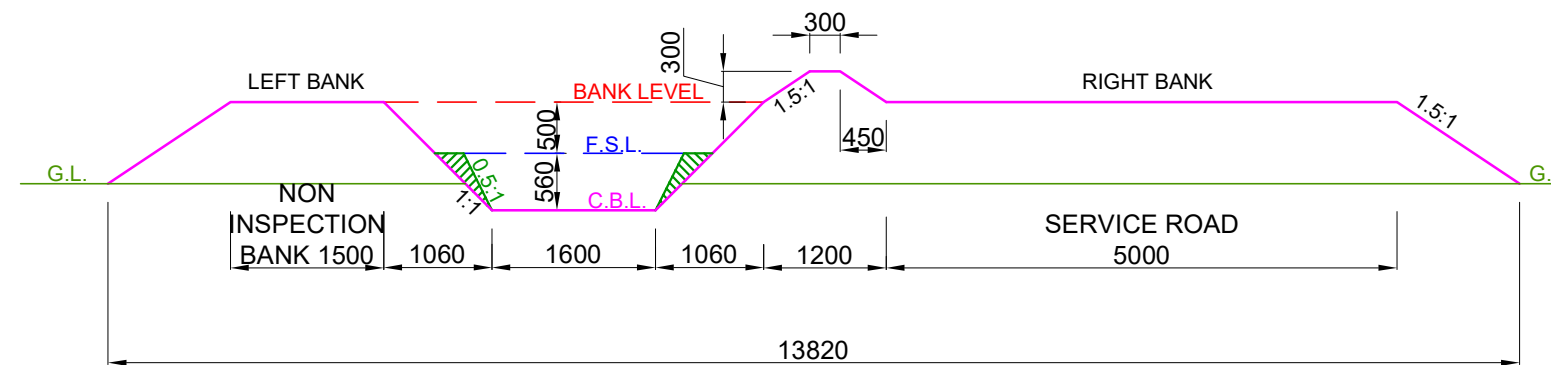


DESIGN SECTION FROM CH: 2.600 KM TO CH: 3.050 KM

- NOTE:-
- 1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
 - 2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
 - 3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND				
	CUT AREA		Drawing Title :-	X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)				
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(FF) 5 of 5				

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR PARTLY CUTTING/ PARTLY FILLING



DESIGN SECTION FROM CH: 0.000 KM TO CH: 0.650 KM

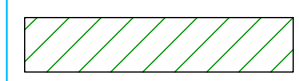
NOTE:-

1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND



CUT AREA



FILL AREA

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

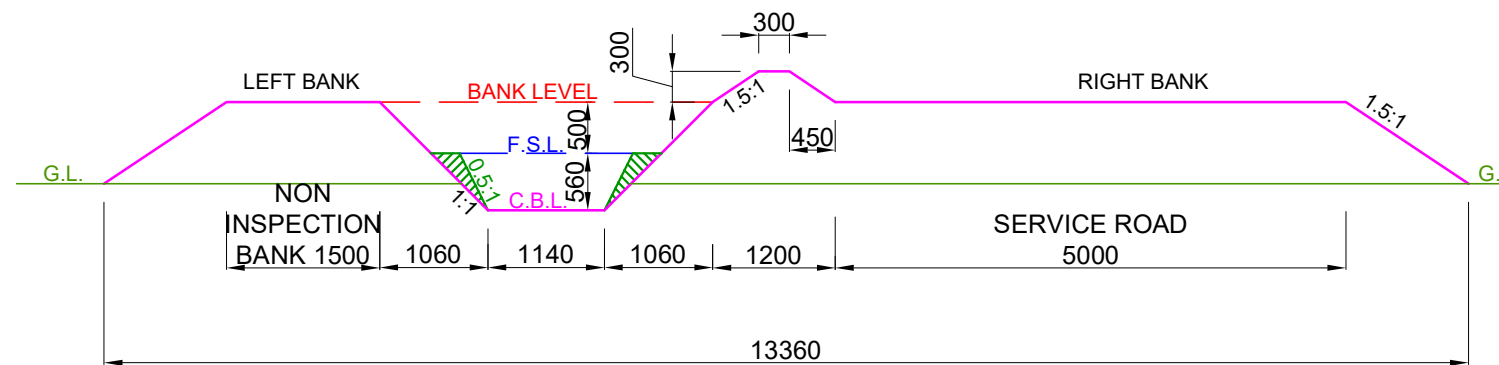
X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(PCF)

1 of 5

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR PARTLY CUTTING/ PARTLY FILLING



DESIGN SECTION FROM CH: 0.650 KM TO CH: 1.300 KM

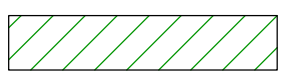
NOTE:-

1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND



CUT AREA



FILL AREA

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

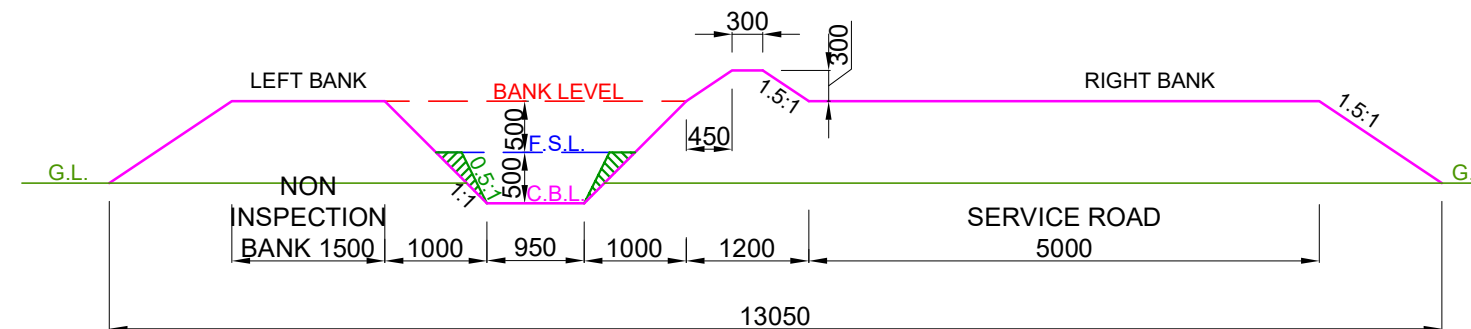
X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(PCF)

2 of 5

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR PARTLY CUTTING/ PARTLY FILLING



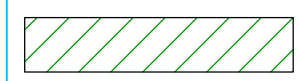
DESIGN SECTION FROM CH: 1.300 KM TO CH: 2.200 KM

- NOTE:-**
1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
 2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
 3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND



CUT AREA



FILL AREA

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

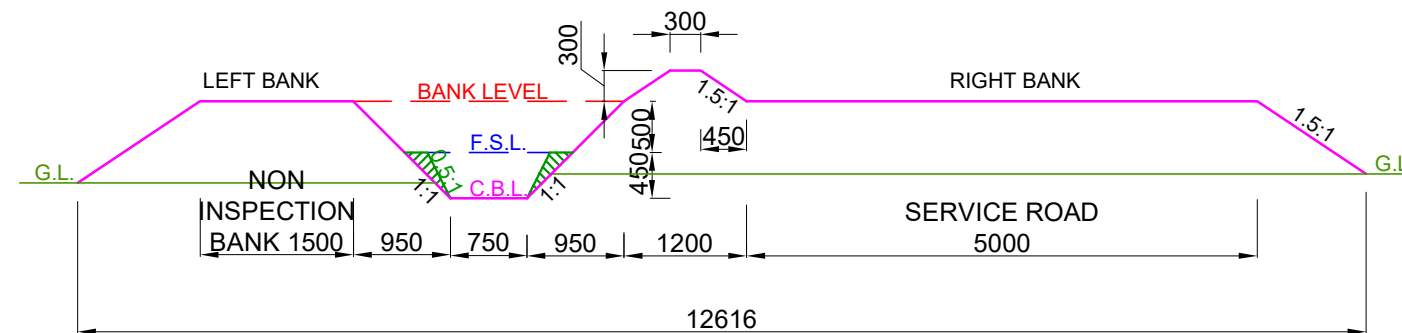
X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(PCF)

3 of 5

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR PARTLY CUTTING/ PARTLY FILLING



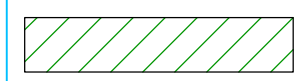
DESIGN SECTION FROM CH: 2.200 KM TO CH: 2.600 KM

- NOTE:-**
1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
 2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
 3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND



CUT AREA



FILL AREA

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

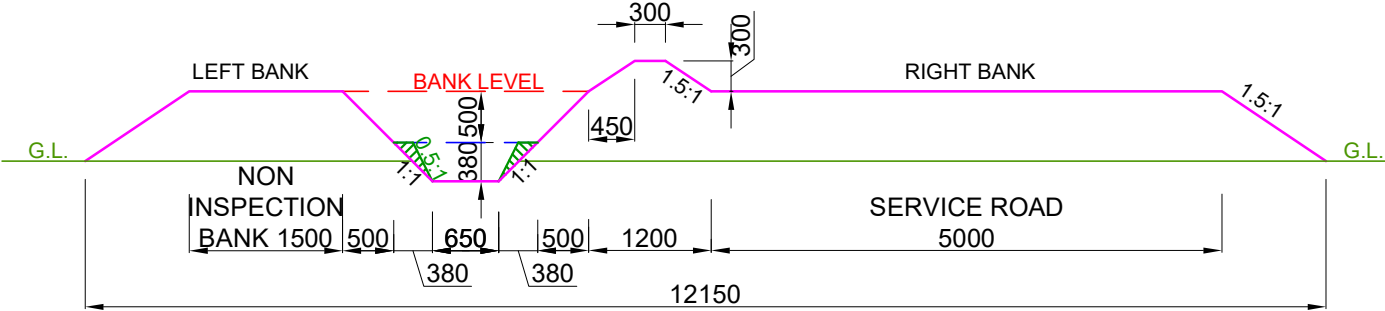
X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(PCF)

4 of 5

TYPICAL X - SECTION OF KATAIYA MINOR
(OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR PARTLY CUTTING/ PARTLY FILLING



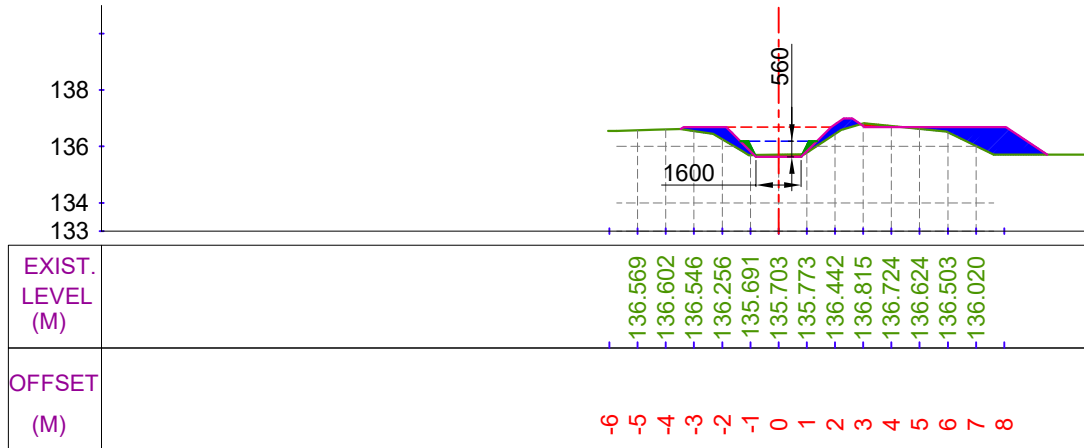
DESIGN SECTION FROM CH: 2.600 KM TO CH: 3.050 KM

- NOTE:-**
- 1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
 - 2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
 - 3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

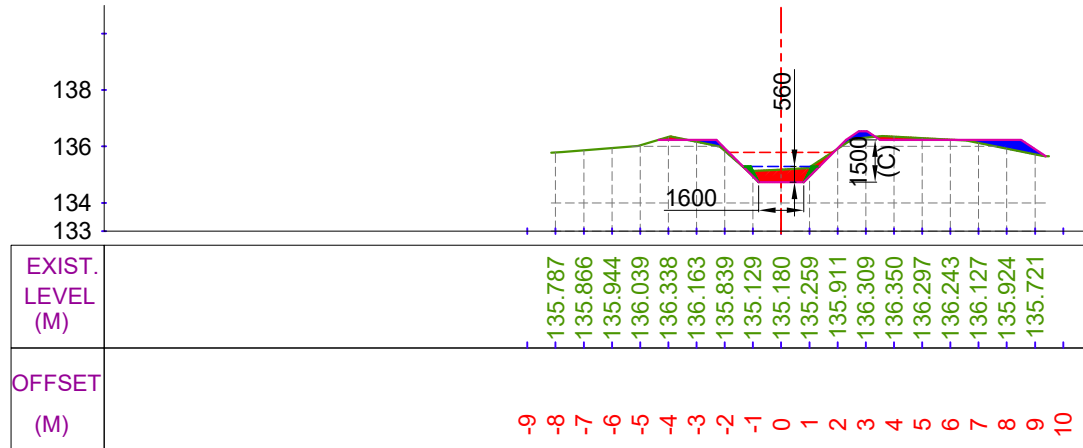
LEGEND CUT AREA FILL AREA		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND				
			Drawing Title :-	X - SECTION OF KATAIYA MR. (OFFTAKE FROM RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)				
			Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC /TYP-(PCF)				

CROSS-SECTION

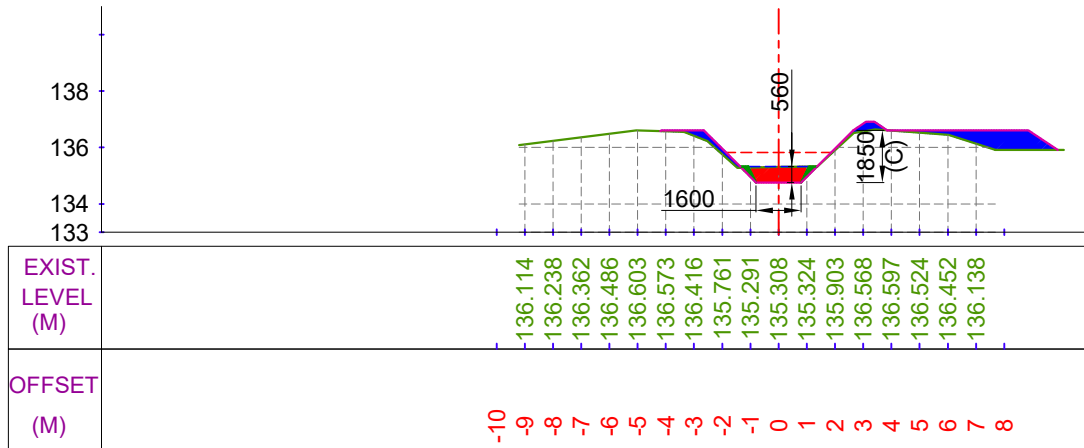
X SECTION OF KATAIYA MINOR



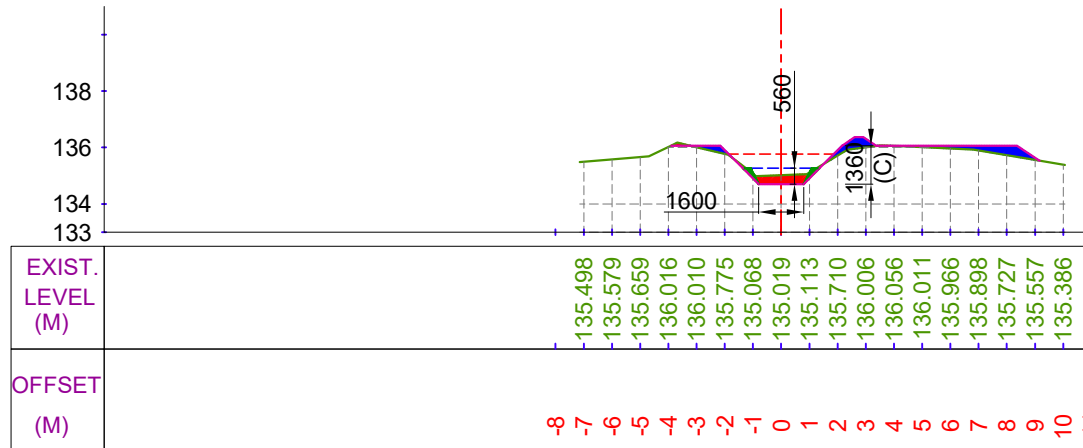
CUTTING AREA (SQ.M) = 0.222
FILLING AREA (SQ.M) = 3.322
CH. (KM):- 0+100
DESIGNED BED LEVEL = 135.627 M



CUTTING AREA (SQ.M) = 1.177
FILLING AREA (SQ.M) = 0.978
CH. (KM):- 0+300
DESIGNED BED LEVEL = 134.733 M

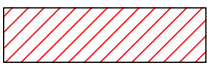


CUTTING AREA (SQ.M) = 1.026
FILLING AREA (SQ.M) = 2.813
CH. (KM):- 0+200
DESIGNED BED LEVEL = 134.761 M

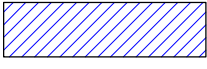


CUTTING AREA (SQ.M) = 0.620
FILLING AREA (SQ.M) = 1.383
CH. (KM):- 0+400
DESIGNED BED LEVEL = 134.705 M

LEGEND



CUT AREA



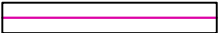
FILL AREA



EXISTING BED LINE



F.S.L.



DESIGNED BED LINE



H.G. LINE

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

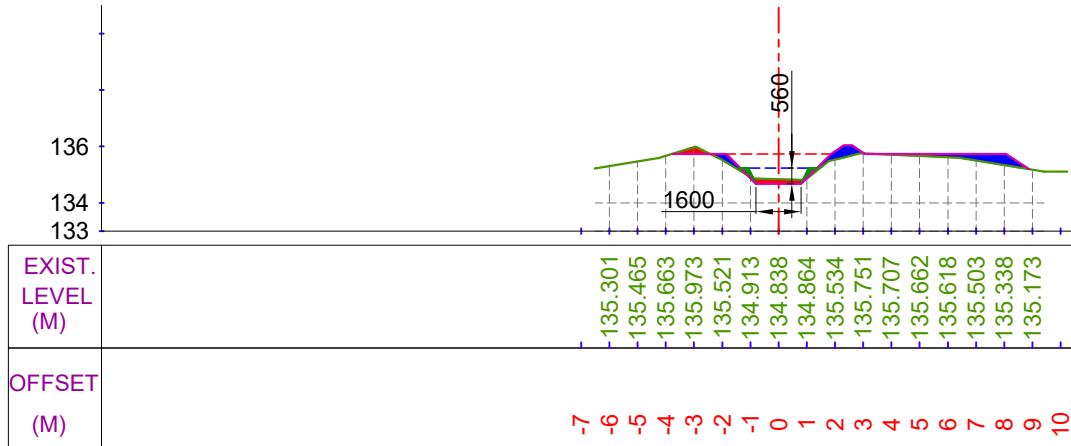
X SEC OF KATAIYA MINOR (OFFTAKE FROM RD - 64+610 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

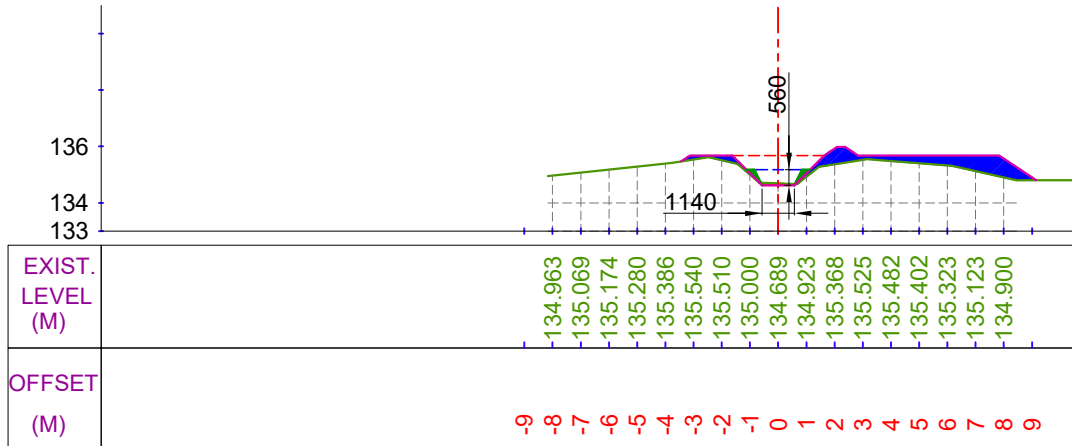
WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC-

1 of 8

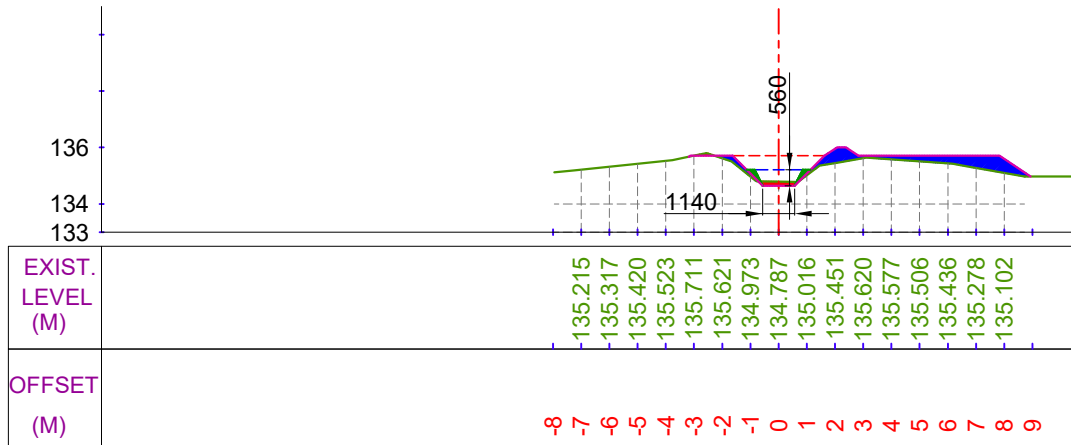
X SECTION OF KATAIYA MINOR



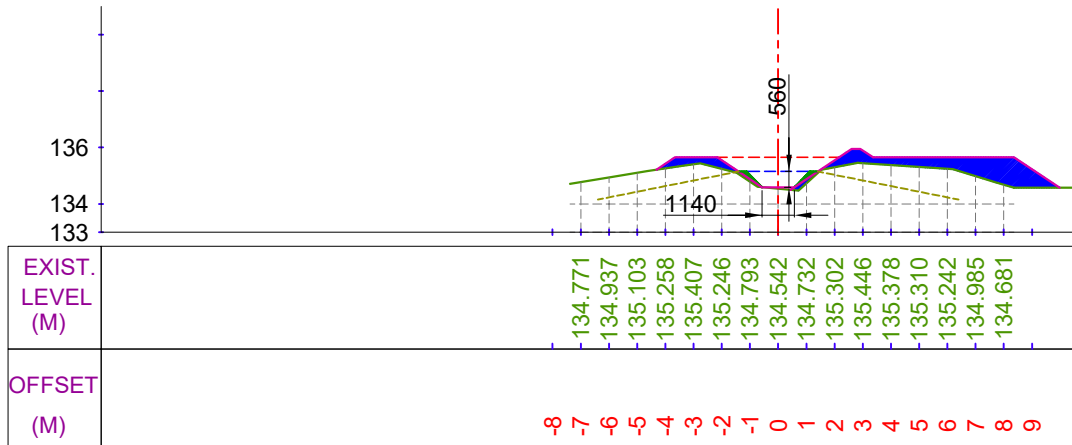
CUTTING AREA (SQ.M) = 0.438
FILLING AREA (SQ.M) = 1.455
CH. (KM):- 0+500
DESIGNED BED LEVEL = 134.677 M



CUTTING AREA (SQ.M) = 0.082
FILLING AREA (SQ.M) = 3.299
CH. (KM):- 0+700
DESIGNED BED LEVEL = 134.620 M



CUTTING AREA (SQ.M) = 0.202
FILLING AREA (SQ.M) = 2.408
CH. (KM):- 0+600
DESIGNED BED LEVEL = 134.649 M

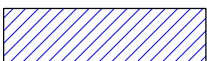


CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 4.903
CH. (KM):- 0+800
DESIGNED BED LEVEL = 134.590 M

LEGEND



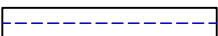
CUT AREA



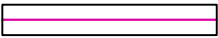
FILL AREA



EXISTING BED LINE



F.S.L.



DESIGNED BED LINE



H.G. LINE

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

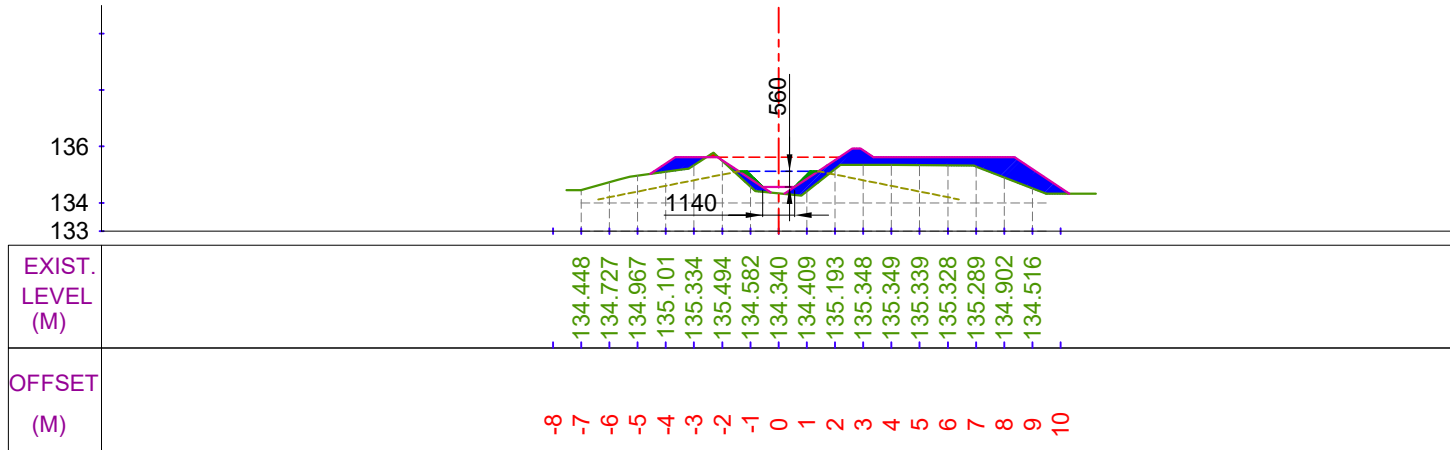
X SEC OF KATAIYA MINOR (OFFTAKE FROM RD - 64+610 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

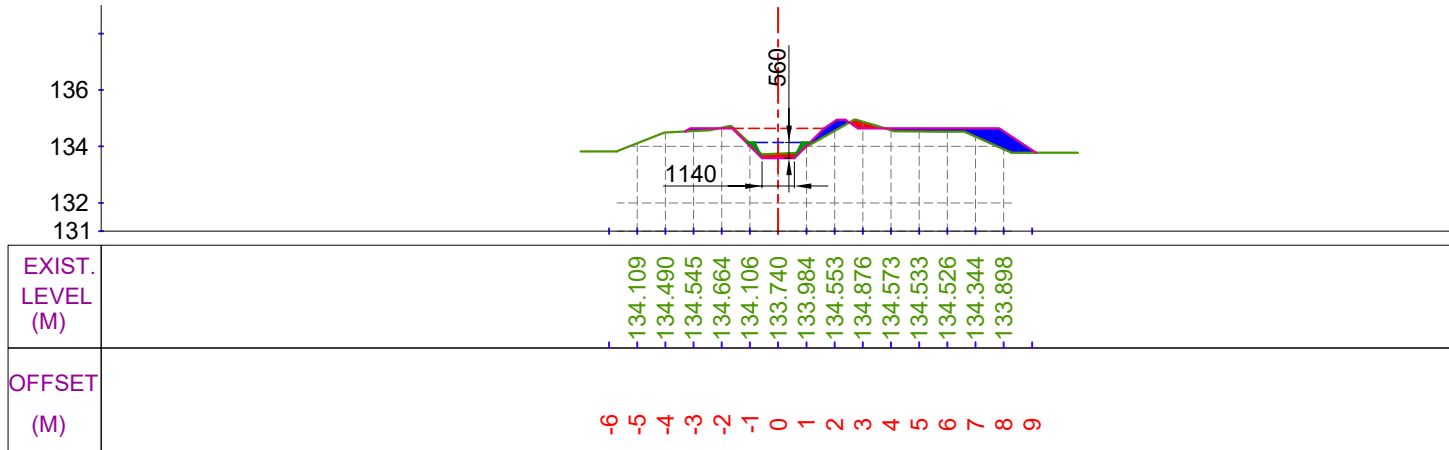
WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC-

2 of 8

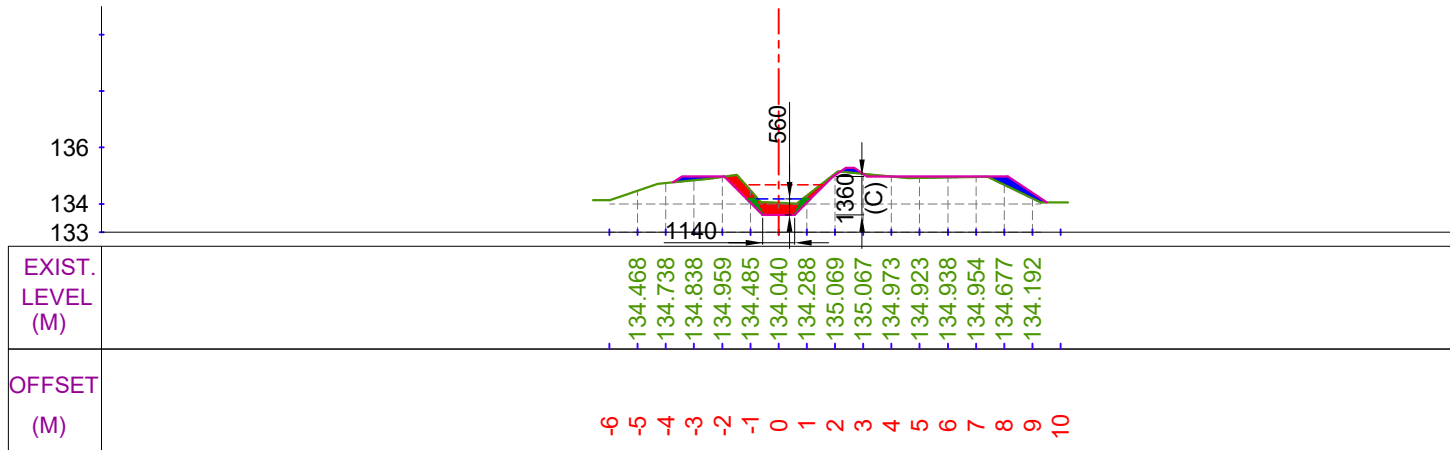
X SECTION OF KATAIYA MINOR



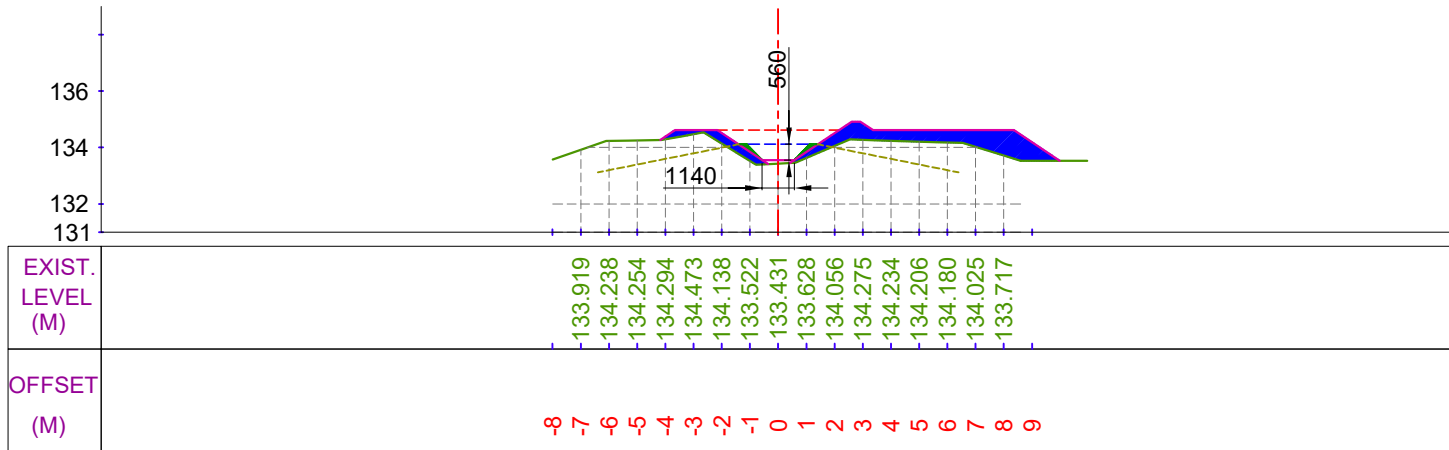
CUTTING AREA (SQ.M) = 0.035
FILLING AREA (SQ.M) = 4.865
CH. (KM):- 0+900
DESIGNED BED LEVEL = 134.559 M



CUTTING AREA (SQ.M) = 0.431
FILLING AREA (SQ.M) = 1.740
CH. (KM):- 1+100
DESIGNED BED LEVEL = 133.585 M



CUTTING AREA (SQ.M) = 1.156
FILLING AREA (SQ.M) = 0.840
CH. (KM):- 1+000
DESIGNED BED LEVEL = 133.615 M

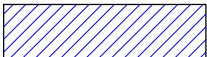


CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 5.508
CH. (KM):- 1+200
DESIGNED BED LEVEL = 133.554 M

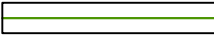
LEGEND



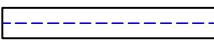
CUT AREA



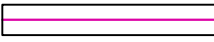
FILL AREA



EXISTING BED LINE



F.S.L.



DESIGNED BED LINE



H.G. LINE

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

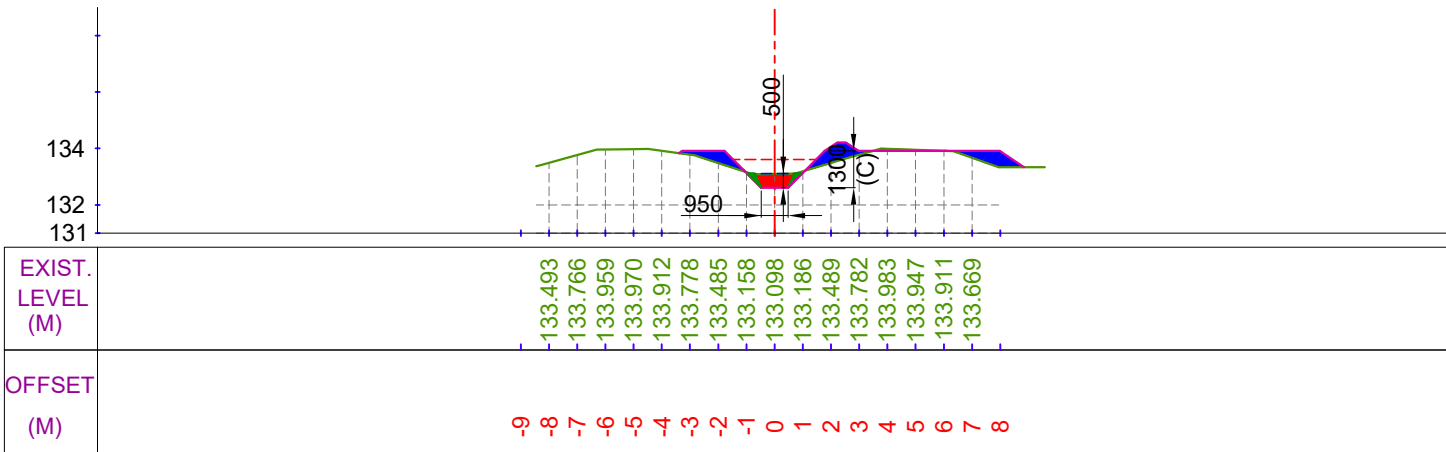
X SEC OF KATAIYA MINOR (OFFTAKE FROM RD - 64+610 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

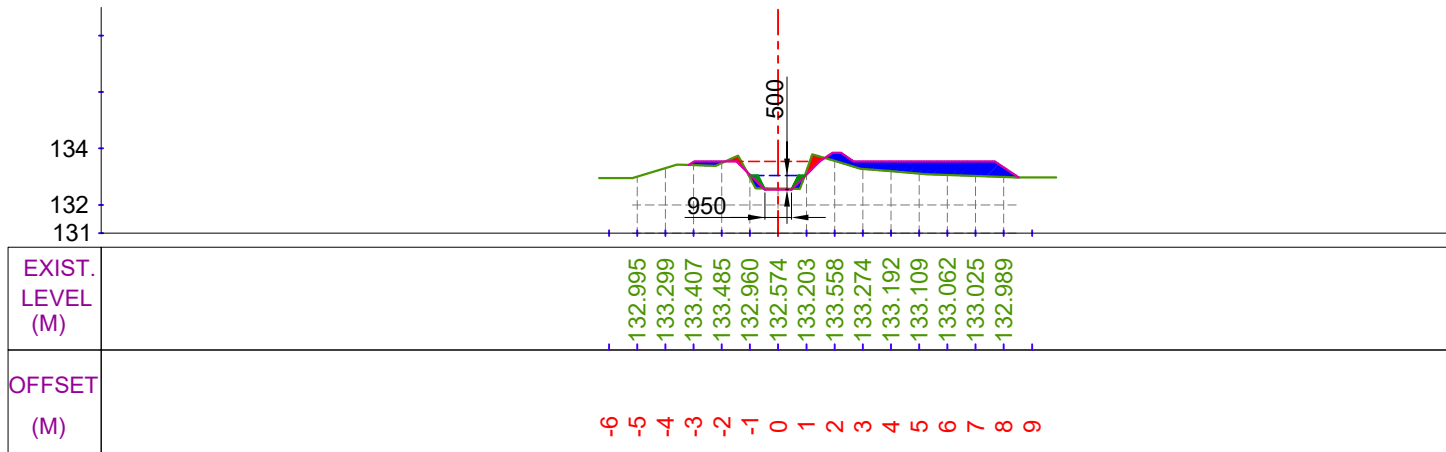
WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC-

3 of 8

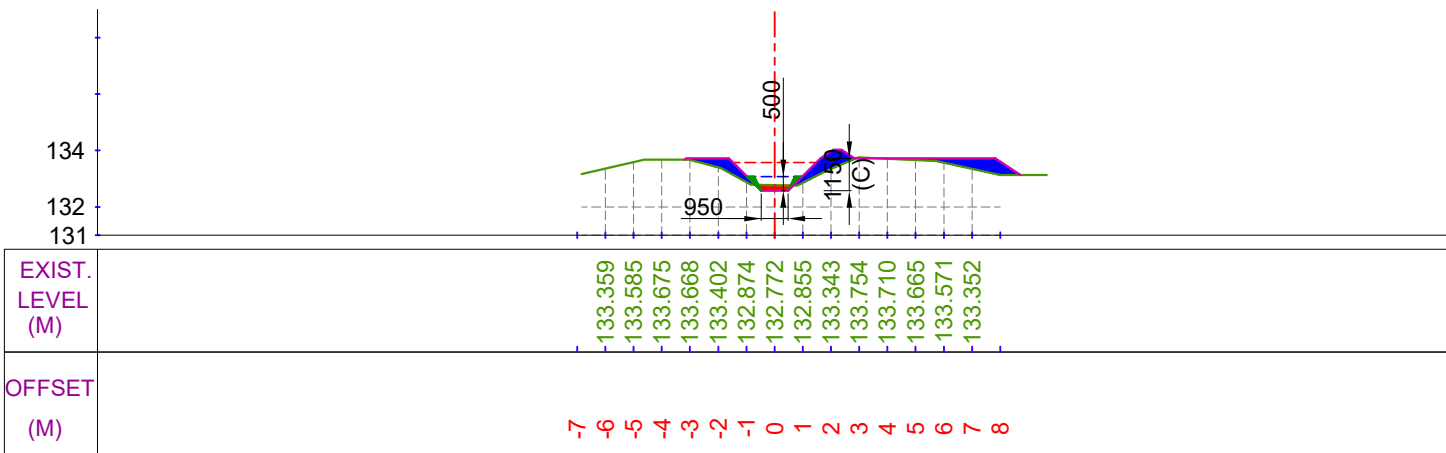
X SECTION OF KATAIYA MINOR



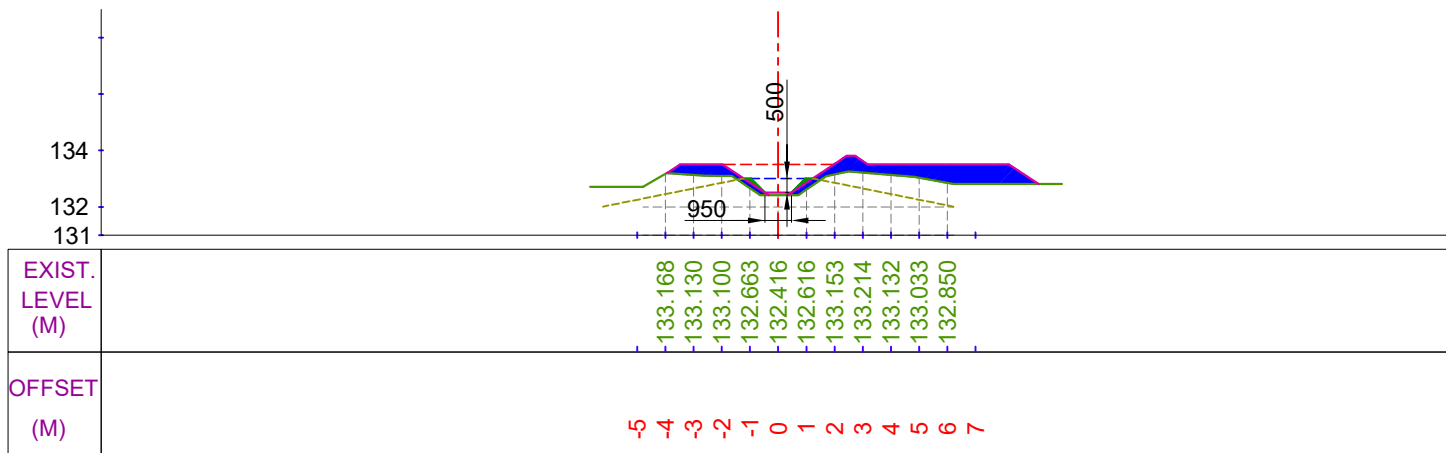
CUTTING AREA (SQ.M) = 0.701
FILLING AREA (SQ.M) = 2.126
CH. (KM):- 1+300
DESIGNED BED LEVEL = 132.610 M



CUTTING AREA (SQ.M) = 0.294
FILLING AREA (SQ.M) = 2.878
CH. (KM):- 1+500
DESIGNED BED LEVEL = 132.543 M



CUTTING AREA (SQ.M) = 0.214
FILLING AREA (SQ.M) = 2.540
CH. (KM):- 1+400
DESIGNED BED LEVEL = 132.577 M

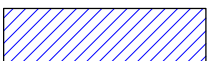


CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 5.100
CH. (KM):- 1+600
DESIGNED BED LEVEL = 132.510 M

LEGEND



CUT AREA



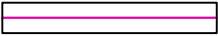
FILL AREA



EXISTING BED LINE



F.S.L.



DESIGNED BED LINE



H.G. LINE

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

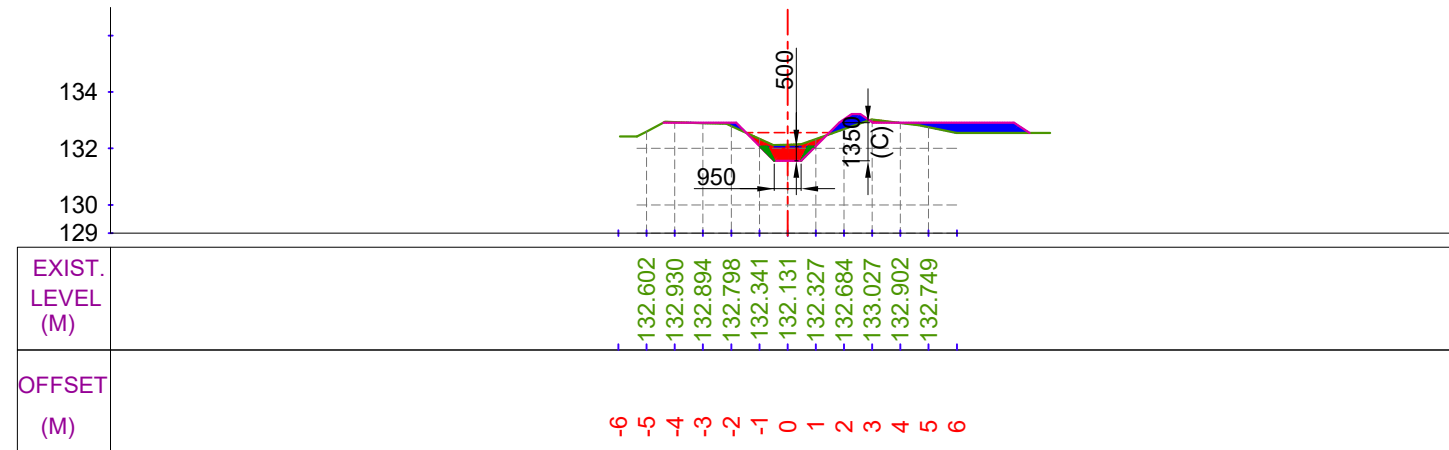
X SEC OF KATAIYA MINOR (OFFTAKE FROM RD - 64+610 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

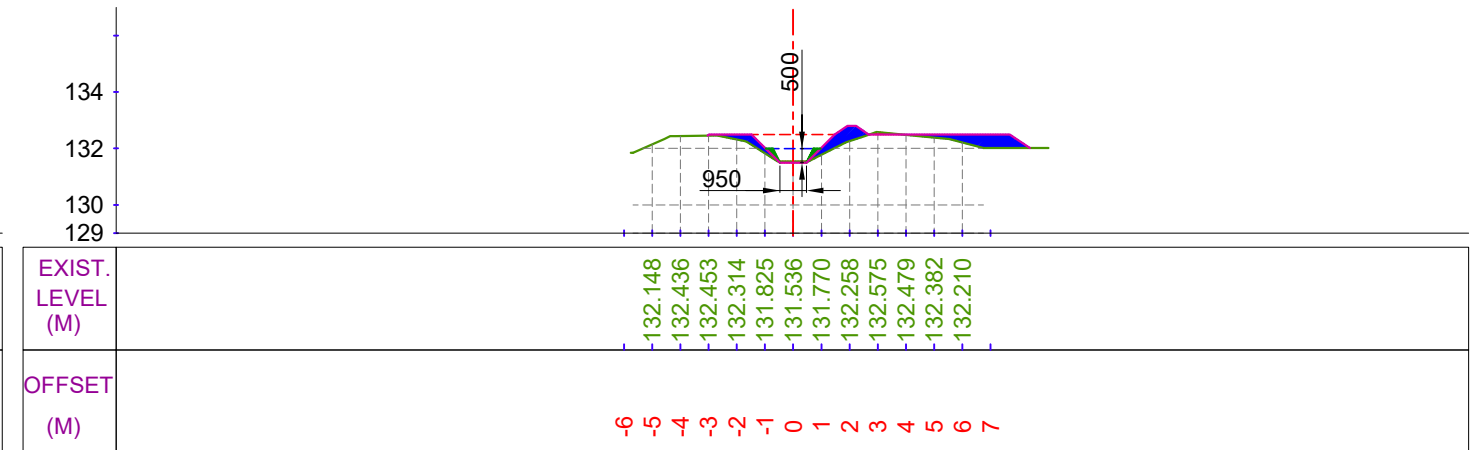
WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC-

4 of 8

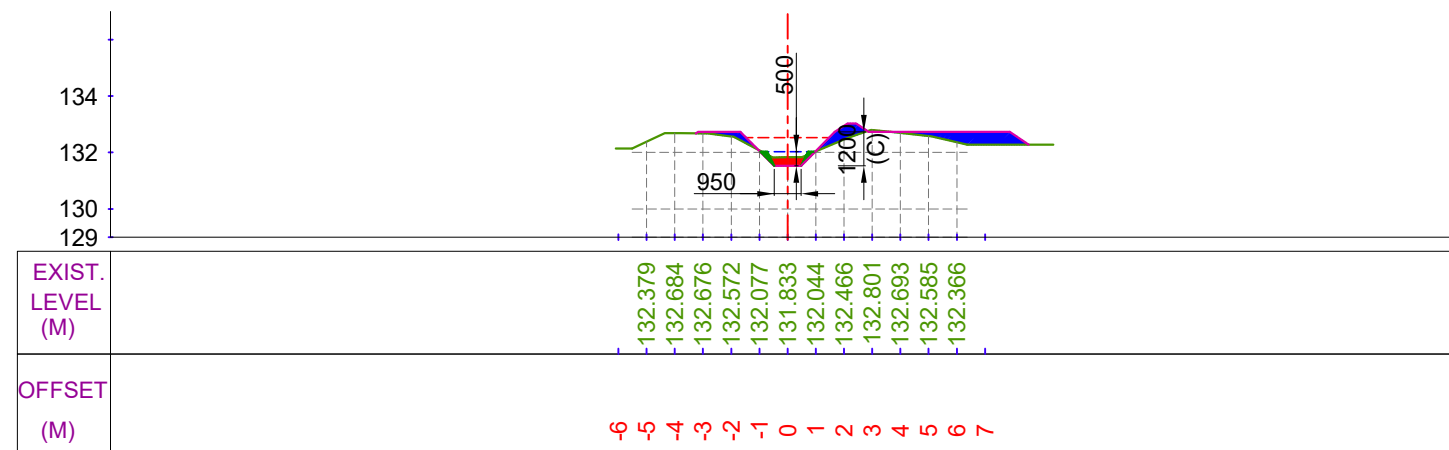
X SECTION OF KATAIYA MINOR



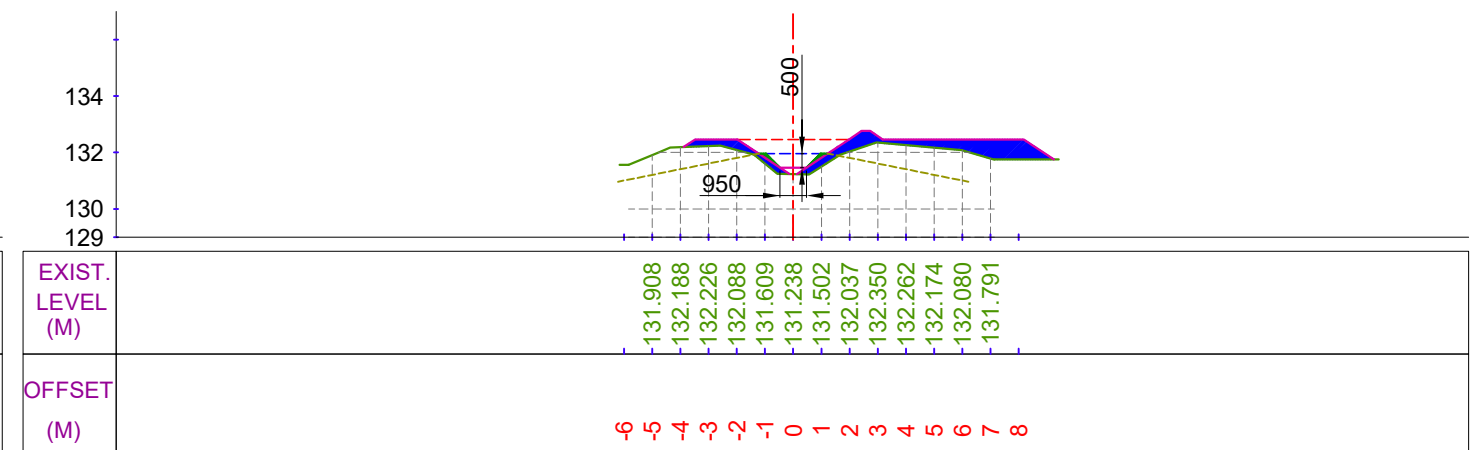
CUTTING AREA (SQ.M) = 1.010
FILLING AREA (SQ.M) = 1.692
CH. (KM):- 1+700
DESIGNED BED LEVEL = 131.563 M



CUTTING AREA (SQ.M) = 0.084
FILLING AREA (SQ.M) = 2.290
CH. (KM):- 1+900
DESIGNED BED LEVEL = 131.496 M



CUTTING AREA (SQ.M) = 0.377
FILLING AREA (SQ.M) = 2.154
CH. (KM):- 1+800
DESIGNED BED LEVEL = 131.529 M

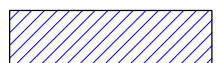


CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 4.330
CH. (KM):- 2+000
DESIGNED BED LEVEL = 131.463 M

LEGEND



CUT AREA



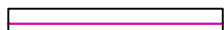
FILL AREA



EXISTING BED LINE



F.S.L.



DESIGNED BED LINE



H.G. LINE

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

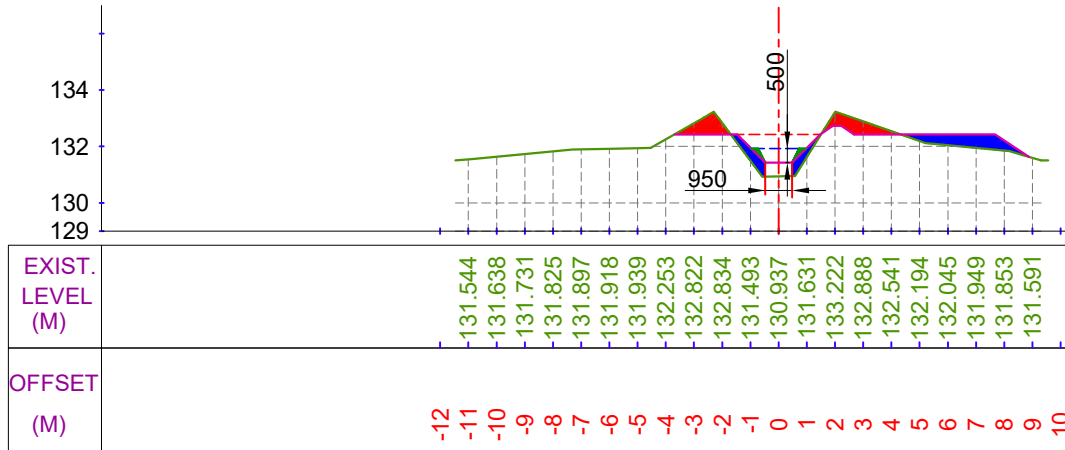
X SEC OF KATAIYA MINOR (OFFTAKE FROM RD - 64+610 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

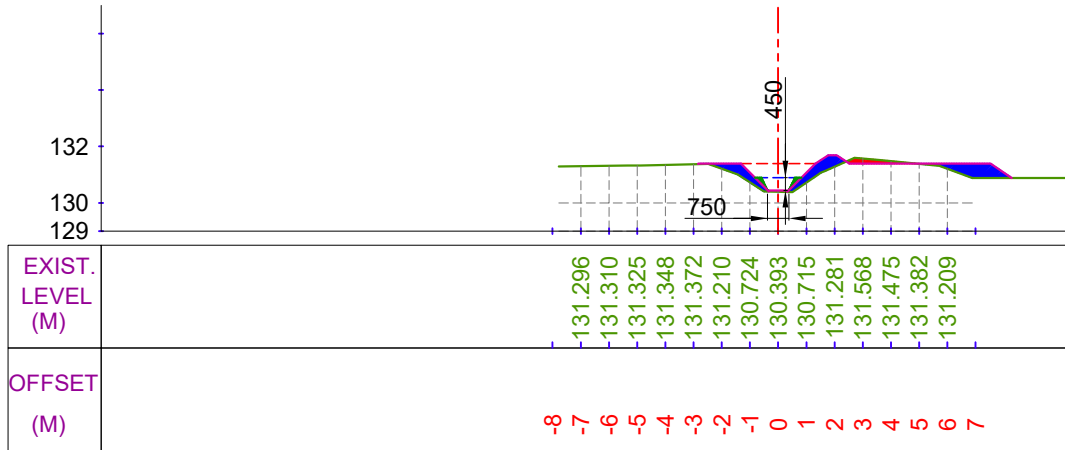
WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC-

5 of 8

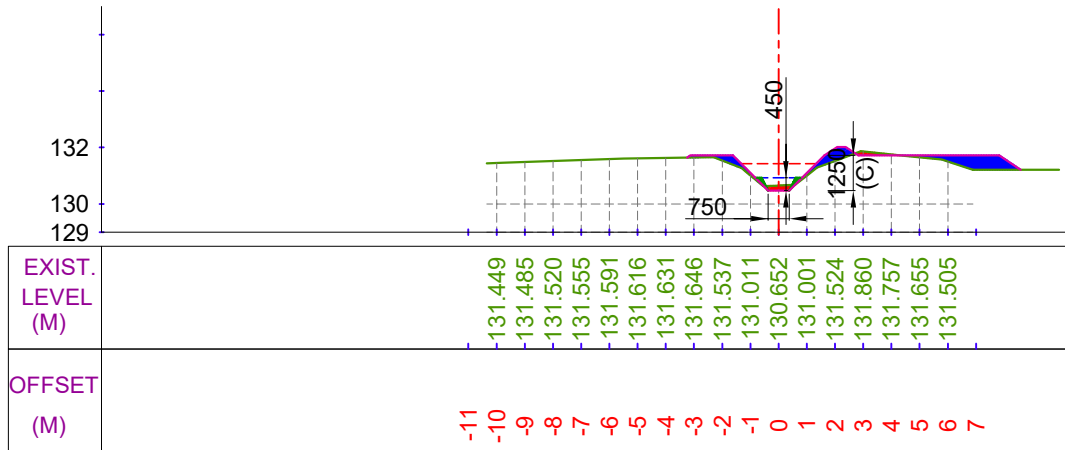
X SECTION OF KATAIYA MINOR



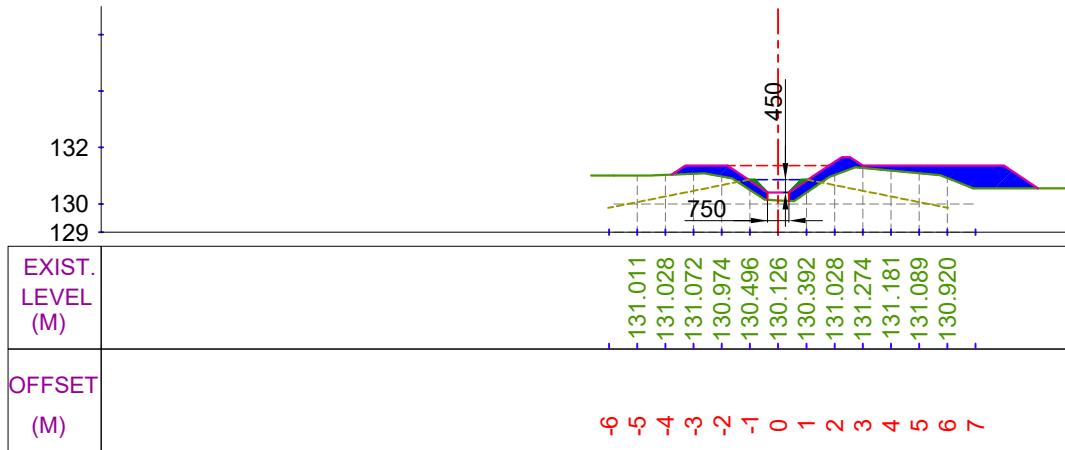
CUTTING AREA (SQ.M) = 1.703
FILLING AREA (SQ.M) = 2.306
CH. (KM):- 2+100
DESIGNED BED LEVEL = 131.429 M



CUTTING AREA (SQ.M) = 0.266
FILLING AREA (SQ.M) = 2.087
CH. (KM):- 2+300
DESIGNED BED LEVEL = 130.439 M



CUTTING AREA (SQ.M) = 0.273
FILLING AREA (SQ.M) = 1.968
CH. (KM):- 2+200
DESIGNED BED LEVEL = 130.472 M

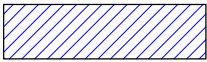


CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 4.663
CH. (KM):- 2+400
DESIGNED BED LEVEL = 130.405 M

LEGEND



CUT AREA



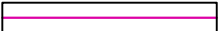
FILL AREA



EXISTING BED LINE



F.S.L.



DESIGNED BED LINE



H.G. LINE

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

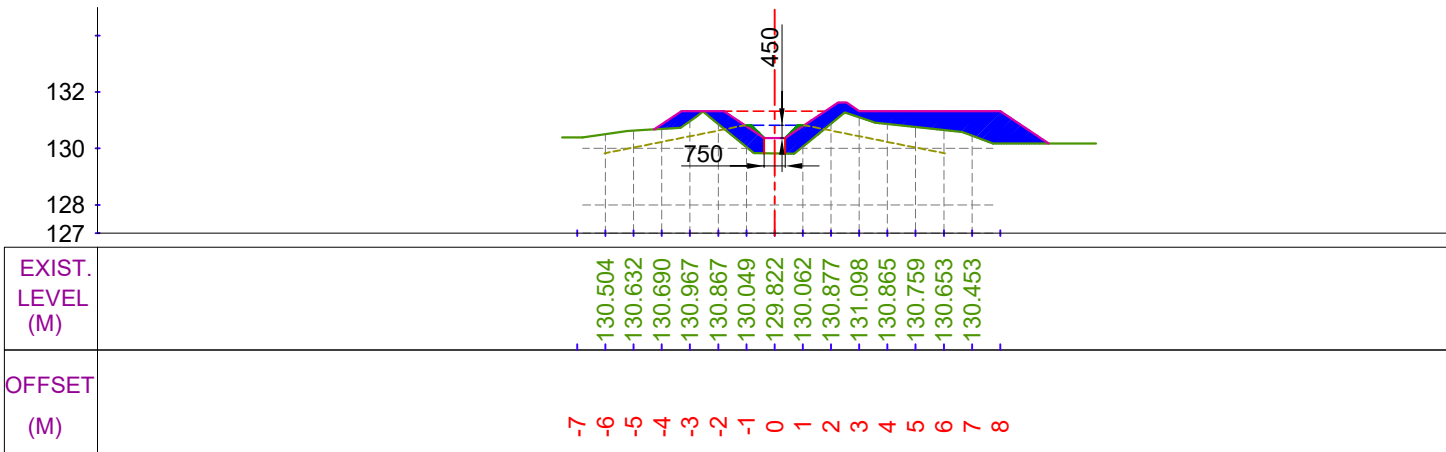
X SEC OF KATAIYA MINOR (OFFTAKE FROM RD - 64+610 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

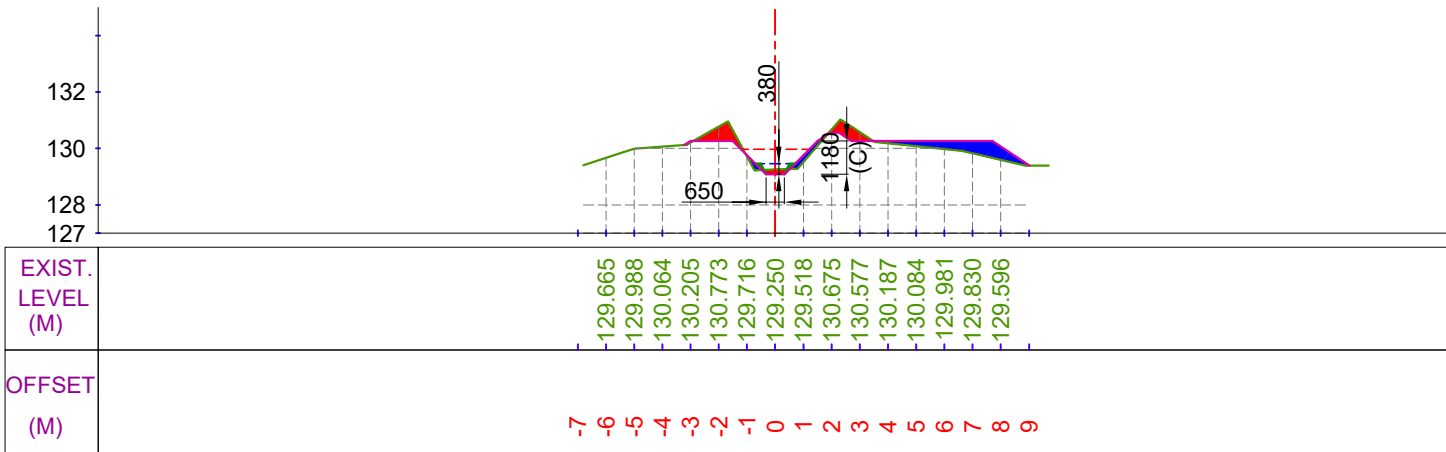
WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC-

6 of 8

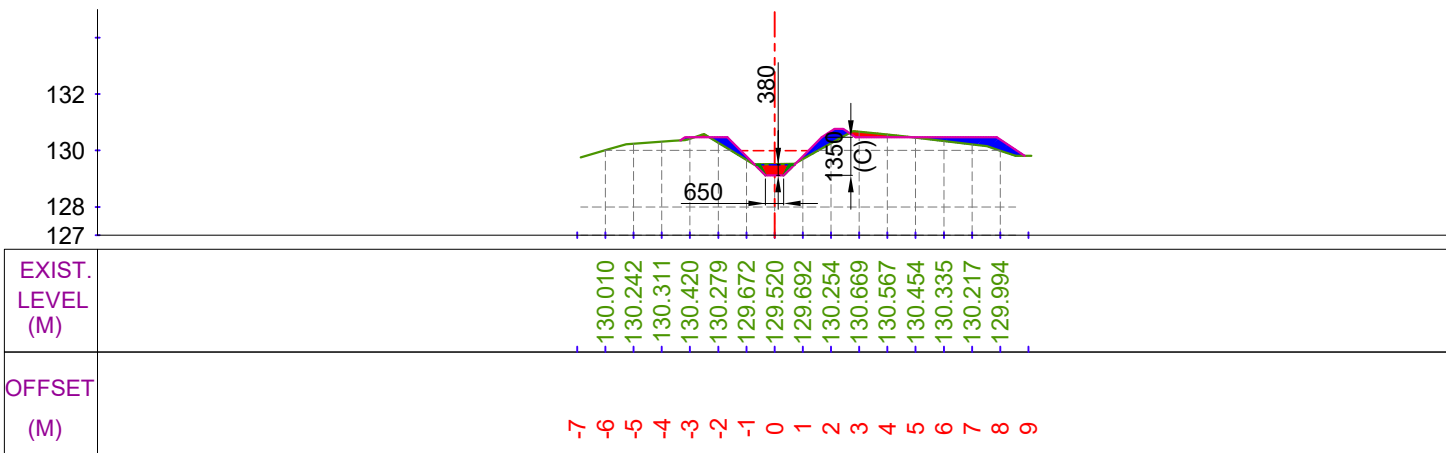
X SECTION OF KATAIYA MINOR



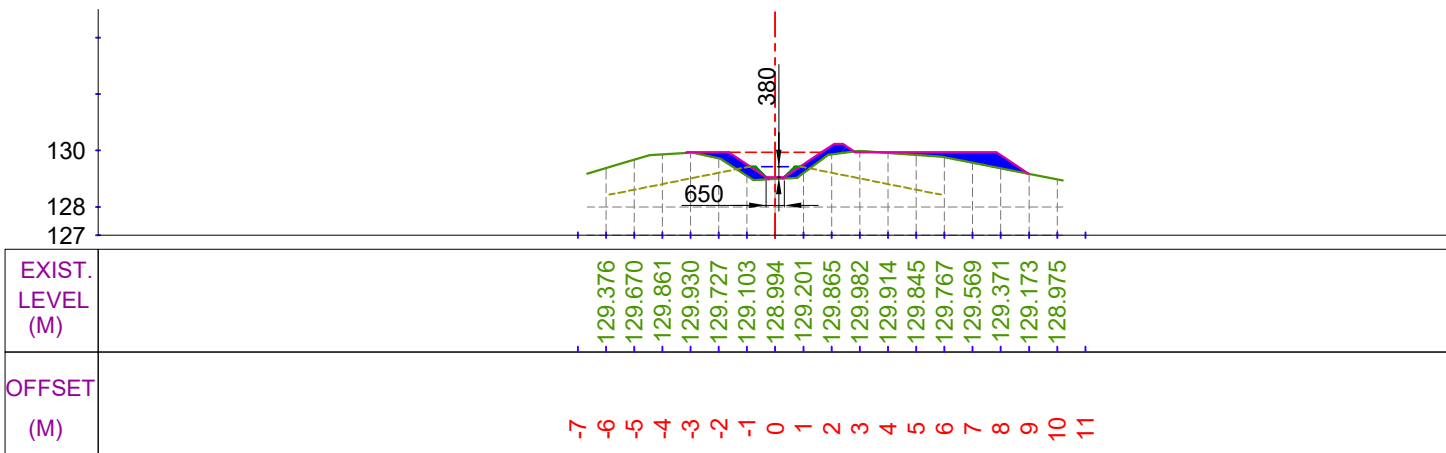
CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 7.490
CH. (KM):- 2+500
DESIGNED BED LEVEL = 130.372 M



CUTTING AREA (SQ.M) = 1.214
FILLING AREA (SQ.M) = 1.823
CH. (KM):- 2+700
DESIGNED BED LEVEL = 129.085 M



CUTTING AREA (SQ.M) = 0.628
FILLING AREA (SQ.M) = 1.647
CH. (KM):- 2+600
DESIGNED BED LEVEL = 129.119 M

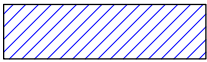


CUTTING AREA (SQ.M) = 0.027
FILLING AREA (SQ.M) = 2.404
CH. (KM):- 2+800
DESIGNED BED LEVEL = 129.052 M

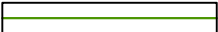
LEGEND



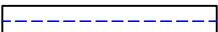
CUT AREA



FILL AREA



EXISTING BED LINE



F.S.L.



DESIGNED BED LINE



H.G. LINE

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

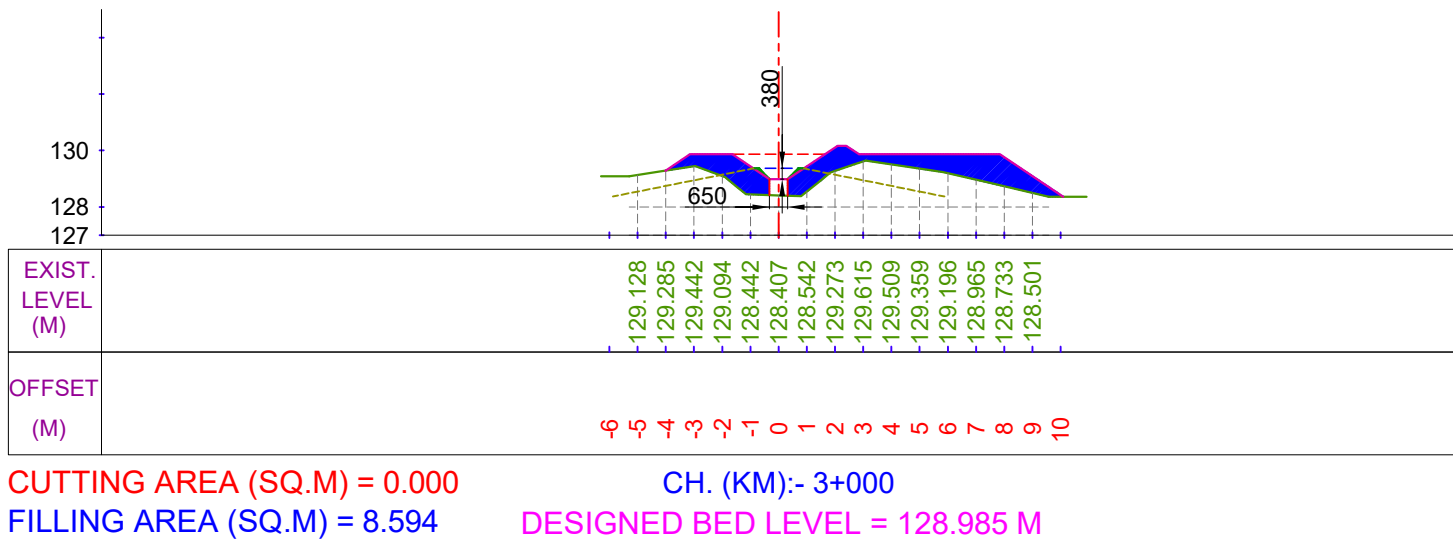
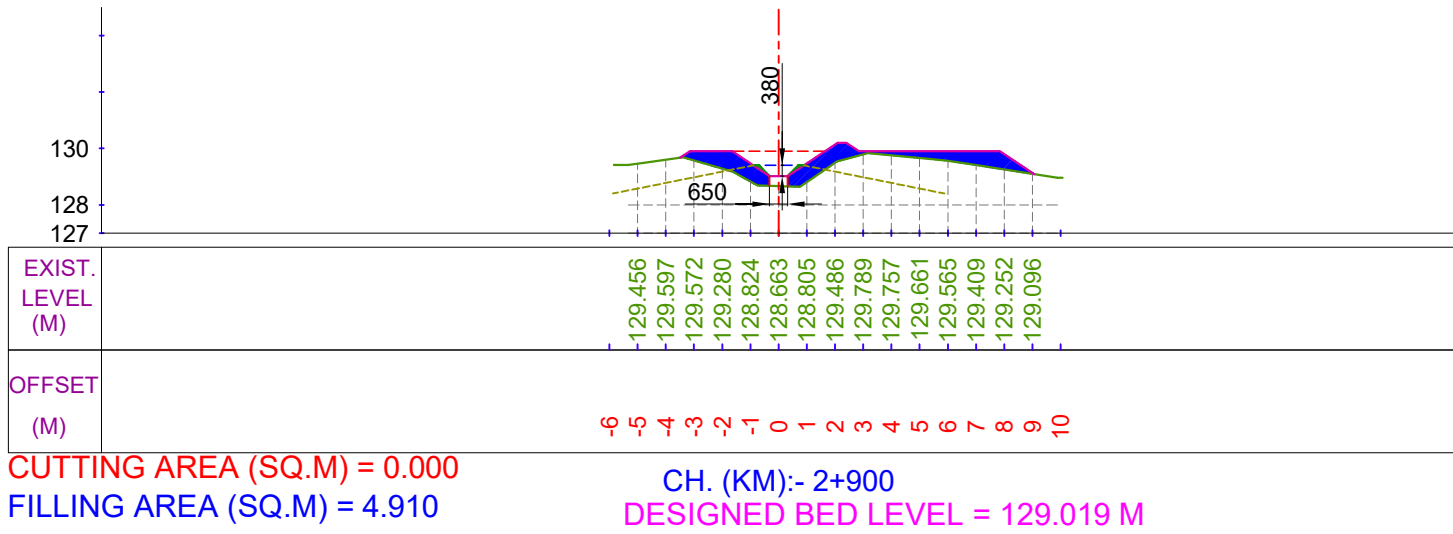
X SEC OF KATAIYA MINOR (OFFTAKE FROM RD - 64+610 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC-

7 of 8

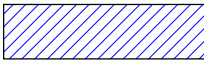
X SECTION OF KATAIYA MINOR



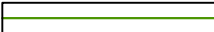
LEGEND



CUT AREA



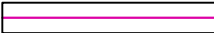
FILL AREA



EXISTING BED LINE



F.S.L.



DESIGNED BED LINE



H.G. LINE

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

X SEC OF KATAIYA MINOR (OFFTAKE FROM RD - 64+610 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ XSEC-

8 of 8

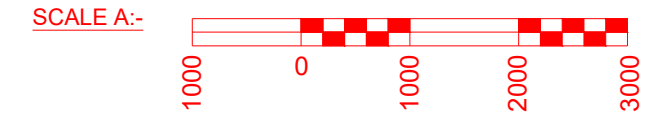
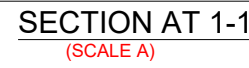
DRAWING OF STRUCTURES



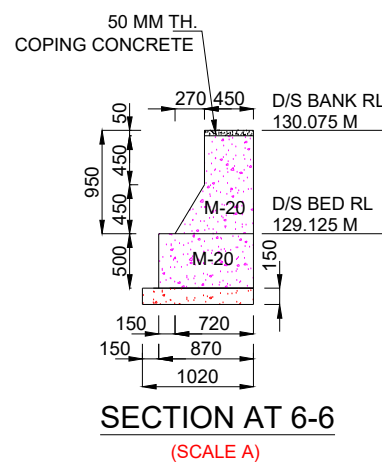
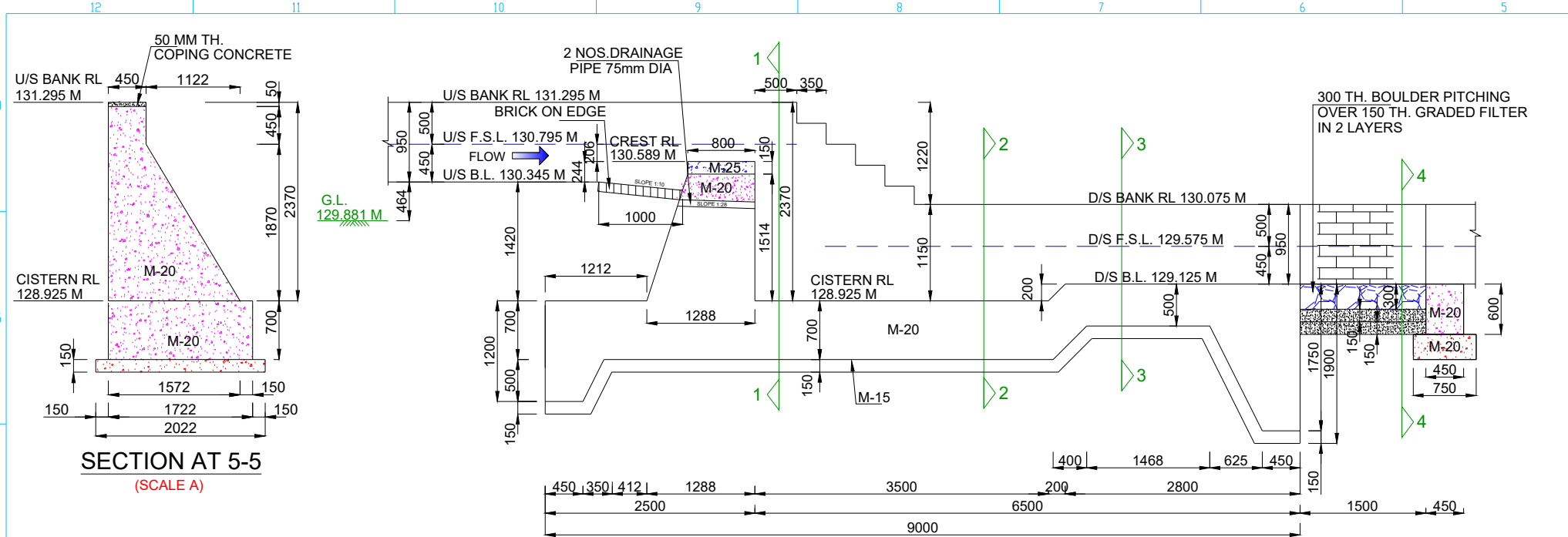
1. ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES EXCEPT OTHERWISE MENTIONED.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. ALL CONCRETE WORK SHALL CONFORM TO IS: 456 -2000. GRADE OF CONCRETE IN DIFFERENT COMPONENTS SHALL BE AS FOLLOWS,

FLOOR	M 20
FOUNDATION OF ABUTMENTS & WING WALL	M 20
PCC UNDER FLOOR	M 15
ABUTMENTS / WING WALLS	M 20
4. ANY OVER DIGGING SHALL BE FILLED BY CONCRETE 1:3:6 GRADE.
5. SKIN REINFORCEMENT SHALL BE PROVIDED IN FLOOR AND ABUTMENT OF 12 MM DIA BARS @ 250 MM.

	U/S	D/S	UNIT
FULL SUPPLY DISCHARGE	0.180	0.180	CUMEC
VERTICAL DROP	0.914	0.914	METRE
FULL SUPPLY DEPTH	0.500	0.500	METRE
BED WIDTH	0.950	0.950	METRE
BED SLOPE	1 : 3000	1 : 3000	



Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	SHARDA TYPE 0.914 M HT. FALL AT KM. 1.640 OF KATAIYA MR. (OFFTAKE RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ FALL 1 of 1



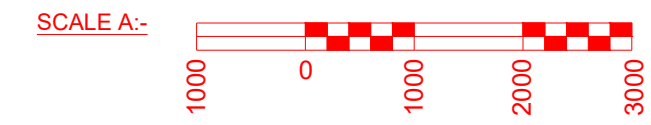
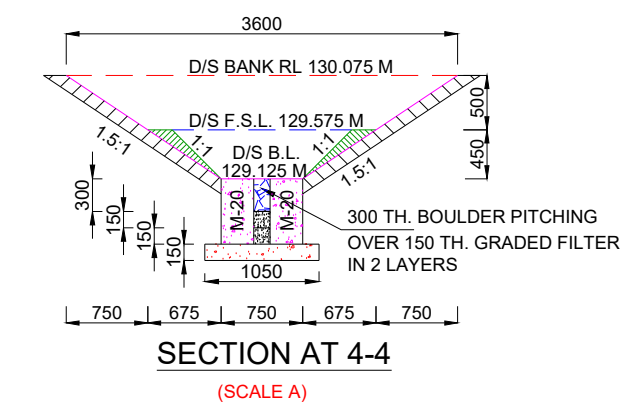
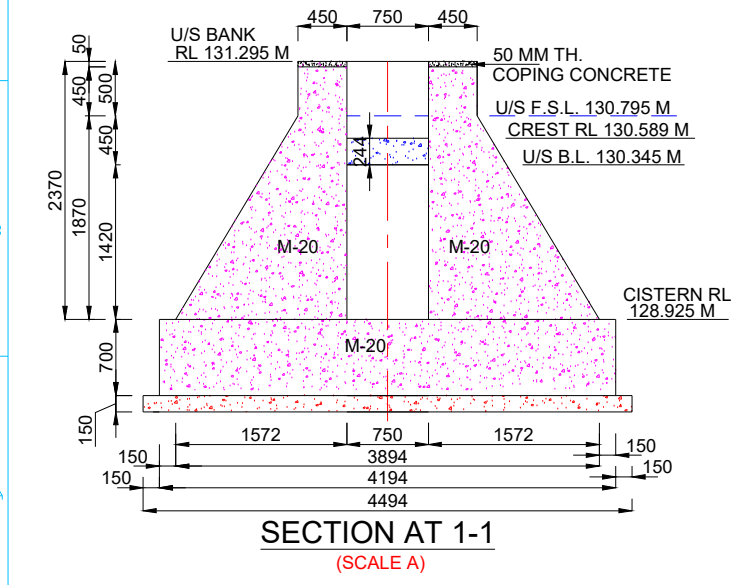
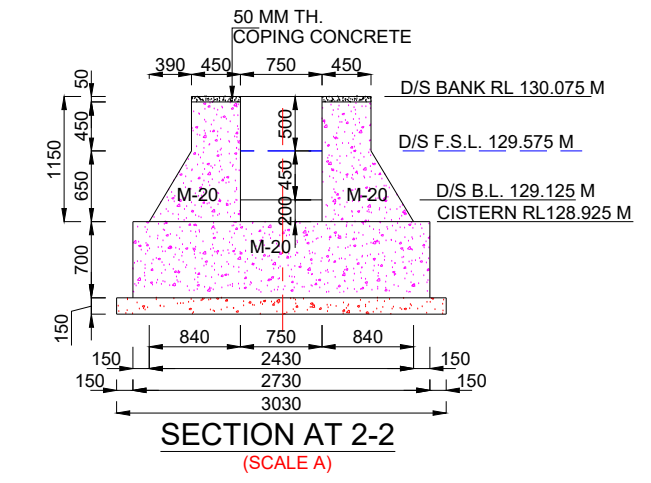
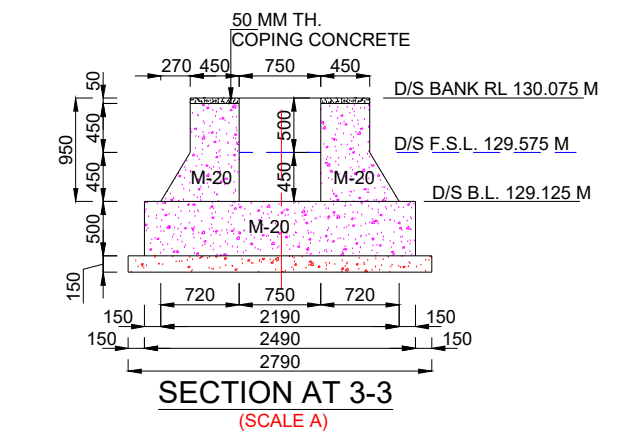
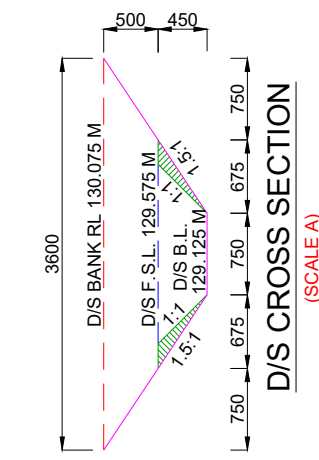
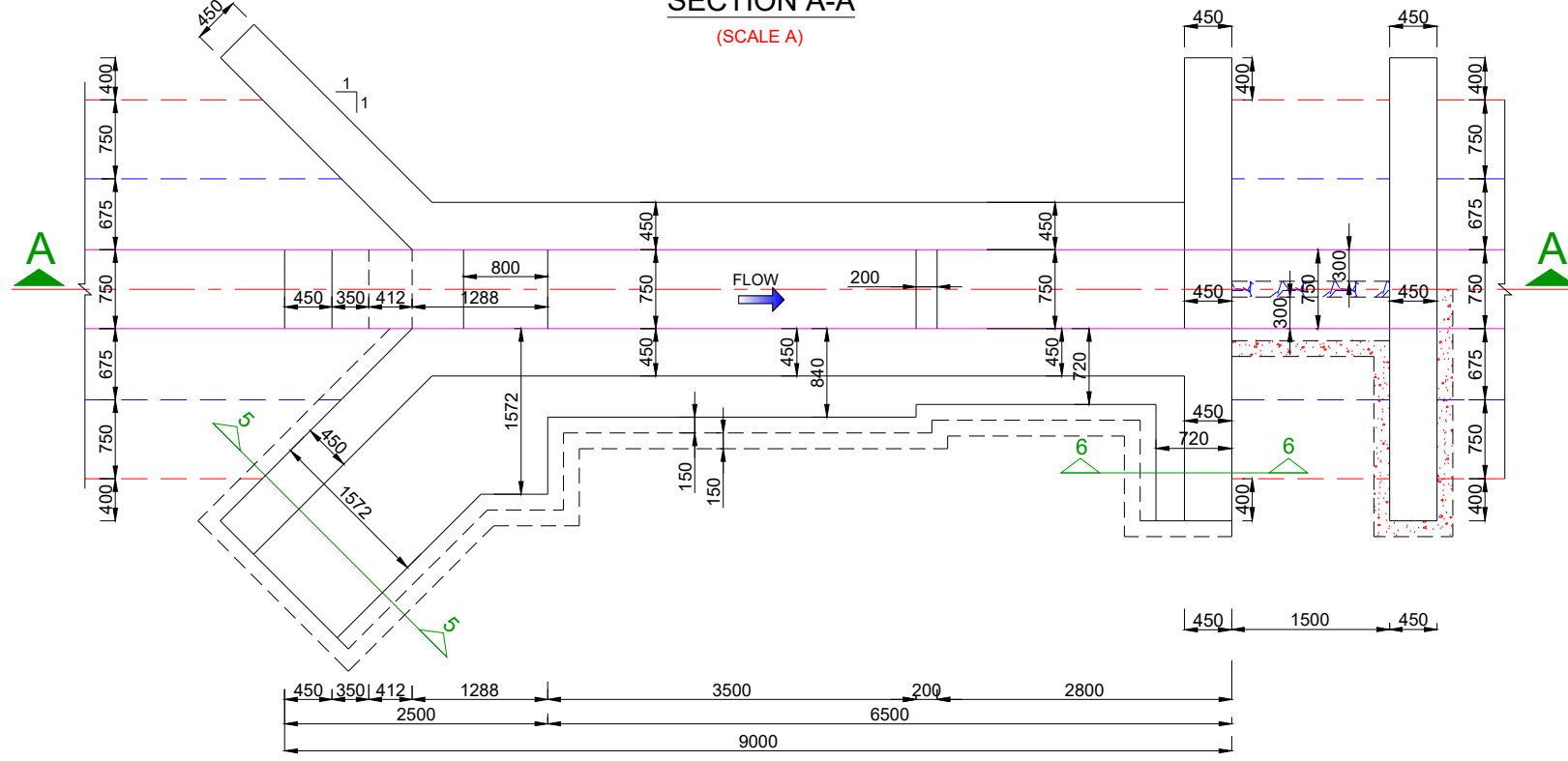
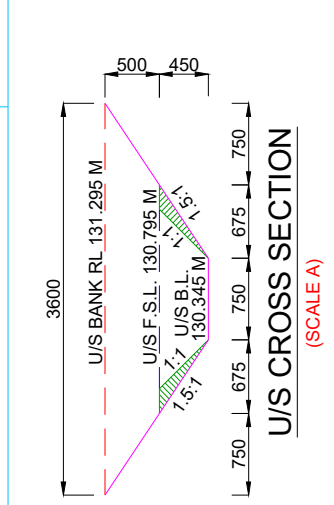
NOTES:-

1. ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES EXCEPT OTHERWISE MENTIONED.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. ALL CONCRETE WORK SHALL CONFORM TO IS: 456 -2000. GRADE OF CONCRETE IN DIFFERENT COMPONENTS SHALL BE AS FOLLOWS,

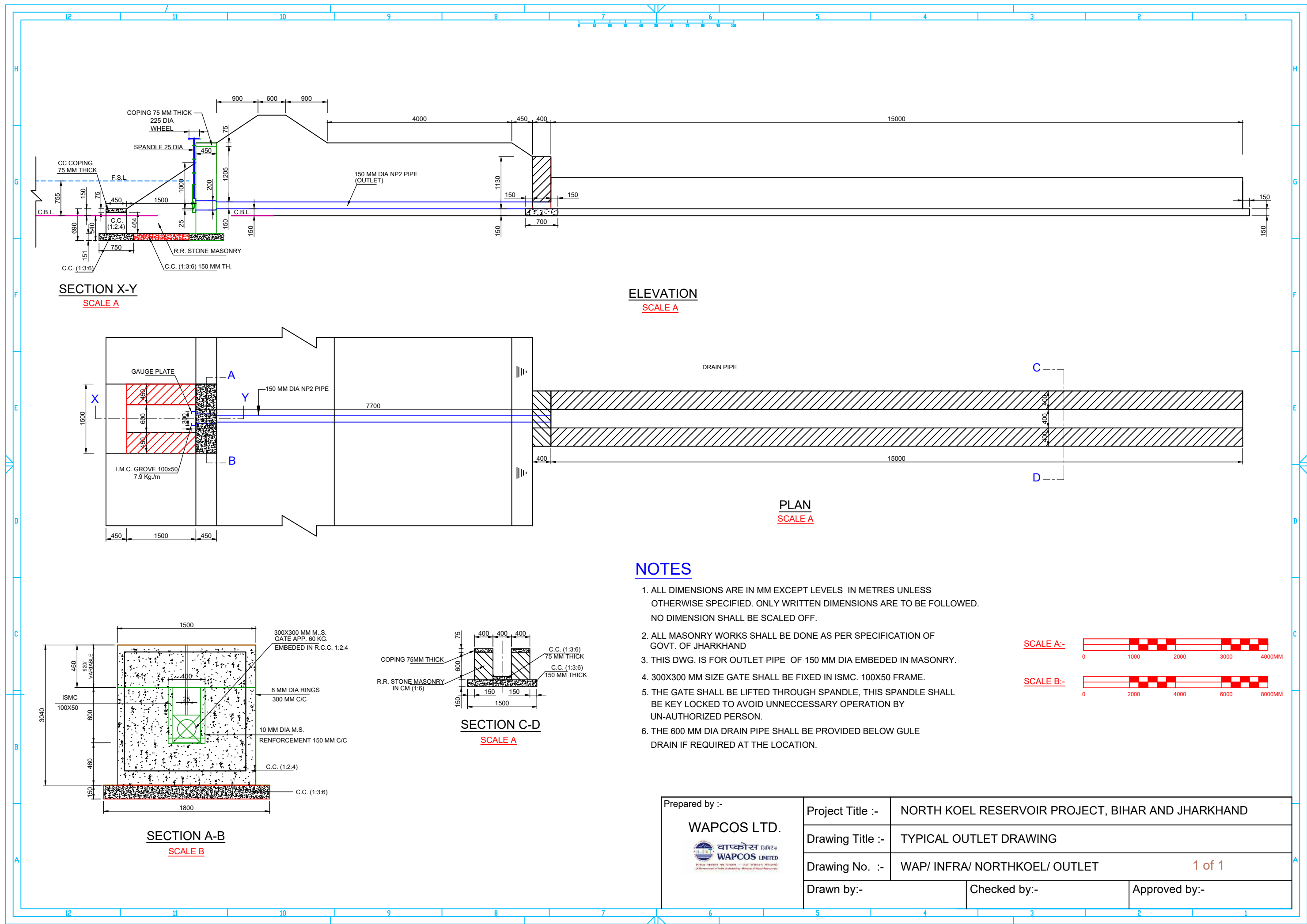
FLOOR	M 20
FOUNDATION OF ABUTMENTS & WING WALL	M 20
PCC UNDER FLOOR	M 15
ABUTMENTS / WING WALLS	M 20
4. ANY OVER DIGGING SHALL BE FILLED BY CONCRETE 1:3:6 GRADE.
5. SKIN REINFORCEMENT SHALL BE PROVIDED IN FLOOR AND ABUTMENT OF 12 MM DIA BARS @ 250 MM.

HYDRAULIC:- DATA

	U/S	D/S	UNIT
FULL SUPPLY DISCHARGE	0.110	0.110	CUMEC
VERTICAL DROP	1.220	1.220	METRE
FULL SUPPLY DEPTH	0.450	0.450	METRE
BED WIDTH	0.750	0.750	METRE
BED SLOPE	1 : 3000	1 : 3000	

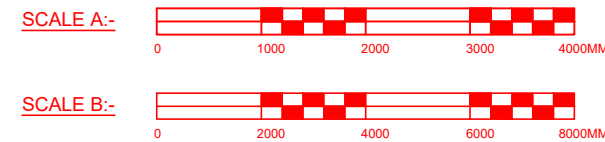


Prepared by :- WAPCOS LTD. 	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :- SHARDA TYPE 1.220 M HT. FALL AT KM. 2.580 OF KATAIYA MR. (OFFTAKE RD - 64+610 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)	
Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-20/ FALL	1 of 1



NOTES

1. ALL DIMENSIONS ARE IN MM EXCEPT LEVELS IN METRES UNLESS OTHERWISE SPECIFIED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. ALL MASONRY WORKS SHALL BE DONE AS PER SPECIFICATION OF GOVT. OF JHARKHAND
3. THIS DWG. IS FOR OUTLET PIPE OF 150 MM DIA EMBEDDED IN MASONRY.
4. 300X300 MM SIZE GATE SHALL BE FIXED IN ISMC. 100X50 FRAME.
5. THE GATE SHALL BE LIFTED THROUGH SPANDLE, THIS SPANDLE SHALL BE KEY LOCKED TO AVOID UNNECESSARY OPERATION BY UN-AUTHORIZED PERSON.
6. THE 600 MM DIA DRAIN PIPE SHALL BE PROVIDED BELOW GULE DRAIN IF REQUIRED AT THE LOCATION.



Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	TYPICAL OUTLET DRAWING		
	Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ OUTLET		1 of 1
	Drawn by:-	Checked by:-	Approved by:-	