

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



(भारत सरकार का उपक्रम-जल शक्ति मंत्रालय)
(A Government of India Undertaking-Ministry of Jal Shakti)

NORTH KOEL RESERVOIR PROJECT

FEBRUARY 2025

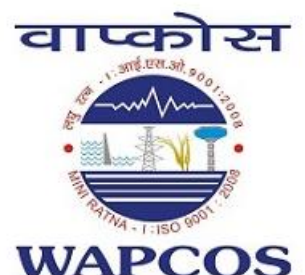
Completion of Balance Works of North Koel Reservoir Project

DRAWING REPORT – SONDIH-I SUB DY.
(OFFTAKING FROM RIGHT MAIN CANAL AT
79.850 KM)



WAPCOS LIMITED

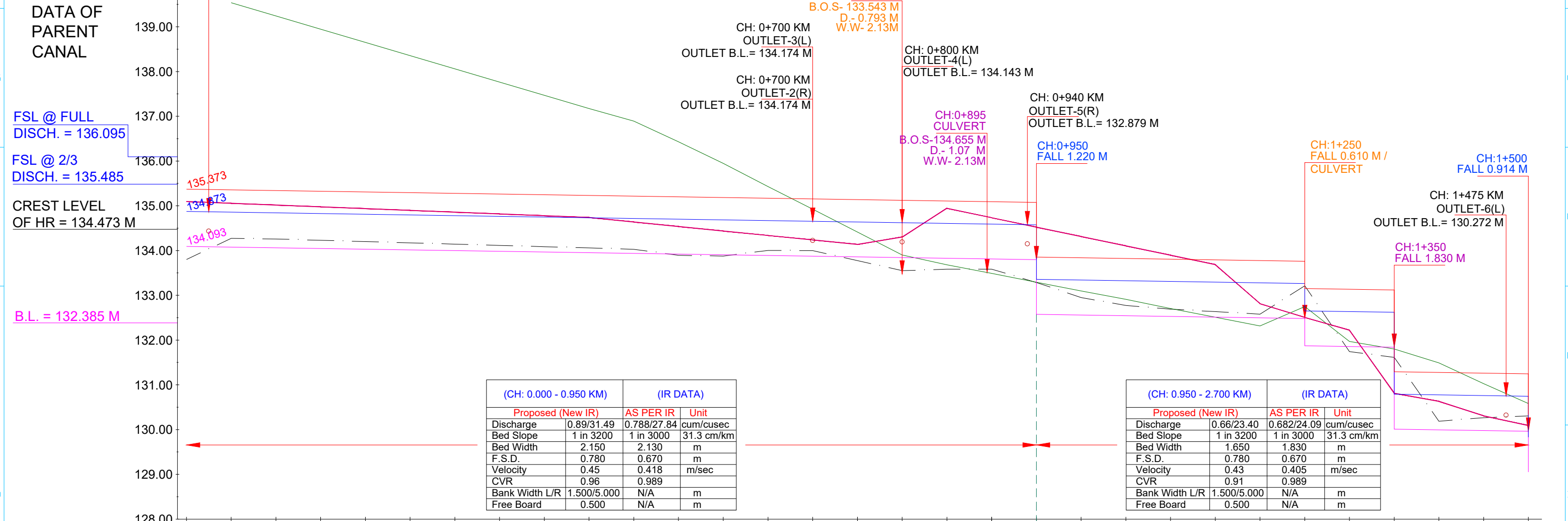
(GOVT. OF INDIA UNDERTAKING)
76- C SECTOR-18 INDUSTRIAL AREA,
GURUGRAM-122015 (HARYANA)



INDEX		
S.NO	DESCRIPTION	PAGE NO.
1	L-SECTION OF SONDIH-I SUB DY.	1
2	TYPICAL X-SECTION OF SONDIH-I SUB DY.	7
3	CROSS-SECTION OF SONDIH-I SUB DY.	32
4	DRAWINGS OF STRUCTURES	51

L-SECTION

L- SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 79+850 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
FROM CH 0+000 TO 1+500



DESIGN DATA	EXISTING DATA		DESIGN DATA	
	NSL	TOP OF BANK LEVEL	Bed Level	Proposed Bed Level
Chainage IN KM	0+000	135.097	133.800	134.093
	0+050	139.538	134.274	134.077
	0+100	139.243	134.258	134.062
	0+150	138.947	134.229	134.046
	0+200	138.651	134.201	134.031
	0+250	138.356	134.172	134.015
	0+300	138.060	134.144	133.999
	0+350	137.764	134.115	133.984
	0+400	137.469	134.087	133.968
	0+450	137.173	134.059	133.952
	0+500	136.891	134.029	133.937
	0+550	136.430	133.893	133.921
	0+600	135.948	133.877	133.906
	0+650	135.428	134.003	133.890
	0+700	134.923	133.999	133.874
	0+750	134.412	133.774	133.859
	0+800	133.901	134.304	133.843
	0+850	133.683	134.943	133.827
	0+900	133.489	134.734	133.812
	0+950	133.293	134.524	133.796
	1+000	133.099	134.315	133.781
	1+050	132.909	134.106	133.772
	1+100	132.706	133.897	133.759
	1+150	132.512	133.688	133.744
	1+200	132.317	132.814	133.728
	1+250	132.750	132.507	133.712
	1+300	131.970	132.221	133.697
	1+350	131.799	130.812	133.681
	1+400	131.491	130.632	133.665
	1+450	131.027	130.308	133.650
	1+500	130.582	130.092	133.634

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 :-
DRAWING TITLE :-
DRAWING NO. :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

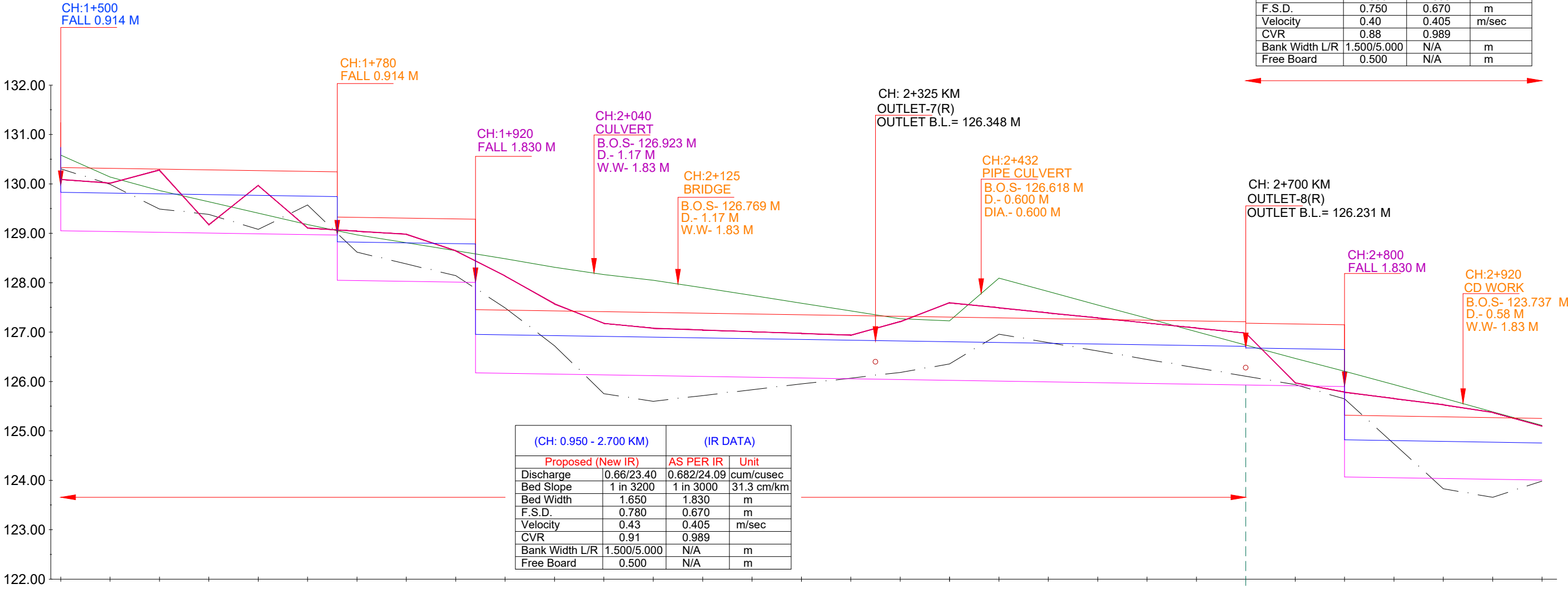
L- SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 79+850 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ LSEC-

01 of 05

L- SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 79+850 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
FROM CH 1+500 TO 3+000

(CH: 2.700 - 4.100 KM)		(IR DATA)	
Proposed (New IR)		AS PER IR	Unit
Discharge	0.52/18.29	0.682/24.09	cum/cusec
Bed Slope	1 in 3200	1 in 3000	31.3 cm/km
Bed Width	1.350	1.830	m
F.S.D.	0.750	0.670	m
Velocity	0.40	0.405	m/sec
CVR	0.88	0.989	
Bank Width L/R	1.500/5.000	N/A	m
Free Board	0.500	N/A	m



Chainage IN KM	DESIGN DATA			EXISTING DATA		
	TOP OF BANK LEVEL	F.S.L.	Proposed Bed Level	Bed Level	TOP OF BANK LEVEL	NSL
1+500	131.244 130.330	130.744 129.830	129.964 129.050	130.304	130.092	130.582
1+550	130.315	129.815	129.035	129.992	130.016	130.140
1+600	130.299	129.799	129.019	129.489	130.280	129.866
1+650	130.283	129.783	129.003	129.384	129.174	129.637
1+700	130.268	129.768	128.988	129.078	129.969	129.407
1+750	130.252	129.752	128.972	129.572	129.106	129.177
1+800	130.243 129.329 129.323	129.743 128.829 128.823	128.963 128.049 128.043	128.617	129.043	128.968
1+850	129.307	128.807	128.027	128.379	128.981	128.808
1+900	129.291	128.791	128.011	128.142	128.647	128.648
1+950	129.285 127.455	128.785 126.955	128.005 126.175	127.492	128.136	128.485
2+000	127.430	126.930	126.150	126.724	127.571	128.313
2+050	127.414	126.914	126.134	125.753	127.178	128.164
2+100	127.399	126.899	126.119	125.599	127.078	128.050
2+150	127.383	126.883	126.103	125.716	127.043	127.898
2+200	127.368	126.868	126.088	125.833	127.008	127.742
2+250	127.352	126.852	126.072	125.951	126.973	127.585
2+300	127.336	126.836	126.056	126.068	126.938	127.429
2+350	127.321	126.821	126.041	126.184	127.213	127.272
2+400	127.305	126.805	126.025	126.355	127.594	127.229
2+450	127.289	126.789	126.009	126.959	127.492	128.091
2+500	127.274	126.774	125.994	126.788	127.389	127.821
2+550	127.258	126.758	125.978	126.618	127.287	127.550
2+600	127.243	126.743	125.963	126.447	127.185	127.280
2+650	127.227	126.727	125.947	126.277	127.082	127.009
2+700	127.211 127.181	126.711 126.681	125.931	126.107	126.980	126.739
2+750	127.165	126.665	125.915	125.936	125.973	126.468
2+800	127.149 125.319	126.649 124.819	125.899 124.069	125.648	125.784	126.209
2+850	125.303	124.803	124.053	124.738	125.656	125.937
2+900	125.287	124.787	124.037	123.829	125.528	125.665
2+950	125.271	124.771	124.021	123.656	125.373	125.385
3+000	125.254	124.754	124.004	123.984	125.095	125.113

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

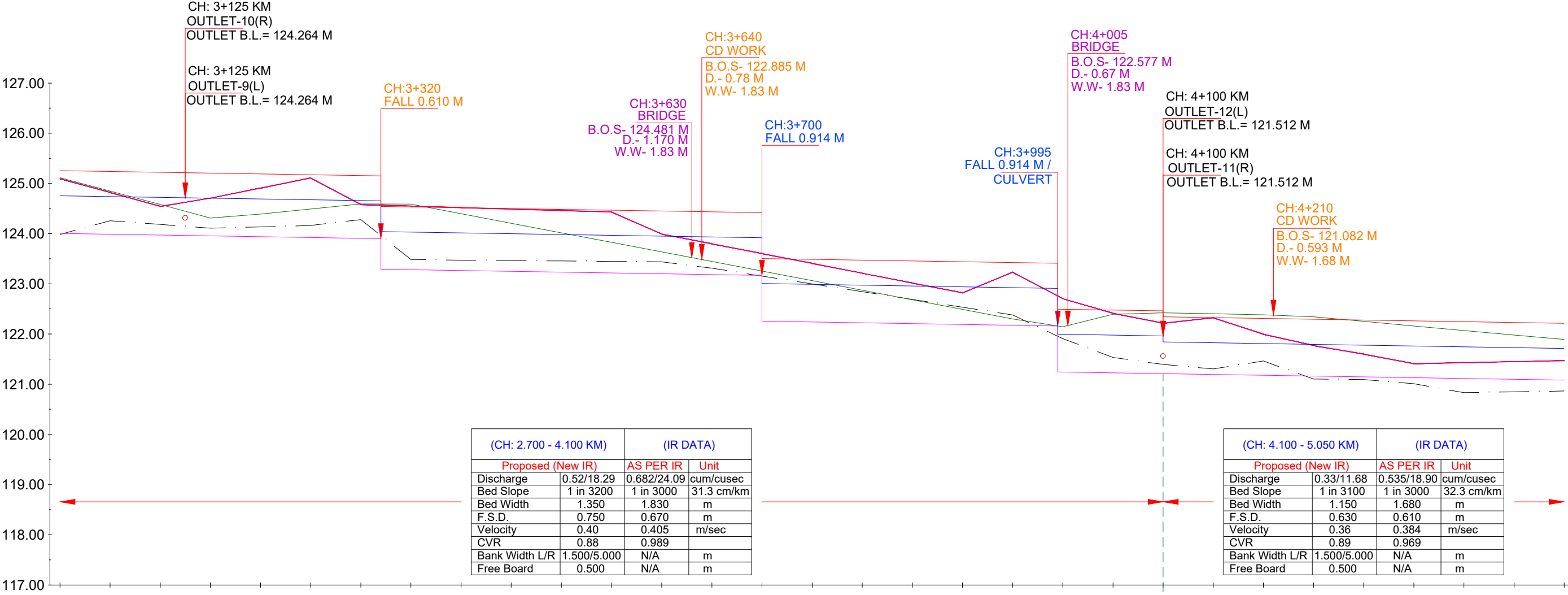
DRAWING TITLE :-

L- SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 79+850 KM. (L),
NORTH KOEL RIGHT MAIN CANAL)

DRAWING NO. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ LSEC-

L- SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 79+850 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
FROM CH 3+000 TO 4+500



Chainage IN KM	EXISTING DATA		DESIGN DATA	
	NSL	TOP OF BANK LEVEL	Proposed Bed Level	F.S.L.
3+000	125.113	125.095	124.004	124.754
3+050	124.848	124.820	123.988	124.738
3+100	124.579	124.544	123.972	124.722
3+125	124.311	124.707	123.956	124.706
3+150	124.389	124.908	123.940	124.690
3+200	124.490	125.110	123.924	124.674
3+250	124.591	124.578	123.908	124.658
3+300	124.589	124.549	123.882	124.641
3+350	124.398	124.519	123.865	124.624
3+400	124.207	124.490	123.848	124.607
3+450	124.016	124.460	123.831	124.590
3+500	123.826	124.431	123.814	124.573
3+550	123.635	123.993	123.797	124.556
3+600	123.445	123.798	123.780	124.539
3+650	123.254	123.602	123.763	124.522
3+700	123.063	123.407	123.746	124.505
3+750	122.872	123.212	123.729	124.488
3+800	122.681	123.016	123.712	124.471
3+850	122.490	122.821	123.695	124.454
3+900	122.300	122.625	123.678	124.437
3+950	122.109	122.429	123.661	124.420
4+000	121.918	122.233	123.644	124.403
4+050	121.727	122.037	123.627	124.386
4+100	121.536	121.841	123.610	124.369
4+150	121.345	121.645	123.593	124.352
4+200	121.154	121.449	123.576	124.335
4+250	120.963	121.253	123.559	124.318
4+300	120.772	121.057	123.542	124.301
4+350	120.581	120.861	123.525	124.284
4+400	120.390	120.665	123.508	124.267
4+450	120.199	120.469	123.491	124.250
4+500	120.008	120.273	123.474	124.233

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 :-

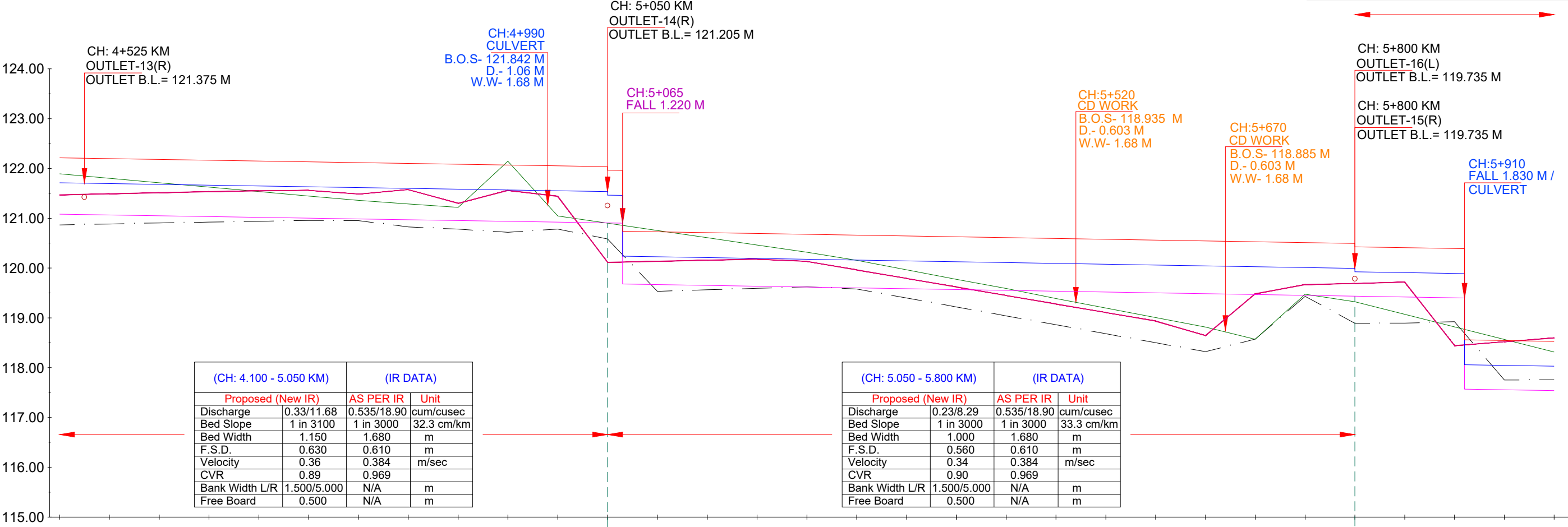
L- SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 79+850 KM. (L),
NORTH KOEL RIGHT MAIN CANAL)

DRAWING NO. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ LSEC-

L- SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 79+850 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
FROM CH 4+500 TO 6+000

(CH: 5.800 - 6.150 KM)		(IR DATA)	
Proposed (New IR)		AS PER IR	Unit
Discharge	0.15/5.22	0.535/18.90	cum/cusec
Bed Slope	1 in 3000	1 in 3000	33.3 cm/km
Bed Width	0.800	1.680	m
F.S.D.	0.490	0.610	m
Velocity	0.31	0.384	m/sec
CVR	0.88	0.969	
Bank Width L/R	1.500/5.000	N/A	m
Free Board	0.500	N/A	m



(CH: 4.100 - 5.050 KM)		(IR DATA)	
Proposed (New IR)		AS PER IR	Unit
Discharge	0.33/11.68	0.535/18.90	cum/cusec
Bed Slope	1 in 3100	1 in 3000	32.3 cm/km
Bed Width	1.150	1.680	m
F.S.D.	0.630	0.610	m
Velocity	0.36	0.384	m/sec
CVR	0.89	0.969	
Bank Width L/R	1.500/5.000	N/A	m
Free Board	0.500	N/A	m

(CH: 5.050 - 5.800 KM)		(IR DATA)	
Proposed (New IR)		AS PER IR	Unit
Discharge	0.23/8.29	0.535/18.90	cum/cusec
Bed Slope	1 in 3000	1 in 3000	33.3 cm/km
Bed Width	1.000	1.680	m
F.S.D.	0.560	0.610	m
Velocity	0.34	0.384	m/sec
CVR	0.90	0.969	
Bank Width L/R	1.500/5.000	N/A	m
Free Board	0.500	N/A	m

Chainage IN KM	EXISTING DATA		DESIGN DATA	
	NSL	TOP OF BANK LEVEL	Proposed Bed Level	F.S.L.
4+500	121.891	121.470	121.083	121.713
4+525				
4+550	121.802	121.491	121.066	121.696
4+600	121.713	121.512	121.050	121.680
4+650	121.624	121.533	121.034	121.664
4+700	121.535	121.553	121.018	121.648
4+750	121.446	121.561	121.002	121.632
4+800	121.359	121.486	120.986	121.616
4+850	121.287	121.576	120.970	121.600
4+900	121.219	121.301	120.954	121.584
4+950	122.145	121.560	120.937	121.567
5+000	121.045	121.441	120.921	121.551
5+050	120.903	120.145	120.905	121.535
5+100	120.755	120.137	119.669	120.229
5+150	120.609	120.158	119.652	120.212
5+200	120.462	120.180	119.635	120.195
5+250	120.316	120.134	119.619	120.179
5+300	120.155	119.963	119.602	120.162
5+350	119.984	119.792	119.585	120.145
5+400	119.772	119.621	119.569	120.129
5+450	119.590	119.450	119.552	120.112
5+500	119.388	119.278	119.535	120.095
5+550	119.198	119.107	119.519	120.079
5+600	119.007	118.935	119.502	120.062
5+650	118.815	118.644	119.485	120.045
5+700	118.571	119.484	119.469	120.029
5+750	119.473	119.667	119.452	120.012
5+800	119.324	119.691	119.435	119.995
5+850	119.072	119.717	119.419	119.909
5+900	118.819	118.443	119.402	119.892
5+950	118.567	118.520	117.555	118.045
6+000	118.316	118.596	117.539	118.029

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

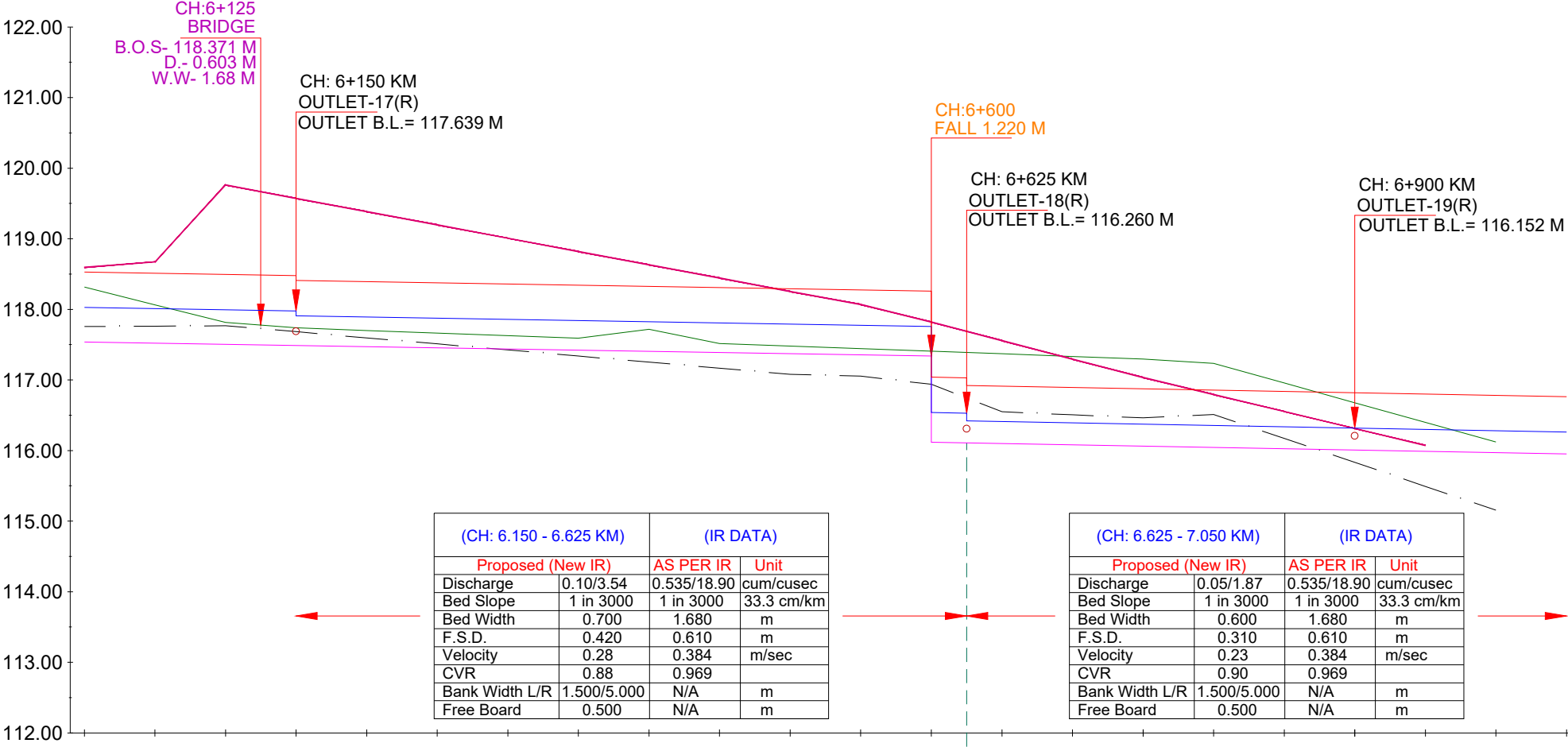
DRAWING TITLE :-

L- SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 79+850 KM. (L),
NORTH KOEL RIGHT MAIN CANAL)

DRAWING NO. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ LSEC-

L- SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 79+850 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
FROM CH 6+000 TO 7+050



Chainage IN KM	EXISTING DATA			DESIGN DATA		
	NSL	TOP OF BANK LEVEL	Bed Level	Proposed Bed Level	F.S.L.	TOP OF BANK LEVEL
6+000	118.316	118.596	117.757	117.539	118.029	118.529
6+050	118.065	118.673	117.762	117.522	118.012	118.512
6+100	117.814	119.762	117.768	117.505	117.995	118.495
6+150	117.738	119.573	117.684	117.489	117.909	118.409
6+200	117.701	119.384	117.595	117.472	117.892	118.392
6+250	117.664	119.196	117.511	117.455	117.875	118.375
6+300	117.628	119.008	117.425	117.439	117.859	118.359
6+350	117.591	118.819	117.338	117.422	117.842	118.342
6+400	117.717	118.631	117.252	117.405	117.825	118.325
6+450	117.517	118.443	117.167	117.389	117.809	118.309
6+500	117.480	118.254	117.080	117.372	117.792	118.292
6+550	117.443	118.070	117.053	117.355	117.775	118.275
6+600	117.407	117.821	116.938	117.339	117.759	118.259
6+625	---	---	---	116.119	116.539	117.039
6+650	117.370	117.558	116.549	116.149	116.530	117.030
6+700	117.333	117.296	116.506	116.094	116.420	116.920
6+750	117.296	117.035	116.462	116.069	116.404	116.904
6+800	117.235	116.794	116.511	116.035	116.379	116.879
6+850	116.956	116.554	116.173	116.019	116.362	116.862
6+900	116.678	116.313	115.834	116.002	116.345	116.845
6+950	116.400	116.072	115.492	115.985	116.329	116.829
7+000	116.122		115.154	115.969	116.295	116.795
7+050				115.952	116.279	116.779
					116.262	116.762

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 :-

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PROJECT TITLE :-

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DRAWING TITLE :-

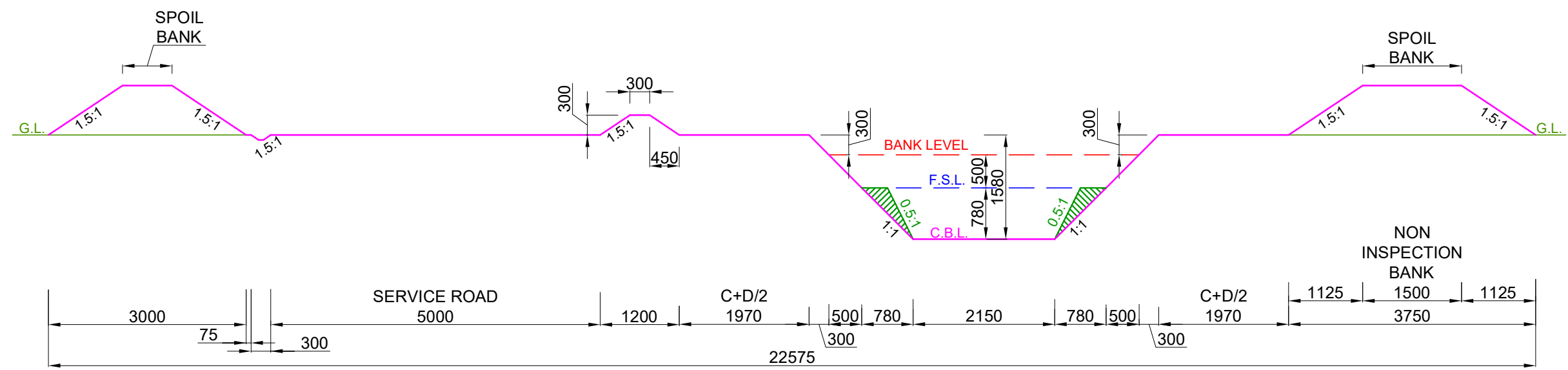
L- SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 79+850 KM. (L),
NORTH KOEL RIGHT MAIN CANAL)

DRAWING NO. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ LSEC-

TYPICAL X-SECTION

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING



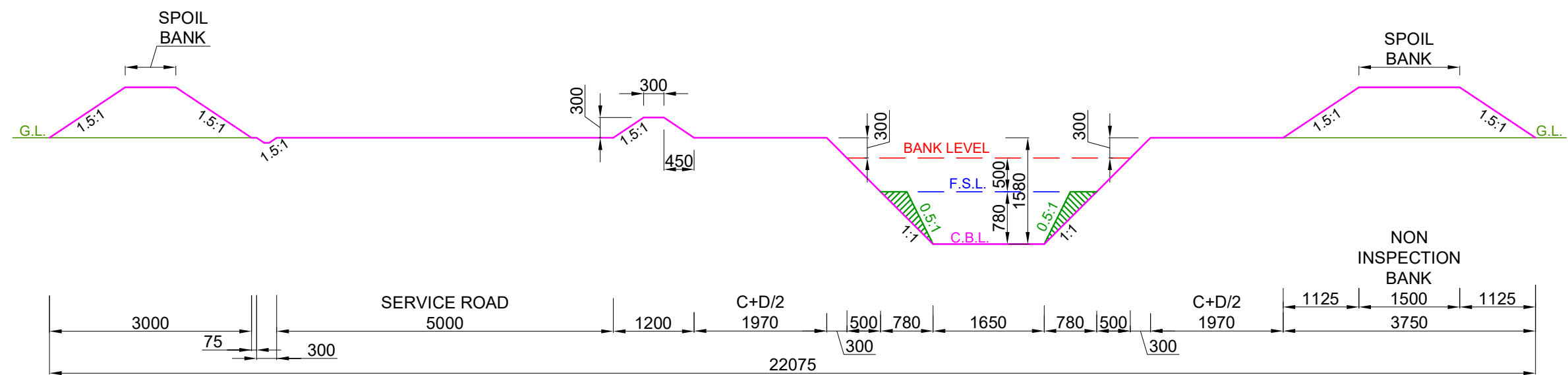
DESIGN SECTION FROM CH: 0.000 KM TO CH: 0.950 KM

- 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)
			Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FC)

1 of 8

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING

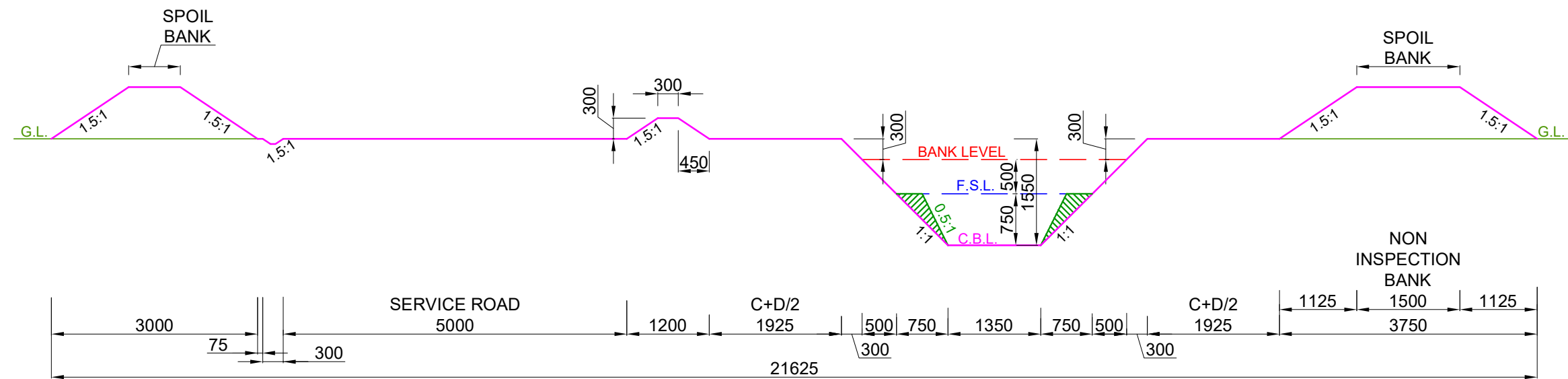


DESIGN SECTION FROM CH: 0.950 KM TO CH: 2.700 KM

- 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)			
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FC) 2 of 8			

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING

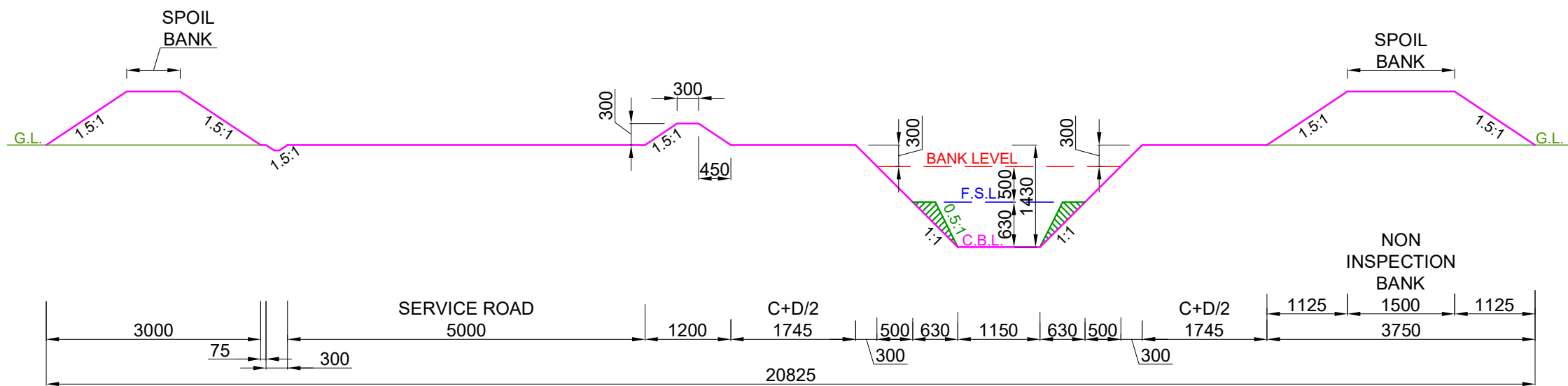


DESIGN SECTION FROM CH: 2.700 KM TO CH: 4.100 KM

- 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.

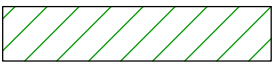
LEGEND		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND			
	CUT AREA		Drawing Title :-	X SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)			
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FC)			

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING

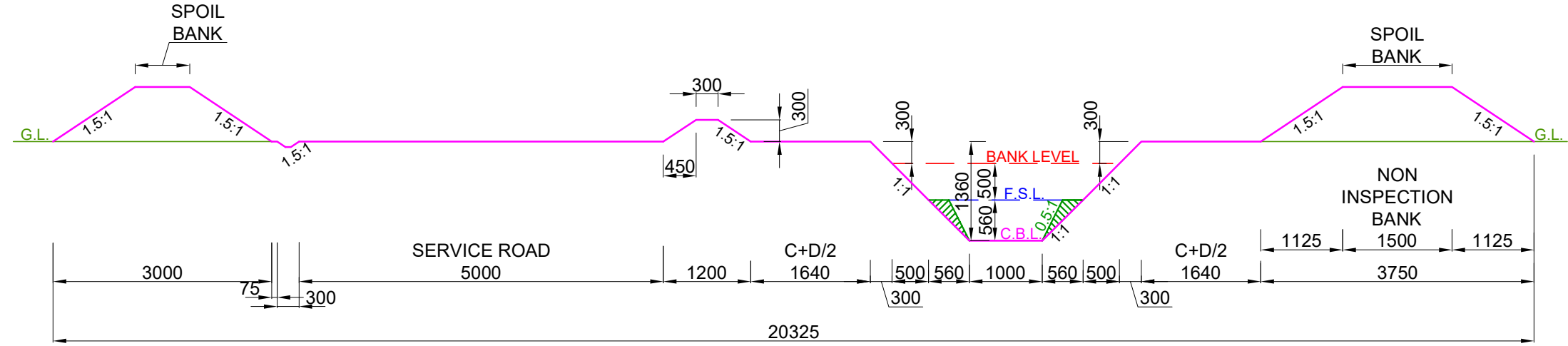


DESIGN SECTION FROM CH: 4.100 KM TO CH: 5.050 KM

- 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)			
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FC)			

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING



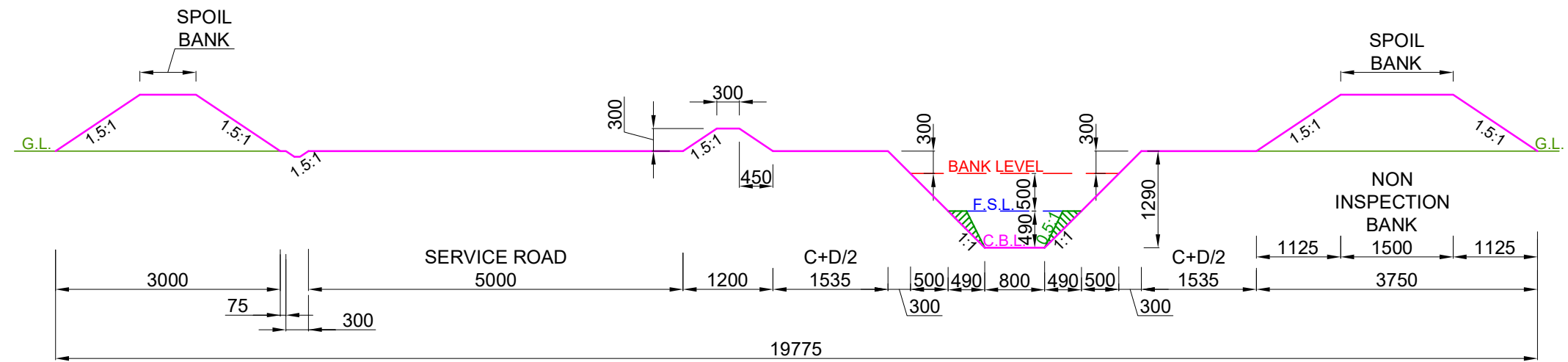
DESIGN SECTION FROM CH: 5.050 KM TO CH: 5.800 KM

- 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)
			Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FC)

5 of 8

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING

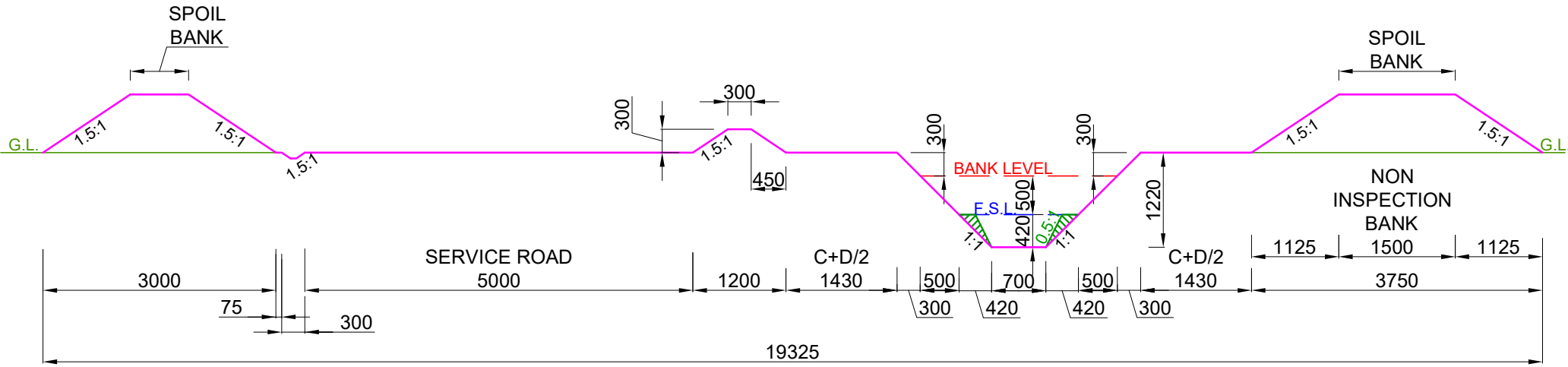


DESIGN SECTION FROM CH: 5.800 KM TO CH: 6.150 KM

- 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)			
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FC)			

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING



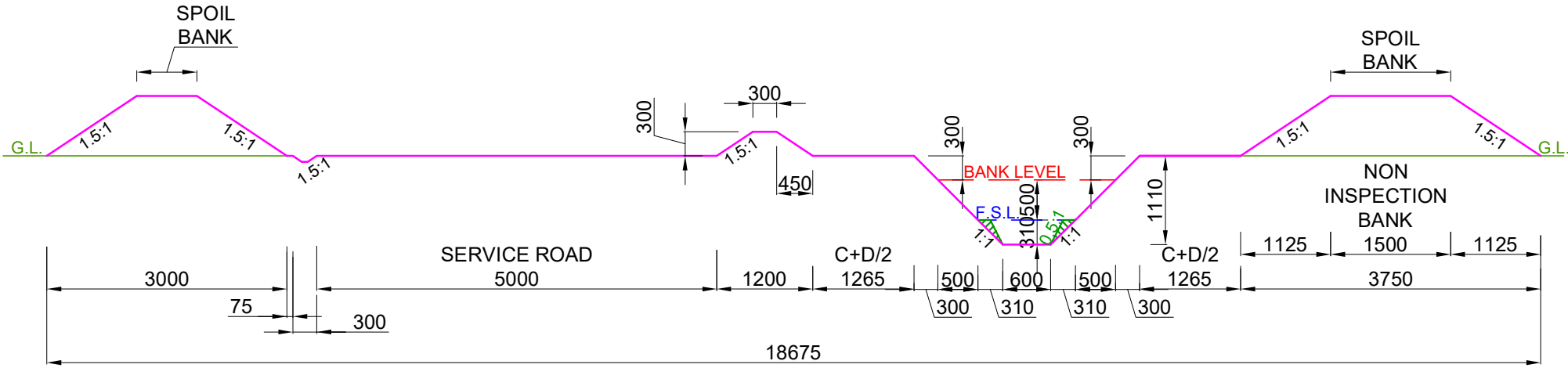
DESIGN SECTION FROM CH: 6.150 KM TO CH: 6.625 KM

- 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)
			Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FC)

7 of 8

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL CUTTING

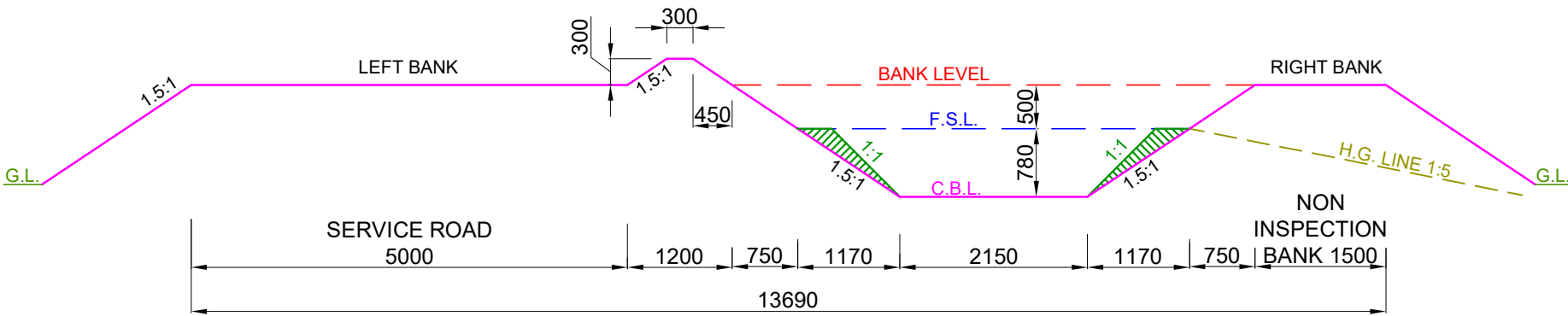


DESIGN SECTION FROM CH: 6.625 KM TO CH: 7.050 KM

- 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)			
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FC) 8 of 8			

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL FILLING



DESIGN SECTION FROM CH: 0.000 KM TO CH: 0.950 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)
			Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FF)

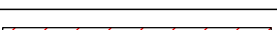
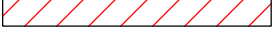
1 of 8

The diagram illustrates the cross-section of a highway with the following components and dimensions:

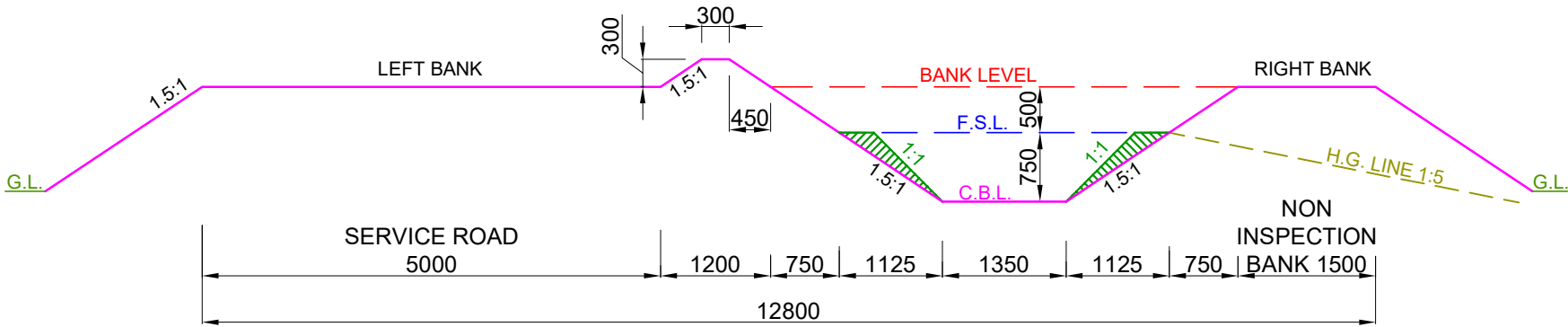
- Left Bank:** Slope of 1.5:1. A vertical height of 300 is shown from the ground level to the top of the bank. A horizontal distance of 300 is indicated at the top.
- Service Road:** A horizontal section with a width of 5000.
- Right Bank:** Slope of 1.5:1. A vertical height of 450 is shown from the ground level to the top of the bank.
- Bank Level:** Indicated by a red dashed line.
- F.S.L. (Full Supply Level):** Indicated by a blue dashed line.
- C.B.L. (Crest Level):** Indicated by a pink dashed line.
- Non Inspection Bank:** A horizontal section with a width of 1500.
- Ground Level (G.L.):** Indicated by a green dashed line.
- H.G. Line 1:5:** Indicated by a yellow dashed line.
- Dimensions:**
 - Horizontal distances from left to right: 1200, 750, 1170, 1650, 1170, 750, 1500.
 - Vertical distances: 300 (left bank), 450 (right bank), 500 (from F.S.L. to C.B.L.), 780 (from C.B.L. to ground level).
 - Total horizontal distance: 13190.

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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)	
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FF)2 of 8	

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL FILLING



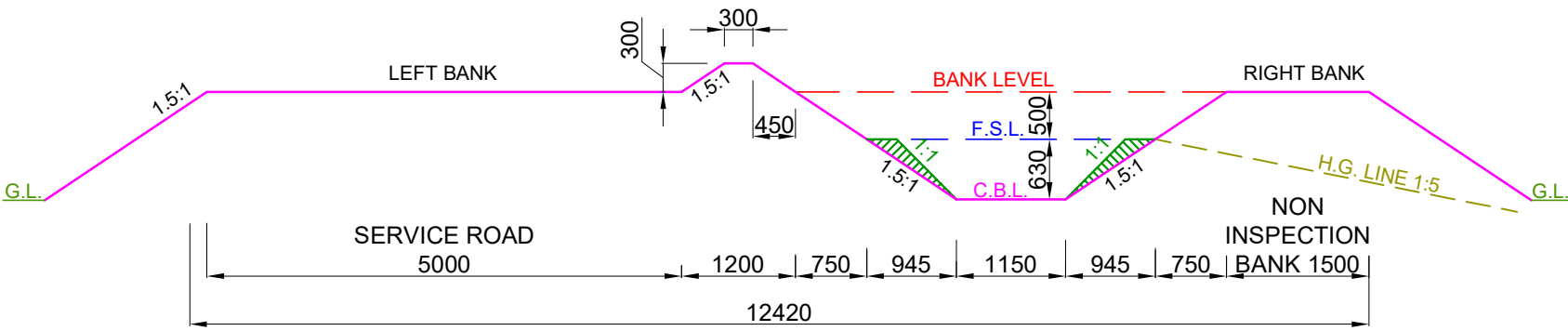
DESIGN SECTION FROM CH: 2.700 KM TO CH: 4.100 KM

- 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)
			Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FF)

3 of 8

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL FILLING

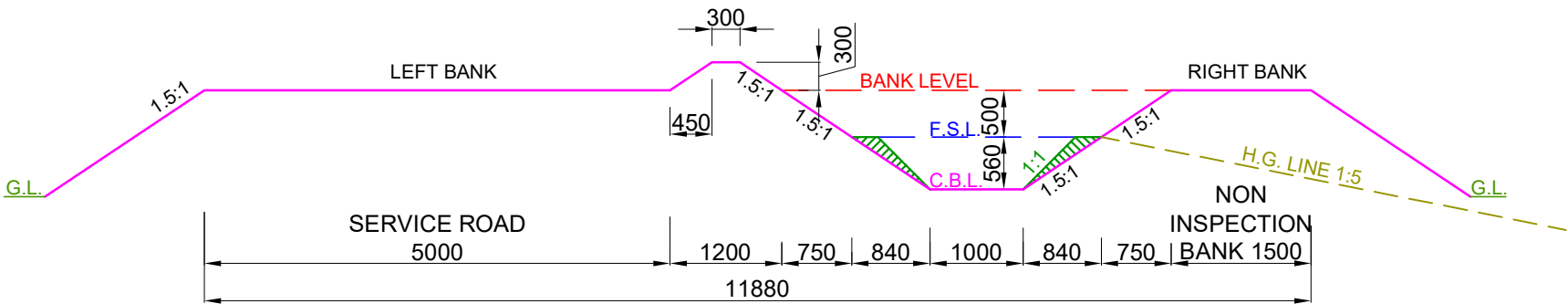


DESIGN SECTION FROM CH: 4.100 KM TO CH: 5.050 KM

- 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)
			Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FF)

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL FILLING

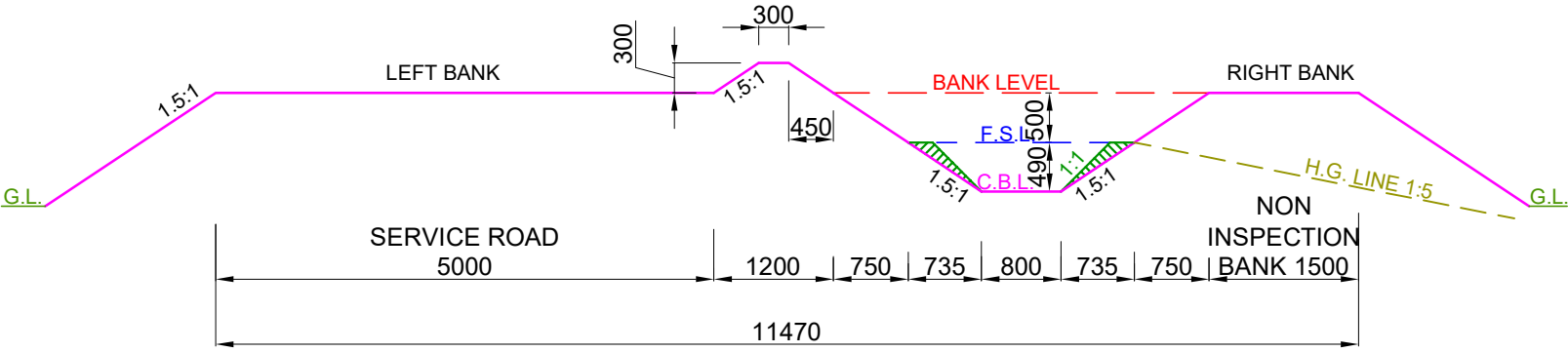


DESIGN SECTION FROM CH: 5.050 KM TO CH: 5.800 KM

- 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)	
			Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FF)	

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL FILLING

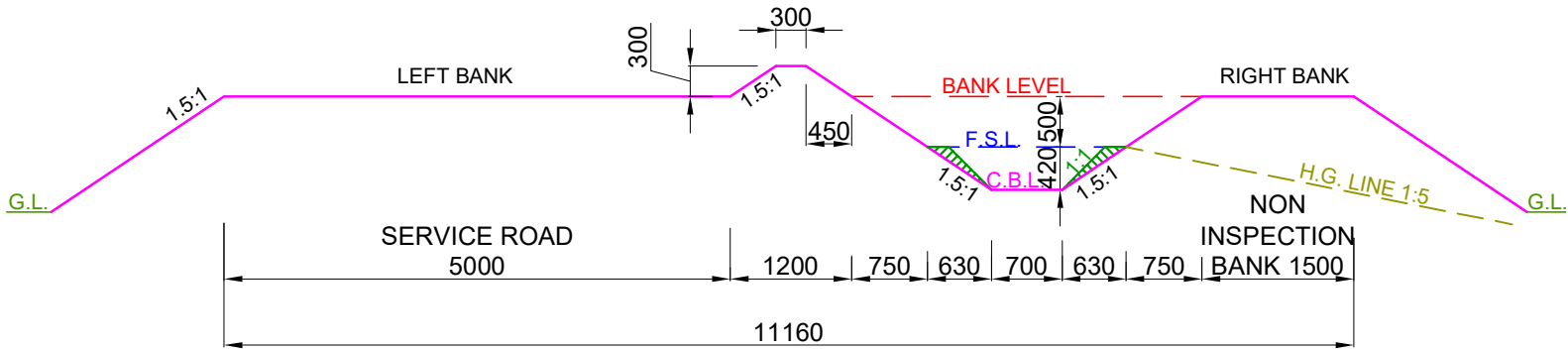


DESIGN SECTION FROM CH: 5.800 KM TO CH: 6.150 KM

- 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.

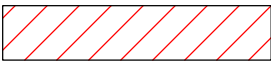
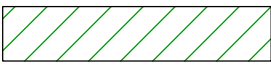
LEGEND CUT AREA FILL AREA		Prepared by :- WAPCOS LTD. 	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
			Drawing Title :- X SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)
			Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FF)

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR FULL FILLING



DESIGN SECTION FROM CH: 6.150 KM TO CH: 6.625 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)			
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(FF) 7 of 8			

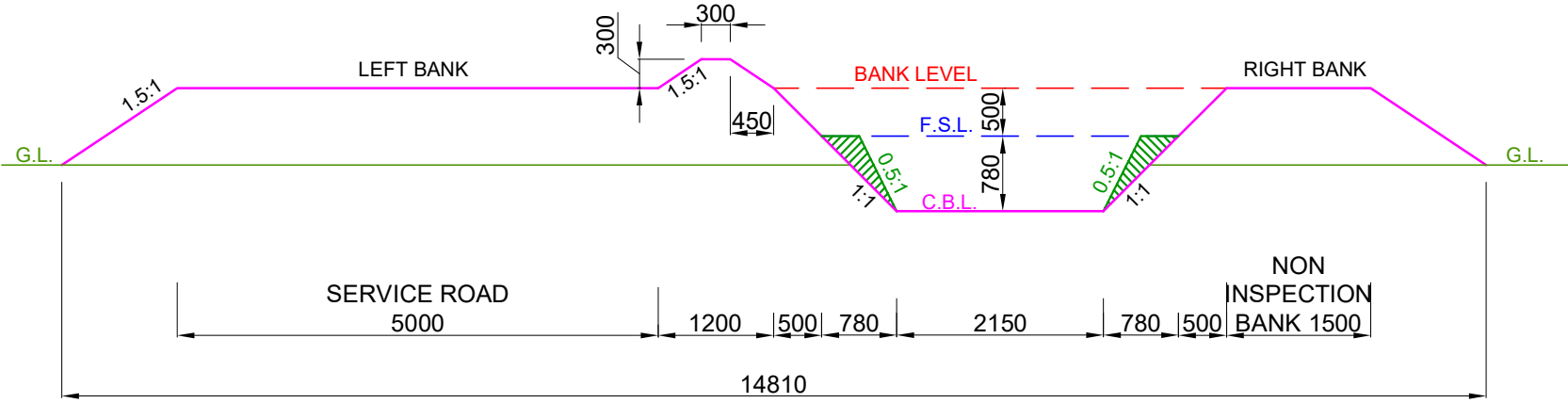
The diagram illustrates a cross-section of a road with a central drainage ditch. The left bank is shown with a 1.5:1 slope. The service road is 5000m wide. The ditch is 1200m wide. The right bank is shown with a 1.5:1 slope. The inspection bank is 1500m wide. The diagram also shows the ground level (G.L.), bank level, and the high ground line (H.G. LINE 1:5). Key dimensions include a 5000m service road, a 1200m ditch width, and a 1500m inspection bank. Slopes are indicated as 1.5:1 and 1.5:7. The diagram also shows the ground level (G.L.), bank level, and the high ground line (H.G. LINE 1:5).

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.

23

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR PARTLY CUTTING/ PARTLY FILLING



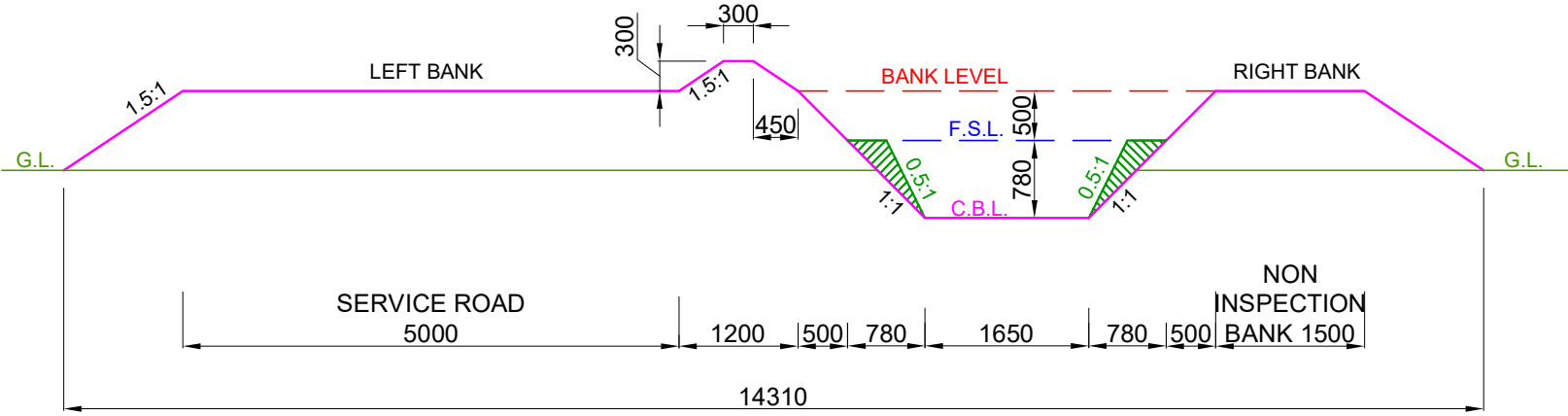
DESIGN SECTION FROM CH: 0.000 KM TO CH: 0.950 KM

- 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 SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)
			Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(PCF)

1 of 8

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR PARTLY CUTTING/ PARTLY FILLING

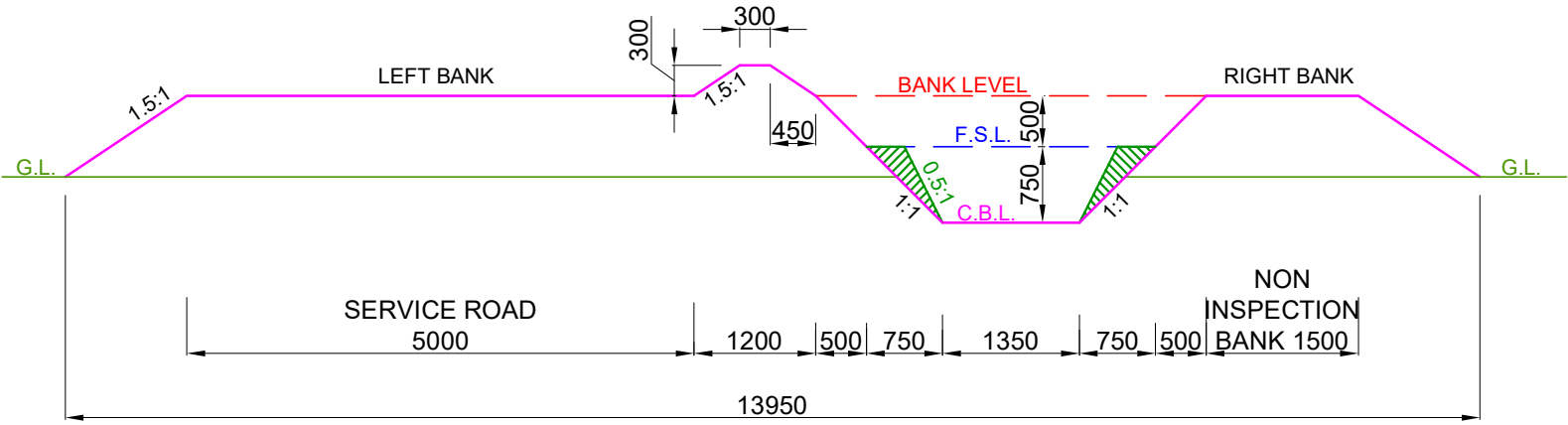


DESIGN SECTION FROM CH: 0.950 KM TO CH: 2.700 KM

- 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.

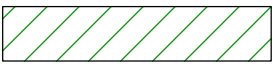
LEGEND CUT AREA FILL AREA		Prepared by :- WAPCOS LTD.	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
			Drawing Title :- X SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)
			Drawing No. :- WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(PCF)

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR PARTLY CUTTING/ PARTLY FILLING

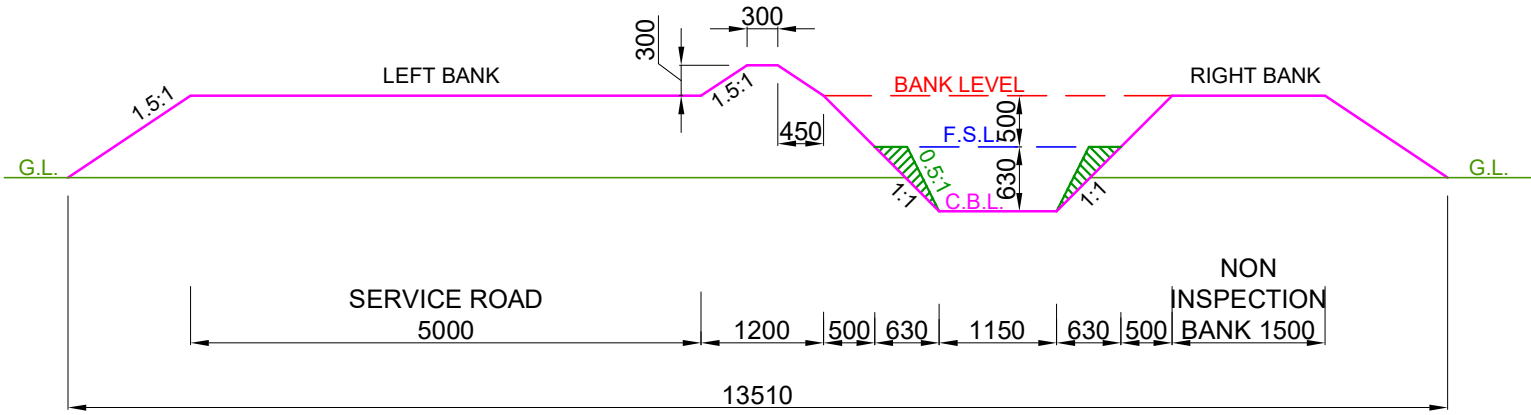


DESIGN SECTION FROM CH: 2.700 KM TO CH: 4.100 KM

- 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.

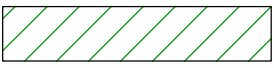
LEGEND		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND			
	CUT AREA		Drawing Title :-	X SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)			
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(PCF) 3 of 8			

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR PARTLY CUTTING/ PARTLY FILLING

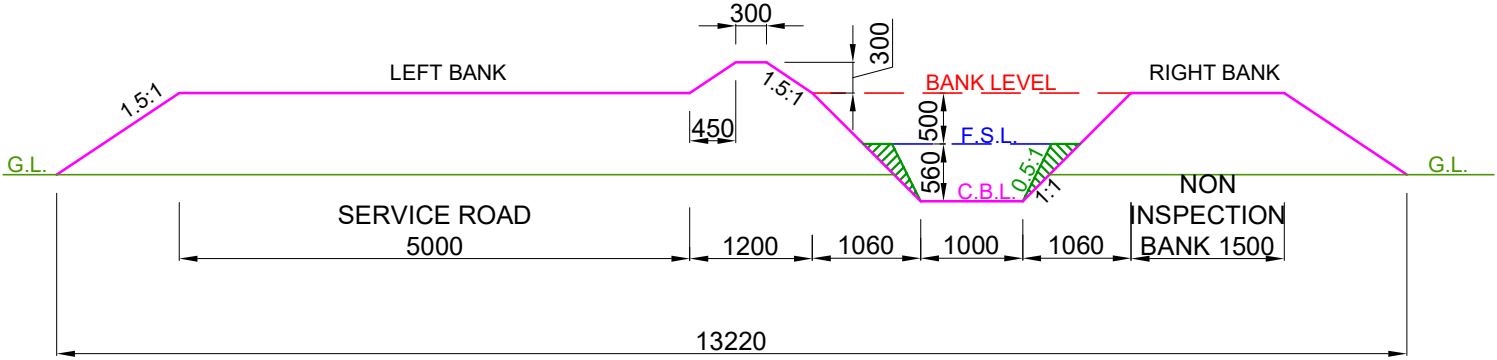


DESIGN SECTION FROM CH: 4.100 KM TO CH: 5.050 KM

- 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.

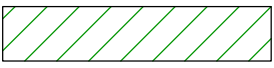
LEGEND		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND				
	CUT AREA		Drawing Title :-	X SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)				
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(PCF) 4 of 8				

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR PARTLY CUTTING/ PARTLY FILLING

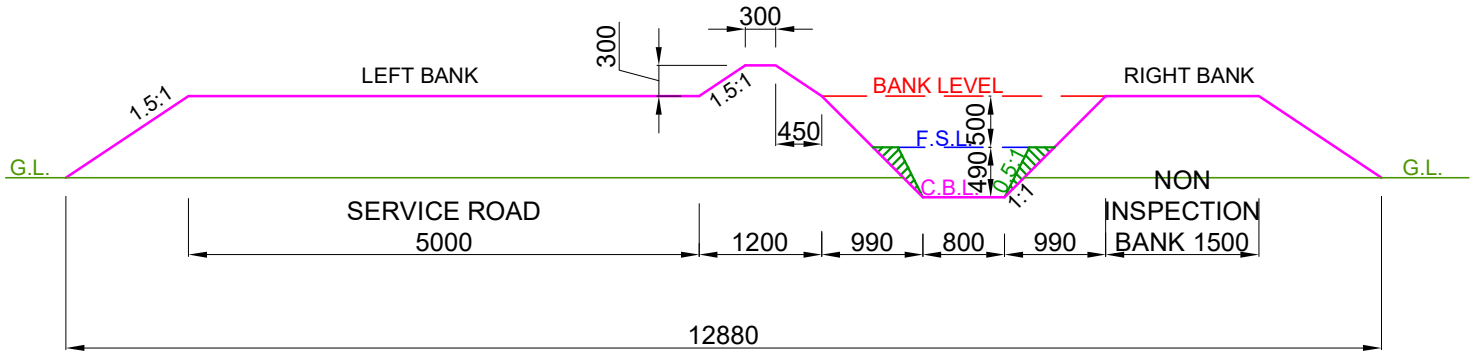


DESIGN SECTION FROM CH: 5.050 KM TO CH: 5.800 KM

- 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.

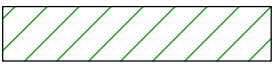
LEGEND		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND				
	CUT AREA		Drawing Title :-	X SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)				
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(PCF)				

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR PARTLY CUTTING/ PARTLY FILLING

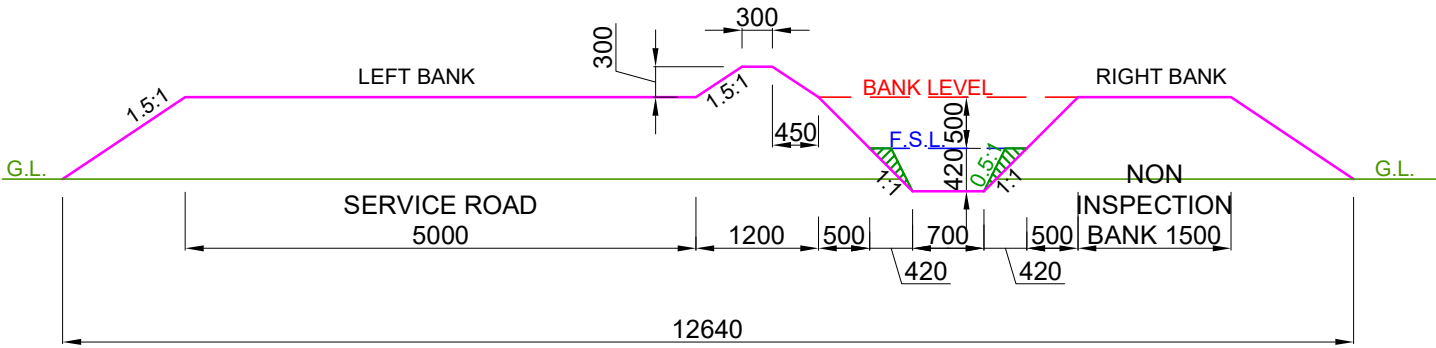


DESIGN SECTION FROM CH: 5.800 KM TO CH: 6.150 KM

- 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.

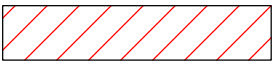
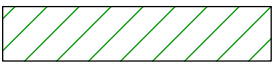
LEGEND		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND			
	CUT AREA		Drawing Title :-	X SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)			
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(PCF) 6 of 8			

TYPICAL X - SECTION OF SONDIH-I SUB-DISTRIBUTARY
(OFFTAKE FROM RD - 80+007 KM. (LT), NORTH KOEL RIGHT MAIN CANAL)
DESIGN SECTION FOR PARTLY CUTTING/ PARTLY FILLING



DESIGN SECTION FROM CH: 6.150 KM TO CH: 6.625 KM

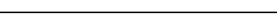
- NOTE:-**
- 1. THE BANK WIDTH HAS BEEN ADOPTED AS PER IS 7112 : 2002 (TABLE-1).
 - 2. THE OFFTAKING CHAINAGE AND LENGTH OF THE CANAL HAS BEEN TAKEN AS PER ACTUAL SURVEY.
 - 3. THIS IS A TYPICAL DRAWING , INSPECTION & NON-INSPECTION BANK SHALL BE TAKEN AS PER SITE CONDITIONS.

LEGEND		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND				
			Drawing Title :-	X SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)				
			Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(PCF)				
	CUT AREA							
	FILL AREA							

The diagram shows a cross-section of a road with a total width of 12320mm. The road is divided into a 5000mm service road and a 1500mm inspection bank. The left bank is 1.5:1, and the right bank is 1.5:1. The road level is 300mm above the service road level. The inspection bank is 1500mm wide and 310mm high. The road level is 310mm above the inspection bank level. The road level is 300mm above the service road level.

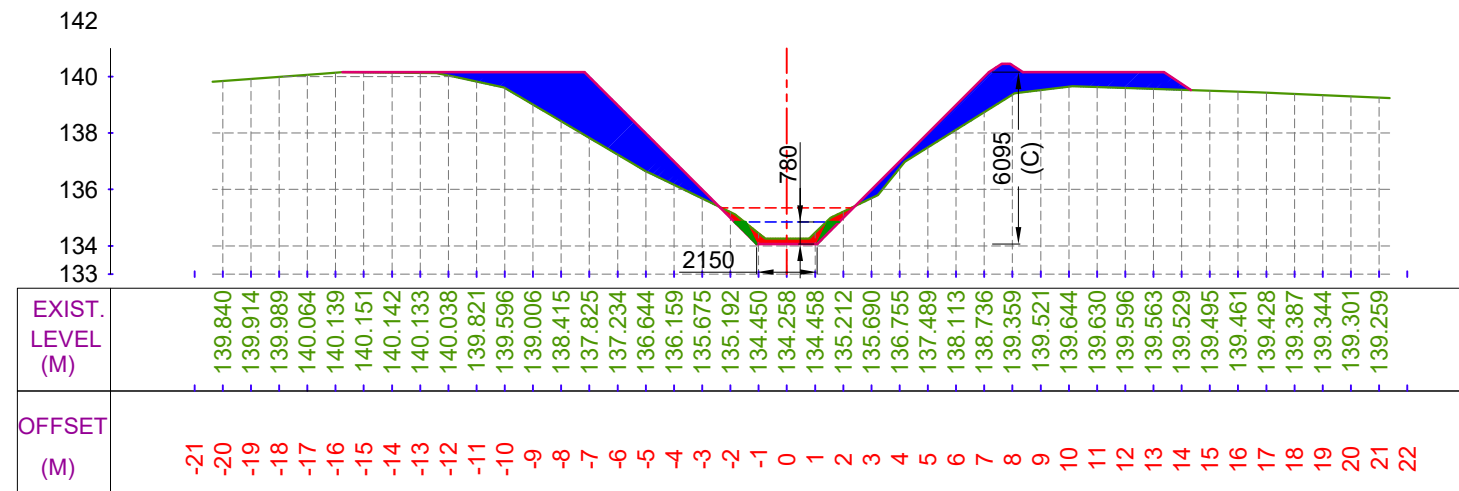
NOTE:-

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.

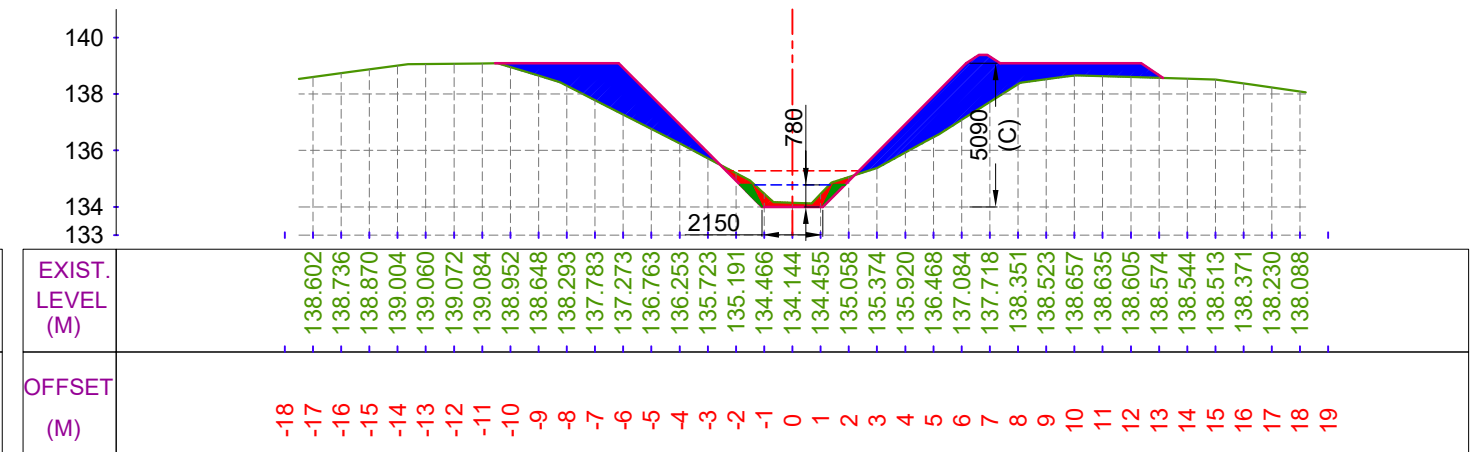
LEGEND		Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	CUT AREA		Drawing Title :-	X SECTION OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)	
	FILL AREA		Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC /TYP-(PCF)8 of 8	

CROSS-SECTION

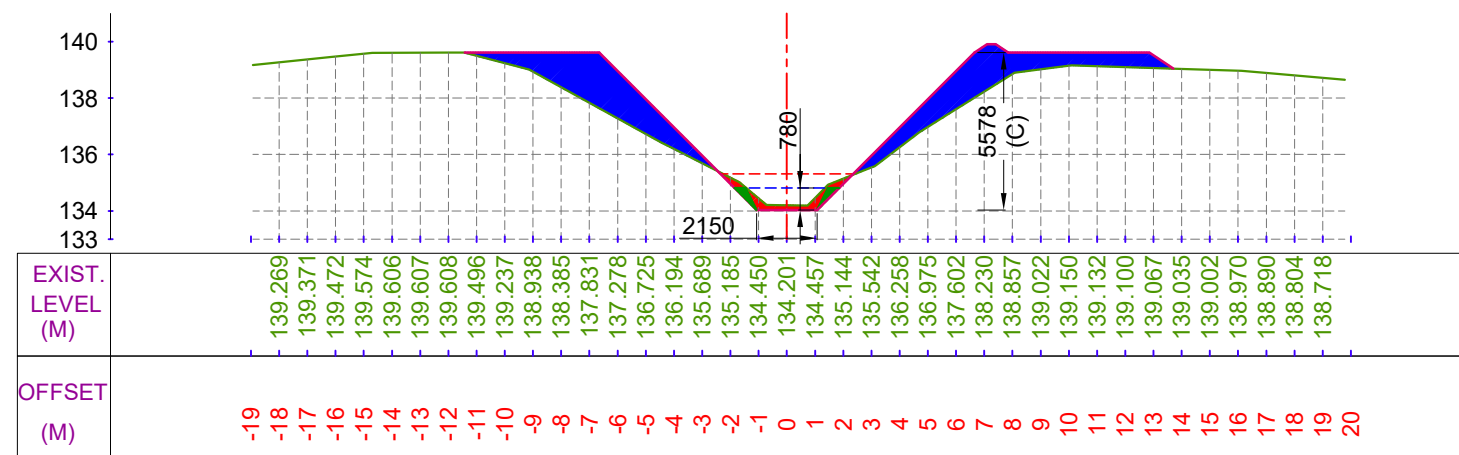
X SECTION OF SONDIH-I SUB-DY.



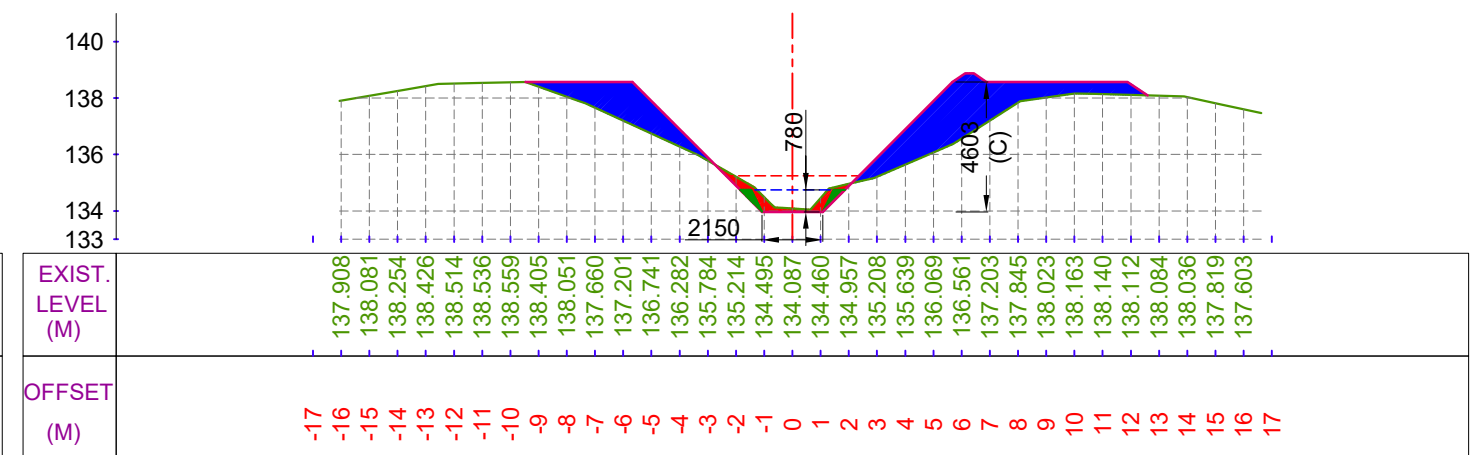
CUTTING AREA (SQ.M) = 0.980 CH. (KM):- 0+100
FILLING AREA (SQ.M) = 17.560 DESIGNED BED LEVEL = 134.062 M



CUTTING AREA (SQ.M) = 1.044 CH. (KM):- 0+300
FILLING AREA (SQ.M) = 15.570 DESIGNED BED LEVEL = 133.999 M



CUTTING AREA (SQ.M) = 1.001 CH. (KM):- 0+200
FILLING AREA (SQ.M) = 16.390 DESIGNED BED LEVEL = 134.031 M

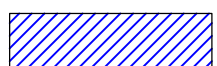


CUTTING AREA (SQ.M) = 1.113 CH. (KM):- 0+400
FILLING AREA (SQ.M) = 14.748 DESIGNED BED LEVEL = 133.968 M

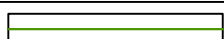
LEGEND



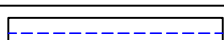
CUT AREA



FILL AREA



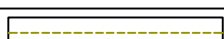
EXISTING BED LINE



F.S.L.



DESIGNED BED LINE



H.G. LINE

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

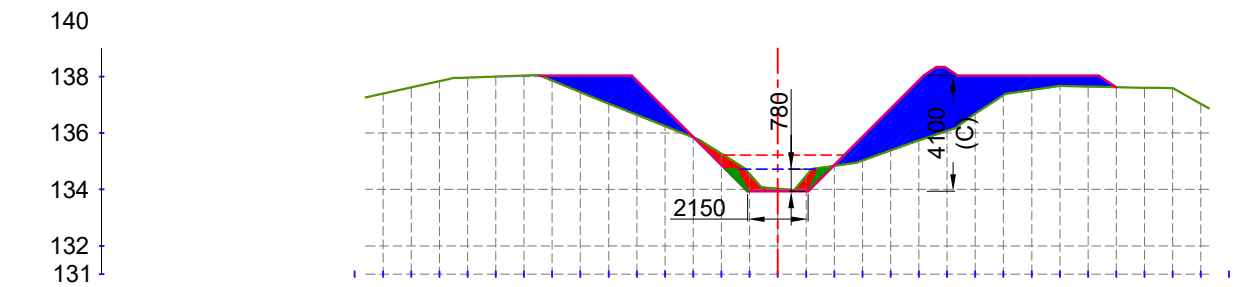
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

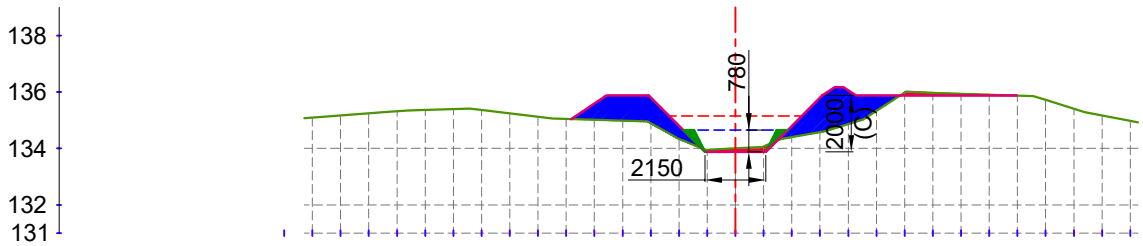
1 of 18

X SECTION OF SONDIH-I SUB-DY.



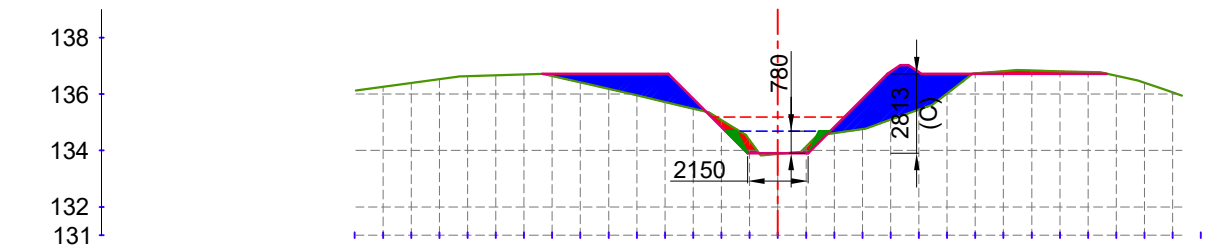
EXIST. LEVEL (M)	137.397	137.618	137.839	137.966	138.000	138.034	137.854	137.447	137.043	136.643	136.244	135.844	135.264	134.548	134.029	134.473	134.838	135.026	135.382	135.734	136.073	136.683	137.338	137.524	137.669	137.647	137.625	137.604	137.594	137.034		
OFFSET (M)	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

CUTTING AREA (SQ.M) = 1.248
FILLING AREA (SQ.M) = 13.791
CH. (KM):- 0+500
DESIGNED BED LEVEL = 133.937 M



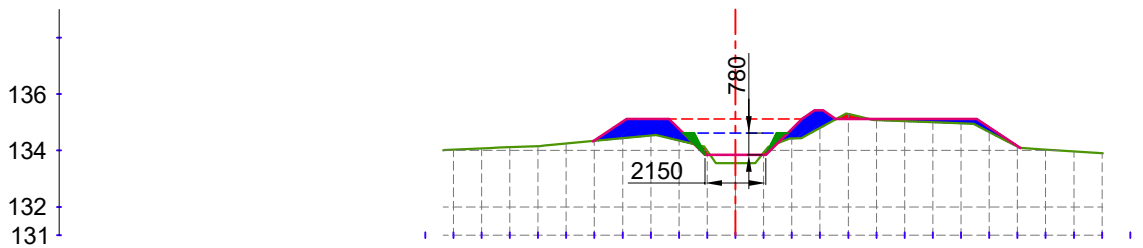
EXIST. LEVEL (M)	135.089	135.165	135.240	135.316	135.362	135.391	135.358	135.242	135.125	135.048	135.014	134.982	134.885	134.334	133.948	133.999	134.068	134.399	134.575	134.862	135.330	135.983	135.974	135.937	135.905	135.873	135.719	135.407	135.168	134.975		
OFFSET (M)	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

CUTTING AREA (SQ.M) = 0.564
FILLING AREA (SQ.M) = 6.183
CH. (KM):- 0+700
DESIGNED BED LEVEL = 133.874 M



EXIST. LEVEL (M)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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CUTTING AREA (SQ.M) = 0.912
FILLING AREA (SQ.M) = 8.039
CH. (KM):- 0+600
DESIGNED BED LEVEL = 133.906 M



EXIST. LEVEL (M)																										

CUTTING AREA (SQ.M) = 0.183
FILLING AREA (SQ.M) = 3.153
CH. (KM):- 0+800
DESIGNED BED LEVEL = 133.843 M

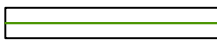
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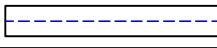
CUT AREA



FILL AREA



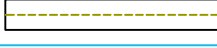
EXISTING BED LINE



F.S.L.



DESIGNED BED LINE



H.G. LINE

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

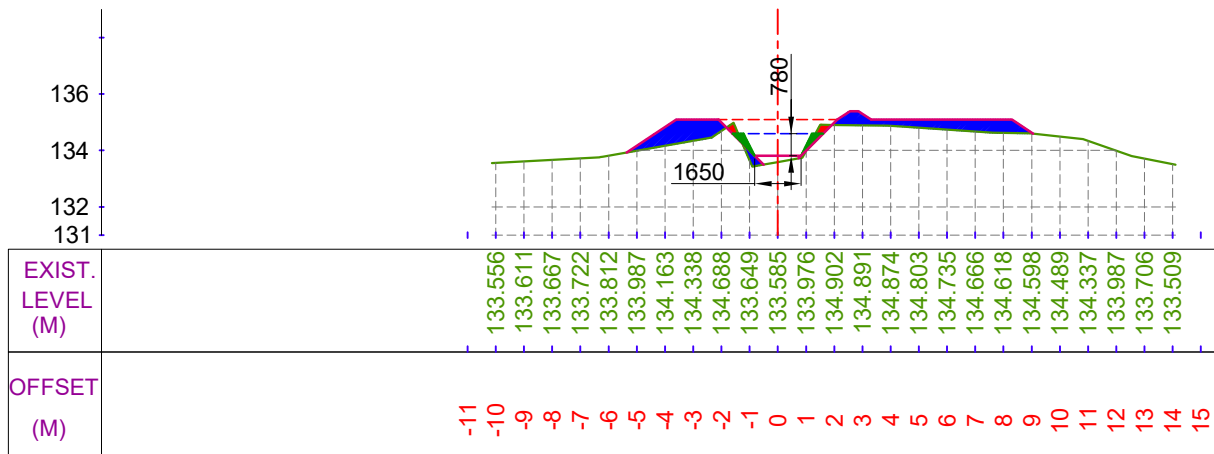
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

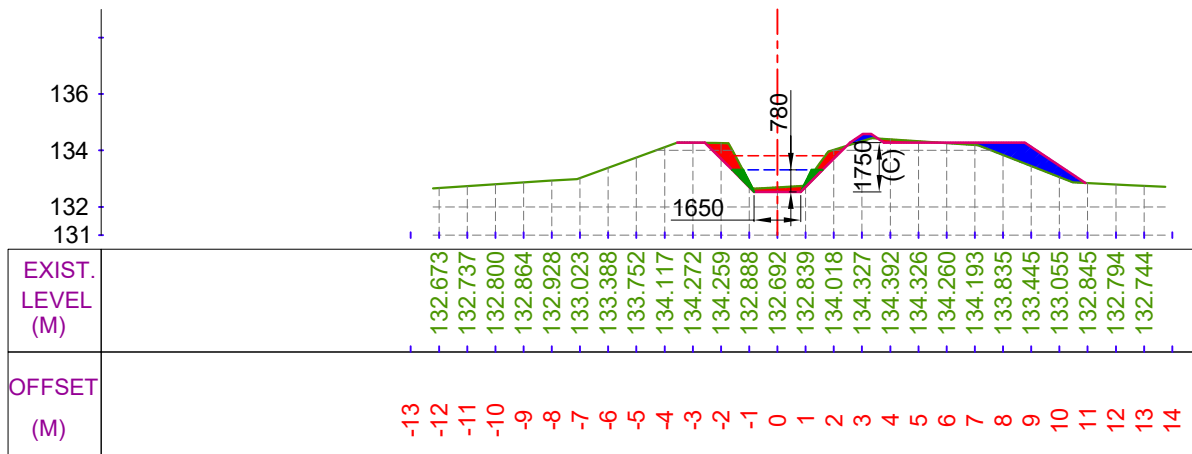
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

2 of 18

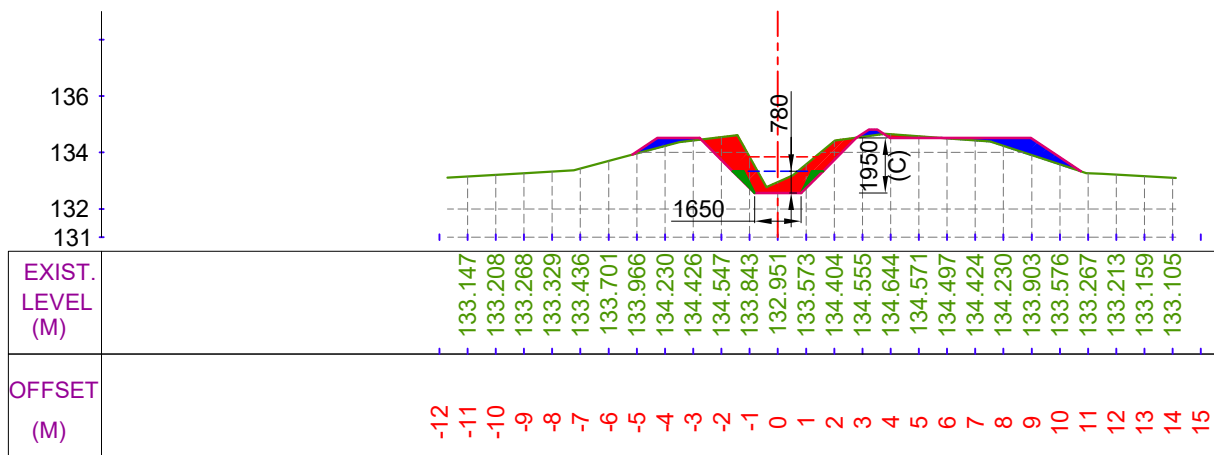
X SECTION OF SONDIH-I SUB-DY.



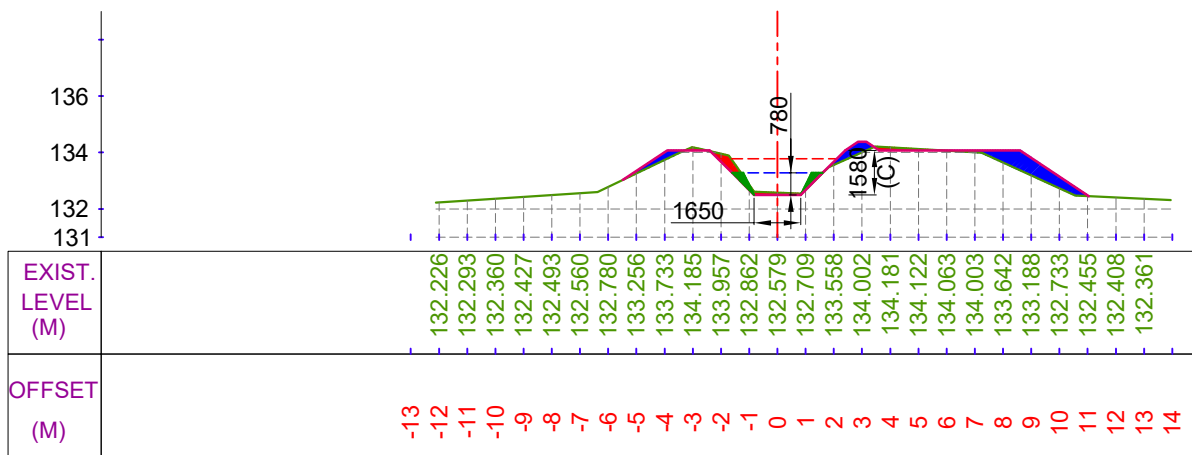
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FILLING AREA (SQ.M) = 4.460
CH. (KM):- 0+900
DESIGNED BED LEVEL = 133.812 M



CUTTING AREA (SQ.M) = 1.276
FILLING AREA (SQ.M) = 1.857
CH. (KM):- 1+100
DESIGNED BED LEVEL = 132.529 M



CUTTING AREA (SQ.M) = 3.536
FILLING AREA (SQ.M) = 1.721
CH. (KM):- 1+000
DESIGNED BED LEVEL = 132.561 M

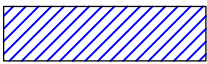


CUTTING AREA (SQ.M) = 0.623
FILLING AREA (SQ.M) = 2.441
CH. (KM):- 1+200
DESIGNED BED LEVEL = 132.498 M

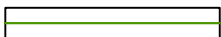
LEGEND



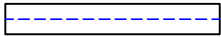
CUT AREA



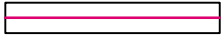
FILL AREA



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 :-

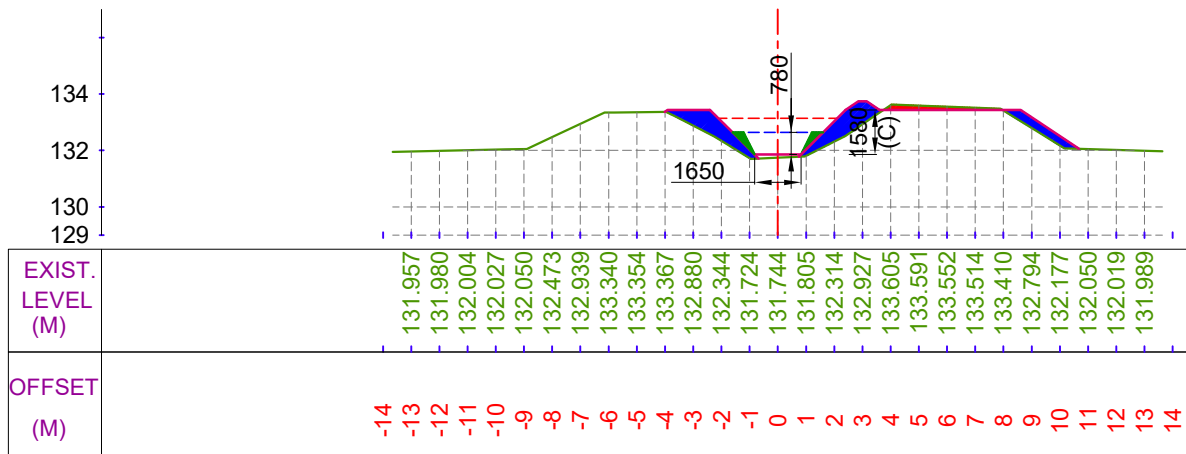
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

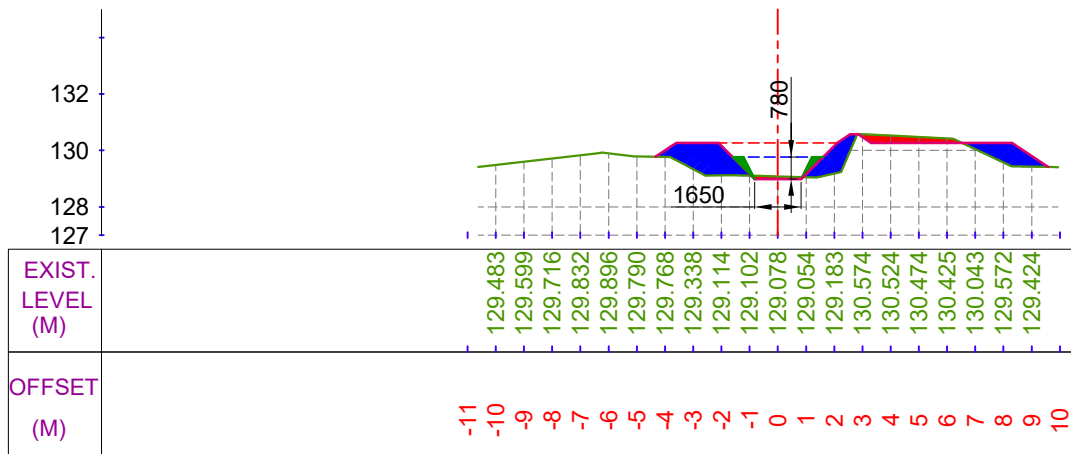
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

3 of 18

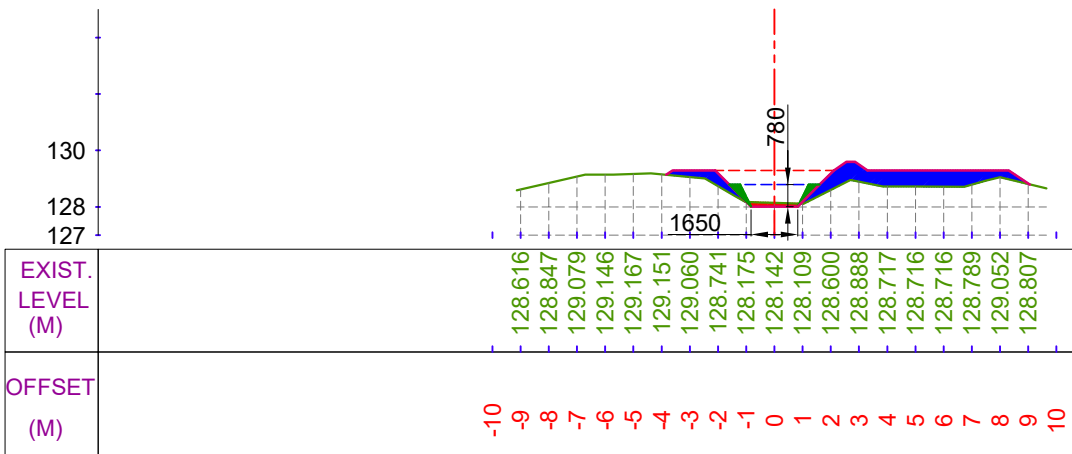
X SECTION OF SONDIH-I SUB-DY.



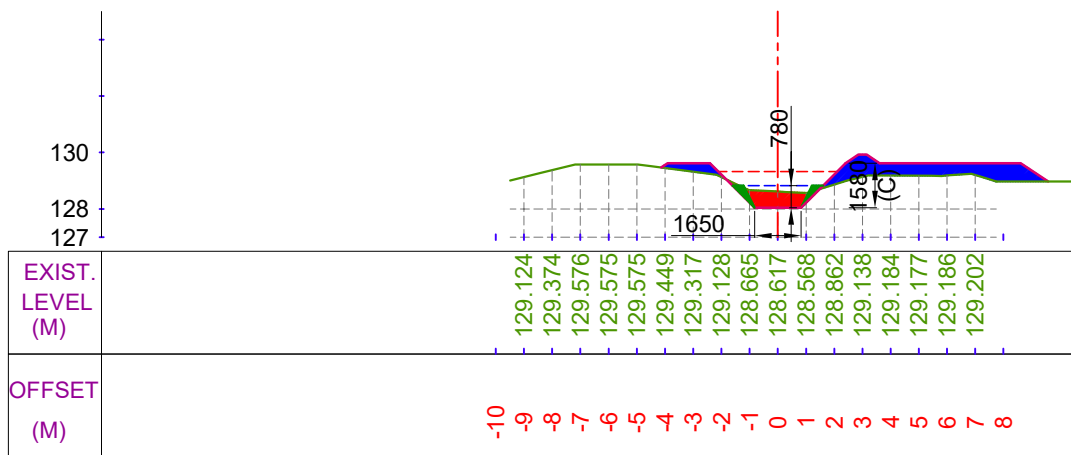
X SECTION OF SONDIH-I SUB-DY.



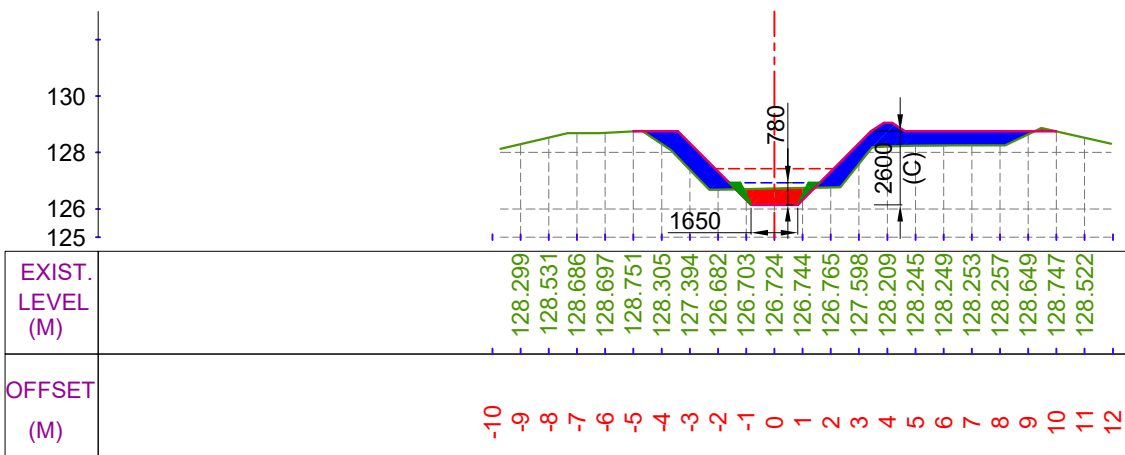
CUTTING AREA (SQ.M) = 0.879
FILLING AREA (SQ.M) = 4.783
CH. (KM):- 1+700
DESIGNED BED LEVEL = 128.988 M



CUTTING AREA (SQ.M) = 0.225
FILLING AREA (SQ.M) = 4.525
CH. (KM):- 1+900
DESIGNED BED LEVEL = 128.011 M



CUTTING AREA (SQ.M) = 1.145
FILLING AREA (SQ.M) = 4.422
CH. (KM):- 1+800
DESIGNED BED LEVEL = 128.043 M

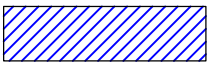


CUTTING AREA (SQ.M) = 1.158
FILLING AREA (SQ.M) = 6.148
CH. (KM):- 2+000
DESIGNED BED LEVEL = 126.150 M

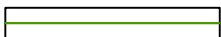
LEGEND



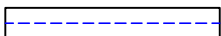
CUT AREA



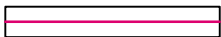
FILL AREA



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 :-

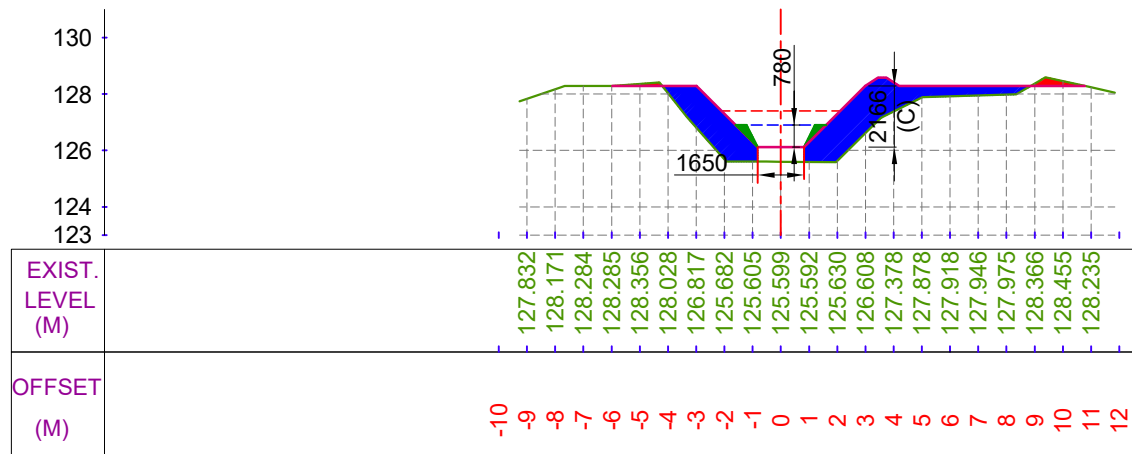
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

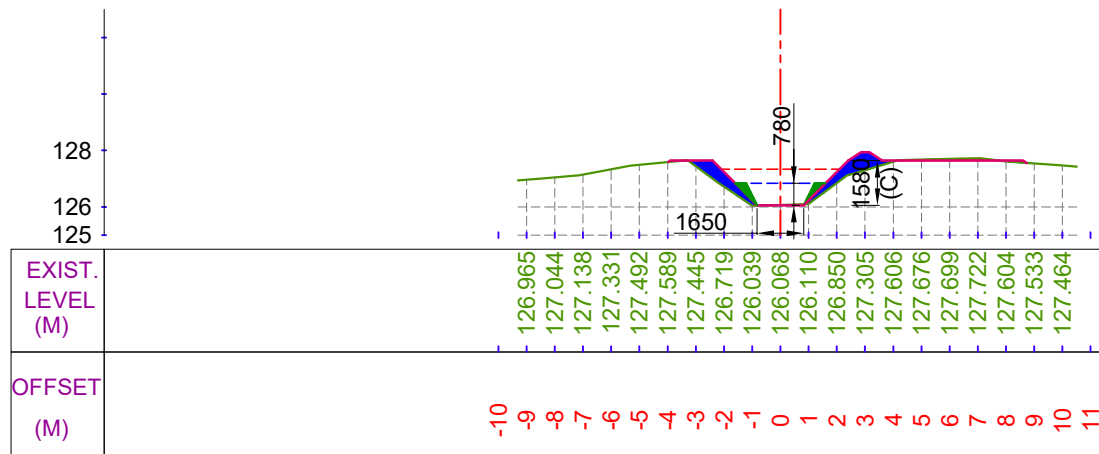
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

5 of 18

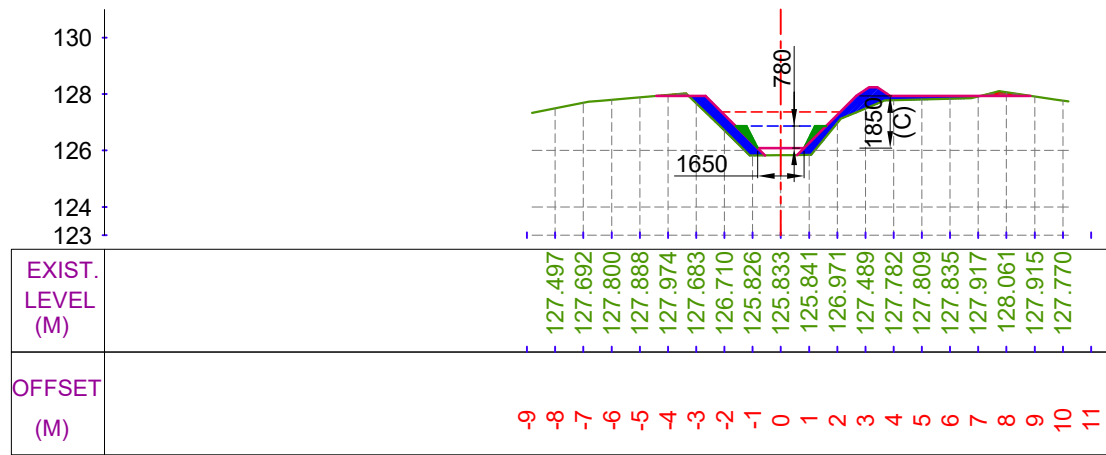
X SECTION OF SONDIH-I SUB-DY.



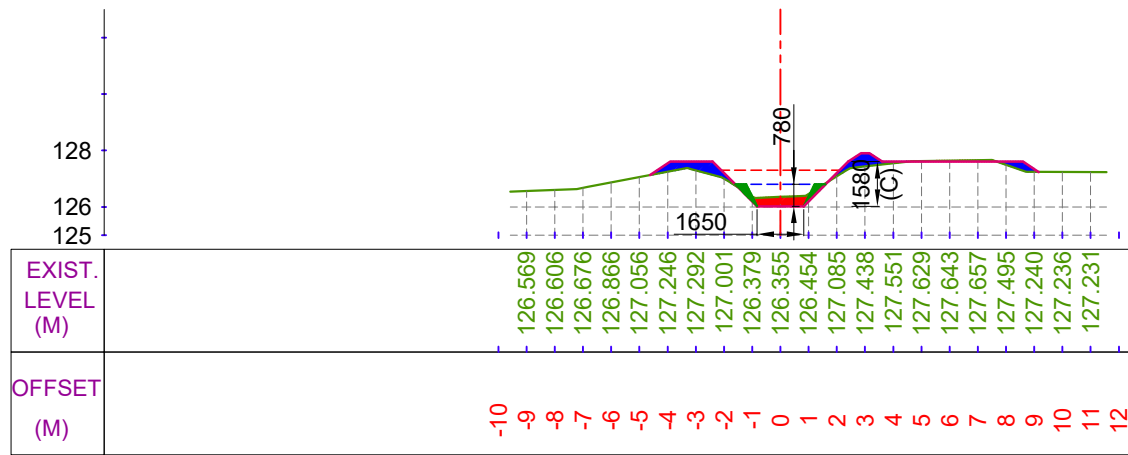
CUTTING AREA (SQ.M) = 0.399
FILLING AREA (SQ.M) = 10.080
CH. (KM):- 2+100
DESIGNED BED LEVEL = 126.119 M



CUTTING AREA (SQ.M) = 0.214
FILLING AREA (SQ.M) = 2.019
CH. (KM):- 2+300
DESIGNED BED LEVEL = 126.056 M

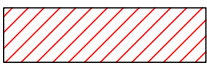


CUTTING AREA (SQ.M) = 0.195
FILLING AREA (SQ.M) = 2.933
CH. (KM):- 2+200
DESIGNED BED LEVEL = 126.088 M

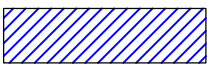


CUTTING AREA (SQ.M) = 0.728
FILLING AREA (SQ.M) = 1.597
CH. (KM):- 2+400
DESIGNED BED LEVEL = 126.025 M

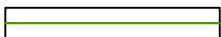
LEGEND



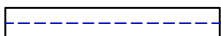
CUT AREA



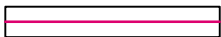
FILL AREA



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 :-

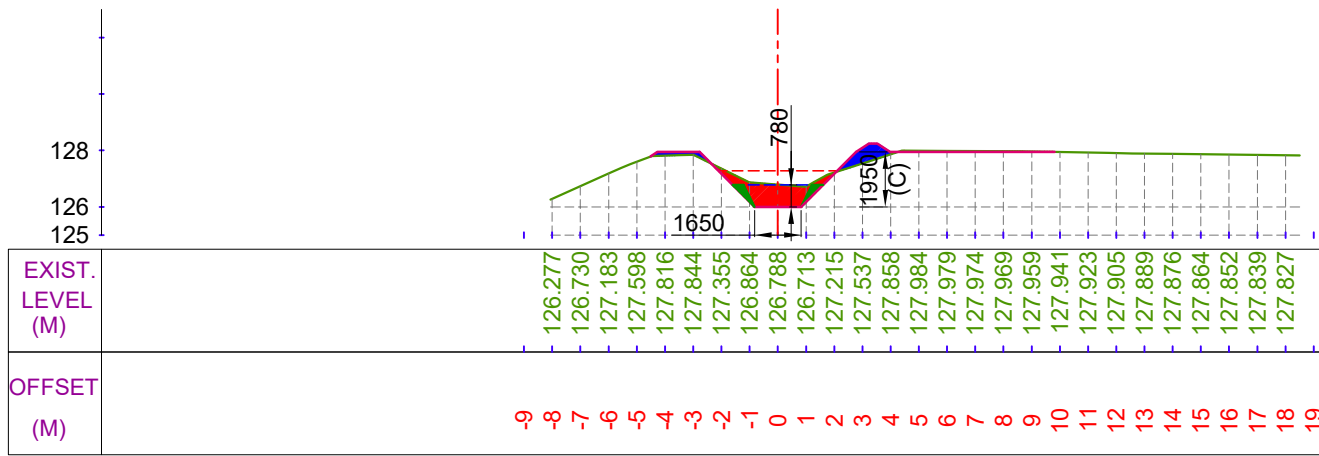
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

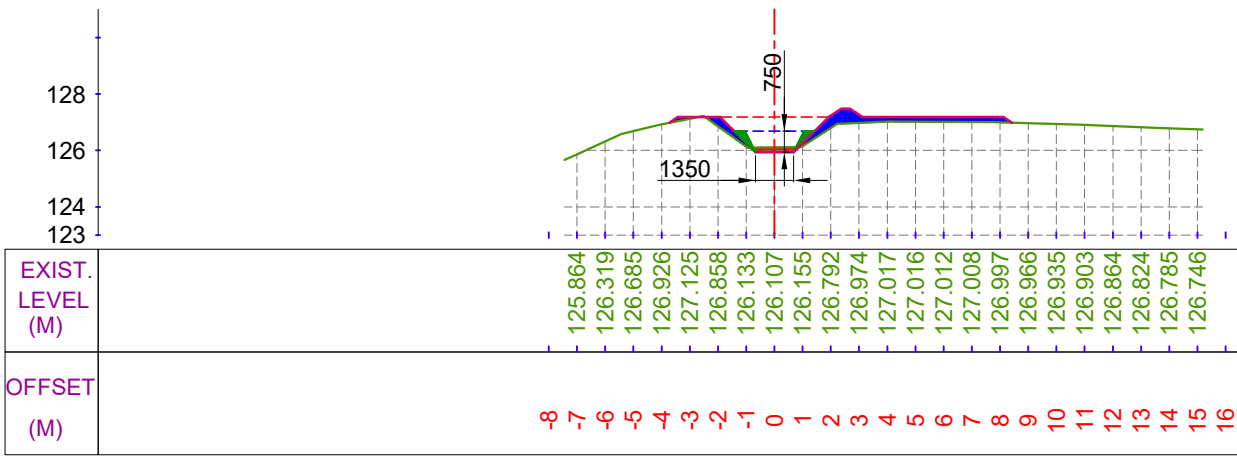
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

6 of 18

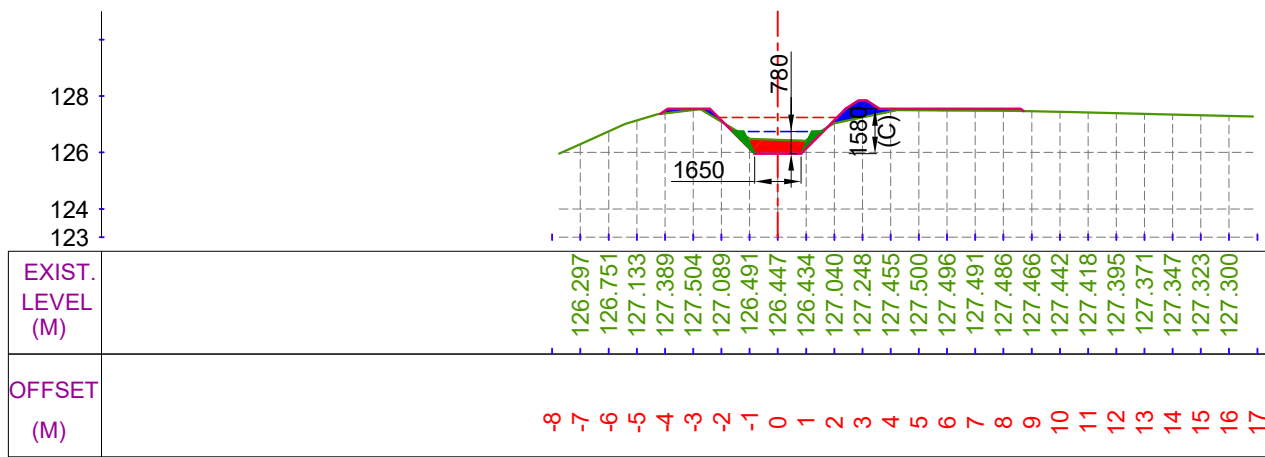
X SECTION OF SONDIH-I SUB-DY.



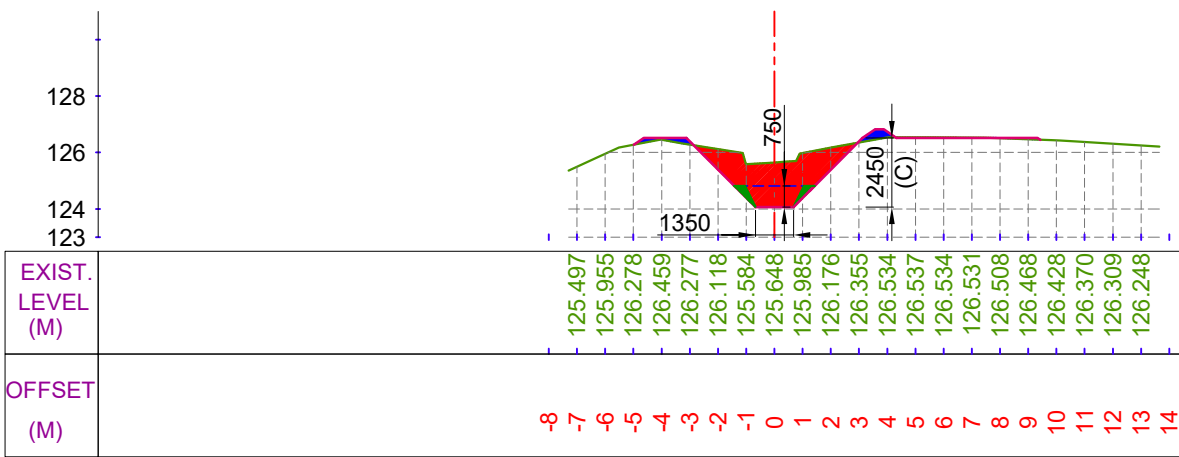
CUTTING AREA (SQ.M) = 2.195
FILLING AREA (SQ.M) = 0.991
CH. (KM):- 2+500
DESIGNED BED LEVEL = 125.994 M



CUTTING AREA (SQ.M) = 0.259
FILLING AREA (SQ.M) = 2.083
CH. (KM):- 2+700
DESIGNED BED LEVEL = 125.931 M



CUTTING AREA (SQ.M) = 0.956
FILLING AREA (SQ.M) = 1.181
CH. (KM):- 2+600
DESIGNED BED LEVEL = 125.963 M



CUTTING AREA (SQ.M) = 5.858
FILLING AREA (SQ.M) = 0.594
CH. (KM):- 2+800
DESIGNED BED LEVEL = 124.069 M

LEGEND

	CUT AREA		EXISTING BED LINE
	FILL AREA		F.S.L.
			DESIGNED BED LINE
			H.G. LINE

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

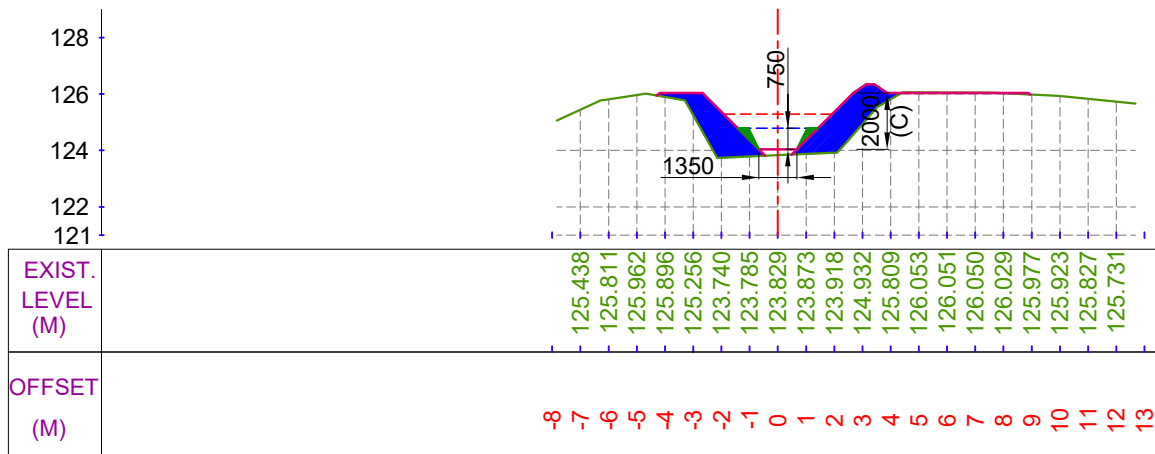
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

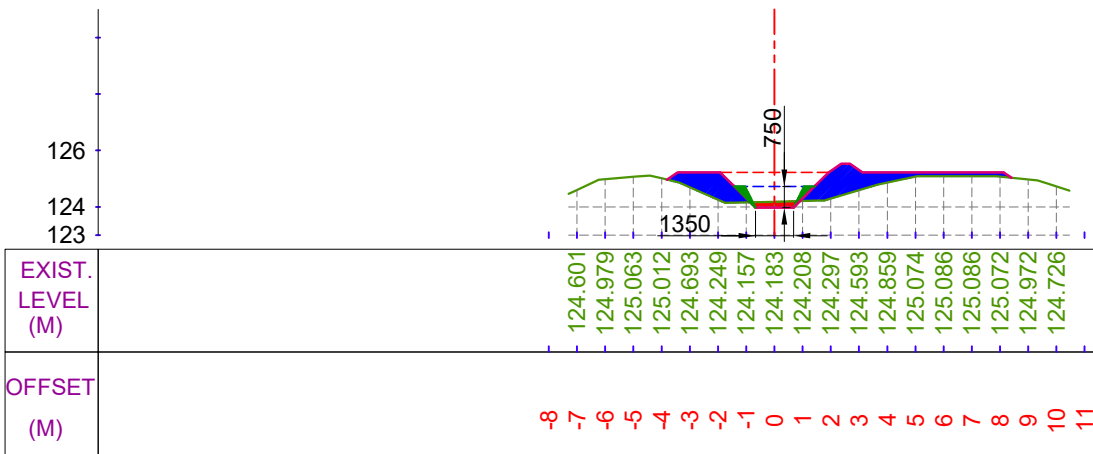
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

7 of 18

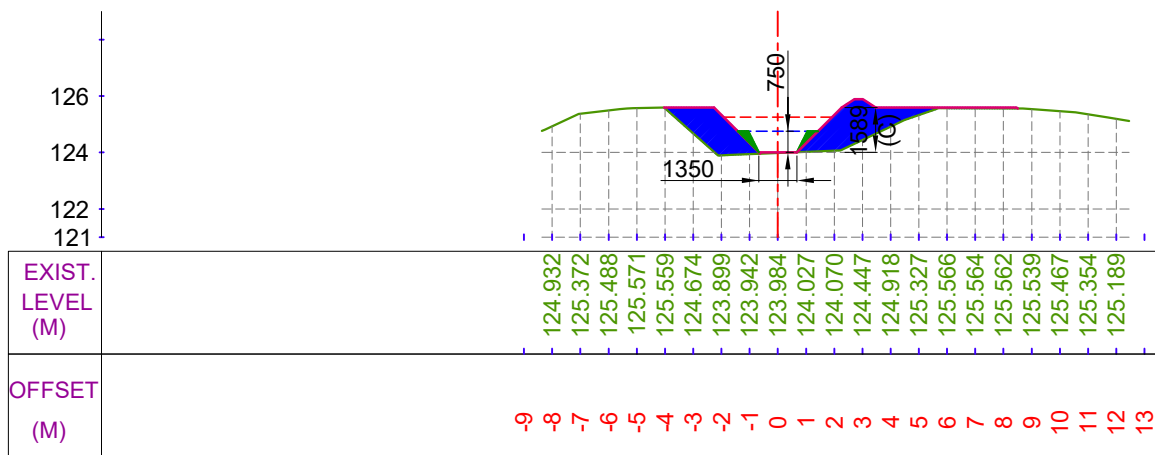
X SECTION OF SONDIH-I SUB-DY.



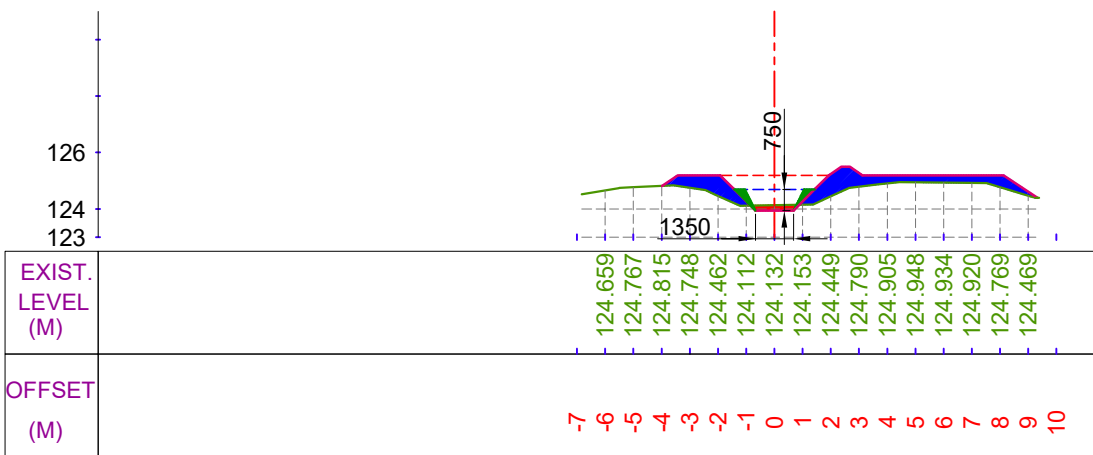
CUTTING AREA (SQ.M) = 0.048
FILLING AREA (SQ.M) = 6.433
CH. (KM):- 2+900
DESIGNED BED LEVEL = 124.037 M



CUTTING AREA (SQ.M) = 0.307
FILLING AREA (SQ.M) = 4.414
CH. (KM):- 3+100
DESIGNED BED LEVEL = 123.972 M

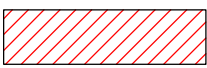


CUTTING AREA (SQ.M) = 0.001
FILLING AREA (SQ.M) = 6.713
CH. (KM):- 3+000
DESIGNED BED LEVEL = 124.004 M

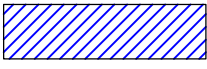


CUTTING AREA (SQ.M) = 0.278
FILLING AREA (SQ.M) = 4.378
CH. (KM):- 3+200
DESIGNED BED LEVEL = 123.940 M

LEGEND



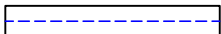
CUT AREA



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 :-

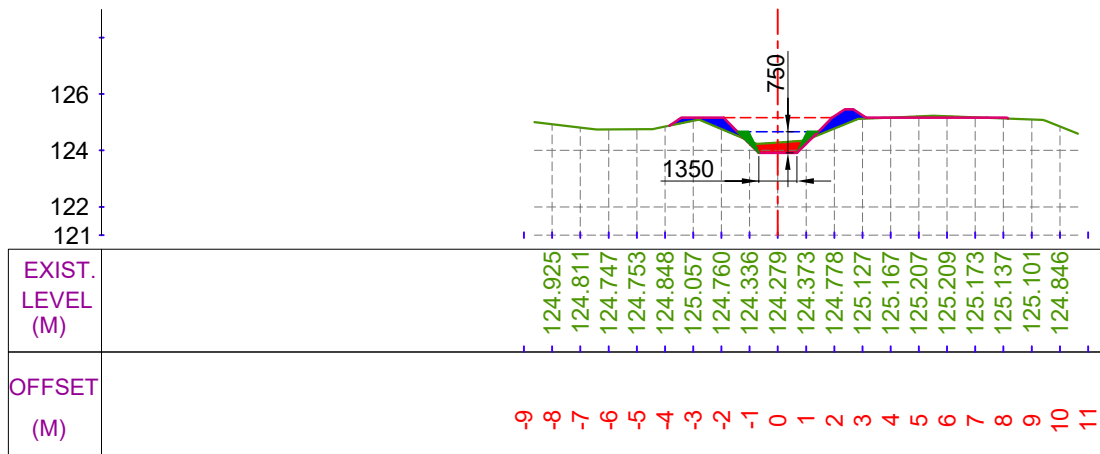
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Drawing No. :-

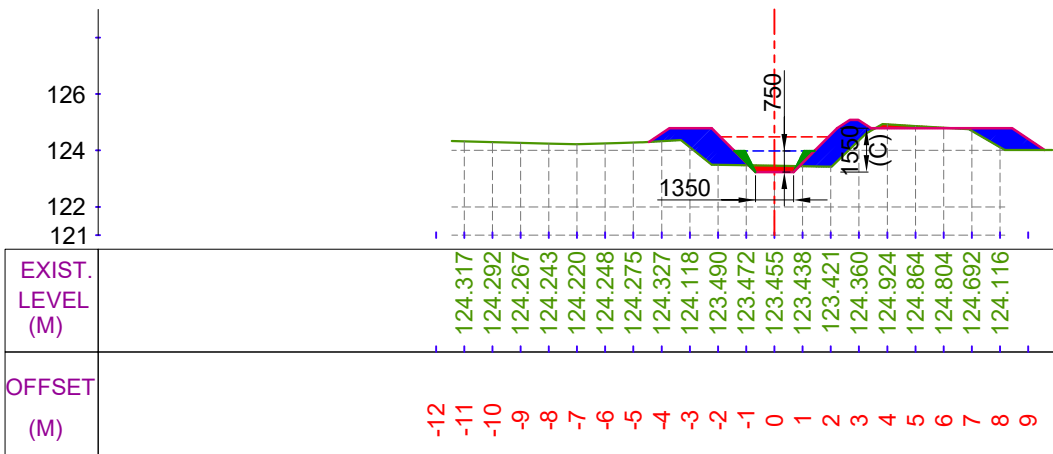
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

8 of 18

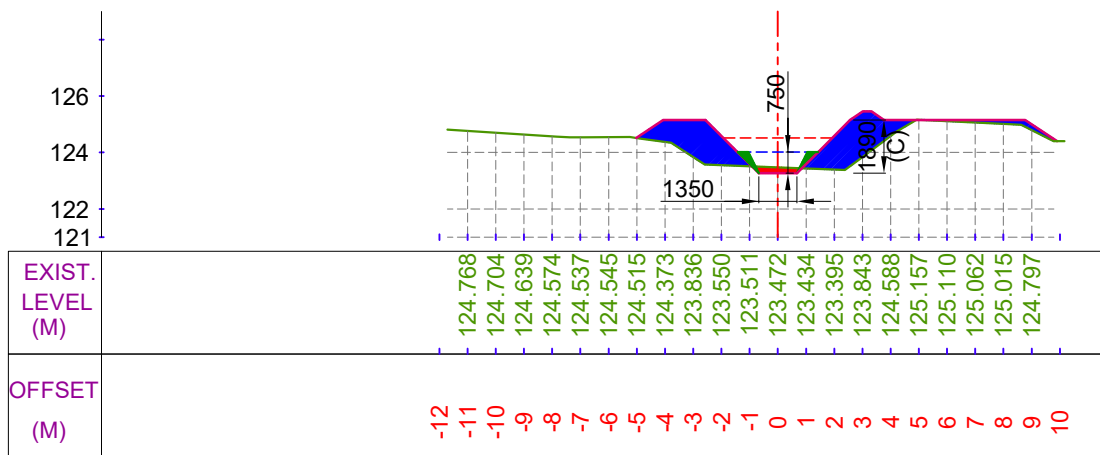
X SECTION OF SONDIH-I SUB-DY.



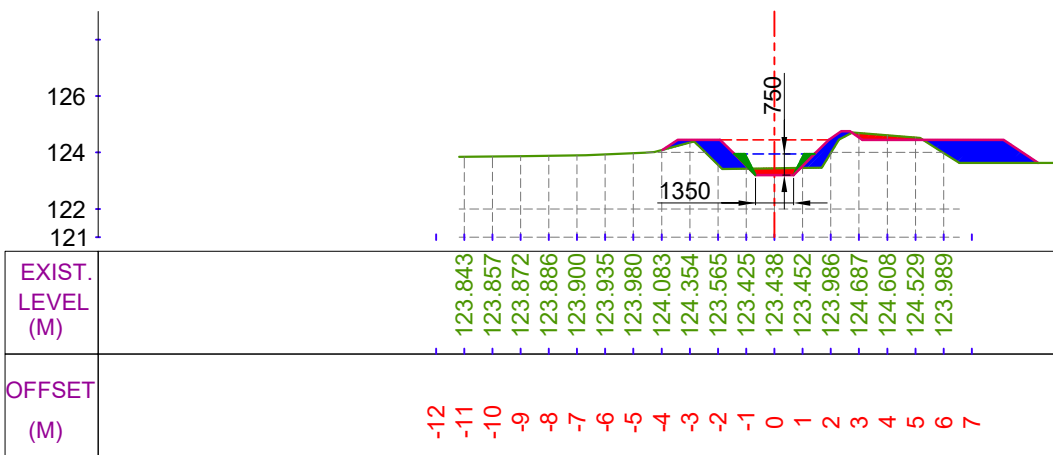
CUTTING AREA (SQ.M) = 0.698
FILLING AREA (SQ.M) = 1.091
CH. (KM):- 3+300
DESIGNED BED LEVEL = 123.908 M



CUTTING AREA (SQ.M) = 0.534
FILLING AREA (SQ.M) = 5.104
CH. (KM):- 3+500
DESIGNED BED LEVEL = 123.233 M

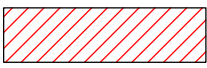


CUTTING AREA (SQ.M) = 0.302
FILLING AREA (SQ.M) = 7.429
CH. (KM):- 3+400
DESIGNED BED LEVEL = 123.265 M

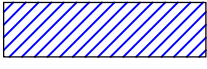


CUTTING AREA (SQ.M) = 0.692
FILLING AREA (SQ.M) = 4.104
CH. (KM):- 3+600
DESIGNED BED LEVEL = 123.201 M

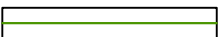
LEGEND



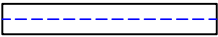
CUT AREA



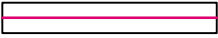
FILL AREA



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

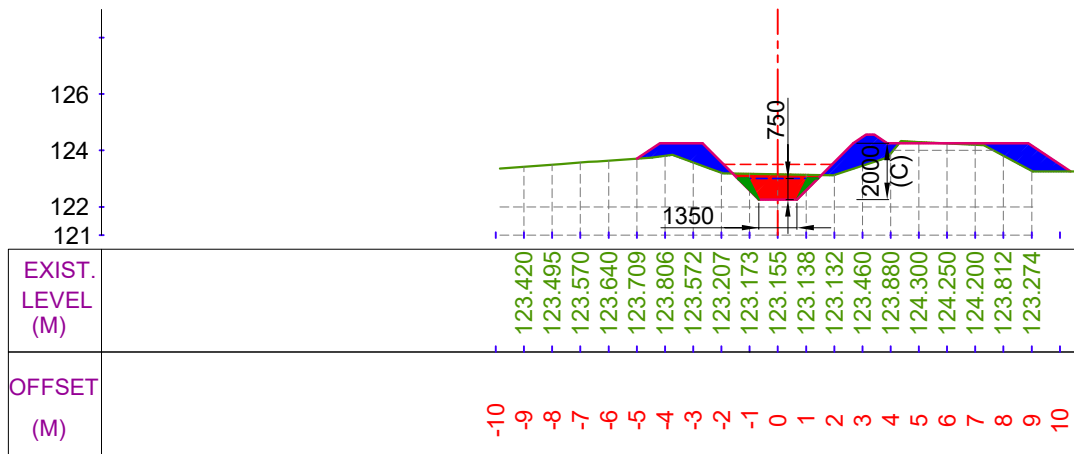
Drawing Title :-

X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

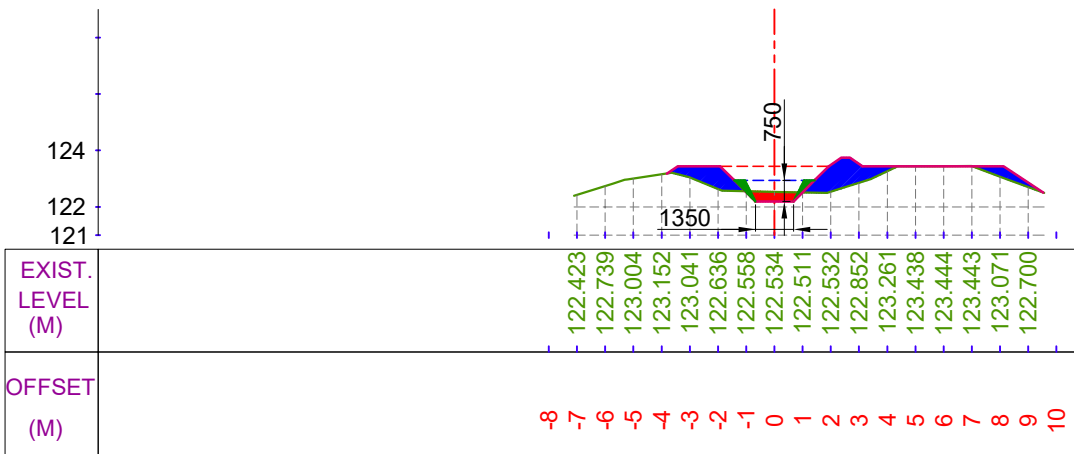
Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

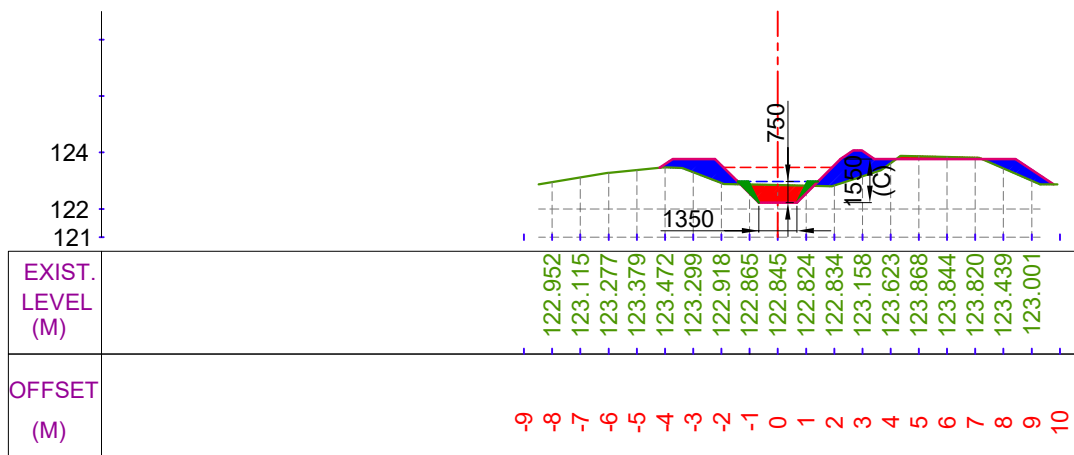
X SECTION OF SONDIH-I SUB-DY.



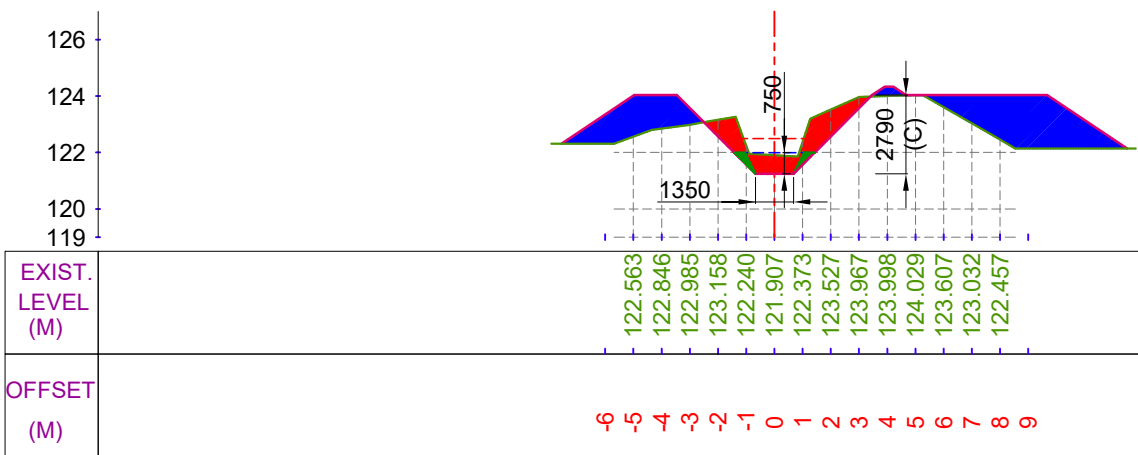
CUTTING AREA (SQ.M) = 1.807
FILLING AREA (SQ.M) = 4.818
CH. (KM):- 3+700
DESIGNED BED LEVEL = 122.255 M



CUTTING AREA (SQ.M) = 0.532
FILLING AREA (SQ.M) = 3.681
CH. (KM):- 3+900
DESIGNED BED LEVEL = 122.190 M



CUTTING AREA (SQ.M) = 1.263
FILLING AREA (SQ.M) = 3.628
CH. (KM):- 3+800
DESIGNED BED LEVEL = 122.222 M

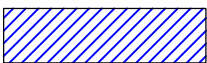


CUTTING AREA (SQ.M) = 4.017
FILLING AREA (SQ.M) = 12.709
CH. (KM):- 4+000
DESIGNED BED LEVEL = 121.244 M

LEGEND



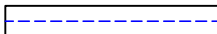
CUT AREA



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 :-

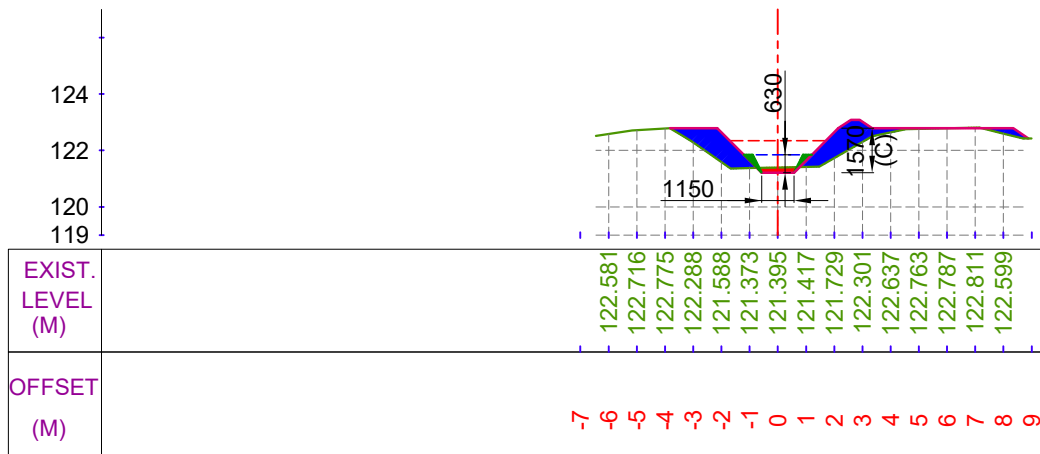
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

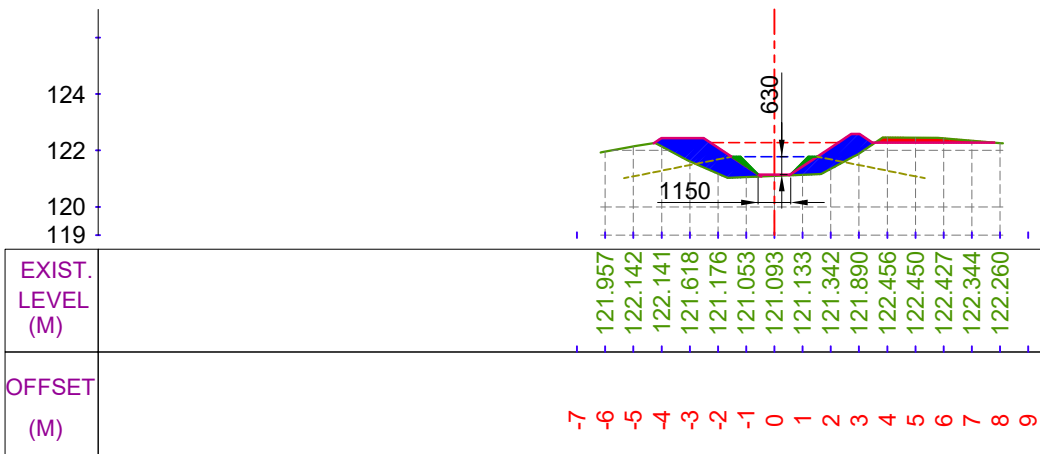
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

10 of 18

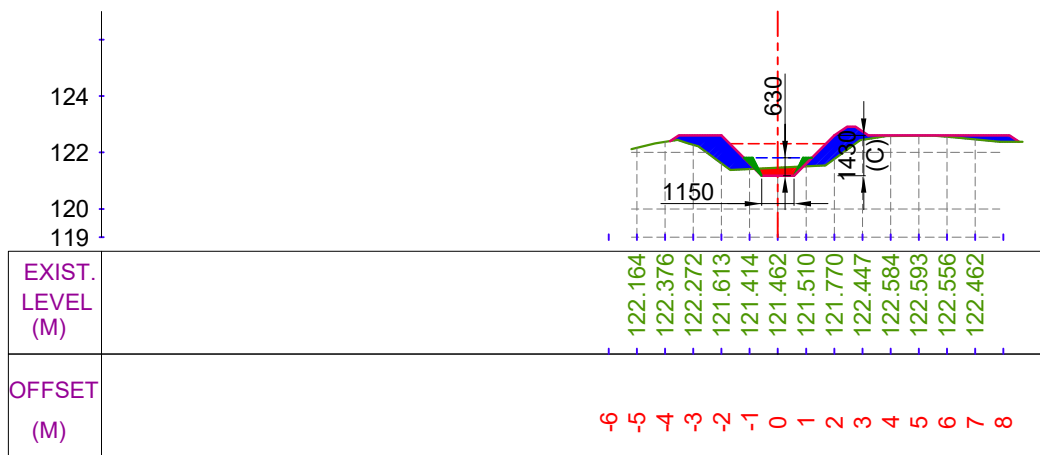
X SECTION OF SONDIH-I SUB-DY.



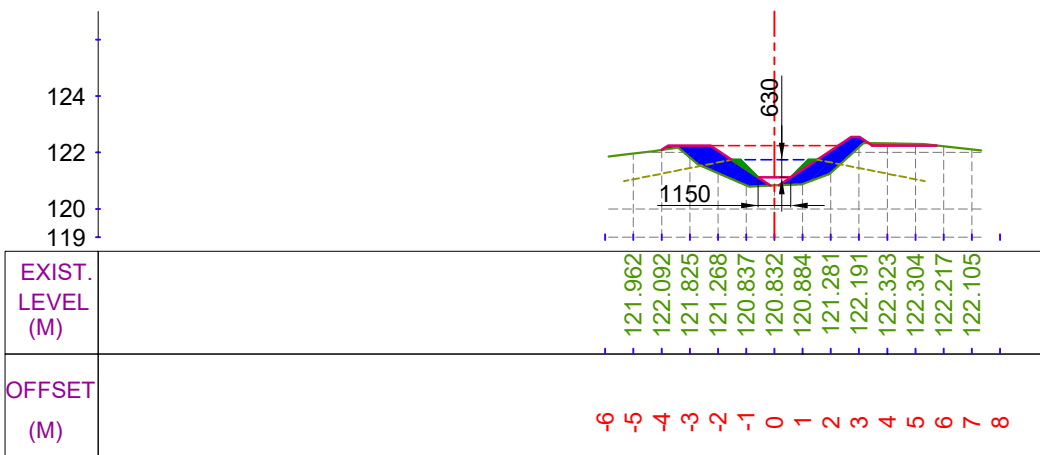
CUTTING AREA (SQ.M) = 0.251
FILLING AREA (SQ.M) = 4.005
CH. (KM):- 4+100
DESIGNED BED LEVEL = 121.212 M



CUTTING AREA (SQ.M) = 0.532
FILLING AREA (SQ.M) = 3.987
CH. (KM):- 4+300
DESIGNED BED LEVEL = 121.147 M



CUTTING AREA (SQ.M) = 0.366
FILLING AREA (SQ.M) = 3.231
CH. (KM):- 4+200
DESIGNED BED LEVEL = 121.179 M

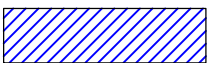


CUTTING AREA (SQ.M) = 0.147
FILLING AREA (SQ.M) = 3.370
CH. (KM):- 4+400
DESIGNED BED LEVEL = 121.115 M

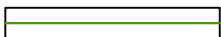
LEGEND



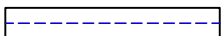
CUT AREA



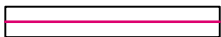
FILL AREA



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 :-

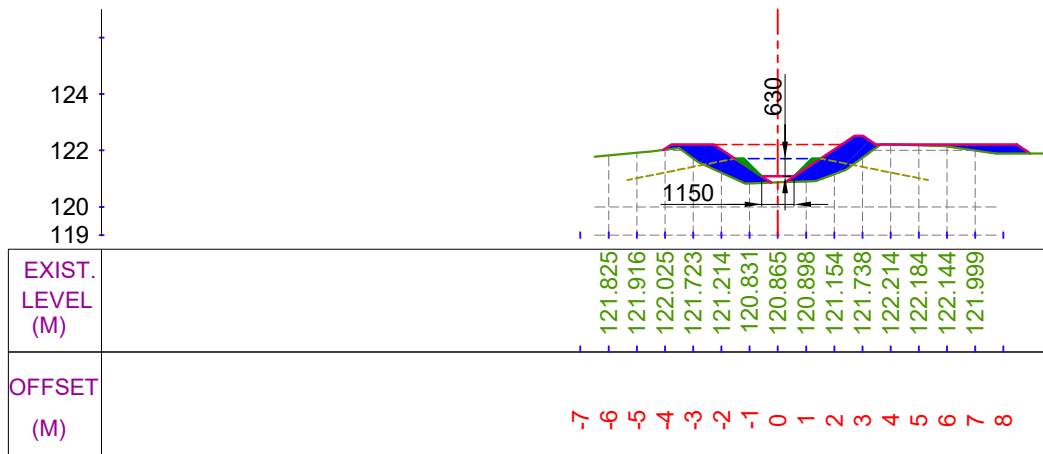
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

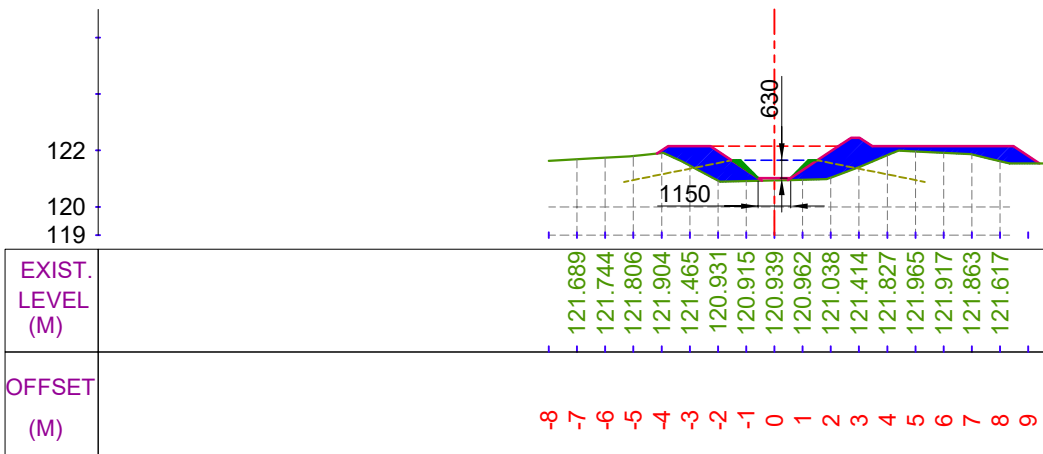
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

11 of 18

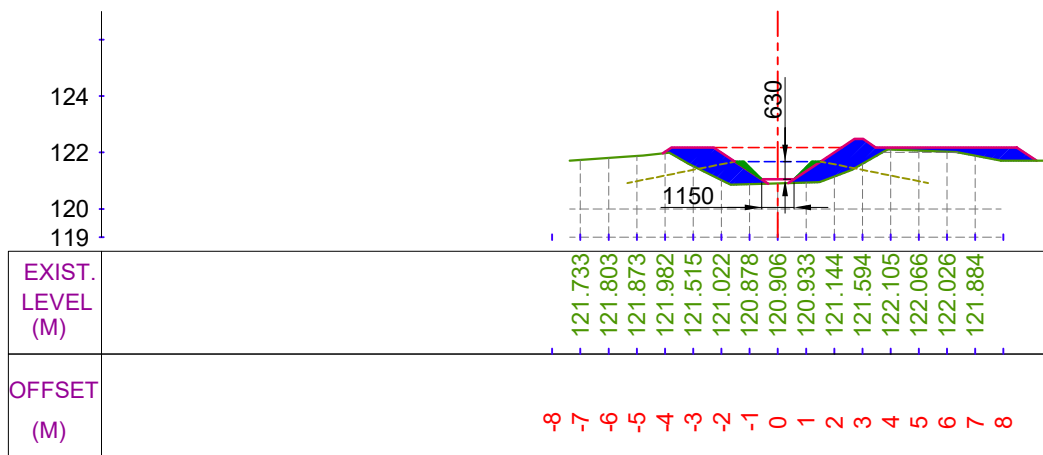
X SECTION OF SONDIH-I SUB-DY.



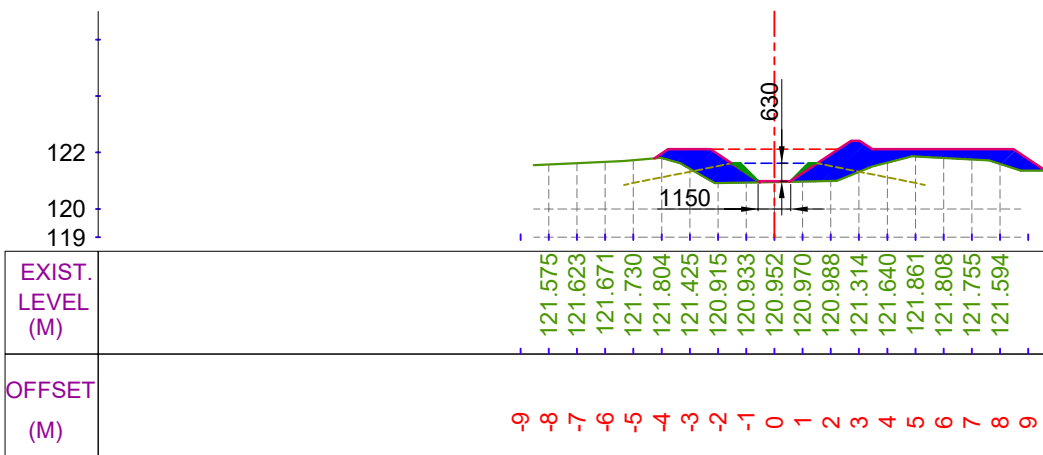
CUTTING AREA (SQ.M) = 0.002
FILLING AREA (SQ.M) = 4.632
CH. (KM):- 4+500
DESIGNED BED LEVEL = 121.083 M



CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 6.214
CH. (KM):- 4+700
DESIGNED BED LEVEL = 121.018 M



CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 5.535
CH. (KM):- 4+600
DESIGNED BED LEVEL = 121.050 M

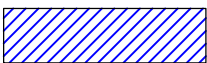


CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 6.764
CH. (KM):- 4+800
DESIGNED BED LEVEL = 120.986 M

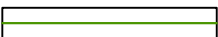
LEGEND



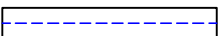
CUT AREA



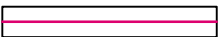
FILL AREA



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 :-

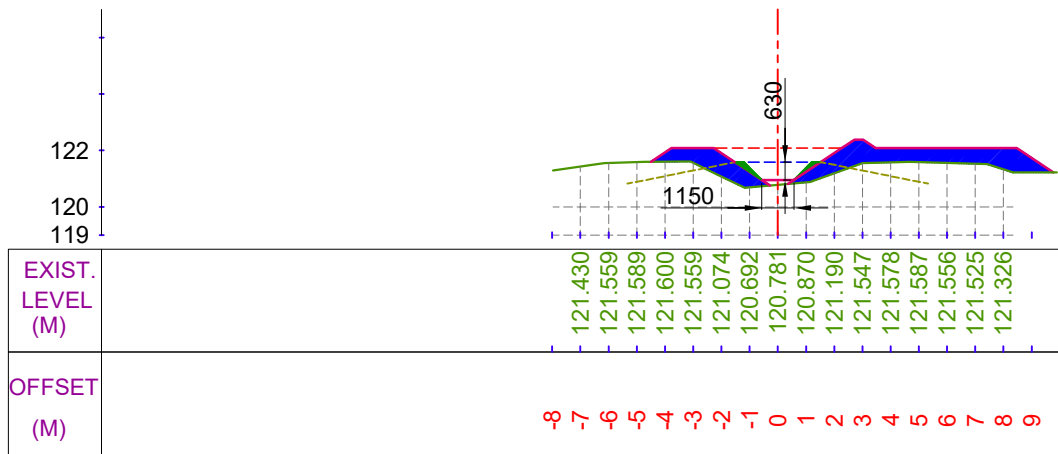
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

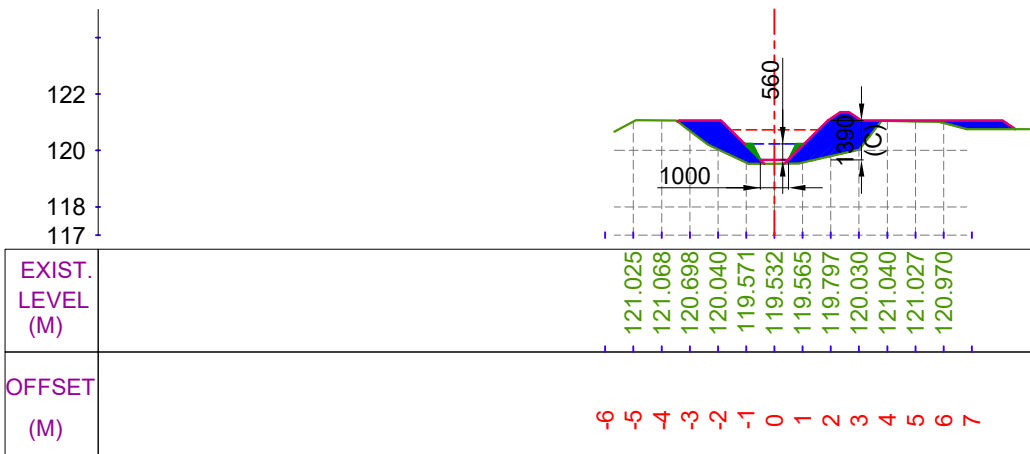
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

12 of 18

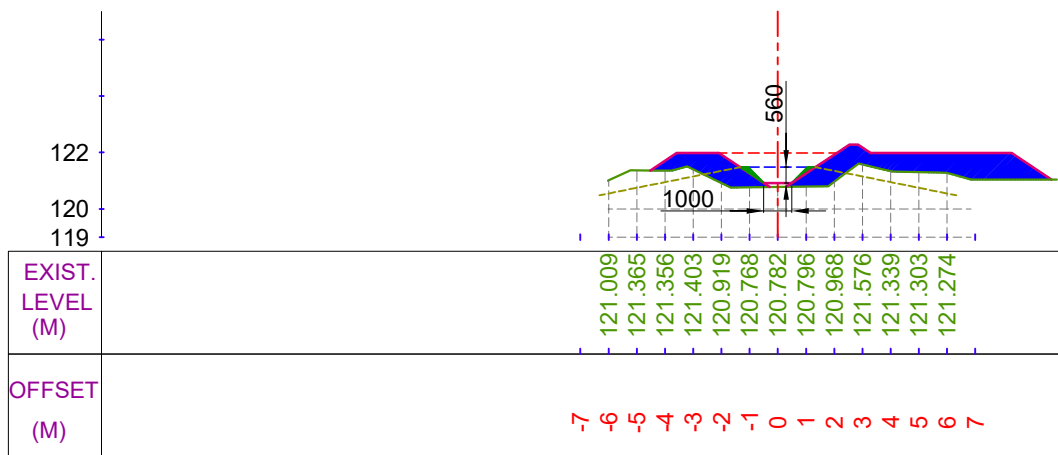
X SECTION OF SONDIH-I SUB-DY.



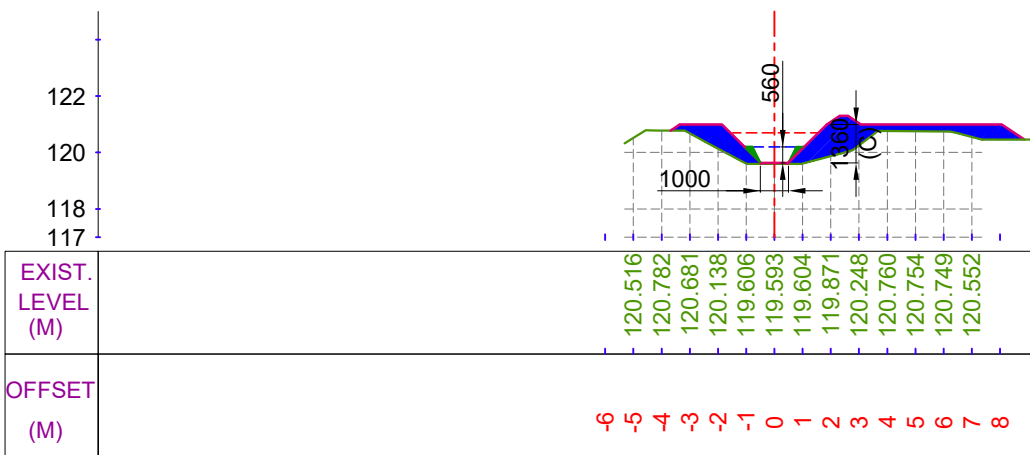
CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 7.453
CH. (KM):- 4+900
DESIGNED BED LEVEL = 120.954 M



CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 5.524
CH. (KM):- 5+100
DESIGNED BED LEVEL = 119.669 M



CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 8.775
CH. (KM):- 5+000
DESIGNED BED LEVEL = 120.921 M

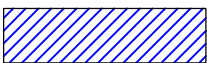


CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 5.813
CH. (KM):- 5+200
DESIGNED BED LEVEL = 119.635 M

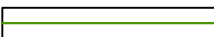
LEGEND



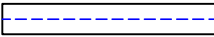
CUT AREA



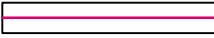
FILL AREA



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 :-

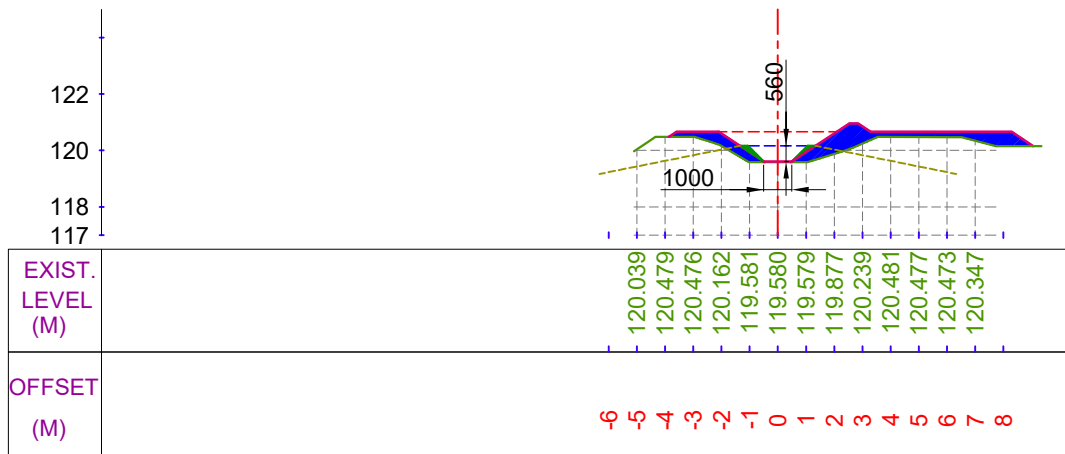
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

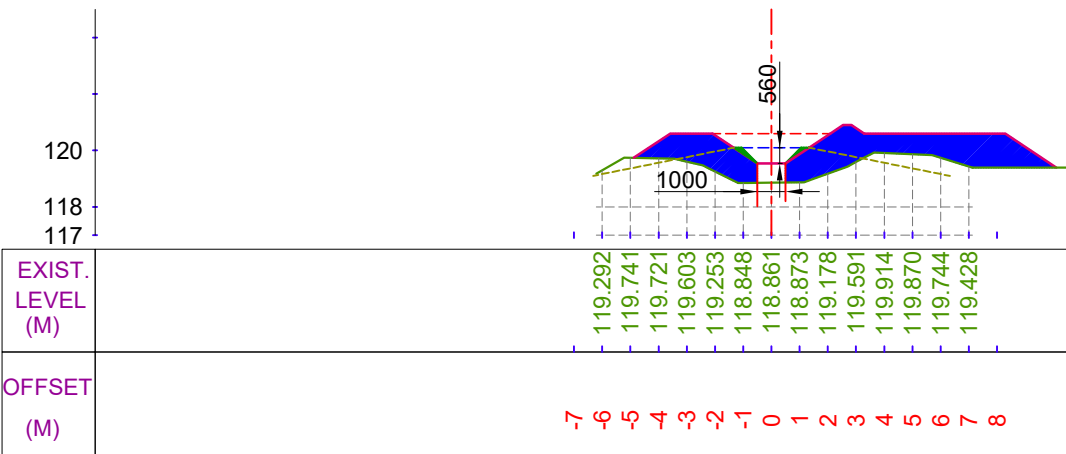
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

13 of 18

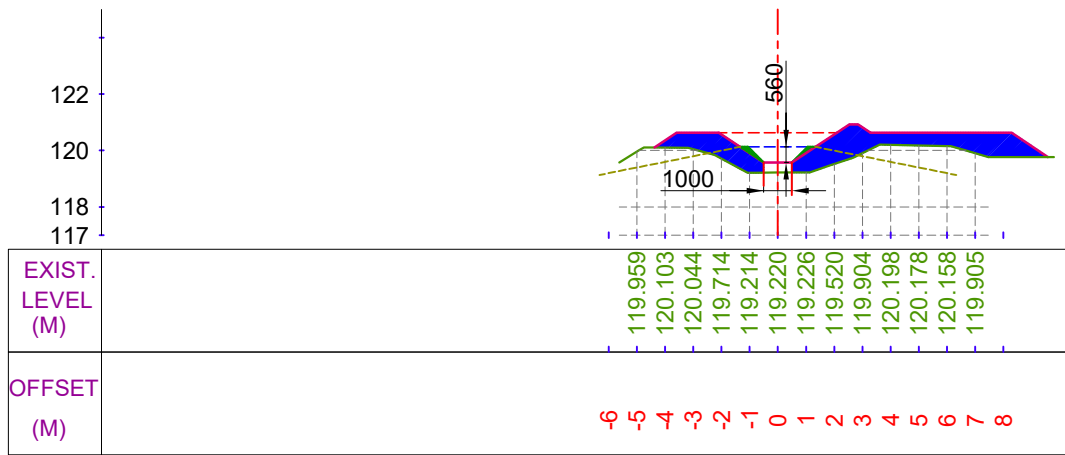
X SECTION OF SONDIH-I SUB-DY.



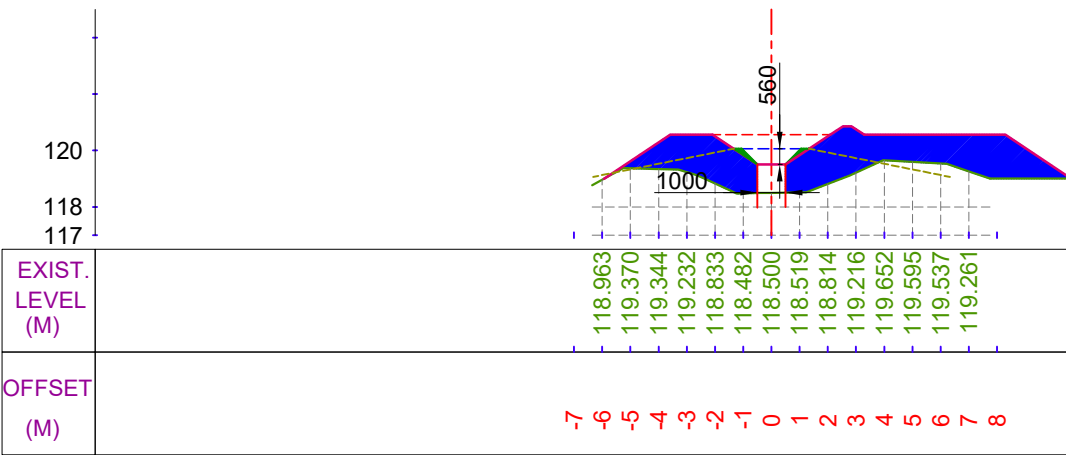
CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 4.055
CH. (KM):- 5+300
DESIGNED BED LEVEL = 119.602 M



CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 12.820
CH. (KM):- 5+500
DESIGNED BED LEVEL = 119.535 M



CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 8.222
CH. (KM):- 5+400
DESIGNED BED LEVEL = 119.569 M

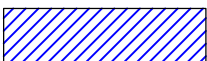


CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 17.316
CH. (KM):- 5+600
DESIGNED BED LEVEL = 119.502 M

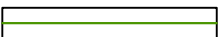
LEGEND



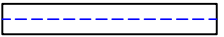
CUT AREA



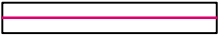
FILL AREA



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 :-

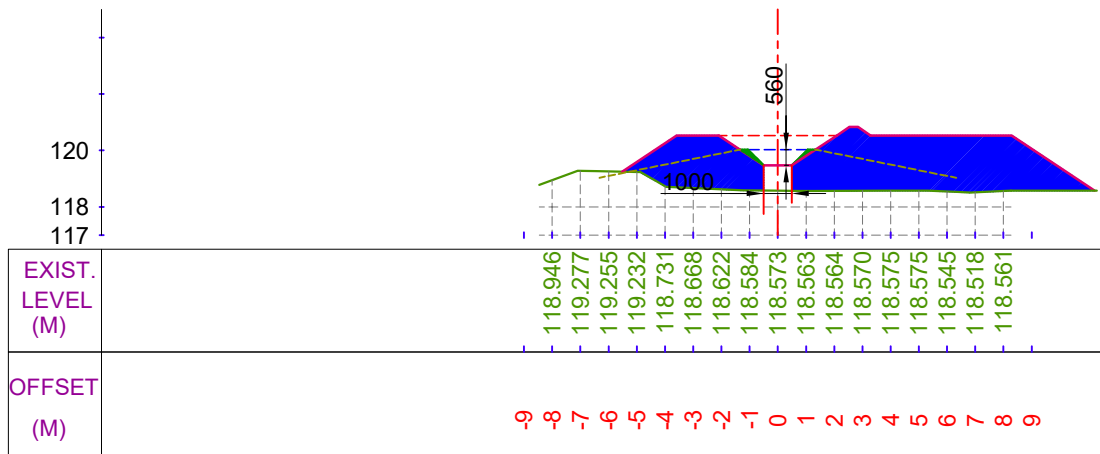
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

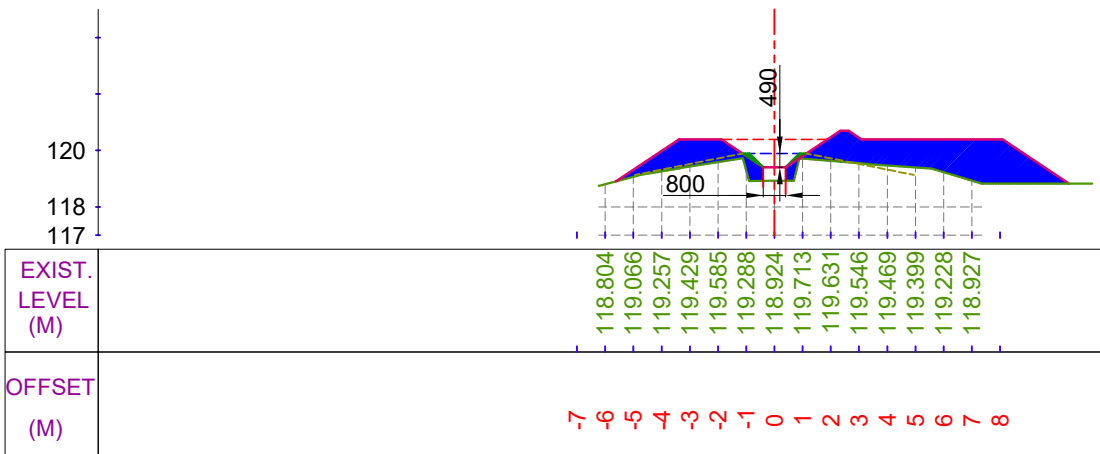
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

14 of 18

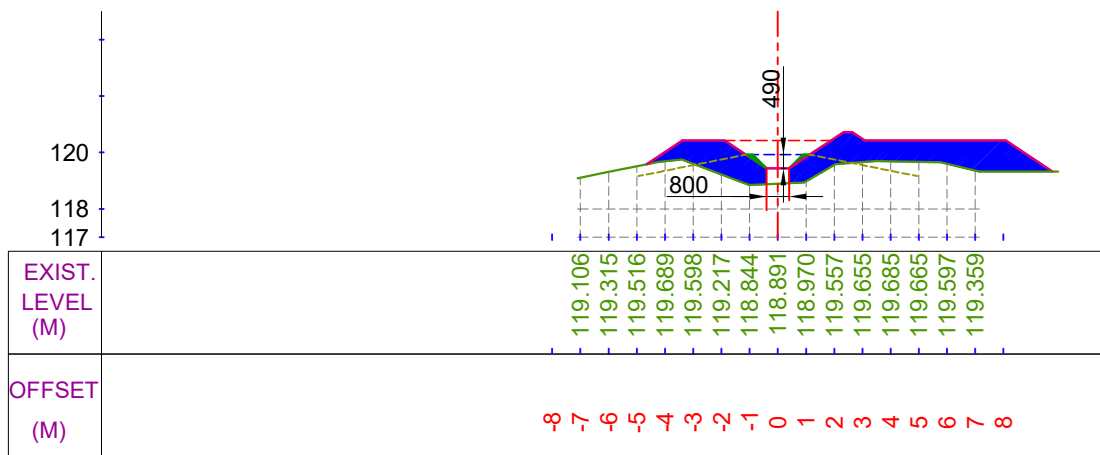
X SECTION OF SONDIH-I SUB-DY.



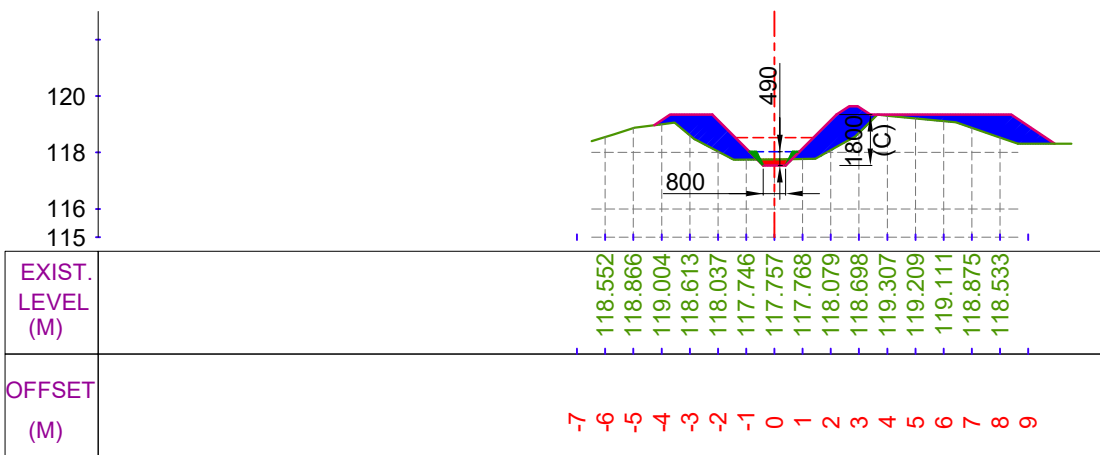
CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 24.332
CH. (KM):- 5+700
DESIGNED BED LEVEL = 119.469 M



CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 12.726
CH. (KM):- 5+900
DESIGNED BED LEVEL = 119.402 M



CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 10.993
CH. (KM):- 5+800
DESIGNED BED LEVEL = 119.435 M

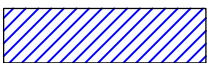


CUTTING AREA (SQ.M) = 0.198
FILLING AREA (SQ.M) = 2.303
CH. (KM):- 6+000
DESIGNED BED LEVEL = 117.539 M

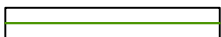
LEGEND



CUT AREA



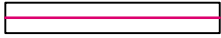
FILL AREA



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 :-

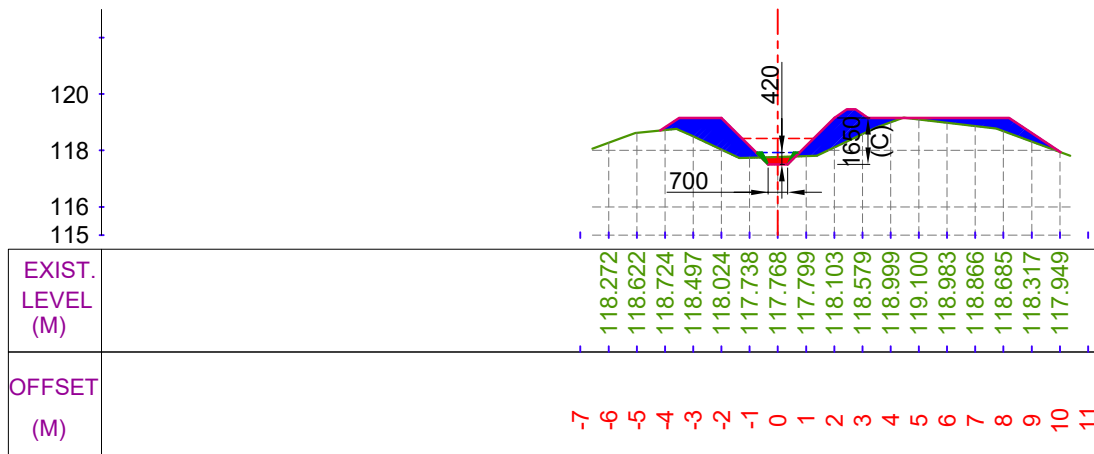
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

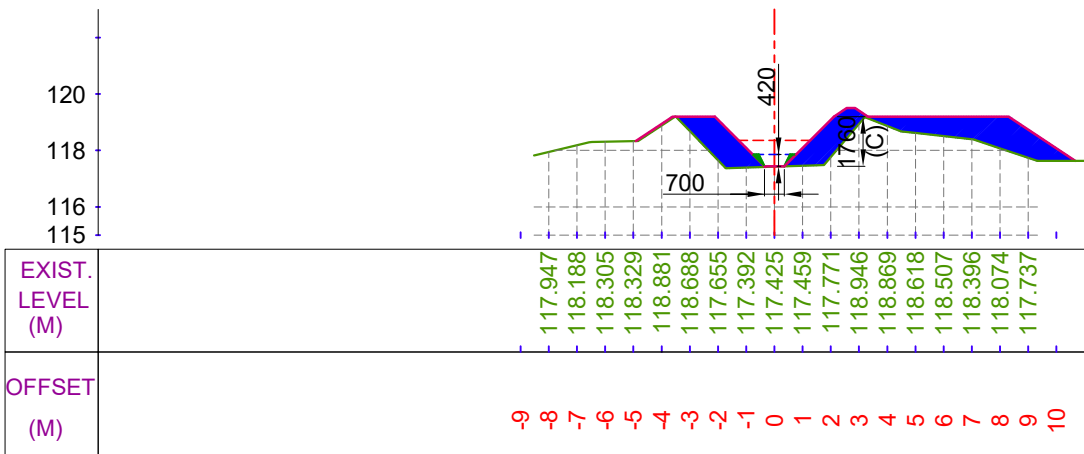
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

15 of 18

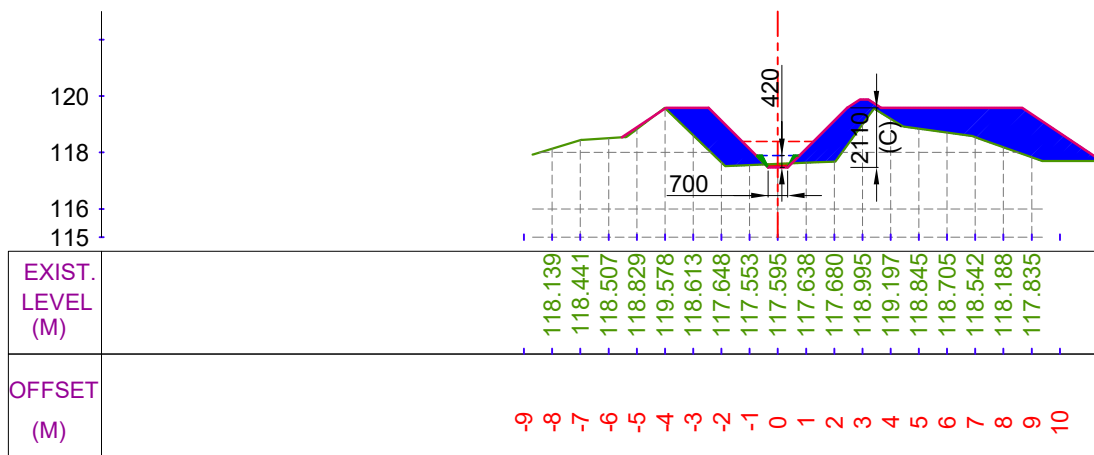
X SECTION OF SONDIH-I SUB-DY.



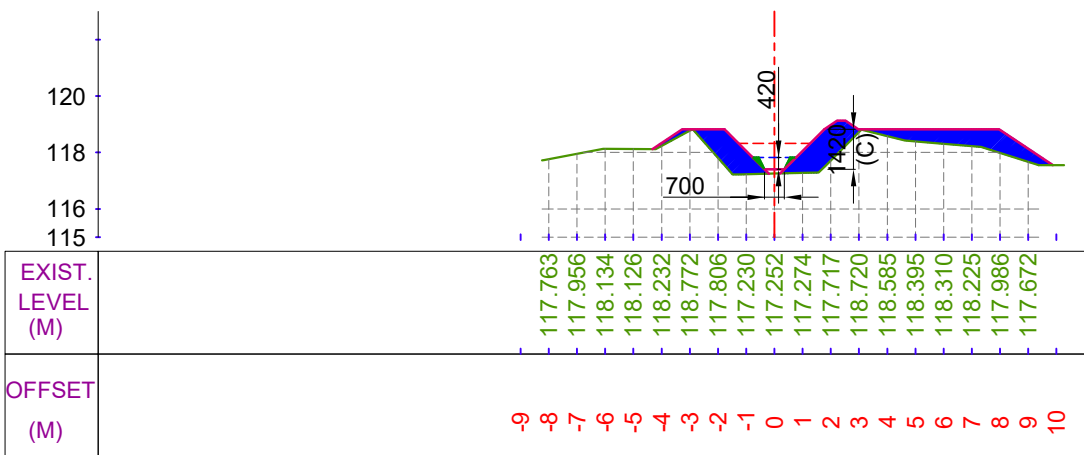
CUTTING AREA (SQ.M) = 0.219
FILLING AREA (SQ.M) = 5.770
CH. (KM):- 6+100
DESIGNED BED LEVEL = 117.505 M



CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 10.014
CH. (KM):- 6+300
DESIGNED BED LEVEL = 117.439 M



CUTTING AREA (SQ.M) = 0.102
FILLING AREA (SQ.M) = 12.994
CH. (KM):- 6+200
DESIGNED BED LEVEL = 117.472 M



CUTTING AREA (SQ.M) = 0.000
FILLING AREA (SQ.M) = 7.489
CH. (KM):- 6+400
DESIGNED BED LEVEL = 117.405 M

LEGEND

	CUT AREA		EXISTING BED LINE
	FILL AREA		DESIGNED BED LINE
			F.S.L.
			H.G. LINE

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

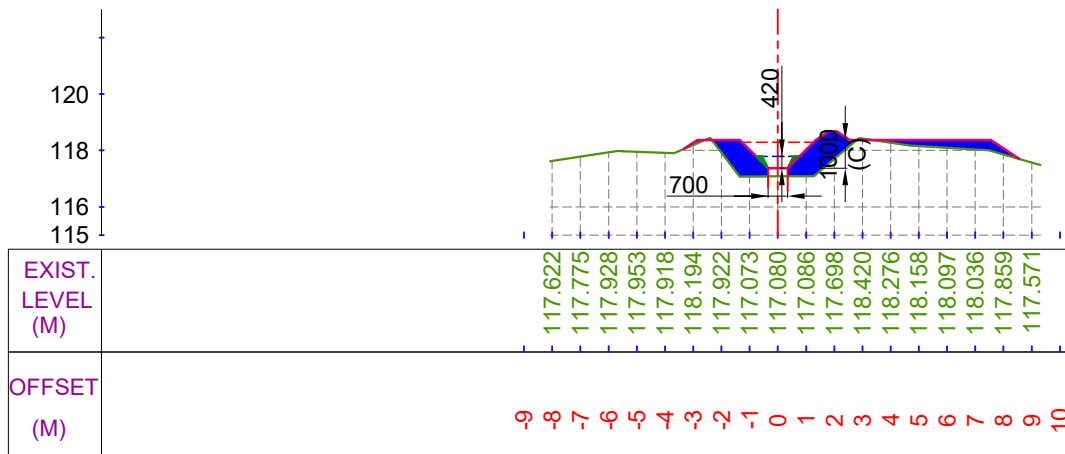
Drawing Title :-

X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

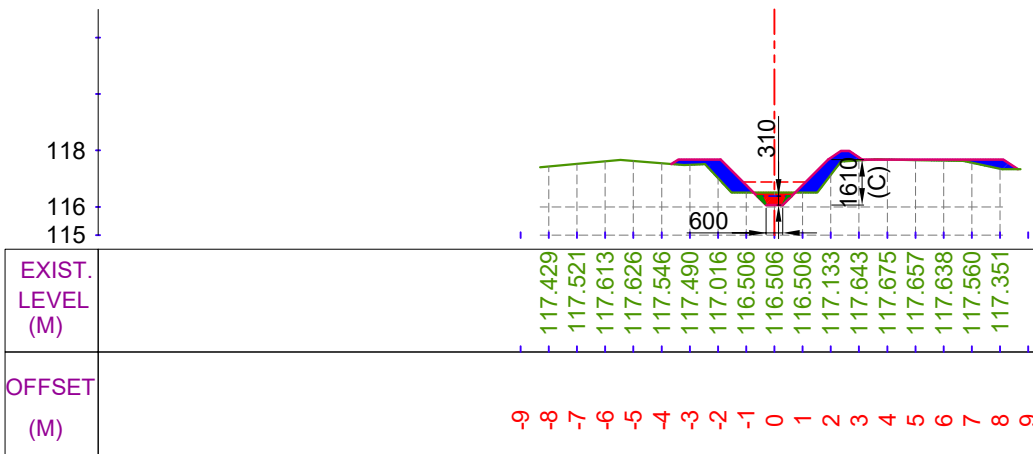
Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

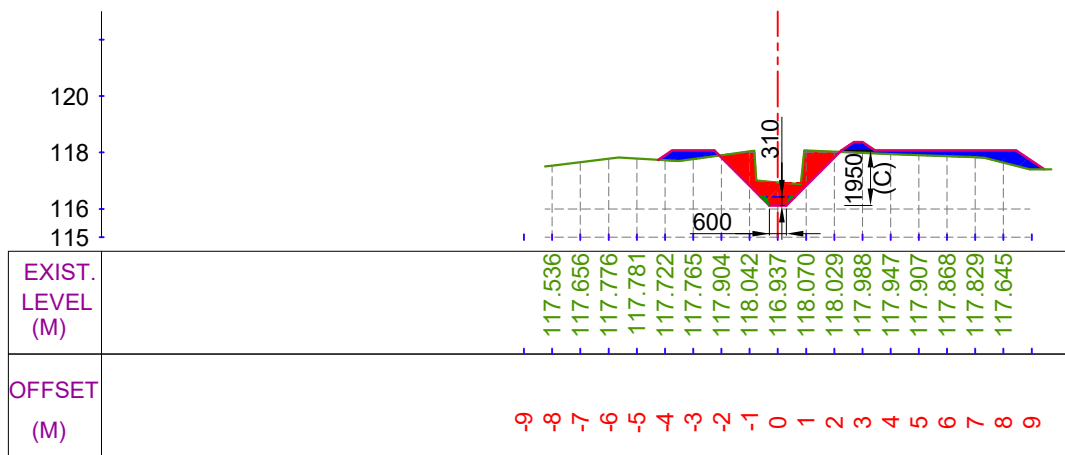
X SECTION OF SONDIH-I SUB-DY.



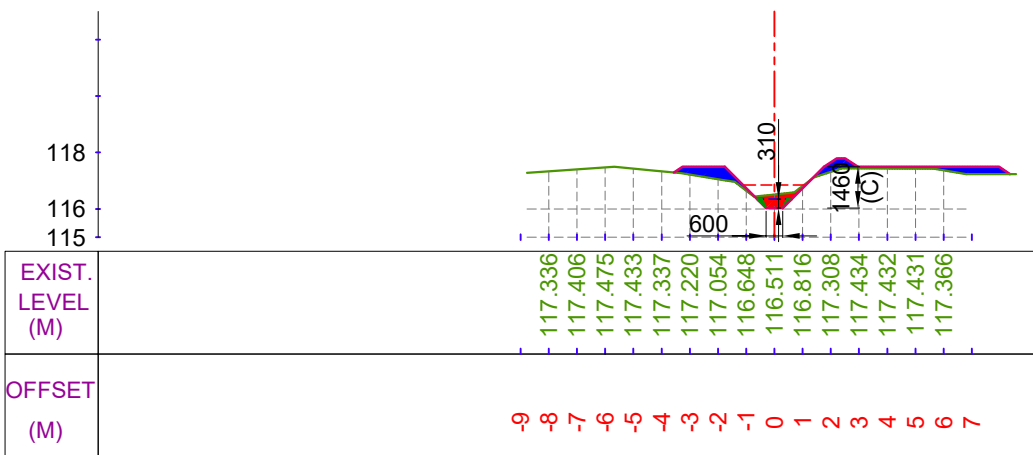
CUTTING AREA (SQ.M) = 0.026
FILLING AREA (SQ.M) = 4.516
CH. (KM):- 6+500
DESIGNED BED LEVEL = 117.372 M



CUTTING AREA (SQ.M) = 0.405
FILLING AREA (SQ.M) = 2.540
CH. (KM):- 6+700
DESIGNED BED LEVEL = 116.069 M



CUTTING AREA (SQ.M) = 2.875
FILLING AREA (SQ.M) = 2.302
CH. (KM):- 6+600
DESIGNED BED LEVEL = 116.119 M

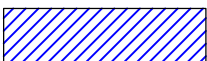


CUTTING AREA (SQ.M) = 0.506
FILLING AREA (SQ.M) = 1.884
CH. (KM):- 6+800
DESIGNED BED LEVEL = 116.035 M

LEGEND



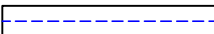
CUT AREA



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 :-

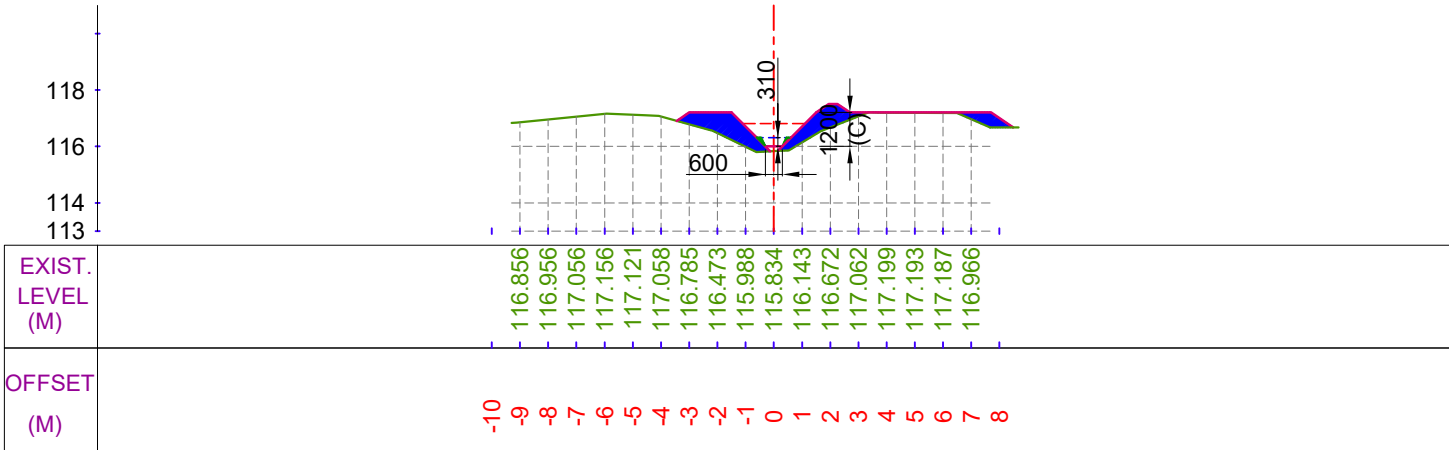
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

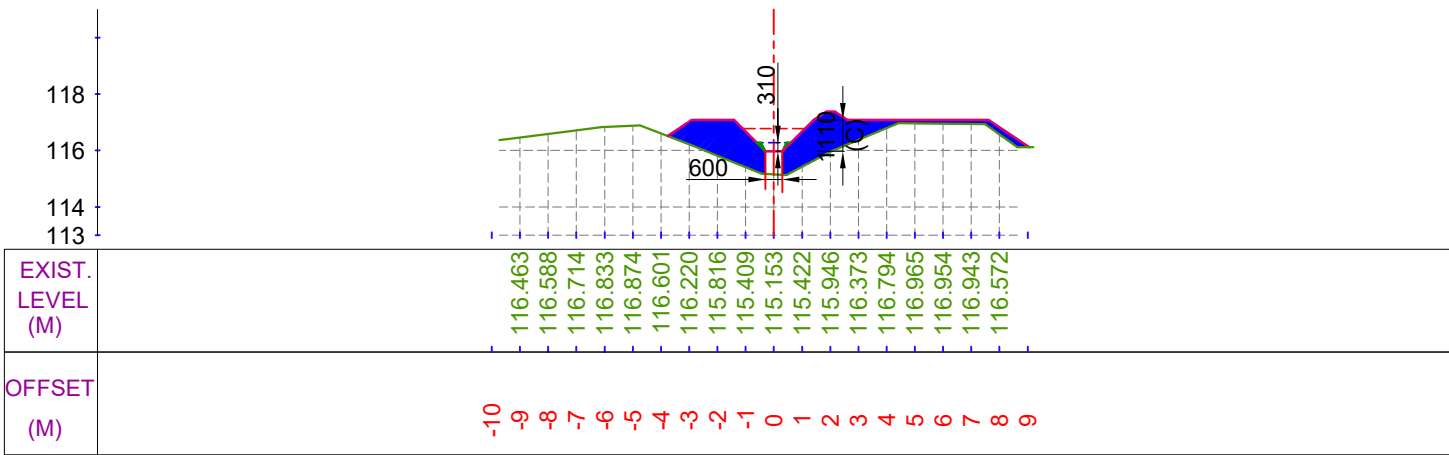
17 of 18

X SECTION OF SONDIH-I SUB-DY.



CH. (KM):- 6+900

DESIGNED BED LEVEL = 116.002 M



CH. (KM):- 7+000

DESIGNED BED LEVEL = 115.969 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 :-

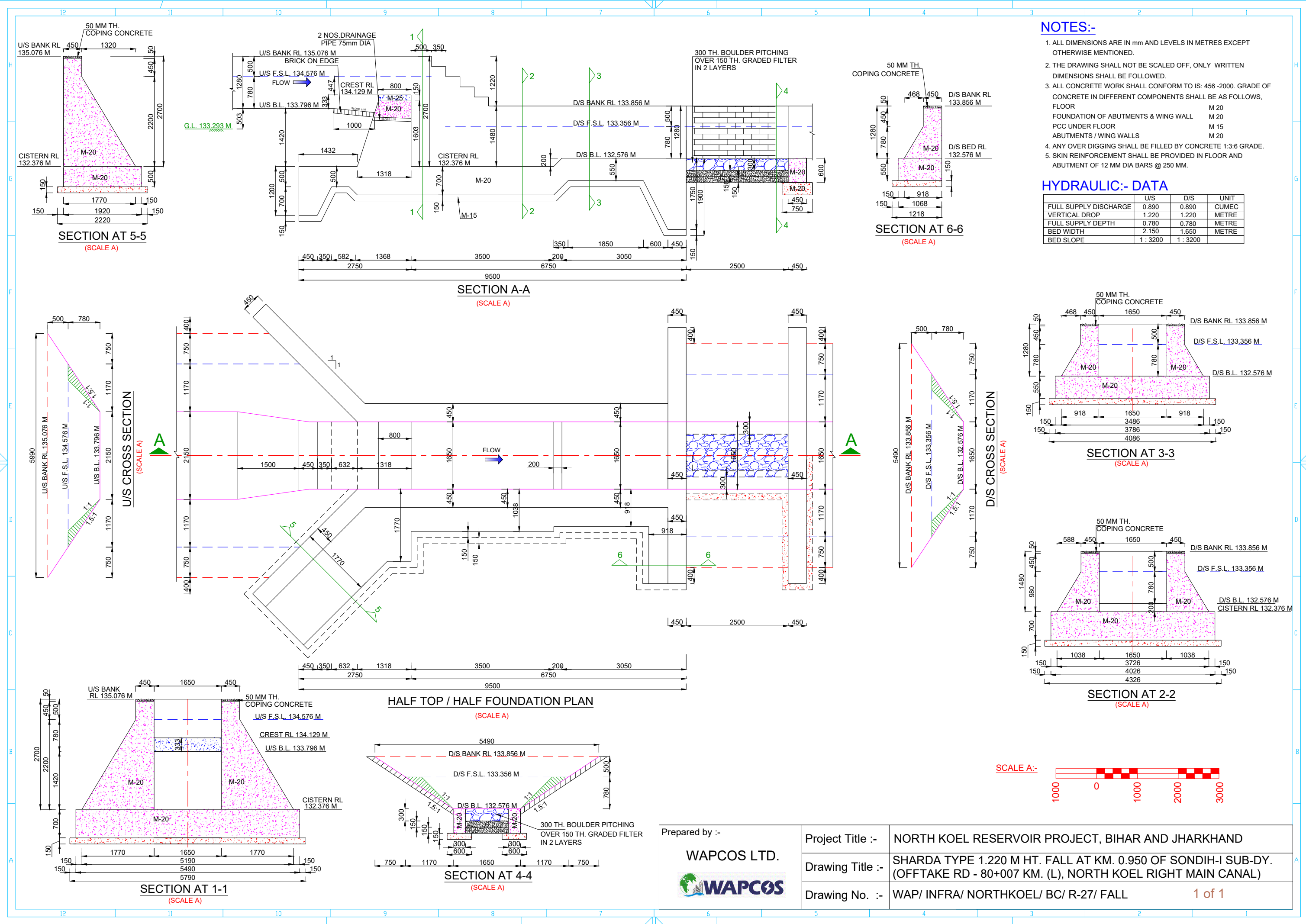
X SEC OF SONDIH-I SUB-DY. (OFFTAKE FROM RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ XSEC-

18 of 18

DRAWING OF STRUCTURES

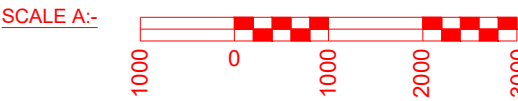


NOTES:-

- 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	0.890	0.890	CUMEC
VERTICAL DROP	1.220	1.220	METRE
FULL SUPPLY DEPTH	0.780	0.780	METRE
BED WIDTH	2.150	1.650	METRE
BED SLOPE	1 : 3200	1 : 3200	



Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

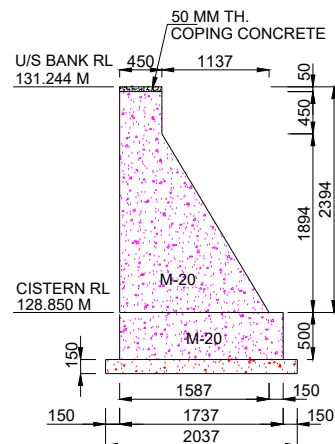
Drawing Title :-

SHARDA TYPE 1.220 M HT. FALL AT KM. 0.950 OF SONDIH-I SUB-DY. (OFFTAKE RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

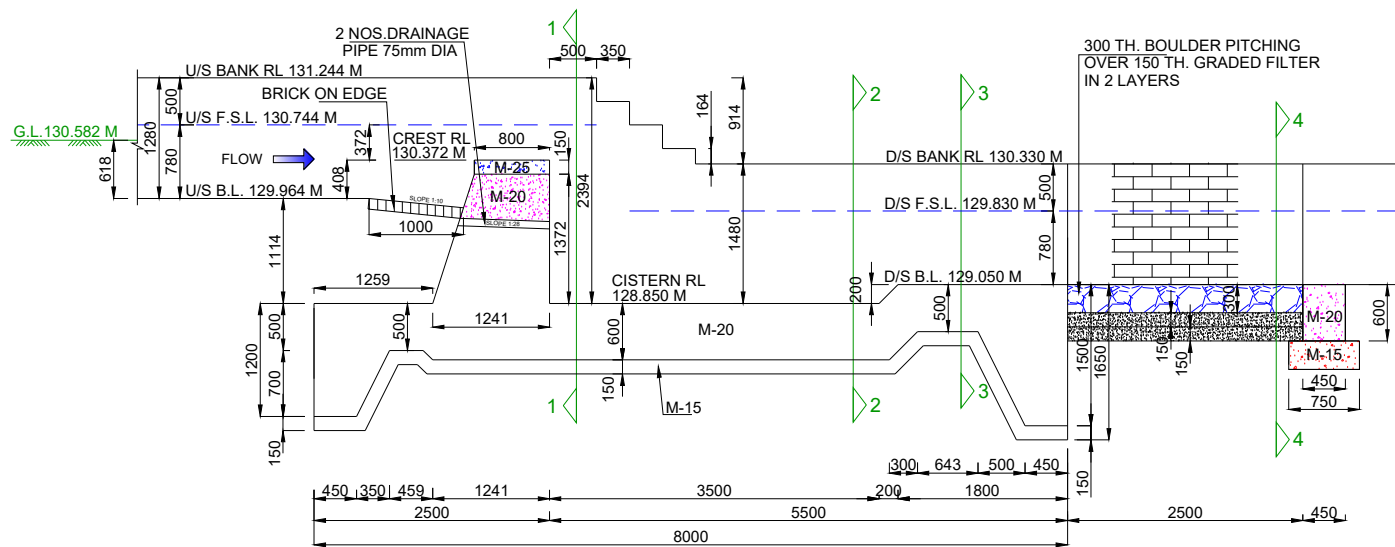
Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ FALL

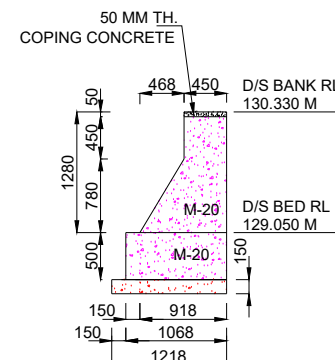
1 of 1



SECTION AT 5-5
(SCALE A)



SECTION A-A
(SCALE A)



SECTION AT 6-6
(SCALE A)

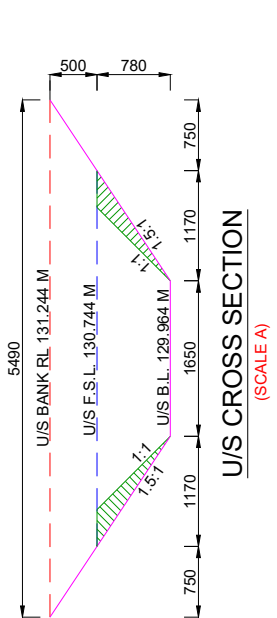
NOTES:-

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,

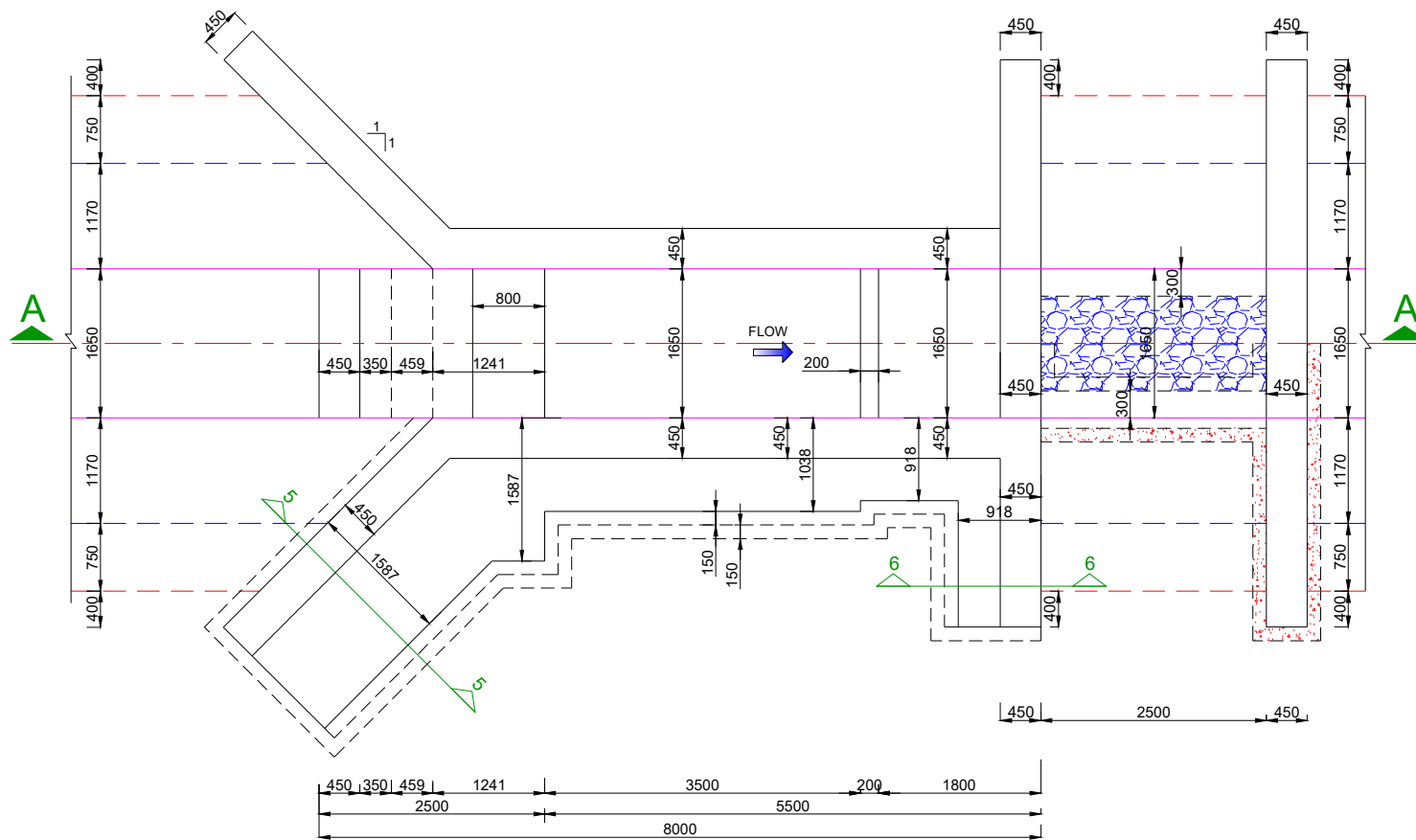
FLOOR	M 20
FOUNDATION OF ABUTMENTS & WING WALL	M 20
PCC UNDER FLOOR	M 15
ABUTMENTS / WING WALLS	M 20
4. ANY OVER DIGGING SHALL BE FILLED BY CONCRETE 1:3:6 GRADE.
5. SKIN REINFORCEMENT SHALL BE PROVIDED IN FLOOR AND ABUTMENT OF 12 MM DIA BARS @ 250 MM.

HYDRAULIC:- DATA

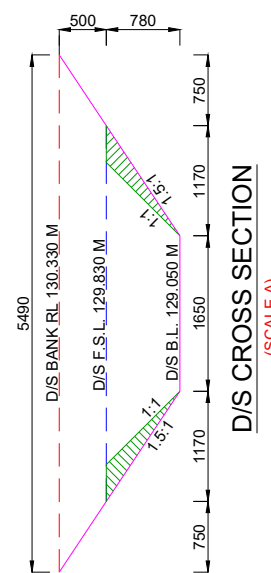
	U/S	D/S	UNIT
FULL SUPPLY DISCHARGE	0.660	0.660	CUMEC
VERTICAL DROP	0.914	0.914	METRE
FULL SUPPLY DEPTH	0.780	0.780	METRE
BED WIDTH	1.650	1.650	METRE
BED SLOPE	1 : 3200	1 : 3200	



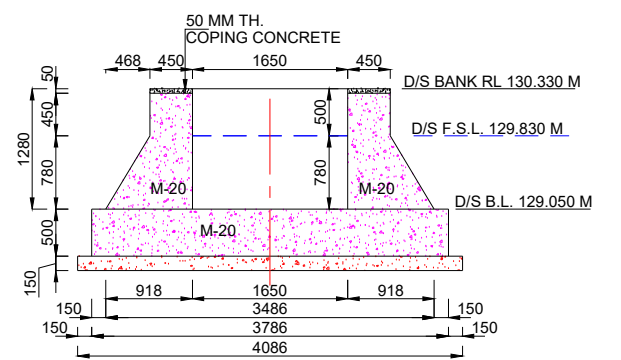
U/S CROSS SECTION
(SCALE A)



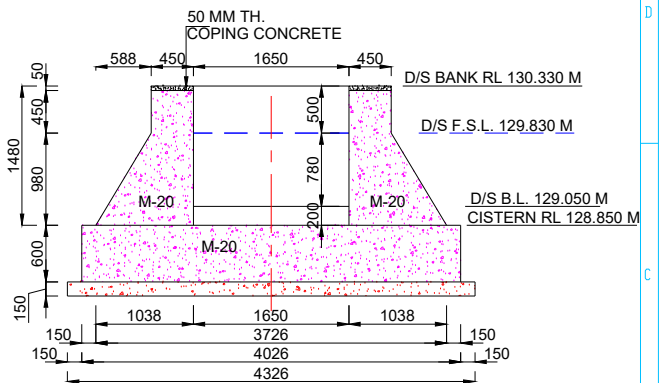
HALF TOP / HALF FOUNDATION PLAN
(SCALE A)



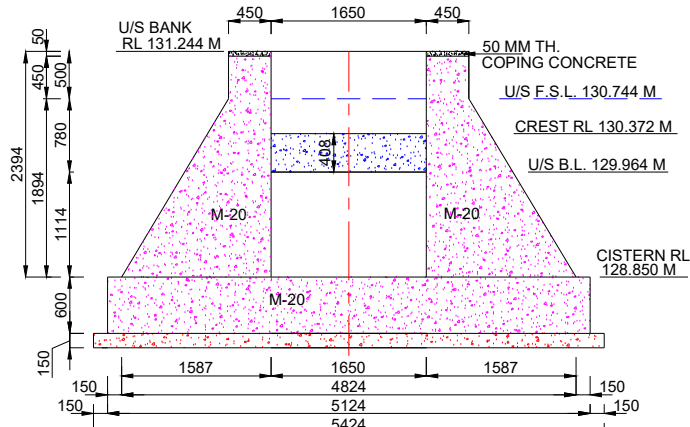
D/S CROSS SECTION
(SCALE A)



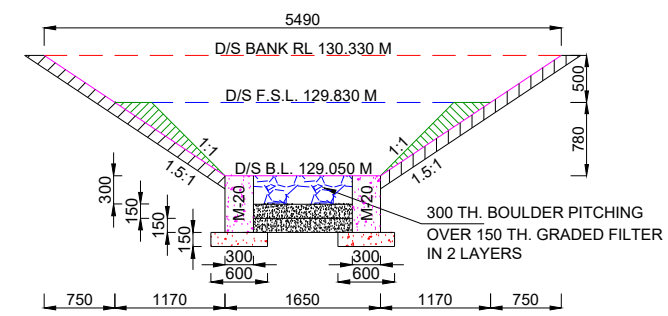
SECTION AT 3-3
(SCALE A)



SECTION AT 2-2
(SCALE A)

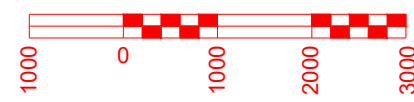


SECTION AT 1-1
(SCALE A)



SECTION AT 4-4
(SCALE A)

SCALE A:-



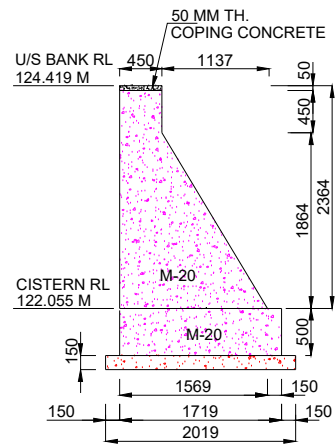
Prepared by :-

WAPCOS LTD.

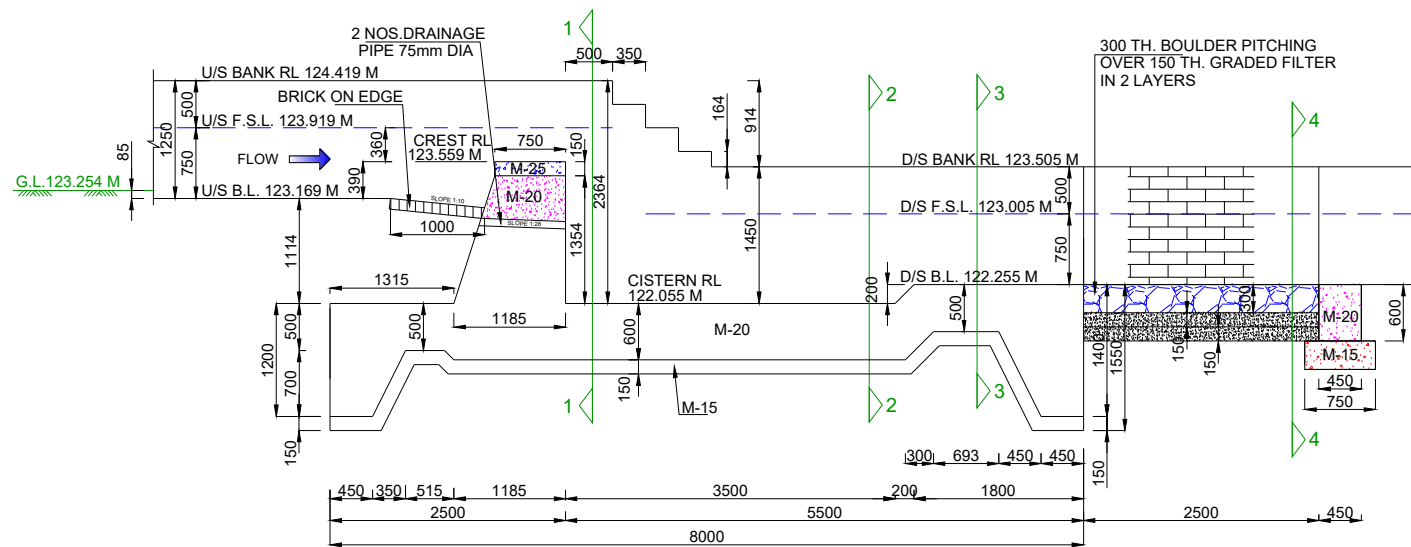


Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	SHARDA TYPE 0.914 M HT. FALL AT KM. 1.500 OF SONDIH-I SUB-DY. (OFFTAKE RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)
Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ FALL

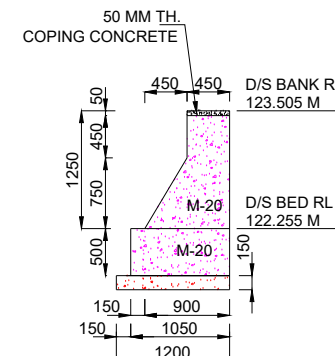
1 of 1



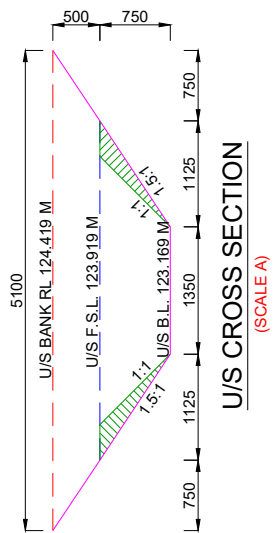
SECTION AT 5-5
(SCALE A)



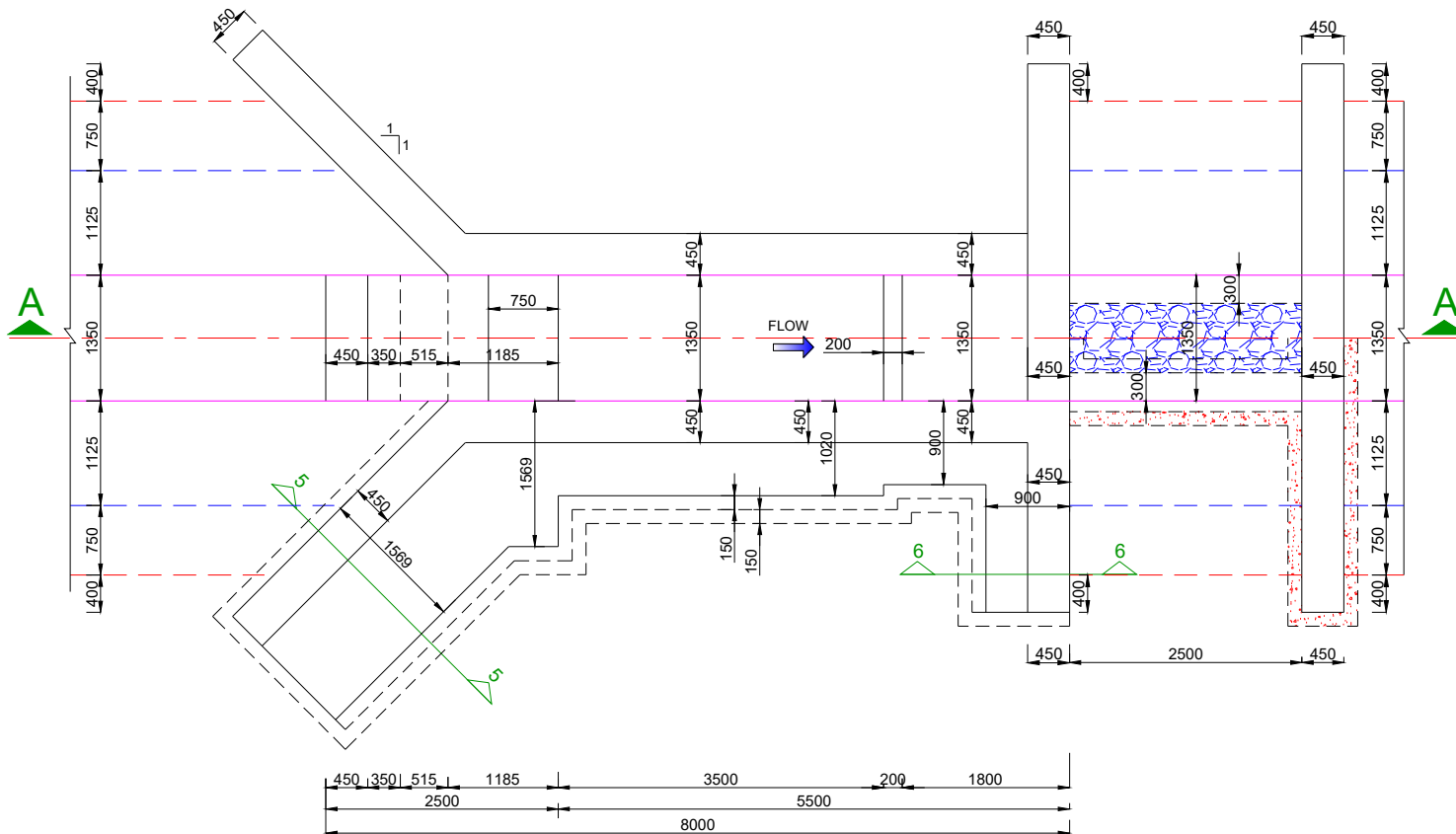
SECTION A-A
(SCALE A)



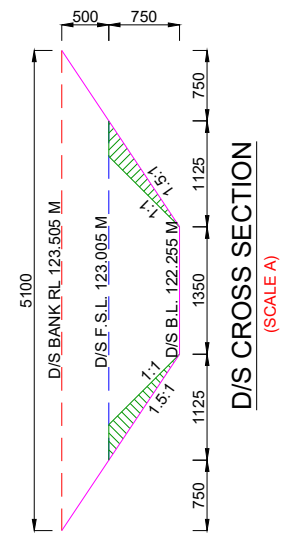
SECTION AT 6-6
(SCALE A)



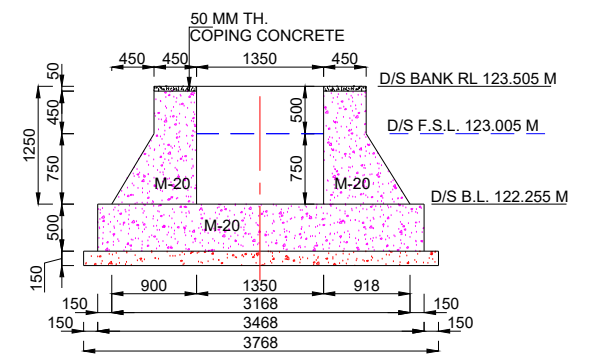
U/S CROSS SECTION
(SCALE A)



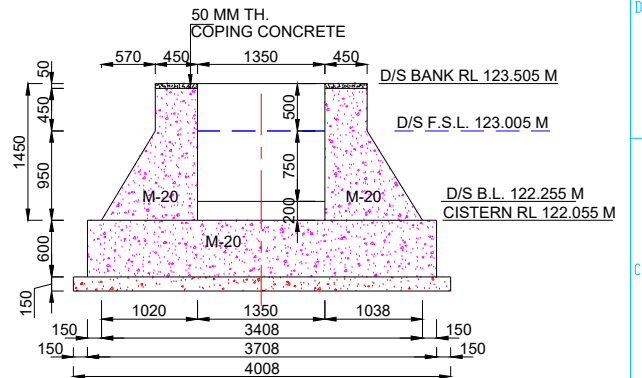
HALF TOP / HALF FOUNDATION PLAN
(SCALE A)



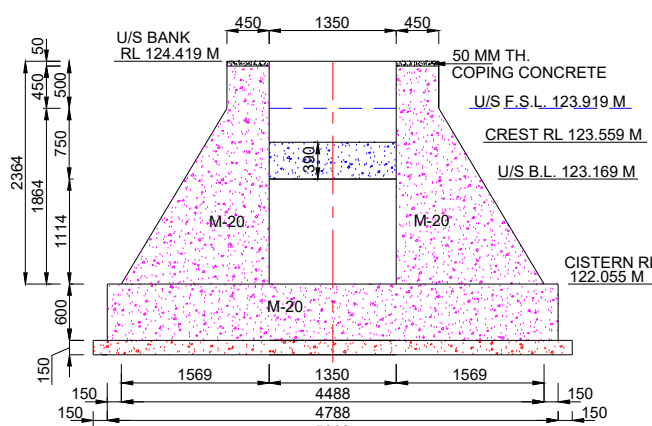
D/S CROSS SECTION
(SCALE A)



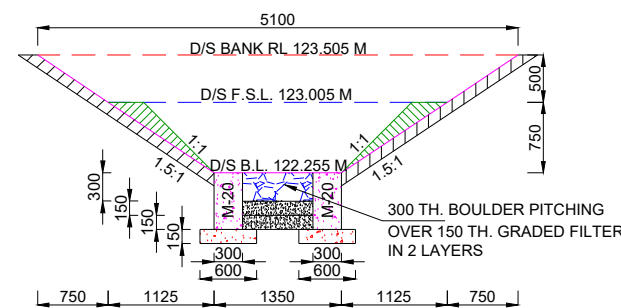
SECTION AT 3-3
(SCALE A)



SECTION AT 2-2
(SCALE A)



SECTION AT 1-1
(SCALE A)



SECTION AT 4-4
(SCALE A)

NOTES:-

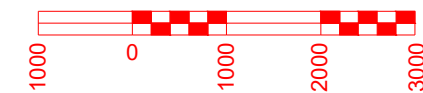
1. ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES EXCEPT OTHERWISE MENTIONED.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. ALL CONCRETE WORK SHALL CONFORM TO IS: 456 -2000. GRADE OF CONCRETE IN DIFFERENT COMPONENTS SHALL BE AS FOLLOWS,

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	0.520	0.520	CUMEC
VERTICAL DROP	0.914	0.914	METRE
FULL SUPPLY DEPTH	0.750	0.750	METRE
BED WIDTH	1.350	1.350	METRE
BED SLOPE	1 : 3200	1 : 3200	

SCALE A:-



Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

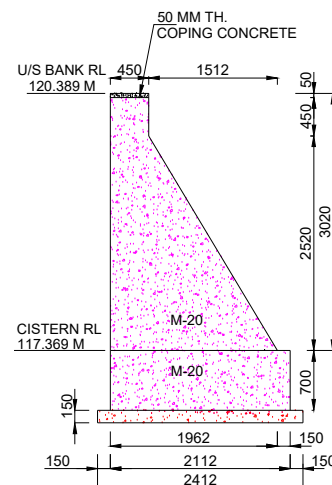
Drawing Title :-

SHARDA TYPE 0.914 M HT. FALL AT KM. 3.700 OF SONDIH-I SUB-DY. (OFFTAKE RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

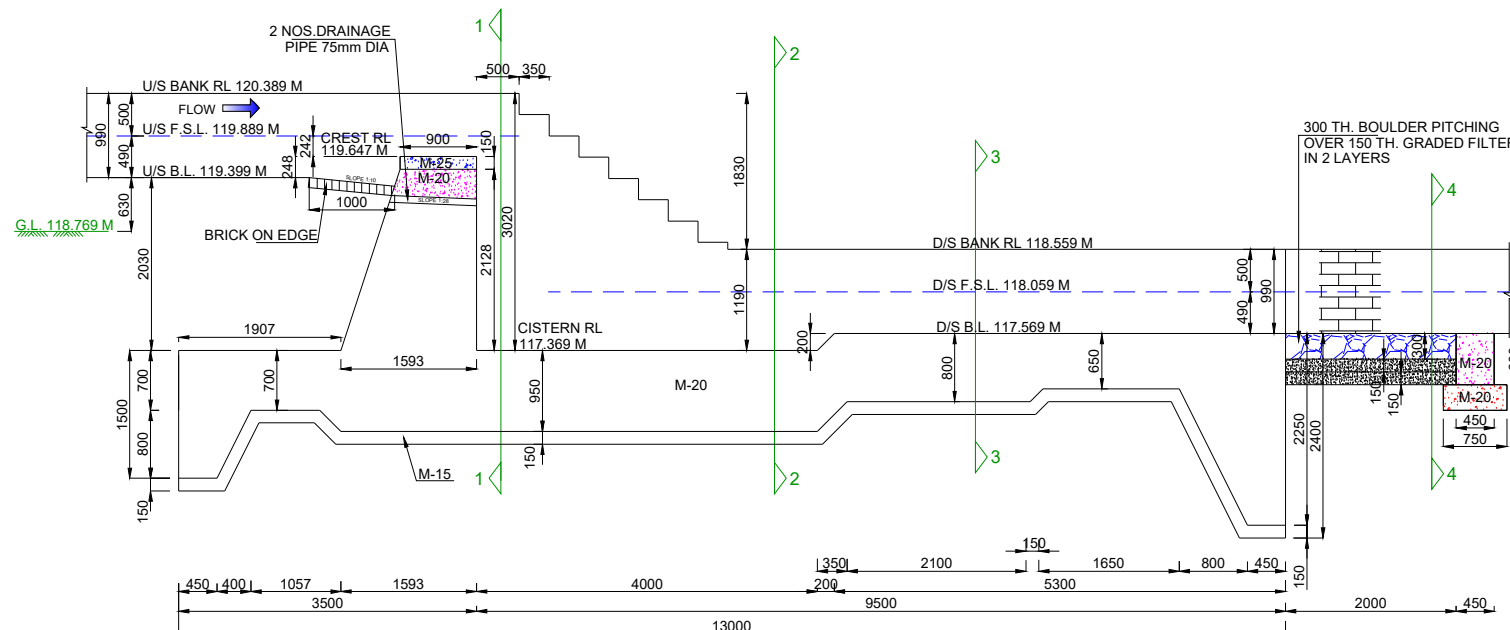
Drawing No. :-

WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ FALL

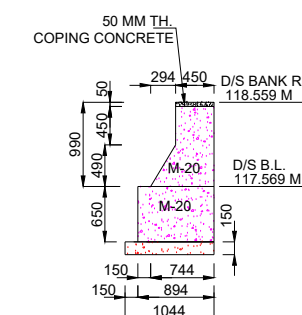
1 of 1



SECTION AT 5-5
(SCALE A)



SECTION A-A
(SCALE A)



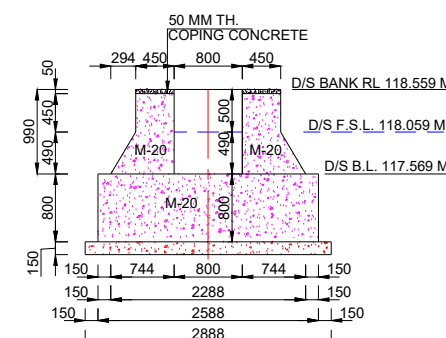
SECTION AT 6-6
(SCALE A)

NOTES:-

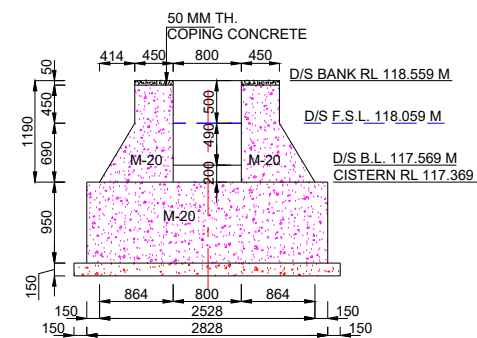
1. ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES EXCEPT OTHERWISE MENTIONED.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. ALL CONCRETE WORK SHALL CONFORM TO IS: 456 -2000. GRADE OF CONCRETE IN DIFFERENT COMPONENTS SHALL BE AS FOLLOWS, FLOOR M 20 FOUNDATION OF 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

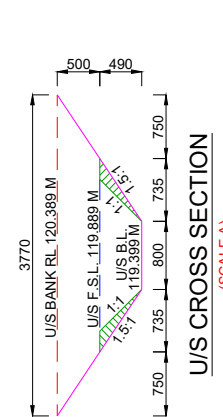
	U/S	D/S	UNIT
FULL SUPPLY DISCHARGE	0.150	0.150	CUMEC
VERTICAL DROP	1.830	1.830	METRE
FULL SUPPLY DEPTH	0.490	0.490	METRE
BED WIDTH	0.800	0.800	METRE
BED SLOPE	1 : 3000	1 : 3000	



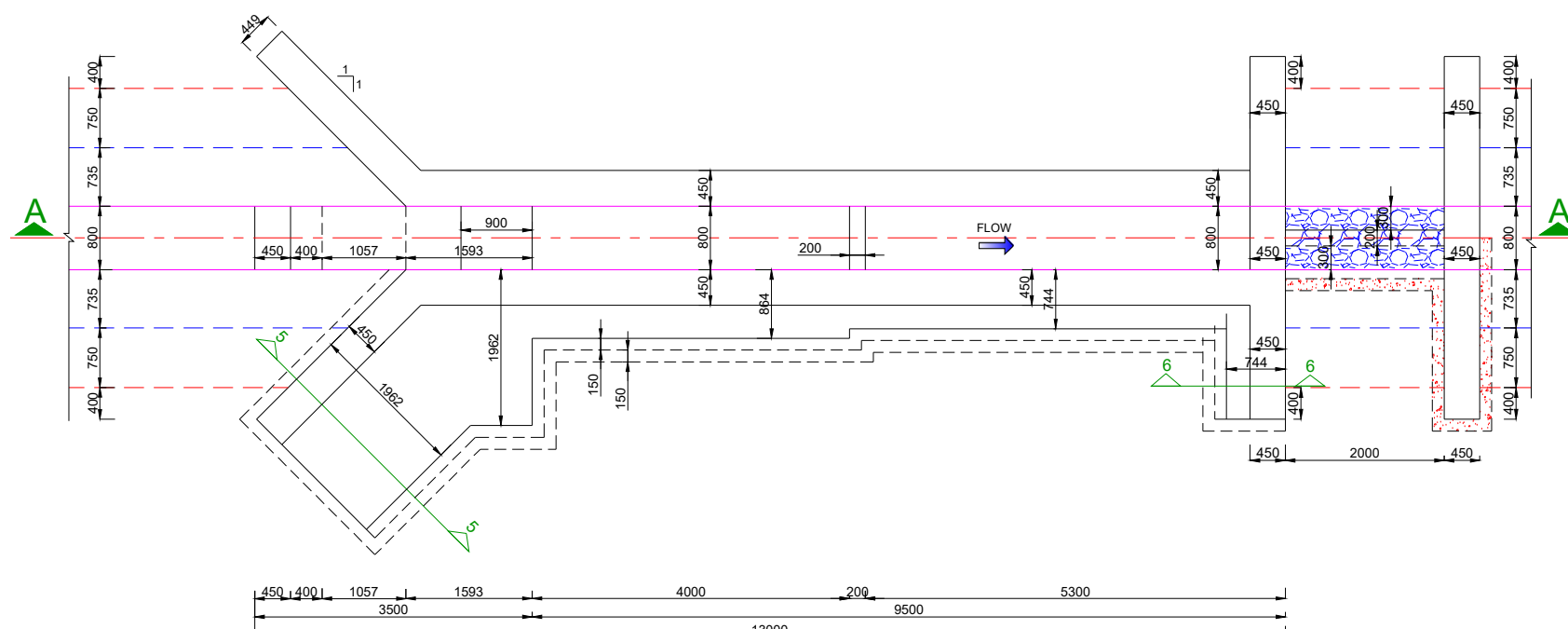
SECTION AT 3-3
(SCALE A)



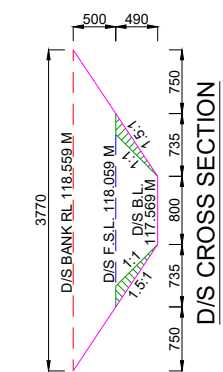
SECTION AT 2-2
(SCALE A)



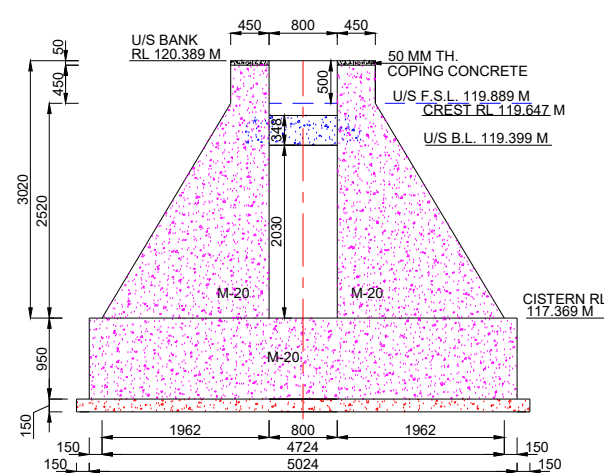
U/S CROSS SECTION
(SCALE A)



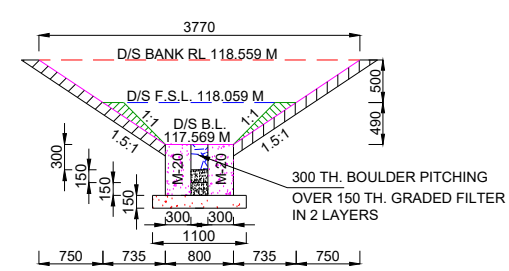
HALF TOP / HALF FOUNDATION PLAN
(SCALE A)



D/S CROSS SECTION
(SCALE A)

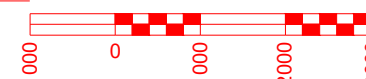


SECTION AT 1-1
(SCALE A)



SECTION AT 4-4
(SCALE A)

SCALE A:-



Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

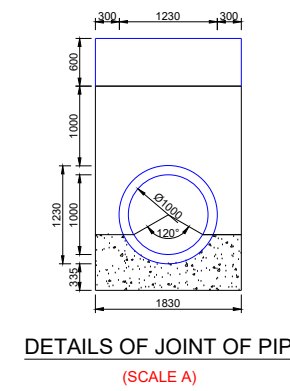
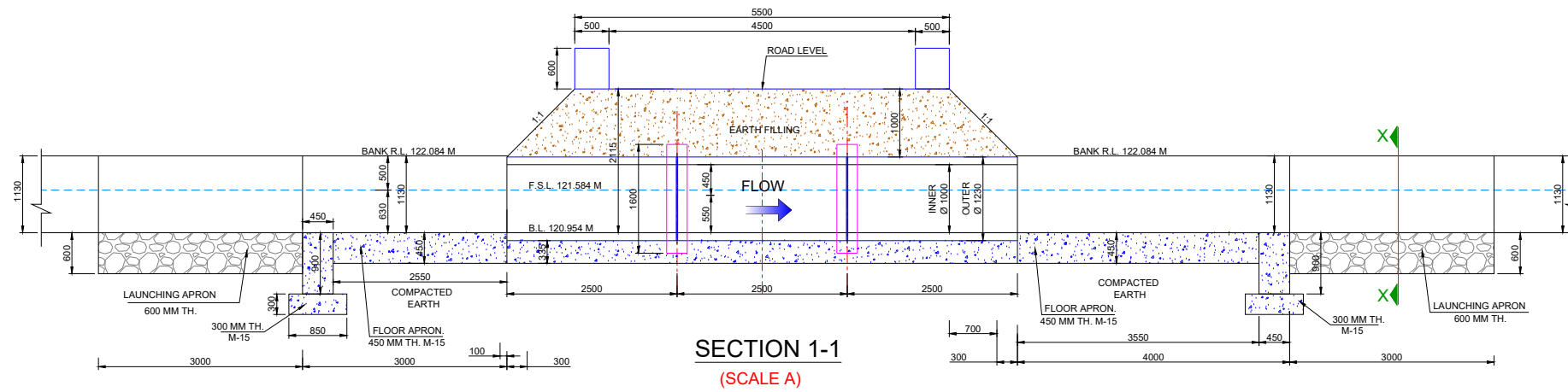
Drawing Title :-

SHARDA TYPE 1.830 M HT. FALL AT KM. 5.910 OF SONDIH-I SUB-DY. (OFFTAKE RD - 80+007 KM. (L), NORTH KOEL RIGHT MAIN CANAL)

Drawing No. :-

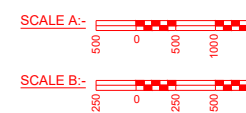
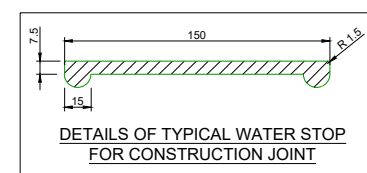
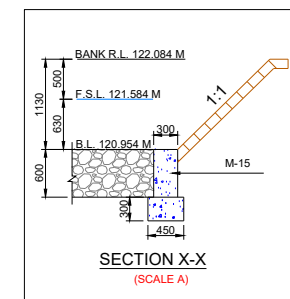
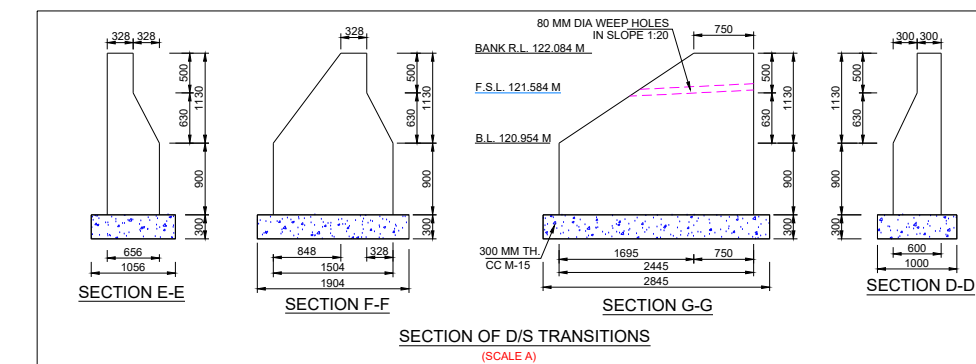
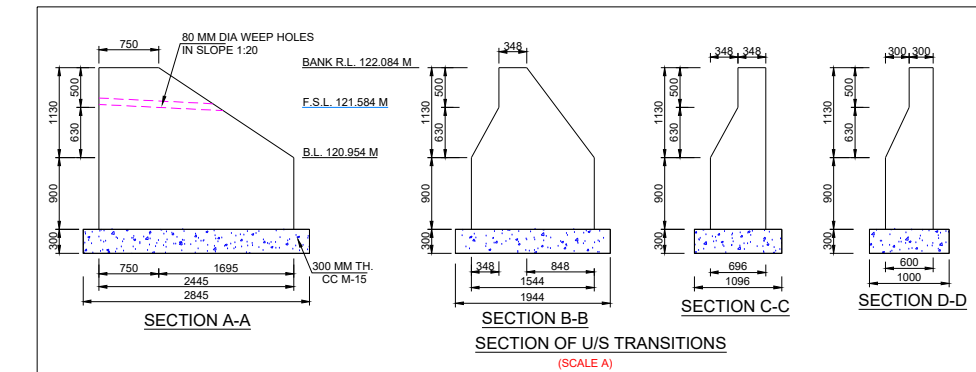
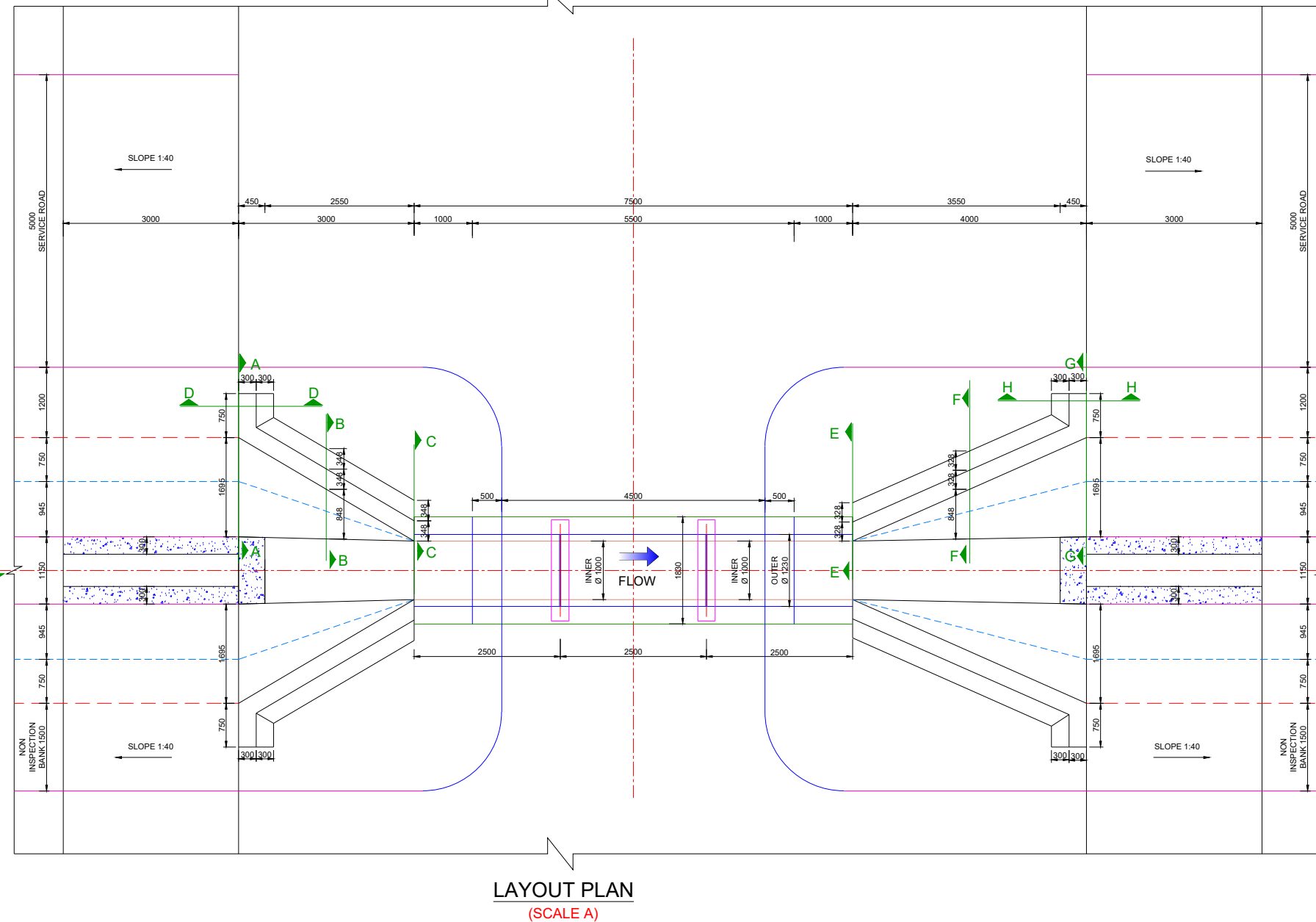
WAP/ INFRA/ NORTHKOEL/ BC/ R-27/ FALL

1 of 1

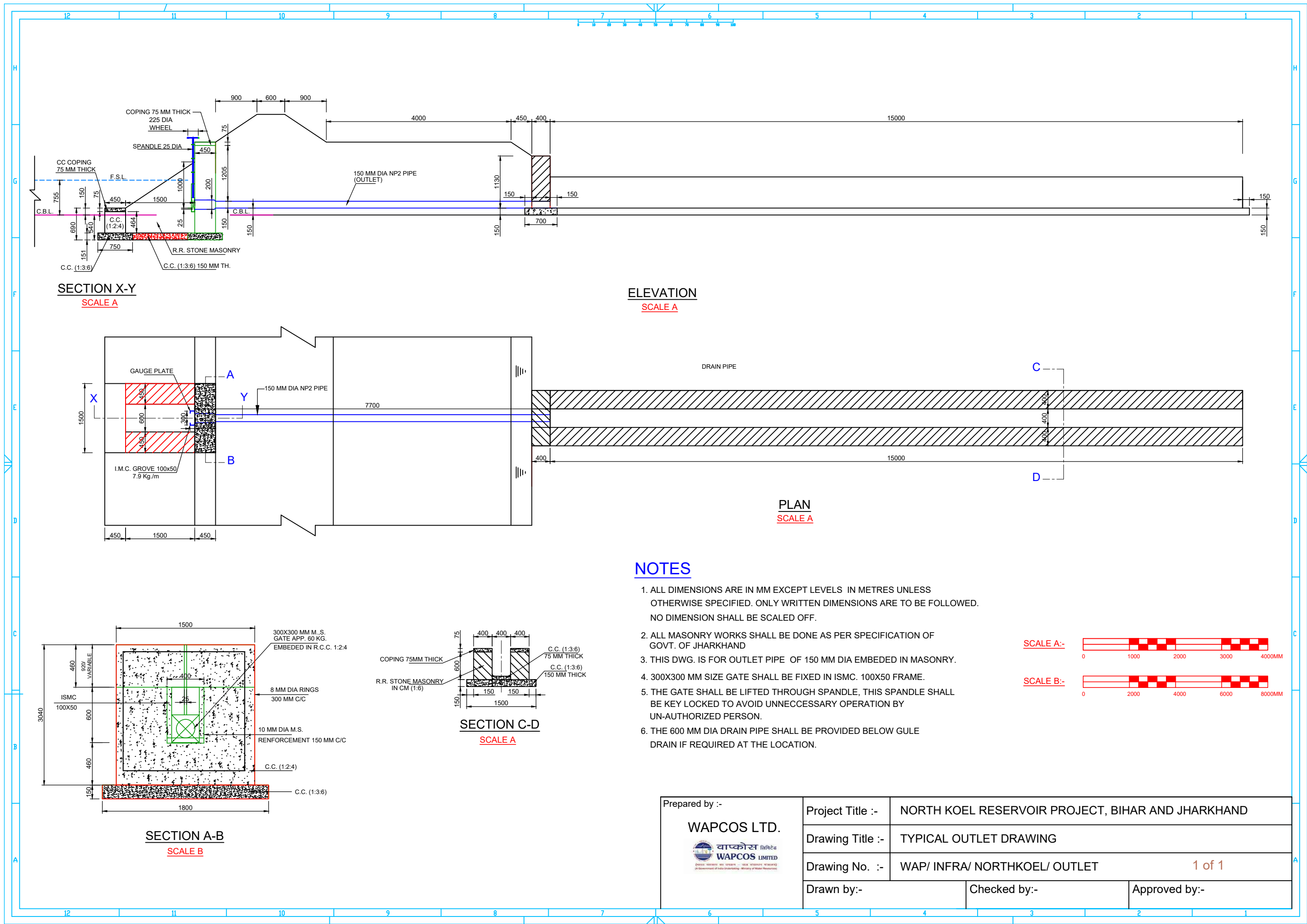


DESIGN DATA:-	
DISCHARGE	0.33 CUMEC
BED LEVEL	120.954 M
BED WIDTH	1.150 M
WATER DEPTH	0.630 M
FREE BOARD	0.500 M
CARRIAGE WAY	5.500 M
NO. OF PIPE	1 NOS.
SIDE SLOPE	1 IN 1
INTERNAL DIA OF PIPE	1.000 M

- NOTES :-**
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES EXCEPT OTHERWISE MENTIONED.
 - THE DRAWING SHALL NOT TO BE SCALED OFF ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - ALL CONCRETE WORK SHALL CONFORM TO IS: 456, GRADE OF CONCRETE IN DIFFERENT COMPONENT SHALL BE
TRANSITION WALL M-20
BASE CONCRETE & CURTAIN WALL M-15
- TRANSITIONS WALL**
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES EXCEPT OTHERWISE MENTIONED.
 - THE DRAWING SHALL NOT TO BE SCALED OFF ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - WEEP HOLES WITH A DIAMETER OF 80MM, SPACED AT 1500MM IN A STAGGERED ARRANGEMENT, SHALL BE PROVIDED IN THE TRANSITION WALL WITH A 1:20 SLOPE TOWARDS THE CANAL TO ENSURE PROPER DRAINAGE.
 - SKIN REINFORCEMENT OF 12 Ø @ 250 MM C/C FOR TEMPERATURE STRESSES SHALL BE PROVIDED IN TRANSITIONS WALL.
 - MIN. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 MM OR UNLESS OTHERWISE SPECIFIED.

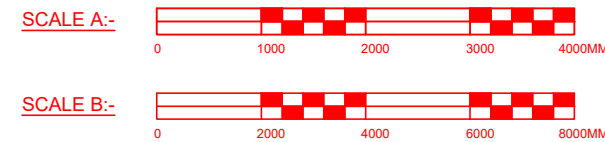


Prepared by :- WAPCOS LTD.	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :- GENERAL ARRANGEMENT DRAWING OF PIPE BRIDGE AT KM 4.990 OF SONDIH-I SUB-DY.
Drawing No. :-	WAP/ INFRA/ NORTHKOEL/ BC/ R-27/PIPE BRG. 1 of 1



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:-	