GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.8 FROM KM 329.450 TO 338.800/340.000)

HYDRAULIC PARTICULARS OF AVR HNSS MAIN CANAL(STAGE-II) FROM KM 329.450 TO 338.800/340.000

SL. No	Reach No.	Reach in KM			Hydraulic Particulars								Loss (m)			Bed Level		Full Supply Level		Remarks	
		From	To	Distance (In Mts)	Required Discharge (Cumecs)	Bed Width (In Mts)	F.S.D (In Mts)	Surface Fall	Side Slopes	Value of n	Velocity M/Sec	Designed Discharge (Cumecs)	Due To Bed Fall	DueTo CM & CD Structures	Total	At Start (M)	At End (M)	At Start (M)	At End (M)		
1		2	3	4	5	6	7	8	9	10	14	15	16	17	18	19	20	21	22	23	24
1		320.000	329.450		51.680	10.30	3.25	6500	1.00:1								448.295		451.545	HYDRAULIC PARTICULARS ALREADY APPROVED FROM KM 320.000 TO 329.450	
2		329.450	329.500	50	Transition		3.25	1: 6425					0.008	0.00	0.008	448.295	448.287	451.545	451.537		
3		329.500	330.050	550	51.680	11.60	3.25	1: 6350	0.50:1	0.018	1.207	51.880	0.087	0.00	0.087	448.287	448.201	451.537	451.451	DEEP CUTTING ALL SOILS/HDR F&F / HR	
4		330.050	330.100	50	Transition		3.25	1: 7175					0.007	0.00	0.007	448.201	448.194	451.451	451.444	-	
5		330.100	330.525	425	51.680	11.40	3.25	1: 8000	1.00:1	0.018	1.086	51.711	0.053	0.00	0.053	448.194	448.141	451.444	451.391	PARTIAL CUTTING & PARTIAL EMBAKMENT ALL SOILS HDR, F&F / HR	
6		330.525	330.575	50	Transition		3.25	1: 9000					0.006	0.00	0.006	448.141	448.135	451.391	451.385		
7		330.575	331.000	425	51.680	11.60	3.25	1: 10000	1.50:1	0.018	0.967	51.774	0.043	0.00	0.043	448.135	448.092	451.385	451.342	PARTIAL CUTTING & PARTIAL EMBAKMENT ALL SOILS	SLRB @ KM 330.625 UT @ KM 330.682 SLRB @ KM 330.960
8		331.000	331.050	50	Transition		3.25	1: 10500					0.005	0.00	0.005	448.092	448.088	451.342	451.338	-	
9		331.050	331.450	400	51.680	11.10	3.25	1: 11000	2.00:1	0.018	0.905	51.738	0.036	0.00	0.036	448.088	448.051	451.338	451.301	EMBAKMENT ALL SOILS	UT @ KM 331.445
10		331.450	331.500	50	Transition		3.25	1: 10500					0.005	0.00	0.005	448.051	448.047	451.301	451.297	-	
11		331.500	332.200	700	51.680	11.60	3.25	1: 10000	1.50:1	0.018	0.962	51.771	0.007	0.00	0.007	448.047	447.977	451.297	451.227	NORMAL CUTTING ALL SOILS HDR,F&F	UT @ KM 332.000
12		332.200	332.250	50	Transition		3.25	1: 10500					0.005	0.00	0.005	447.977	447.972	451.227	451.222	-	
13		332.250	332.575	325	51.680	11.10	3.25	1: 11000	2.00:1	0.018	0.905	51.738	0.030	0.00	0.030	447.972	447.942	451.222	451.192	EMBANKMENT ALL SOILS HDR	
14		332.575	332.625	50	Transition		3.25	1: 10500					0.005	0.00	0.005	447.942	447.937	451.192	451.187		
15		332.625	334.025	1400	51.680	11.60	3.25	1: 10000	1.50:1	0.018	0.967	51.774	0.140	0.00	0.140	447.937	447.797	451.187	451.047	NORMAL CUTTING ALL SOILS HDR,F&F	SP @ KM 332.940 UT @ KM 333.315 SP @ KM 333.887

SL. No	Reach No.	Reach in KM			Hydraulic Particulars								Loss (m)			Bed Level		Full Supply Level		Remarks	
		From	To	Distance (In Mts)	Required Discharge (Cumecs)	Bed Width (In Mts)	F.S.D (In Mts)	Surface Fall	Side Slopes	Value of n	Velocity M/Sec	Designed Discharge (Cumecs)	Due To Bed Fall	DueTo CM & CD Structures	Total	At Start (M)	At End (M)	At Start (M)	At End (M)		
16		334.025	334.075	50	Transition		3.25	1: 9000					0.006	0.00	0.006	447.797	447.792	451.047	451.042	-	
17		334.075	334.700	625	51.680	11.40	3.25	1: 8000	1.00:1	0.018	1.086	51.711	0.070	0.00	0.070	447.792	447.714	451.042	450.964	FULL CUTTING ALL SOILS HDR,F&F	RAILWAY BRIDGE @ KM 334.295 DLRB @ KM 334.360
18		334.700	334.750	50	Transition		3.25	1: 9000					0.006	0.00	0.006	447.714	447.708	450.964	450.958		
19		334.750	336.025	1275	51.680	11.60	3.25	1: 10000	1.50:1	0.018	0.967	51.774	0.127	0.00	0.127	447.708	447.581	450.958	450.831	NORMAL CUTTING ALL SOILS HDR,F&F	SP @ KM 334.761 SLRB @ KM 334.950 INLET @ KM 335.125 UT @ KM 335.875
20		336.025	336.075	50	Transition		3.25	1: 9000					0.006	0.00	0.006	447.581	447.575	450.831	450.825		
21		336.075	336.325	250	51.680	11.40	3.25	1: 8000	1.00:1	0.018	1.086	51.711	0.031	0.00	0.031	447.575	447.544	450.825	450.794	FULL CUTTING ALL SOILS HDR,F&F	
22		336.325	336.375	50	Transition		3.25	1: 9000					0.006	0.00	0.006	447.544	447.538	450.794	450.788		
23		336.375	337.325	950	51.680	11.60	3.25	1: 10000	1.50:1	0.018	0.967	51.774	0.095	0.00	0.095	447.538	447.443	450.788	450.693	PARTIAL CUTTING & PARTIAL EMBAKMENT ALL SOILS HDR, F&F	UT @ KM 336.475 UT @ KM 336.775 UT @ KM 336.906
24		337.325	337.375	50	Transition		3.25	1: 10500					0.005	0.00	0.005	447.443	447.439	450.693	450.689	-	
25		337.375	337.625	250	51.680	11.10	3.25	1: 11000	2.00:1	0.018	0.905	51.738	0.023	0.00	0.023	447.439	447.416	450.689	450.666	EMBAKMENT ALL SOILS	
26		337.625	337.675	50	Transition		3.25	1: 10500					0.005	0.00	0.005	447.416	447.411	450.666	450.661	-	
27		337.675	337.875	200	51.680	11.60	3.25	1: 10000	1.50:1	0.018	0.967	51.774	0.920	0.00	0.920	447.411	447.391	450.661	450.641	NORMAL CUTTING ALL SOILS HDR,F&F	
28		337.875	337.925	50	Transition		3.25	1: 9000					0.006	0.00	0.006	447.391	447.386	450.641	450.636	-	
29		337.925	338.625	700	51.680	11.40	3.25	1: 8000	1.00:1	0.018	1.086	51.711	0.087	0.00	0.087	447.386	447.298	450.636	450.548	FULL CUTTING ALL SOILS HDR,F&F	SP @ KM 338.127 SLRB @ KM 338.375
30		338.625	338.675	50	Transition		3.25	1: 9000					0.006	0.00	0.006	447.298	447.293	450.548	450.543	-	

SL. No	Reach No.	Reach in KM			Hydraulic Particulars								Loss (m)			Bed Level		Full Supply Level		Remarks	
		From	To	Distance (In Mts)	Required Discharge (Cumecs)	Bed Width (In Mts)	F.S.D (In Mts)	Surface Fall	Side Slopes	Value of n	Velocity M/Sec	Designed Discharge (Cumecs)	Due To Bed Fall	DueTo CM & CD Structures	Total	At Start (M)	At End (M)	At Start (M)	At End (M)		
31		338.675	338.808/ 340.000	133	51.680	11.60	3.25	1: 10000	1.50:1	0.018	0.967	51.774	0.013	0.00	0.013	447.293	447.279	450.543	450.529	PARTIAL CUTTING & PARTIAL EMBAKMENT ALL SOILS HDR, F&F	

Co-efficiect of Rugosity :0.018

CHECK.

TOTAL LOSS OF HEAD = 1.016 m

DIFFERENCE IN FIRST FSL AND LAST FSL= 451.545 - 450.529

1.016 m = TOTAL LOSS OF HEAD HENCE OK

NOTES:

i) The proposals for Hydraulic particulars of AVR HNSS PROJECT Phase-II from Km 329.450 to Km 338.808/340.000 of Package-8 furnished vide Lr No.ENC/TGP/SKHT/DW/DD2/AEE/HNSS/ATP/P-8/210 DT 09-02-2011 are vetted as per Govt Memo No 25650/Maj Irr VI/2007 Dt :07-11-2009 subject to providing necessary protection works at curve location of IP Nos 22,24,25,29,30,31 and 32 as per site condations.

ii) The first berm level in cutting reaches shall be at FSL + Free board.

iii)The project authorites shall ensure that all CM & CD Works are proposed as per site condations and as per IBM estimate.

iv) The UT @ Km 332.122 proposed to be diverted to UT @ Km 332.000 shall be examined by the project authorites as the ground level at km 332.122 is lower than the ground level at km 332.000 the UT @ km 336.475 proposed to be diverted to UT @ km 335.875, there is a valley at Km 336.475 and the distance betweem the two structures is 600 m hence U.T is proposed at Km 336.475.

Revised alignment and H.P's approved as per Govt memo no 25650,Maj.Irri.vi/2007 ;Dt 07.11.2009 and based on the recomandations of the ENC/TGP/Srikalahasti.ENC/TGP/Srikalahasti has to ensure that the orders of the Government in according the savings to Government and report to the Government.

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Chief Engineer
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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.8,HNSS MAIN CANAL FROM KM 320.000 TO 340.000)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 320.000 TO 320.500

SL. No	Reach No.	Reach in KM			Hydraulic Particulars											Loss (m)			Bed Level		Full Supply Level		Remarks	
		From	To	Distance (IN Mts)	Required Discharge (Cumecs)	Bed Width (In Mts)	F.S.D (In Mts)	Surface Fall	Side Slopes	A(m2)	P(m)	R(m)	R=2/3	Velocity M/Sec	Designed Discharge (Cumecs)	Due To Bed Fall	DueTo CM & CD Structures	Total	At Start (M)	At End (M)	At Start (M)	At End (M)		
1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	320.000	320.500	500	51.680	10.40	3.25	1: 8300	1.50:1	49.640	22.118	2.244	1.714	1.045	51.896	0.060	0.00	0.060	494.790	449.730	453.040	452.980	FSL +320.000 AS PER AGREEMENT BASICS PARAMETERS +453.040	PARTIAL CUTTING

Co-efficiect of Rugosity :0.018

1) THE H.P'S PROPOSAL IN THE REACH FROM KM 320.00 TO KM 320.500 ALONG WITH CONSENT OF THE AGENCIES ON THE COMMON POINT BETWEEN PACKAGE-7 & PACKAGE-8 FURNISHED VIDE ENC / TGP SKHT Lr No ENC / TGP SKHT HNSS PKG -7 & 8 DT -30-06-2008 ARE VETTED AND APPROVED.

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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.8 FROM KM 320.000 TO 340.000)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 324.600 TO 329.450

SL. No	Reach No.	Reach in KM			Hydraulic Particulars										Loss (m)			Bed Level		Full Supply Level		Remarks	
		From	To	Distance (In Mts)	Required Discharge (Cumecs)	Bed Width (In Mts)	F.S.D (In Mts)	Surface Fall	Side Slopes	A(m2)	P(m)	R(m)	R=2/3	Velocity M/Sec	Designed Discharge (Cumecs)	Due To Bed Fall	DueTo CM & CD Structures	Total	At Start (M)	At End (M)	At Start (M)	At End (M)		
1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1		324.600	325.200	600	51.680	10.40	3.25	1: 8300	1.50:1	49.640	22.118	2.244	1.714	1.045	51.896	0.072	0.00	0.072	449.196	449.124	452.446	452.374	ALL SOILS	
		325.200	325.250	50	Transition		3.25	1: 7400								0.007	0.00	0.007	449.124	449.117	452.374	452.367		
2		325.250	325.700	450	51.680	10.30	3.25	1: 6500	1.00:1	44.040	19.492	2.259	1.722	1.186	52.247	0.069	0.00	0.069	449.117	449.048	452.367	452.298	F & F	
		325.700	325.750	50	Transition		3.25	1: 7400								0.007	0.00	0.007	449.048	449.041	452.298	452.291	-	
3		325.750	326.050	300	51.680	10.40	3.25	1: 8300	1.50:1	49.640	22.118	2.244	1.714	1.045	51.896	0.036	0.00	0.036	449.041	449.005	452.291	452.255	ALL SOILS & F,F	
		326.050	326.100	50	Transition		3.25									0.005	0.00	0.005	449.005	449.000	452.255	452.250		
4		326.100	326.450	350	51.680	10.40	3.25	1: 9850	2.00:1	54.930	24.934	2.203	1.693	0.948	53.896	0.036	0.00	0.036	449.000	448.814	452.250	452.064	Embakment Reach Aqueduct for 150m length from Km 326.250 to Km 326.400 for stream crossing SLB at Km 326.440	
		326.450	326.500	50	Transition		3.25									0.006	0.00	0.006	448.814	448.808	452.064	452.058	-	
5		326.500	327.250	750	51.680	10.40	3.25	1: 8300	1.50:1	49.640	22.118	2.244	1.714	1.045	51.896	0.090	0.00	0.090	448.808	448.718	452.058	451.968	ALL SOILS F&F HDR, F&F	
		327.250	327.300	50	Transition		3.25	1: 9075								0.005	0.00	0.005	448.718	448.713	451.968	451.963	-	
6		327.300	328.475	1175	51.680	10.40	3.25	1: 9850	2.00:1	54.930	24.934	2.203	1.693	0.948	52.247	0.119	0.00	0.119	448.713	448.444	451.963	451.694	Embakment Section proposed Aqueduct from Km 327.950 to Km 328.250 SLB at Km 328.275	
		328.475	328.525	50	Transition		3.25	1: 8175								0.007	0.00	0.007	448.444	448.437	451.694	451.687	-	
7		328.525	329.450	925	51.680	10.30	3.25	1: 6500	1.00:1	44.040	19.492	2.259	1.722	1.186	51.896	0.142	0.00	0.142	448.437	448.295	451.687	451.545	F & F	

Co-efficiect of Rugosity :0.018

1) The alignment of the Pkg-8 & HP's furnished as per ENC/TGP/SKHT/HNSS/PH-II/PKG-8 DT -19-11-2008 and as per inspection notes of ENC/TGP/SKHT DT-21/05/2008 communicated vid End No ENC/TGP/SKHT/HNSS/PH-II/PKG-8 DT -24-05-2008 From Km 324.600 to Km 329.450 is vetted and approved subject to providing necessary protection works at curve location of IP 12,13 & 14 as per site condations

2) The alignment & HP's in the balanace reach up to Km 331.000 of the package and beyond up to end of package -8 at km 340.000 (common point of package -8 & PACKAGE -9) Shall be finalized seperatly on recipt of proposal from ENC/TGP/SKHT as per basic parameters pf Pkg-8

3) The list of structures of the entire package will be finalised seperatly on recipt of proposal of the balance alignemtnt and HP's of the package along with L.S of alignment and HP's of the package from ENC/TGP/SKHT.

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GOVERNAMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.8A)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 337.000 TO 339.254/340.000)

SL. No	Reach in KM			Hydraulic Particulars												Loss (m)			Bed Level		Full Supply Level		Remarks	
	From	To	Distance (In Mts)	Required Discharge (Cumecs)	Bed Width (In Mts)	F.S.D (In Mts)	Surface Fall	Side Slopes	A(m2)	P(m)	R(m)	R=2/3	Value of 'n"	Velocity M/Sec	Designed Discharge (Cumecs)	Due To Bed Fall	DueTo CM & CD Structures	Total	AT Start (M)	AT End (M)	AT Start (M)	AT End (M)		
1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	19	20	21	22	23	24
1	336.375	337.000	625	51.550	11.60	3.25	1 IN 10000	1.50:1	53.543	23.315	2.296	1.741	0.018	0.967	51.774	0.063	0.00	0.063	447.538	447.475	450.788	450.725	HYDRALIC PARTICULARS ALL READY APPROVED	
2	337.000	337.050	50	Transition		3.25	1 IN 10675									0.005	0.00	0.005	447.475	447.470	450.725	450.720		
3	337.050	337.375	325	51.560	12.50	3.25	1 IN 11350	1.50:1	56.468	24.218	2.332	1.758	0.018	0.917	51.772	0.029	0.00	0.029	447.470	447.441	450.720	450.691	Partial cutting and partical Embankment,All soils ,HDR,F&F	UT @ KM 337.300
4	337.375	337.425	50	Transition		3.25	1 IN 11425									0.004	0.00	0.004	447.441	447.437	450.691	450.687	-	
5	337.425	338.150	725	51.680	13.90	3.25	1 IN 11530	1.00:1	55.731	23.092	2.414	1.798	0.018	0.932	51.957	0.063	0.00	0.063	447.437	447.374	450.687	450.624	Full Cutting,All soils ,HDR,F&F & HR	SLRB @ KM 337.570
6	338.150	338.200	50	Transition		3.25	1 IN 11425									0.004	0.00	0.004	447.374	447.370	450.624	450.620		
7	338.200	338.325	125	51.680	12.50	3.25	1 IN 11350	1.50:1	56.468	24.214	2.332	1.754	0.018	0.917	51.775	0.010	0.00	0.010	447.370	447.360	450.620	450.610	Partial cutting and partical Embankment,All soils ,HDR,F&F	
8	338.325	338.375	50	Transition		3.25	1 IN 11425									0.005	0.00	0.005	447.360	447.355	450.610	450.605		
9	338.375	338.975	600	51.680	13.90	3.25	1 IN 11500	1.00:1	55.737	23.092	2.414	1.790	0.018	0.932	51.957	0.052	0.00	0.052	447.355	447.303	450.605	450.553	Full Cutting,All soils ,HDR,F&F & HR	SLRB @ Km 338.720
	338.975	339.025	50	Transition		3.25	1 IN 11425									0.004	0.00	0.004	447.303	447.299	450.553	450.549		
	339.025	339.199	174	51.680	12.50	3.25	1 IN 11250	1.50:1	56.468	24.218	2.332	1.758	0.018	0.917	51.779	0.015	0.00	0.015	447.299	447.284	450.549	450.534	Partial cutting and partical Embankment,All soils ,HDR,F&F	
	339.199	339.224	25	Transition		3.25	1 IN 10675									0.002	0.00	0.002	447.284	447.282	450.534	450.532		
	339.224	339.254/340.000	30	51.680	11.60	3.25	1 IN 10000	1.50:1	55.737	23.218	2.296	1.741	0.018	0.967	51.774	0.003	0.00	0.003	447.282	447.279	450.532	450.529	Partial cutting and partical Embankment,All soils ,HDR,F&F	
																0.259								

(Total loss) = 0.259-(First FSL -Last FSL =0.259) Hence OK

1) The proposed modification of HP's furnished vide LR .No.CE (P)/HNSS-P2/ATP/DEE-4/AEE 7 /P8A/Vol -3.. 211 CE :Dt12/07/2017 are vertted and Approved from Km 337.000 to 339.254 /340.000

2) Details of banks,berms and dowels shall be followed as per IS 7112-1973 & IS 10430 -2000.

3) The HP's are approved based on the data recommendations furninshed by the field authorities and the field authoritiesare responsible for the particulars furnished

4) If any deviations found in field data the same shall be brought to the notice of this office for revision

5) The above HP's super sedes earlier approved HP's communicated vide T.O.Lr.No.CE/CDO/CL2/HNSS /PHASE-2/PK-8/43/2011:Dt:06.04.2011

Sd/-(dt.08.08.2017)
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Sd/-(dt.02.08.2017)
Chief Engineer
Central Designs Orginisation
Vijayawada

SL. No	Reach in KM			Hydraulic Particulars												Loss (m)			Bed Level		Full Supply Level		Remarks
	From	To	Distance (In Mts)	Required Discharge (Cumecs)	Bed Width (In Mts)	F.S.D (In Mts)	Surface Fall	Side Slopes	A(m2)	P(m)	R(m)	R=2/3	Value of 'n"	Velocity M/Sec	Designed Discharge (Cumecs)	Due To Bed Fall	DueTo CM & CD Structures	Total	AT Start (M)	AT End (M)	AT Start (M)	AT End (M)	

Vijayawada.