GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

H.N.S.S. PHASE-2,PACKAGE NO.1

HYDRAULIC PARTICULARS HNSS MAIN CANAL (STAGE-II) FROM KM 216.300 TO 227.500

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 Structur	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
2	1	216.300	216.700	400	71.300	14.30	3.70	1:10000	1.00:1	66.600	24.765	2.689	1.934	1.074	71.552	0.040	0.00	0.040	460.300	460.260	464.000	463.960	FSL @ Km 216.300 As per Agreement basic Parameters +464.000	Full cutting
3	3	218.025	218.925	900	71.300	14.30	3.70	1:10000	1.00:1	66.600	24.765	2.689	1.934	1.074	71.552	0.090	0.00	0.090	459.933	459.843	463.633	463.543	FULL CUTTING	F.R AND H.D.R
4		218.925	218.975	50	Transition		3.70	1:10000								0.005	0.00	0.005	459.843	459.838	463.543	463.538		
5	4	218.975	219.225	250	71.300	12.90	3.70	1:10000	1.50:1	68.270	26.241	2.602	1.892	1.051	71.737	0.025	0.00	0.025	459.838	459.813	463.538	463.513	PRTIAL CUTTING AND FILLING	ALL SOILS,HDR & F.F
6		219.225	219.275	50	Transition		3.70	1:10000								0.005	0.00	0.005	459.813	459.808	463.513	463.508	-	
7	5	219.275	220.175	900	71.300	14.30	3.70	1:10000	1.00:1	66.600	24.765	2.689	1.934	1.074	71.552	0.090	0.00	0.090	459.808	459.718	463.508	463.418	FULL CUTTING	F.R AND H.D.R
8		220.175	220.225	50	Transition		3.70	1:10000								0.005	0.00	0.005	459.718	459.713	463.418	463.413	-	
9	6	220.225	220.550	325	71.300	12.90	3.70	1:10000	1.50:1	68.270	26.241	2.602	1.892	1.051	71.737	0.032	0.00	0.032	459.713	459.681	463.413	463.381	PRTIAL CUTTING AND FILLING	ALL SOILS,HDR & F.F
10		220.550	220.600	50	Transition		3.70	1:10000								0.005	0.00	0.005	459.681	459.676	463.381	463.376		
11	7	220.600	221.500	900	71.300	14.30	3.70	1:10000	1.00:1	66.600	24.765	2.689	1.934	1.074	71.552	0.090	0.00	0.090	459.676	459.586	463.376	463.286	FULL CUTTING	F.R AND H.D.R
12		221.500	221.550	50	Transition		3.70	1:10000								0.005	0.00	0.005	459.586	459.581	463.286	463.281	-	
13	8	221.550	221.975	425	71.300	12.90	3.70	1:10000	1.50:1	68.270	26.241	2.602	1.892	1.051	71.737	0.042	0.00	0.042	459.581	459.539	463.281	463.239	PRTIAL CUTTING AND FILLING	ALL SOILS,HDR & F.F
14		221.975	222.025	50	Transition		3.70	1:10000								0.005	0.00	0.005	459.539	459.534	463.239	463.234		
15	9	222.025	222.325	300	71.300	14.30	3.70	1:10000	1.00:1	66.600	24.765	2.689	1.934	1.074	71.552	0.030	0.00	0.030	459.534	459.504	463.234	463.204	FULL CUTTING	F.R AND H.D.R
16		222.325	222.375	50	Transition		3.70	1:10000								0.005	0.00	0.005	459.504	459.499	463.204	463.199		
17	10	222.375	223.125	750	71.300	12.90	3.70	1:10000	1.50:1	68.270	26.241	2.602	1.892	1.051	71.737	0.075	0.00	0.075	459.499	459.424	463.199	463.124	PRTIAL CUTTING AND FILLING	ALL SOILS,HDR & F.F
18		223.125	223.175	50	Transition		3.70	1:10000								0.005	0.00	0.005	459.424	459.419	463.124	463.119		

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 Structur	Total	AT Start (M)	AT End (M)	AT Start (M)	AT End (M)		
19	11	223.175	223.900	725	71.300	14.30	3.70	1:10000	1.00:1	66.600	24.765	2.689	1.934	1.074	71.552	0.075	0.00	0.075	459.419	459.347	463.119	463.047	FULL CUTTING	F.R AND H.D.R
20		223.900	223.950	50	Transition		3.70	1:11250								0.004	0.00	0.004	459.347	459.343	463.047	463.043		
21	12	223.950	225.850	1900	71.300	14.70	3.70	1:12500	1.50:1	74.930	28.041	2.672	1.926	0.957	71.690	0.152	0.00	0.152	459.343	459.191	463.043	462.891	PRTIAL CUTTING AND FILLING	ALL SOILS,HDR & F.F
22		225.850	225.900	50	Transition		3.70	1:12500								0.004	0.00	0.004	459.191	459.187	462.891	462.887		
23	13	225.900	226.725	825	71.300	16.10	3.70	1:12500	1.00:1	73.260	26.565	2.758	1.967	0.977	71.588	0.066	0.00	0.066	459.187	459.121	462.887	462.821	FULL CUTTING	F.R AND H.D.R
24		226.725	226.775	50	Transition		3.70	1:12500								0.004	0.00	0.004	459.121	459.117	462.821	462.817		
25	14	226.775	227.025	250	71.300	14.70	3.70	1:12500	1.50:1	74.930	28.041	2.672	1.926	0.957	71.690	0.020	0.00	0.020	459.117	459.097	462.817	462.797	PRTIAL CUTTING AND FILLING	F.F
26		227.025	227.075	50	Transition		3.70	1:12500								0.004	0.00	0.004	459.097	459.093	462.797	462.793		
27	15	227.075	227.500	425	71.300	16.10	3.70	1:12500	1.00:1	73.260	26.565	2.758	1.967	0.977	71.588	0.034	0.00	0.034	459.093	459.059	462.793	462.759	FULL CUTTING	F.R AND H.D.R

1) Co-efficiect of Rugosity :0.018

2) THE H.P.S PROPOSALS FURNISHED BY THE CE(P), ATP FROM KM. 216.300 TO 216.700 AND FROM KM 218.025 T0 227.500 ARE VETTED AND APPROVED.

3) THE H.P.S OF THE REACH FROM Km. 216 700 TO 218.025 SHALL BE FINALISED SEPARATELY ON RECEIPT OF PROPOSALS OF AQUEDUCT ACROSS PENNA RIVER AND EMBANKMENT PORTIONS AS PER SITE CONDITIONS FROM THE CE(P), AT P AS DISCUSSED IN JOINT INSPECTION Dt. 24-10-07.

4) THE LIST OF STRUCTURES SHALL BE FINALISED ON RECEIPT OF PROPOSALS FROM CE(P), ANANTAPUR AS PER SITE CONDITIONS AND AGREEMENT.

// t.c.f //

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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.1 FROM KM 216.300 TO 228.700/230.000)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 227.500 TO 228.700/230.000

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	A(m2)	P(m)	R(m)	R=2/3	Velocity M/Sec	Designed Discharge (Cumecs)	Due To Bed Fall	Due to 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
1		227.500	227.550	50	Transition		3.70	1:14600								0.003	0.00	0.003	459.059	459.056	462.759	462.756	
2	1	227.550	228.650	1100	71.300	18.70	3.70	1:16700	1.00 : 1	82.88	29.165	2.842	2.006	0.863	71.484	0.066	0.00	0.066	459.056	458.990	462.756	462.690	
3		228.650	228.700/ 300.000	50	Transition	18.70 To 14.30	3.70	1:13350								0.003	0.00	0.003	458.990	458.987	462.690	462.687	FSL At KM 230.000 as per Pkg-2 Agreement Basic Parameters +462.687

1) Co-efficiect of Rugosity :0.018

THE H.P'S AND ALIGNMENT PROPSALS FURNISHED BY ENC/TGP/SKHT VIDE LR Dt:28-2-2008 ARE VETTED AND APPROVED

// t.c.f //

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Executive Engineer
Canals-II Division

Sd/-(dt.19.03.2008)
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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

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

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 230.000 TO 244.293/245.000

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	A(m2)	P(m)	R(m)	R=2/3	Velocity M/Sec	Designed Discharge (Cumecs)	Due To Bed Fall	Due to 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	230.000	230.50	500	71.300	14.30	3.70	1:10000	1.00:1	66.600	24.765	2.689	1.934	1.074	71.552	0.050	0.00	0.050	458.987	458.937	462.687	462.637	FSL AT KM 230.000 AS PER AGREEMENT BASIC PARAMETERS +462.687	FULL CUTTING VARIES FROM 6.8M TO 19. 0M (H.R IN WATER PRISM)
3	3	231.375	231.900	525	71.300	15.00	3.70	1:13000	1.50:1	76.040	28.341	2.683	1.931	0.941	71.533	0.040	0.00	0.040	458.831	458.791	462.531	462.491	FULL CUTTING	H.R WATER PRISM
4		231.900	231.950	50	Transition		3.70	1:11500								0.005	0.00	0.005	458.791	458.786	462.491	462.486		
5	4	231.950	234.325	2375	71.300	14.30	3.70	1:10000	1.00:1	66.600	24.765	2.689	1.934	1.074	71.552	0.237	0.00	0.237	458.786	458.549	462.486	462.249	FULL CUTTING	H.R AND F&F
6		234.325	234.375	50	Transition		3.70	1:11500								0.004	0.00	0.004	458.549	458.545	462.249	462.245	-	
7	5	234.375	234.800	425	71.300	15.00	3.70	1:13000	1.50:1	76.040	28.341	2.683	1.931	0.941	71.533	0.033	0.00	0.033	458.545	458.512	462.245	462.212	PRTIAL CUTTING AND FILLING	F.R AND H.D.R
8		234.800	234.850	50	Transition		3.70	1:11500								0.004	0.00	0.004	458.512	458.508	462.212	462.208	-	
9	6	234.850	235.300	450	71.300	14.30	3.70	1:10000	1.00:1	66.600	24.765	2.689	1.934	1.074	71.552	0.045	0.00	0.045	458.508	458.463	462.208	462.163	PRTIAL CUTTING AND FILLING	ALL SOILS,HDR & F.F
10		235.300	235.350	50	Transition		3.70	1:11500								0.004	0.00	0.004	458.463	458.459	462.163	462.159		
11	7	235.350	237.300	1950	71.300	15.00	3.70	1:13000	1.50:1	76.040	28.341	2.683	1.931	0.941	71.533	0.150	0.00	0.150	458.459	458.309	462.159	462.009	PRTIAL CUTTING AND FILLING	F.R AND H.D.R
12		237.300	237.350	50	Transition		3.70	1:14000								0.004	0.00	0.004	458.309	458.305	462.009	462.005	-	

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	Due to CM & CD Structures	Total	At Start (M)	At End (M)	At Start (M)	At End (M)		
13	8	237.350	237.975	625	71.300	15.00	3.70	1:15000	2.00:1	82.880	31.547	2.627	1.904	0.864	71.580	0.042	0.00	0.042	458.305	458.240	462.005	461.940	BANKING SECTION BED FILLING MAX 5.0 METERS	ALL SOILS,HDR & F.F(AQUEDUCT PROPOSED) AT KM 237.850
14		237.975	238.025	50	Transition		3.70	1:14000								0.004	0.00	0.004	458.240	458.236	461.940	461.936		
15	9	238.025	240.025	2000	71.300	15.00	3.70	1:13000	1.50:1	76.040	28.341	2.683	1.931	0.941	71.533	0.154	0.00	0.154	458.236	458.082	461.936	461.782	PRTIAL CUTTING AND FILLING	F.R AND H.D.R
16		240.025	240.075	50	Transition		3.70	1:14000								0.004	0.00	0.004	458.082	458.078	461.782	461.778		
17	10	240.075	240.500	425	71.300	15.00	3.70	1:15000	2.00:1	82.880	31.547	2.627	1.904	0.864	71.580	0.028	0.00	0.028	458.078	457.900	461.778	461.600	BANKING SECTION BED FILLING MAX 5.0 METERS	All Soils,HDR & F.F(Aqueduct Proposed) At KM 240.335
18		240.500	240.550	50	Transition		3.70	1:14000								0.004	0.00	0.004	457.900	457.896	461.600	461.596		
19	11	240.550	241.600	1050	71.300	15.00	3.70	1:13000	1.50:1	76.040	28.341	2.683	1.931	0.941	71.533	0.081	0.00	0.081	457.896	457.815	461.596	461.515	PRTIAL CUTTING AND FILLING	F.R AND H.R
21	12	242.150	243.600	1450	71.300	14.30	3.70	1:10000	1.00:1	66.600	24.765	2.689	1.934	1.074	71.552	0.145	0.00	0.145	457.748	457.603	461.448	461.303	FULL CUTTING DEPTH VARING FROM 2.7M TO 10.60M	End FSL at KM 216.30 as per Pkg 3 Agreement Basic Parameters +461.250
22		243.600	243.650	50	Transition		3.70	1:11500								0.004	0.00	0.004	457.603	457.599	461.303	461.299		
23	13	243.650	244.293/ 245.00	643	71.300	15.00	3.70	1:13000	1.50:1	76.040	28.341	2.683	1.931	0.941	71.533	0.049	0.00	0.049	457.599	457.550	461.299	461.250	FULL CUTTING DEPTH VARING FROM 2.7 M TO 10.60M	End FSL at KM 216.30 as per Pkg 3 Agreement Basic Parameters +461.250

1) Co-efficiect of Rugosity :0.018

2) THE PROPOSED ALIGNMENT AND H.P.'S FURNISHED VIDE LR. NO. ENC/SKHT/HNSS/PHASE-II,PK-2/04 DT. 28-1-2008 ARE VETTED AND APPROVED. SUBJECT TO PROVIDING OF NECESSARY PROTECTION WORKS AS PER SITE CONDITIONS IN EMBANKMENT AND BED FILLING REACHES FROM KM. 237.300 TO KM. 237.975 AND FROM KM. 240.025 TO KM. 240.500

3) THE H.P.S IN H.R. REACHES i.e. FROM KM. 230.500 TO 231.375 AND FROM KM. 241.600 TO 242.150 ARE WITH HOLD FOR WANT OF ACTUAL BORE HOLE DATA.

4) THE LIST OF STRUCTI RES SHALL BE FINALISED SEPERATELY ON RECEIPT OF PROPOSALS AS PER SITE CONDITIONS AND AGREEMENT FROM ENC. TGP, SRIKALAHASTI.

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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

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

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 230.500 TO KM 231.375

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	Due to 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
1	3	230.500	230.550	50	Transition		3.70	1: 9000								0.004	0.00	0.004	458.937	458.933	462.637	462.633	
2		230.550	231.325	775	71.3	14.4	3.70	1: 8000	0.50:1	60.130	22.673	2.652	1.916	1.190	71.548	0.097	0.00	0.097	458.933	458.836	462.633	462.536	FULL CUTTING HR IN WATER PRISM
3	4	231.325	231.375	50	Transition		3.70	1: 10500								0.005	0.00	0.005	458.836	458.831	462.536	462.531	

1) Co-efficiect of Rugosity :0.018

Note : THE ABOVE HP'S ARE APPROVED BASED ON BORE HOLE DATA FURNISHED VIDE LETTER NO.ENC TGP/SKHT/LR.NO.ENC/TGS/DW/DD2/DEE3/AEE4/AVRHNSS/C-11-ATP-CAMP 2-DT.16.04.2008.

// t.c.f //

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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

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

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 241.600 TO KM 242.150/242.183

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	Due to 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
1		241.600	241.650	50	Transition		3.70	1: 10800								0.005	0.00	0.005	457.815	457.810	461.515	461.510	
2	12	241.650	242.133	483	71.3	13.2	3.70	1: 8600	1: 1	62.530	23.665	2.642	1.911	1.145	71.596	0.056	0.00	0.056	457.810	457.754	461.510	461.454	FULL CUTTING AKS/HDR/F&F/HR
3		242.133	242.150/ 242.183	50	Transition		3.70	1: 9300								0.006	0.00	0.006	457.754	457.748	461.454	461.448	

1) Co-efficiect of Rugosity :0.018

2) The proposed revision of alignment from Km241.600 to Km 242.150/242.183 and HP'S furnished vide ENC TGP/SKHT/LR.NO.ENC/TGS/DW/DD2/DEE3/AEE4/AVRHNSS-II/ATP/PACK-2 /VOL2/-CAMP-1,DT:15/05.2008 are vetted and approved.

3) The revision of alignment and HP'S are approved subject to the condation that necessary protection arrangments in curves shall be approved as per site condations.

// t.c.f //

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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.3)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 245.000 TO 252.000 AND KM 252.850 TO 258.800

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	245.000	245.800	800	71.300	15.00	3.70	1:13000	1.50:1	76.040	28.341	2.683	1.931	0.941	71.533	0.062	0.00	0.062	457.550	457.488	461.250	461.188	FSL AT KM 245.000 AS PER AGREEMENT BASIC PARAMETERS +461.250	PRTIAL CUTTING AND FILLING
4		245.800	245.850	50	Transition		3.70	1:11750								0.004	0.00	0.004	457.488	457.484	461.188	461.184		
5	2	245.850	246.300	450	71.300	15.00	3.70	1:10500	1.00:1	69.190	25.465	2.717	1.947	1.056	73.042	0.043	0.00	0.043	457.484	457.442	461.184	461.142	FULL CUTTING	H.R AND F&F
5	4	250.150	250.750	600	71.300	15.00	3.70	1:13000	1.50:1	76.040	28.341	2.683	1.931	0.941	71.533	0.046	0.00	0.046	456.990	456.944	460.690	460.644	PRTIAL CUTTING AND FILLING	H.R AND F&F
6		250.750	250.800	50	Transition		3.70	1:11750								0.004	0.00	0.004	456.944	456.940	460.644	460.640	-	
7	5	250.800	251.500	700	71.300	15.00	3.70	1:10500	1.00:1	69.190	25.465	2.717	1.947	1.056	73.042	0.067	0.00	0.067	456.940	456.873	460.640	460.573	FULL CUTTING	F.R AND H.D.R
8		251.500	251.550	50	Transition		3.70	1:11750								0.004	0.00	0.004	456.873	456.869	460.573	460.569	-	
9	6	251.550	252.000	450	71.300	15.00	3.70	1:13000	1.50:1	76.040	28.341	2.683	1.931	0.941	71.533	0.035	0.00	0.035	456.869	456.834	460.569	460.534	PRTIAL CUTTING AND FILLING	ALL SOILS,HDR & F.F
11	8	252.850	254.500	1650	71.300	15.00	3.70	1:10500	1.00:1	69.190	25.465	2.717	1.947	1.056	73.042	0.157	0.00	0.157	456.770	456.613	460.470	460.313	FULL CUTTING	F.R AND H.D.R
13	10	255.750	256.600	850	71.300	15.00	3.70	1:13000	1.50:1	76.040	28.341	2.683	1.931	0.941	71.533	0.065	0.00	0.065	456.468	456.403	460.168	460.103	PRTIAL CUTTING AND FILLING	ALL SOILS,HDR & F.F
15	12	257.400	258.250	850	71.300	15.00	3.70	1:13000	1.50:1	76.040	28.341	2.683	1.931	0.941	71.533	0.065	0.00	0.065	456.311	456.246	460.011	459.946	PRTIAL CUTTING AND FILLING	ALL SOILS,HDR & F.F
16		258.250	258.300	50	Transition		3.70	1:11750								0.004	0.00	0.004	456.246	456.242	459.946	459.942		
17	13	258.300	258.800	500	71.300	15.00	3.70	1:10500	1.00:1	69.190	25.465	2.717	1.947	1.056	73.042	0.048	0.00	0.048	456.242	456.194	459.942	459.894	FULL CUTTING	F.R AND H.D.R

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) Co-efficiect of Rugosity : 0.018

2) THE PROPOSED ALIGNMENT AND H.P.'S FURNISHED VIDE LR. NO. ENC/TGP/SKHT/HNSS/PHASE-II/PK-3/CAMP No.2 Dt:06-02-08 ARE VETTED AND APPROVED FROM 245.00 TO KM 252.00 AND KM.252.850 TO KM.258.800.

3) THE H.P'S IN H.R REACHES i.e.from km 246.300 to 250.150,FROM 254.500 TO 255.750 AND FROM KM 256.600 TO 257.400 ARE WITH HELD FOR WANT OF ACTUAL BORE HOLE DATA

4) THE LIST OF STRUCTURES SHALL BE FINALISED SEPARATELY ON RECEIPT OF PROPOSALS AS PER SITE CONDITIONS AND AGREEMENT FROM ENC.TGP.SRIKALAHASTI.

// t.c.f //

Sd/-(dt.26.02.2008)
Executive Engineer
Canals-II
Division

Sd/-(dt.22.02.2008)
(I.S.N.RAJU)
Chief Engineer
Central Designs Orginisation
Hyderabad.

GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.3)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM 1) Km246.300 to Km250.150, 2) Km252.000 to Km252.850, 3) Km254.500 to Km 255.750 and 4) 256.600 to Km 257.400.

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
2		246.300	246.350	50	Transition		3.70	1: 9500								0.005	0.00	0.005	457.442	457.437	461.142	461.137		
3	3	246.350	250.100	3750	71.300	15.00	3.70	1: 8500	0.50:1	62.35	23.273	2.679	1.929	1.162	72.463	0.441	0.00	0.441	457.437	456.995	461.137	460.695	FULL CUTTING VARIES FROM 13.0M TO 32.10 (H.R I WATER PRISM)	H.R. IN WATER PRISM
4		250.100	250.150	50	Transition		3.70	1: 10750								0.005	0.00	0.005	456.995	456.990	460.695	460.690		
12		252.000	252.050	50	Transition		3.70	1: 14000								0.004	0.00	0.004	456.834	456.830	460.534	460.530		
13	7	252.050	252.600	550	71.300	15.00	3.70	1: 15000	2.00:1	82.88	31.547	2.627	1.904	0.864	71.580	0.037	0.00	0.037	456.830	456.793	460.530	460.493	PRTIAL CUTTING AND FILLING ,BANKING	ALL SOILS,HDR & F.F
14		252.600	252.650	50	Transition		3.70	1: 12750								0.004	0.00	0.004	456.793	456.789	460.493	460.489	-	
15	8	252.650	252.850	200	71.300	15.00	3.70	1:10500	1.00:1	69.19	25.465	2.717	1.947	1.056	72.042	0.019	0.00	0.019	456.789	456.770	460.489	460.470	FULL CUTTING	F.R AND H.D.R
16		254.500	254.550	50	Transition		3.70	1: 9500								0.005	0.00	0.005	456.613	456.608	460.313	460.308		
17	9	254.550	255.700	1150	71.300	15.00	3.70	1: 8500	0.50:1	62.35	23.273	2.679	1.929	1.162	72.463	0.135	0.00	0.135	456.608	456.473	460.308	460.173	FULL CUTTING VARIES FROM 14.0M TO 21.10 (H.R I WATER PRISM)	H.R. IN WATER PRISM
18		255.700	255.750	50	Transition		3.70	1: 10750								0.005	0.00	0.005	456.473	456.468	460.173	460.168		
20		256.600	256.650	50	Transition		3.70	1: 10750								0.005	0.00	0.005	456.403	456.398	460.103	460.098		
21	11	256.650	257.350	700	71.300	15.00	3.70	1: 8500	0.50:1	62.35	23.273	2.679	1.929	1.162	72.463	0.082	0.00	0.082	456.398	456.316	460.098	460.016	FULL CUTTING VARIES FROM 10.0M TO 17.00 (H.R I WATER PRISM)	H.R. IN WATER PRISM
22		257.350	257.400	50	Transition		3.70	1: 10750								0.005	0.00	0.005	456.316	456.311	460.016	460.011		

1)Co-efficiect of Rugosity : 0.018

2) THE PROPOSED ALIGNMENT AND H.P.'S FURNISHED VIDE LR. NO. ENC/TGP/SKHT/DW/DD-2/DEE-3/AEE-41AVRHNSS/C2/ATP/Camp/1, DT. 66-4-08 ARE VETTED AND APPROVED SUBJECTED TO PROVIDING OF NECESSARY PROTECTION WORKS AS PER SITE CONDITIONS IN THE EMBANKMENT AND BED FILLING FROM KM 252.05 TO KM 252.600 WITH ENTIRE BED FILLING REACH LINED INSIDE OF THE CANAL WITH REVETMENT ON REAR SLOPES WITH PROTECTION WORKS SUCH AS KEY TRENCHES, TOE WALLS ETC.

3)THE LIST OF STRUCTURES SHALL BE FINALISED SEPARATELY ON RECEIPT OF PROPOSALS AS PER SITE CONDITIONS AND AGREEMENT FROM ENC. TGP, SRIKALAHASTI.

// t.c.f //

Sd/-(dt.21.04.2008)
Executive Engineer
Canals-II Division

Sd/-(dt.19.04.2008)
(I.S.N.RAJU)
Chief Engineer
Central Designs Orginisation
Hyderabad.

GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.3)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 258.800 TO 260.000)

SL. No	Reach No	Reach in KM			Hydraulic Particulars											Loss (m)			Bed Level (In m)		Full Supply Level		Remarks
		From	To	Distance (IN Mts)	Required Discharge (Cumecs)	Bed Width (In	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
1		258.800	258.850	50	Transition		3.70	1:11750								0.004	0.00	0.003	456.194	456.190	459.894	459.890	
2	1	258.850	259.175	325	71.300	15.00	3.70	1:13000	1.50 : 1	76.04	28.341	2.683	1.931	0.941	71.533	0.023	0.00	0.023	456.190	456.167	459.890	459.867	
3		259.175	259.225/ 260.000	50	Transition	15.00 To 14.50	3.70	1:12650								0.004	0.00	0.004	456.167	456.163	459.867	459.863	FSL AT KM 260.000 AS PER PK-2 AGREEMENT BASIC PARAMETERS

Co-efficiect of Rugosity : 0.018

1 The alignment and H Ps of the end reach Package 3 from Km. 258.800 to km. 259.225 / 260 000 are vetted and approved based on concurrence of common point furnished vide letter no. ENC/TGP/SKHTIDW/DD2/DEE3/HNSS-ATP/Pkg No.3/ Vol.9/905 Dt. 24-10-2009

2 The list of structures of the package 3 shall be finalised seperately on receipt of proposals as per site conditions and agreement from ENC, T.G.P SriKalahasti.

// t.c.f //
Sd/-(dt.26.10.2009)
Executive Engineer
Canals-II Division,CDO,
Hyderabad

APPROVED
Sd/-(dt.26.10.2009)
(I.S.N.RAJU)
Chief Engineer,CDO

Hyderabad.

GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.3)

HYDRAULIC PARTICULARS HNSS MAIN CANAL FROM KM 247.125 TO 250.250+0.700/ 250.250 (Kuderu R.F)

SL. No	Reach No	Reach in KM			Hydraulic Particulars											Loss (m)			Bed Level (In m)		Full Supply Level		Remarks
		From	To	Distance (IN Mts)	Required Discharge (Cumecs)	Bed Width (In	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
1		258.800	258.850	50	Transition		3.70	1:11750								0.004	0.00	0.003	456.194	456.190	459.894	459.890	
2	1	258.850	259.175	325	71.300	15.00	3.70	1:13000	1.50 : 1	76.04	28.341	2.683	1.931	0.941	71.533	0.023	0.00	0.023	456.190	456.167	459.890	459.867	
3		259.175	259.225/ 260.000	50	Transition	15.00 To 14.50	3.70	1:12650								0.004	0.00	0.004	456.167	456.163	459.867	459.863	FSL AT KM 260.000 AS PER PK-2 AGREEMENT BASIC PARAMETERS

Co-efficiect of Rugosity : 0.018

1 The alignment and H Ps of the end reach Package 3 from Km. 258.800 to km. 259.225 / 260 000 are vetted and approved based on concurrence of common point furnished vide letter no. ENC/TGP/SKHTIDW/DD2/DEE3/HNSS-ATP/Pkg No.3/ Vol.9/905 Dt. 24-10-2009

2 The list of structures of the package 3 shall be finalised seperately on receipt of proposals as per site conditions and agreement from ENC, T.G.P SriKalahasti.

// t.c.f //

Sd/-(dt.26.10.2009)
Executive Engineer
Canals-II Division,CDO,

APPROVED
Sd/-(dt.26.10.2009)
(I.S.N.RAJU)
Chief Engineer,CDO
Hyderabad.

GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S.Stage II -Package 3)

HYDRAULIC PARTICULARS OF HNSS MAIN CANAL FROM KM 247.125 to 250.250+0.700/250.250 (Kuderu R.F)

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	Area	Perimeter	R	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	246.350	247.125	775	71.3	15.000	3.700	1 in 8500	0.5:1	6.25	23.273	2.679	1.929	1.162	72.463	0.091	0.000	0.091	+457.437	+457.346	+461.137	+461.046	Approved	
2	247.125	248.350	1225	71.3	15.000	3.700	1 in 8500	0.5:1	6.25	23.273	2.679	1.929	1.162	72.463	0.144	0.000	0.144	+457.346	+457.202	+461.046	+460.902	Full Cutting	H.R Reach
3	248.350	248.400	50	Transition		3.700	1 in 10750								0.005	0.000	0.005	+457.202	+457.197	+460.902	+460.897	Transition	
4	248.400	250.225	1825	71.3	15.000	3.700	1 in 13000	1.5:1	76.04	28.341	2.683	1.931	0.941	71.533	0.140	0.000	0.140	+457.197	+457.057	+460.897	+460.757	Cutting ,partial cutting & partial Banking Reach	
5	250.225	250.250+ 0.025	50	Transition		3.700	1 in 11150								0.004	0.000	0.004	+457.057	+457.053	+460.757	+460.753	Transition	
6	250.250+ 0.025	250.250+ 0.650	625	71.3	14.00	3.700	1 in 9300	1:1	65.49	24.465	2.677	1.928	1.111	72.735	0.067	0.000	0.067	+457.053	+456.986	+460.753	+460.686	Full Cutting	H.R Reach
7	250.250+ 0.650	250.250+ 0.700	50	Transition		3.700	1 in 11150								0.040	0.000	0.040	+456.986	+456.982	+460.686	+460.682	Transition	
8	250.250+ 0.700	250.750/2 50.250	500	71.3	15.000	3.700	1 in 13000	1.5:1	76.04	28.341	2.683	1.931	0.941	71.533	0.038	0.000	0.038	+456.982	+456.944	+460.682	+460.544	Approved	

Arthmetic Check :Total loss of head 0.493m Frist FSL-Last FSL= 461.137-460.644=0.493 Total Loss of head 0.493 = 0.493= 0.493

Note

1) Rugosity Coefficient 'n' value is taken as 0.018

2) The proposed alternative alignment and H.p's furnished vide for Lr.No:-CE /TGP/ TPT /DW/DD2/DEE3/HNSS P-II /PKG.NO.3/1125 : Dt.04-11-2015. are velted and approved from km 247.125 to km 250.25+0.700/250.250

3)The HP's are approved based on the data/reccommendations furnished by the field authorities and field authorities are responcible for the particulars furnished .

4) In the above reaches, HR shall be ensured by actual bore hole date before execution,as the canal side slopes are proposed tentailvely based on the ERM data funished.If there is any deviation ,the HP's shall be revised .

5) The above HP's from Km 247.125 to km 250.250+0.700 supersedes the earlier approved HP's form km 247.800 to km 248.825 communicated vide T.O Letter Dated :19-09-2015.

6) If any varitions found in field data ,the same shall be brought to the notice of this office for revision.

7) Proper super elevation shall be provided in the curve portions where the radius less than the radius given in IS : 5986-1987 i.e 450.0M

8) At the location where the GL are less than half FSD from bed ,equivalent hydraulic section shall be maintained by providing suitable bank connections .

9) The list of sturctures shall be furnished for approval after the detailed examination.

10)A free board of 0.90 m is recommended by the CE/TGP and the same is retained.

// t.c.f//

Executive Engineer

Division-7

Central Designs

Orginisation

Hyderabad

Sd/-(dt.24-11-2015)

Chief Engineer

Central Designs Orginisation

Hyderabad.

GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.4)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 260.000 TO 260.800 AND FROM KM 271.000 TO KM 279.119/280.000

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	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	Due to 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	260.000	260.800	800	71.300	14.50	3.70	1:12300	1.50:1	74.190	27.841	2.665	1.922	0.963	71.425	0.065	0.00	0.065	456.163	456.098	459.863	459.798	FSL AT KM 260.000 AS PER AGREEMENT BASIC PARAMETERS +459.863	ALL SOILS,HDR & F&F (FSL CUTTING)
3	3	271.000	271.050	50	Transition		3.70	1:10950								0.005	0.00	0.005	455.159	455.154	458.859	458.854		
4		271.050	272.100	1050	71.300	14.50	3.70	1:12300	1.50:1	74.190	27.841	2.665	1.922	0.963	71.425	0.085	0.00	0.085	455.154	455.069	458.854	458.769	PARTIAL CUTTING AND FULL CUTTING	ALL SOILS,HDR & F&F
5	4	272.100	272.150	50	Transition		3.70	1:13650								0.004	0.00	0.004	455.069	455.065	458.769	458.765		
6		272.150	272.450	300	71.300	15.00	3.70	1:15000	2.00:1	82.880	31.547	2.627	1.904	0.864	71.580	0.020	0.00	0.020	455.065	455.045	458.765	458.745	PARTIAL CUTTING AND BANKING	AKS / H.R AND F&F
7	5	272.450	272.500	50	Transition		3.70	1:12300								0.004	0.00	0.004	455.045	455.041	458.745	458.741	-	
8		272.500	273.900	1400	71.300	14.00	3.70	1:.9600	1.00:1	65.490	24.465	2.677	1.928	1.093	71.590	0.146	0.00	0.146	455.041	454.895	458.741	458.595	FULL AND DEEP CUTTING	F&F AND H.R
9	6	273.900	273.950	50	Transition		3.70	1:12300								0.004	0.00	0.004	454.895	454.891	458.595	458.591	-	
10		273.950	274.750	800	71.300	15.00	3.70	1:15000	2.00:1	82.880	31.547	2.627	1.904	0.864	71.580	0.053	0.00	0.053	454.891	454.838	458.591	458.538	PARTIAL CUTTING AND BANKING	STREAM CROSSING U.T PROPOSED
11	7	274.750	274.800	50	Transition		3.70	1:13650								0.004	0.00	0.004	454.838	454.834	458.538	458.534		
12		274.800	276.050	1250	71.300	14.50	3.70	1:12300	1.50:1	74.190	27.841	2.665	1.922	0.963	71.425	0.102	0.00	0.102	454.834	454.732	458.534	458.432	FULL CUTTING	ALL SOILS,HDR & F&F
13	8	276.050	276.100	50	Transition		3.70	1:13650								0.004	0.00	0.004	454.732	454.728	458.432	458.428	-	
14		276.100	277.050	950	71.300	15.00	3.70	1:15000	2.00:1	82.880	31.547	2.627	1.904	0.864	71.580	0.063	0.00	0.063	454.728	454.665	458.428	458.365	PARTIAL CUTTING AND BANKING	U.T PROPOSED
15	9	277.050	277.100	50	Transition		3.70	1:13650								0.004	0.00	0.004	454.665	454.661	458.365	458.361		
16		277.100	277.400	300	71.300	14.50	3.70	1:12300	1.50:1	74.190	27.841	2.665	1.922	0.963	71.425	0.024	0.00	0.024	454.661	454.637	458.361	458.337	PARTIAL CUTTING AND FILLING	ALL SOILS,HDR & F.F
17	10	277.400	277.450	50	Transition		3.70	1:13650								0.004	0.00	0.004	454.637	454.633	458.337	458.333		

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	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	Due to CM & CD Structures	Total	At Start (M)	At End (M)	At Start (M)	At End (M)		
18		277.450	278.725	1275	71.300	15.00	3.70	1:15000	2.00:1	82.880	31.547	2.627	1.904	0.864	71.580	0.085	0.00	0.085	454.633	454.291	458.333	457.991	PARTIAL CUTTING AND FILLING	AQUEDUCT PROPOSED
19	11	278.725	278.775	50	Transition		3.70	1:13650								0.004	0.00	0.004	454.291	454.287	457.991	457.987		
21	12	278.775	279.000	225	71.300	14.50	3.70	1:12300	1.50:1	74.190	27.841	2.665	1.922	0.963	71.425	0.018	0.00	0.018	454.287	454.269	457.987	457.969	PARTIAL CUTTING AND FILLING	ALL SOILS,HDR & F.F
22		279.000	279.050	50	Transition		3.70	1:10950								0.005	0.00	0.005	454.269	454.264	457.969	457.964		
23	13	279.050	279.190/ 280.000	69	71.300	14.00	3.70	1: 9600	1.00:1	65.490	24.465	2.677	1.928	1.093	71.590	0.007	0.00	0.007	454.264	454.297	457.964	457.957	FSL AT KM 260.000 AS PER AGREEMENT +457.957 START OF Pkg-5	ALL SOILS,HDR & F.F

Co-efficiect of Rugosity :0.018

1) THE PROPOSED ALIGNMENT AND H.P.'S FURNISHED BY ENC/TGP/SKHT VIDE LR. NO. ENC/SKHT/HNSS/PHASE-II, DT. 22-02-2008 ARE VETTED AND APPROVED.

2) THE H.P'S ARE APPROVED SUBJECT TO PROVIDING OF NECESSARY PROTECTION WORKS AS PER SITE CONDITIONS IN EMBANKMENT AND BED FILLING REACHES FROM KM. 273.950 TO KM.274.750 AND FROM KM. 276.100 TO KM. 277.050 & 277.450 TO KM 278.725

3).THE REAR SLOPES OF THE CANAL IN THE ELAKUNTLA CHERUVU PORTION SHOULD PROPOSED WITH NECESSARY PROTECTION WORKS.

// t.c.f //

Sd/-(dt.02.12.07)
Executive Engineer
Canals-II Division,CDO,
Hyderabad.

APPROVED
Sd/-(dt.02.12.2007)
(I.S.N.RAJU)
Chief Engineer
Central Designs Orginisation
Hyderabad.

GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.4 FROM KM 260.000 TO 280.000)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 260.800 TO 271.000

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	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	260.800	260.850	50	71.300	14.50	3.70	1:12300	1.50:1	74.190	27.841	2.665	1.922	0.963	71.425	0.004	0.00	0.004	456.098	456.094	459.798	459.794	FSL AT KM 260.00 AS PER AGREENENT +459.863	ALL SOILS H.D.R & F&F (FSL CUTTING)
2		260.850	260.900	50	Transition		3.70	1:10950								0.005	0.00	0.005	456.094	456.089	459.794	459.789		
3	2	260.900	263.350	2450	71.300	14.00	3.70	1: 9600	1.00:1	65.490	24.465	2.677	1.928	1.093	71.590	0.255	0.00	0.255	456.089	455.834	459.789	459.534	FULL CUTTING	F&F
4		263.350	263.400	50	Transition		3.70	1:10950								0.005	0.00	0.005	455.834	455.829	459.534	459.529	-	
5	3	263.400	264.550	1150	71.300	14.50	3.70	1:12300	1.50:1	74.190	27.841	2.665	1.922	0.963	71.425	0.093	0.00	0.093	455.829	455.736	459.529	459.436	PARTIAL CUTTING	ALL SOILS,HDR & F&F
6		264.550	264.600	50	Transition		3.70	1:10950								0.005	0.00	0.005	455.736	455.731	459.436	459.431	-	
7	4	264.600	265.350	750	71.300	14.00	3.70	1:.9600	1.00:1	65.490	24.465	2.677	1.928	1.093	71.590	0.078	0.00	0.078	455.731	455.653	459.431	459.353	FULL CUTTING	H.D.R & F&F
8		265.350	265.400	50	Transition		3.70	1:10950								0.005	0.00	0.005	455.653	455.648	459.353	459.348		
9	5	265.400	265.875	475	71.300	14.50	3.70	1:12300	1.50:1	74.190	27.841	2.665	1.922	0.963	71.425	0.039	0.00	0.039	455.648	455.609	459.348	459.309	PRTIAL CUTTING, FILLING	ALL SOILS,HDR ,F&F
10		265.875	265.925	50	Transition		3.70	1:13650								0.004	0.00	0.004	455.609	455.605	459.309	459.305	-	
11	6	265.925	266.600	675	71.300	15.00	3.70	1:15000	2.00:1	82.880	31.547	2.627	1.904	0.864	71.580	0.045	0.00	0.045	455.605	455.560	459.305	459.260	BED FILLING ABOUT 2 METERS	UT PROPOSED
12		266.600	266.650	50	Transition		3.70	1:12300								0.004	0.00	0.004	455.560	455.556	459.260	459.256		
13	7	266.650	267.200	550	71.300	12.60	3.70	1:.9600	1.50:1	67.160	25.941	2.589	1.885	1.063	71.791	0.057	0.00	0.057	455.556	455.499	459.256	459.199	FULL CUTTING	ALL SOILS,HDR & F& F
14		267.200	267.250	50	Transition		3.70	1:12300								0.004	0.00	0.004	455.499	455.495	459.199	459.195		
15	8	267.250	268.550	1300	71.300	15.00	3.70	1:15000	2.00:1	82.880	31.547	2.627	1.904	0.961	71.580	0.087	0.00	0.087	455.495	455.408	459.195	459.108	FULL BANKING	UT PROPOSED
16		268.550	268.600	50	Transition		3.70	1:12300								0.004	0.00	0.004	455.408	455.404	459.108	459.104		

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	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)		
17	9	268.600	269.700	1100	71.300	14.00	3.70	1:.9600	1.00:1	65.490	24.465	2.677	1.928	1.093	71.590	0.115	0.00	0.115	455.404	455.289	459.104	458.989	FULL AND DEEP CUTTING	H.D.R & F&F
18		269.700	269.750	50	Transition		3.70	1:10950								0.005	0.00	0.005	455.289	455.284	458.989	458.984		
19	10	269.750	269.950	200	71.300	14.50	3.70	1:12300	1.50:1	74.190	27.841	2.665	1.922	0.863	71.425	0.016	0.00	0.016	455.284	455.268	458.984	458.968	FSL AND TBL CUTTING	ALL SOILS,HDR & F& F
20		269.950	270.000	50	Transition		3.70	1:10950								0.005	0.00	0.005	455.268	455.263	458.968	458.963		
21	11	270.000	271.000	1000	71.300	14.00	3.70	1:.9600	1.00:1	65.490	24.465	2.677	1.928	1.093	71.590	0.104	0.00	0.104	455.263	455.159	458.963	458.859	FULL CUTTING	H.D.R & F& F

Co-efficiect of Rugosity : 0.018

Note:- 1) The Hp's of the Package from Km 260.800 to Km 271.000 furnished by C.E(P) Anantapur is Vetted and approved.

2) The CE(P) Anantapur shall ensure necessary protected works in embackment / bed filling reach from Km 265.925 to Km 266.600.

// t.c.f //

Sd/-(dt.07.12.07)
Executive Engineer
Canals-II
Division,CDO, Hyderabad

APPROVED
Sd/-(dt.02.12.2007)
(I.S.N.RAJU)
Chief Engineer
Central Designs
Orginisation Hyderabad.

GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.5

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 280.000 TO 300.192/300.000)

SL. No	Reach No	Reach in KM			Hydraulic Particulars											Loss (m)			Bed Level		Full Supply Level		Remarks	
		From	To	Distance (In Mtc)	Required Discharge (Cumecs)	Bed Width (In	F.S.D (In Mtc)	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
2		280.000	284.846	4846	71.300	14.60	3.70	1:10400	1.00 : 1	67.71	25.065	2.701	1.940	1.057	71.546	0.466	0.00	0.466	454.257	453.791	457.957	457.491	FSL @ KM 280.000 AS PER BASIC PARAMETERS OF AGREEMENT 457.957	FULL CUTTING VARIES FROM 4.80 M TO 23.0 M (F& F)
3					TUNNEL from 285.100 TO 287.100 including 150m Transistion on either sides of tunnel (Package -6).																		H.P's of Tunnel to be finalised Seperatly	
4		287.250	294.000	6750	71.300	14.80	3.70	1:10600	1.00 : 1	68.45	25.265	2.709	1.943	1.049	71.782	0.637	0.00	0.637	452.962	452.325	456.662	456.025	FULL CUTTING VARIES FROM 3.20 M TO 20.0 M	F&F

Co-efficiect of Rugosity :0.018

NOTES: 1) The H.P's proposals furnished by C.E (P) Ananthapur are vetted and approved.

2) The project authorities shall ensure proper protection works as per site conditions embankment and bed filling reaches and as it reported by the C.E(P), Ananthapur that there is no alternative feasible alighnment to avoid the same as per inspection notes dated 7-10-2007.

3) The list of structures and protection works shall be finalised seperaetly on recipt of proposals from the C.E (P) Ananthapur.

// t.c.f //

Sd/-(dt.23.10.2007)
Superintending Engineer
B&Cs CIRCLE,
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Hyderabad.

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(I.S.N.RAJU)
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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.5 FROM KM 280.000 TO 300.000)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 294.000 TO 295.925)

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	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	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	294.000	294.975	975	71.300	14.80	3.70	1:10600	1.00:1	68.450	25.265	2.709	1.943	1.049	71.782	0.092	0.00	0.092	452.325	452.234	456.025	455.934	FULL CUTTING VARIES FROM 3.20M TO 20.0M REACH	F&F
2	294.975	295.025	50	Transition		3.70	1:11300								0.004	0.00	0.004	452.234	452.230	455.934	455.930		
3	295.025	295.225	200	71.300	14.30	3.70	1:12000	1.50:1	73.450	27.641	2.657	1.918	0.973	71.457	0.017	0.00	0.017	452.230	452.213	455.930	455.913	PARTIAL CUTTING AND FILLING	HDR , FF.
4	295.225	295.275	50	Transition		3.70	1:11300								0.004	0.00	0.004	452.213	452.209	455.913	455.909	-	
5	295.275	295.925	650	71.300	14.80	3.70	1:10600	1.00:1	68.450	25.265	2.709	1.943	1.049	71.782	0.061	0.00	0.061	452.209	452.148	455.909	455.848	FULL CUTTING VARIES FROM 4.92 M TO 9.0 M	HDR , FF.

Co-efficiect of Rugosity :0.018

NOTE:- The HP's from Km 294.000 to Km 295.925 furnished by CE(P) Anantapur is vetted and approved.

Sd/-(dt.07.12.2007)
Executive Engineer
Canals-II
Division
Central Designs Orginisation
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Sd/-(dt.02.12.2007)
Chief Engineer
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Hyderabad.

GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.5)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 295.800 TO 299.697/300.000)

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	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	5	295.800	295.925	125	71.300	14.80	3.70	1:10600	1.00:1	68.450	25.265	2.709	1.943	1.049	71.782	0.012	0.00	0.012	452.160	452.148	455.860	455.848	FULL CUTTING REACH	
2		295.925	295.975	50	Transition		3.70	1:10500								0.005	0.00	0.005	452.148	452.143	455.848	455.843		
3	6	295.975	298.325	2350	71.300	10.70	3.70	1: 9000	2.00:1	66.970	27.247	2.458	1.821	1.067	71.427	0.261	0.00	0.261	452.143	451.882	455.843	455.582	BANKING AND BED FILLING REACH	
4		298.325	298.375	50	Transition		3.70	1: 8500								0.006	0.00	0.006	451.882	451.876	455.582	455.576	-	
5	7	298.375	298.850	475	71.300	13.30	3.70	1: 8000	1.00:1	62.900	23.765	2.647	1.913	1.188	74.755	0.059	0.00	0.059	451.876	451.817	455.576	455.517	FULL CUTTING REACH	
6		298.850	298.900	50	Transition		3.70	1: 8500								0.006	0.00	0.006	451.817	451.811	455.517	455.511		
7	8	298.900	299.150	250	71.300	12.10	3.70	1:10500	1.50:1	65.310	25.441	2.567	1.875	1.098	71.697	0.028	0.00	0.028	451.811	451.783	455.511	455.483	PARTIAL CUTTING AND FILLING	
8		299.150	299.200	50	Transition		3.70	1: 8500								0.006	0.00	0.006	451.783	451.777	455.483	455.477	-	
9	9	299.200	299.647	447	71.300	12.80	3.70	1: 8000	1.00:1	61.050	23.265	2.624	1.902	1.182	72.142	0.057	0.00	0.057	451.777	451.720	455.477	455.420	FULL CUTTING	FSL AT KM 299.345/300.000 AS PER BASIC PARAMETERS OF AGREEMENT OF PK 7 IS +455.415M (AT START)
10		299.647	299.697/300.000	50	Transition	12.80 TO 14.30	3.70	1: 9000								0.005	0.00	0.005	451.720	451.715	455.420	455.415	-	

Co-efficiect of Rugosity :0.018

1) THE PROPOSED ALIGNMENT AND H.P.'S FURNISHED FOR ALTERNATIVE ALIGNMENT 4, VIDE LR. NO. ENC/SKHT/HNSS/PHASE-II/ PKG-5, Dt 3 3-2008 ARE VETTED AND APPROVED.

2) THE ALIGNMENT FROM KM. 295.800 TO 295.925 WHICH IS APPROVED EARLIER IS REVISED AND APPROVED AS PROPOSED BY ENC/TGP/SKHT/HNSS FROM KM. 295.000 TO 299.697/300.000, SUBJECT TO CONDITION THAT NO ACTION IS TAKEN FOR L.A. AND EARTH WORK FROM 295.800 TO 295.925.

3) SUBJECT TO PROVIDING OF NECESSARY PROTECTION WORKS AS PER SITE CONDITIONS IN EMBANKMENT AND BED FILLING REACH FROM KM. 295.975 TO KM. 298.325

4)THE LIST OF STRUCTURES SHALL BE FINALISED SEPERATELY ON RECEIPT OF PROPOSALS AS PER SITE CONDITIONS AND AGREEMENT FROM ENC. TGP, SRIKALAHASTI.

Sd/-(dt.19.03.2008)
Executive Engineer
Canals-II Division
Central Designs Orginisation
Hyderabad.

Sd/-(dt.19.03.2008)
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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.7)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 300.000 TO 310.000

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 Mtc)	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	300.000	300.300	300	71.300	14.30	3.70	1:10000	1.00:1	66.600	24.765	2.689	1.934	1.074	71.552	0.030	0.00	0.030	451.715	451.685	455.415	455.385	FSL AT KM 300.000 AS PER CONCEPT PAPER +453.040	FULL CUTTING VARIES FROM 4.8 M TO 7.1 M (ALL
2		300.300	300.350	50	Transition		3.70	1:10175								0.0049	0.00	0.005	451.685	451.680	455.385	455.380		
3	2	300.350	301.400	1050	71.300	13.10	3.70	1:10350	1.50:1	69.010	26.441	2.610	1.896	1.035	71.430	0.101	0.00	0.101	451.680	451.579	455.380	455.279	PRTIAL CUTTING AND FILLING	ALL SOILS & HDR
4		301.400	301.450	50	Transition		3.70	1:11175								0.004	0.00	0.004	451.579	451.574	455.279	455.274	-	
5	3	301.450	303.700	2250	71.300	13.00	3.70	1:12000	2.00:1	75.480	29.547	2.555	1.869	0.948	71.534	0.188	0.00	0.188	451.574	451.387	455.274	455.087	PRTIAL CUTTING , FILLING AND RANKING	ALL SOILS & HDR
6		303.700	303.750	50	Transition		3.70	1:11175								0.004	0.00	0.004	451.387	451.382	455.087	455.082		
7	4	303.750	307.500	3750	71.300	13.10	3.70	1:10350	1.50:1	69.010	26.441	2.610	1.896	1.035	71.430	0.362	0.00	0.362	451.382	451.020	455.082	454.720	PRTIAL CUTTING AND FILLING	ALL SOILS & HDR
8		307.500	307.550	50	Transition		3.70	1:10175								0.005	0.00	0.005	451.020	451.015	454.720	454.715	-	
9	5	307.550	308.950	1400	71.300	14.30	3.70	1:10000	1.00:1	66.600	24.765	2.689	1.934	1.074	71.552	0.140	0.00	0.140	451.015	450.875	454.715	454.575	FULL CUTTING VARIES FROM 4.90 M TO 9.0 M	HDR,FF
10		308.950	309.000	50	Transition		3.70	1:10175								0.005	0.00	0.005	450.875	450.870	454.575	454.570	-	
11	6	309.000	310.000	1000	71.300	13.10	3.70	1:10350	1.50:1	69.010	26.441	2.610	1.896	1.035	71.430	0.097	0.00	0.097	450.870	450.773	454.570	454.473	FULL CUTTING VARIES FROM 4.90 M TO 9.0 M	HDR,FF

Co-efficiect of Rugosity :0.018

1) THE ALIGNMENT RECOMMENDED BY THE CE(P) ANANTAPUR IS RETAINED PROTECTION WORKS AND SUITABLE LENGTH OF STRUCTURE AS PER SITE SHOULD BE PROPOSED IN BED FILLING REACHES.

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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.7)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 310.000 TO 319.384

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
2		310.000	310.000	0	Cross Regulator											0.000	0.45	0.450	450.773	450.773	454.473	454.023		
3	1	310.000	310.550	550	51.680	12.70	3.25	1: 9600	1.00:1	51.840	21.892	2.368	1.777	1.007	52.216	0.057	0.00	0.057	450.773	450.716	454.023	453.966	FULL CUTTING	HDR & F.F
4		310.550	310.600	50	Transition		3.25	1: 9800								0.005	0.00	0.005	450.716	450.711	453.966	453.961	-	
5	2	310.600	311.150	550	51.680	10.50	3.25	1:10000	2.00:1	55.250	25.034	2.207	1.695	0.942	52.030	0.055	0.00	0.055	450.711	450.656	453.961	453.906	BANKING AND BED FILLING U.T PROPOSED	ALL SOILS , HDR & F.F
6		311.150	311.200	50	Transition		3.25	1:10200								0.005	0.00	0.005	450.656	450.651	453.906	453.901		
7	3	311.200	312.000	800	51.680	11.90	3.25	1:10400	1.50:1	54.520	23.618	2.308	1.747	0.952	51.875	0.077	0.00	0.077	450.651	450.574	453.901	453.824	PARTIAL CUTTING AND FILLING	ALL SOILS , HDR & F.F
8		312.000	312.050	50	Transition		3.25	1:10200								0.005	0.00	0.005	450.574	450.569	453.824	453.819	-	
9	4	312.050	314.600	2550	51.680	12.90	3.25	1:10000	1.00:1	52.490	22.092	2.376	1.781	0.989	51.919	0.255	0.00	0.255	450.569	450.314	453.819	453.564	FULL CUTTING VARIES FROM	HDR,FF
10		314.600	314.650	50	Transition		3.25	1:10200								0.005	0.00	0.005	450.314	450.309	453.564	453.559	-	
11	5	314.650	316.250	1600	51.680	11.90	3.25	1:10400	1.50:1	54.520	23.618	2.308	1.747	0.952	51.875	0.154	0.00	0.154	450.309	450.155	453.559	453.405	PARTIAL CUTTING AND FILLING	ALL SOILS , HDR & F.F
12		316.250	316.300	50	Transition		3.25	1:10200								0.005	0.00	0.005	450.155	450.150	453.405	453.400	-	
13	6	316.300	319.384	3084	51.680	12.90	3.25	1:10000	1.00:1	52.490	22.092	2.376	1.781	0.989	51.919	0.308	0.00	0.308	450.150	449.842	453.400	453.092	FSL AT KM 320.000 AS PER AGREEMENT +453.040 END OF PACKAGE	FULL CUTTING

Co-efficiect of Rugosity :0.018

4)THE HP'S IN THE REACH FROM KM 310.000 TO END OF PACKAGE FOR CANAL DISCHARGE OF 51.68 CUMECS IS APPROVED AS PER GOVERNMENT MEMO NO 40731/MAJ.IRRI.VI/2008-2,DT 28-02-2008.

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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.7,HNSS MAIN CANAL FROM KM 300.000 TO 319.884/320.000)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 319.384 TO 319.884/320.00

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	319.384	319.434	50	51.680	12.90 .To 11.60	3.25	1:10000	1.00:1 To 1.5:1	TRANSITION						0.005	0.00	0.005	449.842	449.837	453.092	453.087	-	FSL +453.092 at Km 319.384 as per HP's already approved
2	2	319.434	319.834	400	51.680	11.60	3.25	1:10000	1.50:1	53.540	23.318	2.296	1.741	0.967	51.774	0.040	0.00	0.040	449.837	449.797	453.087	453.047	Cutting	
3	3	319.834	319.884/320.000	50	51.680	11.60 T0 10.40	3.25	1:10000	1.50:1	TRANSITION						0.007	0.00	0.007	449.797	449.790	453.047	453.040		As Per Basic Parameters of Package-7 At End FSL +453.040 FSD 3.25M

Co-efficiect of Rugosity :0.018

1) THE H.P'S PROPOSAL IN THE REACH FROM KM 319.384 TO KM 319.884/320.00 ALONG WITH CONSENT OF THE AGENCIES ON THE COMMON POINT BETWEEN PACKAGE-7 & PACKAGE-8 FURNISHED VIDE 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 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	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	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	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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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	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	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.

Sd/-(dt.30.06.2009)
Executive Engineer
Canals-II Division
Central Designs Orginisation
Hyderabad

Sd/-(dt.29.06.2009)
(I.S.N.RAJU)
Chief Engineer
Central Designs Orginisation Hyderabad.

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	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)

Executive

Sd/-(dt.02.08.2017)

Chief

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	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)	

Engineer
Division -7
Central Designs Orginisation
Vijayawada

Engineer
Central Designs Orginisation
Vijayawada.

GOVERNAMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.9.

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 340.000 TO 357.483/358.000

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	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	340.000	345.300	5300	51.680	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2		345.300	345.350	50	TRANSITION		3.25	1: 9625								0.0051	0.00	0.005	446.630	446.625	449.990	449.478		
3	2	345.350	346.950	1600	51.680	11.00	3.25	1: 10000	1.00:1	52.81	22.192	2.380	1.782	0.990	52.288	0.160	0.00	0.160	446.625	446.465	449.478	449.718	FULL CUTTING VARIES FROM 5.2M TO 6.70M	SDR/HDR/HR
4		346.950	347.000	50	TRANSITION		3.25	1: 9625								0.005	0.00	0.005	446.465	446.480	449.718	449.710		
5	3	347.000	347.550	550	51.680	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H.R.FULL CUTTING VARIES FROM 9.40M TO 13.0M	HP'S ARE WITH HOLD FOR WANT OF BORE HOLE DATA
6		347.550	347.600	50	TRANSITION		3.25	1:.9625								0.005	0.00	0.005	446.400	446.398	449.853	448.648		
7	4	347.600	348.250	650	51.680	13.00	3.25	1: 10000	1.00:1	52.81	22.192	2.380	1.782	0.990	52.288	0.005	0.00	0.005	446.398	446.333	448.648	449.583	FULL CUTTING VARIES FROM 8.80M TO 15 M	F&F / HR
8		348.250	348.300	50	TRANSITION		3.25	1: 9625								0.005	0.00	0.005	446.333	446.333	449.583	449.572		
9	5	348.300	348.650	350	51.680	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H.R.FULL CUTTING VARIES FROM 8.60M TO 15.0M	HP'S ARE WITH HOLD FOR WANT OF BORE HOLE DATA
10		348.650	348.700	50	TRANSITION		3.25	1:.9625								0.005	0.00	0.005	446.242	446.287	449.542	449.537		
11	6	348.700	349.200	500	51.680	13.00	3.25	1: 10000	1 :1	52.810	22.192	2.380	1.782	0.990	52.294	0.050	0.00	0.050	446.287	446.237	449.537	449.487	FULL CUTTING VARIES FROM 5.20M TO 8.10 M	F&F / HR
12		349.200	349.250	50	TRANSITION		3.25	1: 11000								0.005	0.00	0.005	446.237	446.232	449.487	449.482		
13	7	349.250	352.550	3300	51.680	13.00	3.25	1: 12000	1.50 :1	58.000	24.718	2.380	1.768	0.894	52.081	0.275	0.00	0.275	446.232	445.957	449.482	449.207	PARTIAL CUTTING, FILLING	AKS/SDR/HDR/F&F /HR
14		352.550	352.600	50	TRANSITION		3.25	1: 12000								0.005	0.00	0.005	445.957	445.952	449.207	449.202		
15	8	352.600	353.925	1325	51.680	11.80	3.25	1: 12000	2.00 :1	59.440	28.224	2.380	1.721	0.873	51.921	0.110	0.00	0.110	445.952	445.842	449.202	449.092	FULL BANKING & BED FILLING	ALL SOILS,SDR & HDR
16		353.925	353.975	50	TRANSITION		3.25	1: 11000								0.005	0.00	0.005	445.842	445.837	449.092	449.087		
17	9	353.975	354.525	550	51.680	13.00	3.25	1: 10000	1 :1	52.410	22.192	2.380	1.782	0.473	51.926	0.055	0.00	0.055	445.837	445.782	449.087	449.032	FULL CUTTING VARIES FROM 8.0M TO 17.0M	F&F/HR
18		354.525	354.575	50	TRANSITION		3.25	1: 11000								0.005	0.00	0.005	445.782	445.777	449.032	449.027		
19	10	354.575	354.825	250	51.680	11.80	3.25	1: 12000	2.00 :1	59.480	26.334	2.380	1.721	0.873	51.921	0.021	0.00	0.021	445.777	445.756	449.027	449.908	FULL BANKING & BED FILLING	ALL SOILS,SDR & HDR

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	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)		
20		354.825	354.875	50	TRANSITION		3.25	1: 11000								0.006	0.00	0.006	445.756	445.751	449.908	449.001		
21	**11**	354.875	356.100	1225	51.680	13.00	3.25	1: 10000	2.00.:1	52.810	22.192	2.380	1.782	0.990	52.288	0.123	0.00	0.123	445.751	445.626	449.001	448.878	FULL CUTTING VARIES FROM 8.0M TO 17.0M	HDR,FF
22		356.100	356.150	50	TRANSITION		3.25	1: 9625								0.005	0.00	0.005	445.626	445.623	448.878	448.872		
23	**12**	356.150	357.483/358.000	1333	51.680	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H.R.FULL CUTTING VARIES FROM 8.70M TO 17.0M	FSL @ KM 357.483/358.000 AS PER AGREEMENT +448.732

17.487

Co-efficiect of Rugosity :0.018

Sd/-(dt.14.09.2007)
(I.S.N.RAJU)
Chief Engineer
Central Designs Orginisation
Hyderabad.

GOVERNAMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.9.

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 353.000 TO 355.650

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 on '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	25
1	352.600	353.000	400	51.680	11.80	3.25	1 IN 12000	2:1	59.4750	26.334	2.258	1.721	0.018	0.873	51.921	0.033	0.000	0.033	445.952	445.919	449.202	449.169	APPROVED	
2	353.000	353.200	200	51.680	11.80	3.25	1 IN 12000	2:1	57.4750	26.334	2.258	1.721	0.018	0.873	51.921	0.017	0.000	0.017	445.919	445.902	449.169	449.152	FULL BANKING & BED FILLING	
3	353.200	353.250	50	51.680		3.25	1 IN 12000									0.004	0.000	0.004	445.902	445.898	449.152	449.148		
4	353.250	353.325	75	51.680	13.750	3.25	1 IN 12000	0.5/2:1	57.8906	24.65	2.35	1.77	0.018	0.896	51.87	0.006	0.000	0.006	445.898	445.892	449.148	449.142	PARTIAL CUTTIN & BANKING	SEE NOTES 2 &3
5	353.325	353.375	50	51.680		3.25	1 IN 12000									0.004	0.000	0.004	445.892	445.888	449.142	449.138		
6	353.375	353.525	150	51.680	11.800	3.25	1 IN 12000	0.5/2:1	59.4750	26.33	2.26	1.72	0.018	0.873	51.92	0.012	0.000	0.012	445.888	445.876	449.138	449.126	FULL BANKING & BED FILLING	
7	353.525	353.575	50	51.680		3.25	1 IN 12000									0.005	0.000	0.005	445.876	445.871	449.126	449.121		
8	353.575	354.200	625	51.680	14.55	3.25	1 IN 10220	0.5:1	52.5688	21.817	2.410	1.797	0.018	0.988	51.922	0.061	0.000	0.061	445.871	445.810	449.121	449.060	FULL CUTTING	HR REACH
9	354.200	354.250	50	51.680		3.25	1 IN 11110									0.005	0.000	0.005	445.810	445.805	449.060	449.055		
10	354.250	354.325	75	51.680	13.75	3.25	1 IN 12000	0.5/2:1	57.8906	24.651	2.348	1.767	0.018	0.896	51.872	0.006	0.000	0.006	445.805	445.799	449.055	449.040	PARTIAL CUTTIN & BANKING	SEE NOTES 2 &3
11	354.325	354.375	50	51.680		3.25	1 IN 11110									0.005	0.000	0.005	445.799	445.794	449.040	449.044		
12	354.375	354.500	125	51.680	14.55	3.25	1 IN 10220	0.5:1	52.5688	21.817	2.410	1.797	0.018	0.988	51.922	0.012	0.000	0.012	445.794	445.782	449.044	449.032	FULL CUTTING	HR REACH
13	354.500	354.550	50	51.680		3.25	1 IN 11110									0.005	0.000	0.005	445.782	445.777	449.032	449.027		
14	354.550	354.800	250	51.680	11.80	3.25	1 IN 12000	2:1	59.4750	26.334	2.258	1.721	0.018	0.873	51.921	0.021	0.000	0.021	445.777	445.756	449.027	449.006	FULL BANKING & BED FILLING	
15	354.800	354.850	50	51.680		3.25	1 IN 11110									0.005	0.000	0.005	445.756	445.751	449.006	449.001		
16	354.850	355.600	750	51.680	14.55	3.25	1 IN 10220	0.5:1	52.5688	21.817	2.410	1.797	0.018	0.988	51.922	0.073	0.000	0.073	445.751	445.678	449.001	448.922	FULL CUTTING	HR REACH
17	355.600	355.650	50	51.680		3.25	1 IN 10110									0.005	0.000	0.005	445.678	445.873	448.922	448.923		
18	355.650	356.100	450	51.680	13.00	3.25	1 IN 10000	1:1	52.8125	22.192	2.380	1.782	0.018	0.990	52.298	0.045	0.000	0.045	445.873	445.828	448.923	448.071	APPROVED	
		3.504																						

1) The prposed modification of H.P's furnished vide Lr.no:CE/NTR/TPT/DW/EE-1/DEE-1/AEE1/HNSS/P.09/1009.Dt.12-10-2015.are verified and approved from KM 353.00 to KM 355.650

2) The HP's are approved based on the data /recommendations furnished by the field authorities and the field authorities are responisible for the partiuclars furnished.

3)In Cutting & Partilal cutting Reaches HR.shall be ensured by actual bore hole data before ececution if there is any deviation the HP's shall be revised

4)List ofstuructures shall be finalished separately on receipt of proposals as per site condintions and agreement from CE,NTR TGP ,Tirupathi and finally approval shall be obtained form CDO

5)Details of banks ,berams & dowels shall be followed as per IS 7112-1973 & IS 10430-2000 Typical cross sections may be referred to CE / CDO / AP approval

6)if any vaiation found in the field data the sae shall be brough to this office for revison.

Sd/-(dt.14.11.2015)

(I.S.N.RAJU) **Chief Engineer**

Orginisation **Central Designs Hyderabad.**

GOVERNAMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.9.

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 347.000 TO KM 347.550 & KM 348.300 TO 348.650

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	Area(m2)	Perimeter (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
1		347.000	347.550	550	51.680	12.70	3.25	1 IN 9650	1.00:1	51.84	21.892	2.368	1.777	1.005	52.081	0.057	0.00	0.057	446.460	446.403	449.710	449.653	F&f ,FULL CUTTING VAING FORM 9.40 MTO 13.10 M
3		348.300	348.650	350	51.580	14.40	3.25	1 IN 9650	0.50:1	52.08	21.667	2.404	1.794	1.015	52.852	0.036	0.000	0.036	446.292	446.292	449.578	449.543	HR ,FULL CUTTING VARIES FOM 8.50 M TO 15.0 M

co-efficient of Rugosity :0.018

NOTE :THE ABOVE HP'S ARE APPROVED BASED ON BORE HOLE DATA FURNISHED VIDE LETTER NO:1 CE(P) ATP /PHASE II /PK-9/485 CE DATED 22.12.2007 & LETTER NO .ENC TGP /SKHT /L.R NO ENC /TGS /DW/DD2/DEE2/AEE4/AVRHNSS/PHASS II/PKG.9/27/DT.22.04.2008

True Copy
Sd/-(dt.28.04.2011)
Executive Engineer
Canals-II Division ,
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Sd/-(dt.27.04.2011)
(I.S.N.RAJU)
Chief Engineer

Central Designs
Orginisation

GOVERNAMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.9.

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 340.000 TO 347.100

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	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	11	12	13	14	15	16	17	18	19	20	21
1	338.675	338.808/ 340.000		51.680	11.60	3.25	1 IN 10000	1.50:1	0.018							447.279		450.529	APPROVED HYDRAULIC PARTICLARS CONSIDERED AT END OF PACKAGE-8	
2	340.000	340.050	50	TRANSITION		3.25	1 IN 8400					0.006	0.000	0.006	447.279	447.273	450.529	450.523		
3	340.050	341.050	1000	51.580	12.00	3.25	1 IN 8650	1.50:1	0.018	1.169	51.785	0.146	0.000	0.146	447.273	447.127	450.523	450.377	DEEP CUTTING	S.P @ KM 340.220 SLRB @ KM 240.441
4	341.050	341.100	50	TRANSITION		3.25	1 IN 8650					0.007	0.000	0.007	447.127	447.120	450.377	450.370		
5	341.100	342.600	1700			3.25	1 IN 6900	1.50:1	0.018	1.147	56.918	0.248	0.000	0.248	447.120	449.573	450.370	449.823	PARTIAL CUTTING & PARITAL EMBANKMENT	SP @ KM 341.730 AQUEDUCT @ KM 342.200 AQUEDUCT @ KM 342.715
6	342.600	342.850	50	TRANSITION		3.25	1 IN 5900					0.007	0.000	0.007	449.573	446.556	449.823	449.816		
7	342.850	343.645/ 347.100	790			3.25	1 IN 6900	1.00:1	0.018	1.157	52.063	0.116	0.000	0.116	446.556	446.450	449.816	449.700		
8	343.645/ 347.100	347.150	50	TRANSITION		3.25	1 IN 8300					0.006	0.000	0.006	446.450	446.444	449.700	449.894		
9	347.150	347.550				3.25	1 IN 9550												HP'S ALL READY APPRVOED FROM KM 347.000 TO KM 347.550	

CHECK : TOTAL LOSS OF HEAD = 0.835 m

DIFFERENCE IN FIRST FSL AND LAST FSL = 450.529 = 449.694

0.825 m = TOTAL LOSS OF HEAD HENCE OK

NOTES:

i) The proposals for Hydraulic particulars of AVR HNSS PROJECT Phase-II from Km 340.000 to Km 343.648/347.100 of Package-9 furnished vide Lr No.ENC/TGP/SKHT/DW/DD2/AEE/HNSS/ATP/P-9/146B DT 18-11-2010 are vetted as per Govt Memo No 26850/Maj Irr VI/2007 Dt :07-11-2009 subject to providing necessary protection works at curve location of IP Nos 4 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 alrady approved reach from 247.000 to km 347.550 is now revisedas km 347.150 to km 347.550 due to curve at IP No.4 i.e at jm 343.560 and 50 m transition proposed form 343.648/347.100 to km 347.150.

v)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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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.11)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 360.000 TO 380.150

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	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	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
28		370.825	370.825	0	CROSS REGULATOR											0.000	0.08	0.075	443.628	443.553	446.878	446.803		
29	15	370.825	371.425	600	45.140	13.40	3.25	1.14000	1.00:1	54.110	22.592	2.395	1.790	0.841	45.483	0.043	0.00	0.043	443.553	443.510	446.803	446.760	FULL CUTTING	HDR & F.F
30		371.425	371.475	50	Transition		3.25	1.14000								0.004	0.00	0.004	443.510	443.506	446.760	446.756	-	
31	16	371.475	372.925	1450	45.140	12.20	3.25	1.14000	1.50:1	55.490	23.918	2.320	1.753	0.823	45.665	0.104	0.00	0.104	443.506	443.402	446.756	446.652	PARTIAL CUTTING AND FILLING	AKS/ HDR / F.F
32		372.925	372.975	50	Transition		3.25	1.14000								0.004	0.00	0.004	443.402	443.398	446.652	446.648		
33	17	372.975	374.075	1100	45.140	11.00	3.25	1.14000	2.00:1	56.880	25.534	2.227	1.706	0.801	45.546	0.079	0.00	0.079	443.398	443.319	446.648	446.569	BED FILLING REACH DEPTH OF BED FILLING IS ABOUT 3.0M	STREAM CROSSING U.T PROPOSED
34		374.075	374.125	50	Transition		3.25	1.14000								0.004	0.00	0.004	443.319	443.315	446.569	446.565	-	
35	18	374.125	375.350	1225	45.140	13.40	3.25	1.14000	1.00:1	54.110	22.592	2.395	1.790	0.841	45.483	0.088	0.00	0.088	443.315	443.227	446.565	446.477	FULL CUTTING	HDR & FF
36		375.350	375.400	50	Transition		3.25	1.14000								0.004	0.00	0.004	443.227	443.223	446.477	446.473	-	
37	19	375.400	378.500	3100	45.140	12.20	3.25	1.14000	1.50:1	55.490	23.918	2.320	1.753	0.823	45.665	0.221	0.00	0.221	443.223	442.898	446.473	446.148	PARTIAL CUTTING, FILLING,AKS/HDR/ F&F	AQUEDUCT PROPOSED
38		378.500	378.550	50	Transition		3.25	1.14000								0.004	0.00	0.004	442.898	442.894	446.148	446.144	-	
39	20	378.550	378.850	300	45.140	13.40	3.25	1.14000	1.00:1	54.110	22.592	2.395	1.790	0.841	45.483	0.021	0.00	0.021	442.894	442.873	446.144	446.123	FULL CUTTING	HDR & FF
40		378.850	378.900	50	Transition		3.25	1.14000								0.004	0.00	0.004	442.873	442.869	446.123	446.119		
41	21	378.900	380.150	1250	45.140	12.20	3.25	1.14000	1.50:1	55.490	23.918	2.320	1.753	0.823	45.665	0.089	0.00	0.089	442.869	442.780	446.119	446.030	FULL CUTTING	FSL @ Km 380.150 as per Agreement Condition 345.900

Co-efficiect of Rugosity :0.018

1) THE PROPOSED H.P'S FURNISHED VIDE LR NO.CE(P)/ATP/PHASE-II/PK-11/382CE DT:2-11-2007 AND COPY OF GOVT MEMO AND AMENDMENT FURNISHED VIDE SE/HNSS/MADANPALLI,LR.NO.SE/HNSS/CAMP-1 DT.11-4-2008,ADDRESSED TO ENC/TGP/SKHT WITH A COPY TO CE/CDO ARE VETTED AND APPROVED.

2)SUBJECT TO PROVIDING OF NECESSARY PROTECTION WORKS AS PER SITE CONDATIONS IN EMBAKMENT AND BED FILLING REACH FROM 372.975 TO 374.075 AND FROM KM 367.875 TO 368.150 IN THE ALREADY ALIGNMENT AND HP'S.

3)THE LIST OF STRUCTURES OF THE PACKAGE SHALL BE FINALISED SEPERATLY ON RECIPT OF PROPOSAL AS PER SITE CONDATIONS AND AGREEMENT FROM ENC, TGP, SRIKALAHASTI.

Sd/-(dt.17.11.2007)
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APPROVED
Sd/-(dt.16.11.2007)
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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.11)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 360.000 TO 380.677/380.000 EXCLUDING TUNNEL PORTION FROM KM 360.000 TO KM 360.400

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	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	360.400	360.990	500	51.680	12.50	3.25	1.7400	0.50:1	45.910	19.767	2.322	1.754	1.133	51.992	0.067	0.00	0.067	444.645	444.578	447.895	447.828	FSL +360.400 AS PER AGREEMENT BASICS PARAMETERS +444.645	HR REACH, DEEP CUT

Co-efficiect of Rugosity :0.018

APPROVED
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GOVERNAMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.11)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 360.900 TO 370.825

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)	B.W (In Mtc)	F.S.D (In Mtc)	Surface Fall	Side Slopes	A(m2)	P(m)	R(m)	R=2/3	Velocity M/Sec	Designed Discharge (Cumecs)	Due To Bed Fall	Due to 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	360.900	363.000	2100	51.680	12.50	3.25	1 in 7400	0.50:1	45.91	19.767	2.322	1.754	1.133	51.992	0.264	0	0.284	444.578	444.294	447.828	447.544	FSL @ KM 360.400 AS PER	H.R REACH DEEP CUT
2		363.000	363.050	50	Transition		3.25	1 in 9700								0.005	0	0.005	444.294	444.289	447.544	447.539		
3		363.050	363.300	250	51.680	14.20	3.25	1 in 12000	1.00:1	56.71	23.392	2.424	1.805	0.915	51.906	0.021	0	0.021	444.289	444.268	447.539	447.518	FULL CUTTING	HDR & F&F
4		363.300	363.350	50	Transition		3.25	1 in 13000								0.004	0	0.004	444.268	444.264	447.518	447.514		
5		363.350	364.375	1025	51.680	14.20	3.25	1 in 14000	1.50:1	61.99	25.918	2.392	1.789	0.84	52.061	0.073	0	0.073	444.264	444.191	447.514	447.441	PARTIAL CUTTING	ALL SOILS H.D.R &F&F
6		364.375	364.425	50	Transition		3.25	1 in 13000								0.004	0	0.004	444.191	444.187	447.441	447.437		
7		364.425	366.050	1625	51.680	14.20	3.25	1 in 12000	1.00:1	56.71	23.392	2.424	1.805	0.915	51.906	0.135	0	0.135	444.187	444.052	447.437	447.302	FULL CUTTING	HDR & F&F
8		366.050	366.100	50	Transition		3.25	1 in 13000								0.004	0	0.004	444.052	444.048	447.302	447.298		
9		366.100	366.350	250	51.680	14.20	3.25	1 in 14000	1.50:1	61.99	25.918	2.392	1.789	0.84	52.061	0.068	0	0.068	444.048	443.980	447.298	447.230	PARTIAL CUTTING AND FILLING	AQUEDUCT PROPOSED WITH LOH
10		366.350	366.400	50	Transition		3.25	1 in 13000								0.004	0	0.004	443.98	443.976	447.230	447.226		
11		366.400	366.900	500	51.680	14.20	3.25	1 in 12000	1.00:1	56.71	23.392	2.424	1.805	0.915	51.906	0.042	0	0.042	443.976	443.934	447.226	447.184	FULL CUTTING	HDR & F&F
12		366.900	366.950	50	Transition		3.25	1 in 13000								0.004	0	0.004	443.934	443.930	447.184	447.180		
13		366.950	367.200	250	51.680	14.20	3.25	1 in 14000	1.50:1	61.99	25.918	2.392	1.789	0.84	52.061	0.018	0	0.018	443.93	443.912	447.180	447.162	PARTIAL CUTTING AND	ALL SOILS H.D.R &F&F
14		367.200	367.250	50	Transition		3.25	1 in 13000								0.004	0	0.004	443.912	443.908	447.162	447.158		
15		367.250	367.825	575	51.680	14.20	3.25	1 in 12000	1.00:1	56.71	23.392	2.424	1.805	0.915	51.906	0.048	0	0.048	443.908	443.860	447.158	447.110	FULL CUTTING	HDR & F&F
16		367.825	367.875	50	Transition		3.25	1 in 13000								0.004	0	0.004	443.86	443.856	447.110	447.106		
17		367.875	368.150	275	51.680	13.00	3.25	1 in 14000	2.00:1	63.38	27.534	2.392	1.743	0.819	51.873	0.02	0	0.020	443.856	443.836	447.106	447.086	BED FILLING REACH DEPTH	STREAM CROSSING
18		368.150	368.200	50	Transition		3.25	1 in 13000								0.004	0	0.004	443.836	443.832	447.086	447.082		
19		368.200	368.575	375	51.680	14.20	3.25	1 in 12000	1.00:1	56.71	23.392	2.424	1.805	0.915	51.906	0.031	0	0.031	443.832	443.801	447.082	447.051	FULL CUTTING	HDR & F&F
20		368.575	368.625	50	Transition		3.25	1 in 13000								0.004	0	0.004	443.801	443.797	447.051	447.047		
21		368.625	369.575	950	51.680	14.20	3.25	1 in 14000	1.50:1	61.99	25.918	2.392	1.789	0.84	52.281	0.068	0	0.068	443.797	443.729	447.047	446.979	PARTIAL CUTTING AND FILLING	ALL SOILS H.D.R &F&F
22		369.575	369.625	50	Transition		3.25	1 in 13000								0.004	0	0.004	443.729	443.725	446.979	446.975		
23		369.625	370.000	375	51.680	14.20	3.25	1 in 12000	1.00:1	56.71	23.392	2.424	1.805	0.915	51.906	0.031	0	0.031	443.725	443.694	446.975	446.944	FULL CUTTING	HDR & F&F
24		370.000	370.050	50	Transition		3.25	1 in 13000								0.004	0	0.004	443.694	443.690	446.944	446.940		
25		370.050	370.275	225	51.680	14.20	3.25	1 in 14000	1.50:1	61.99	25.918	2.392	1.789	0.84	52.061	0.016	0	0.016	443.690	443.674	446.940	446.924	PARTIAL CUTTING AND	ALL SOILS H.D.R &F&F
26		370.275	370.325	50	Transition		3.25	1 in 13000								0.004	0	0.004	443.674	443.670	446.924	446.920		
27		370.325	370.825	500	51.680	14.20	3.25	1 in 12000	1.00:1	56.71	23.392	2.424	1.805	0.915	51.906	0.042	0	0.042	443.670	443.628	446.920	446.878	PARTIAL CUTTING AND FILLING	ALL SOILS H.D.R &F&F

Co-efficiect of Rugosity :0.018

1) LIST OF STRUCTURE SHALL BE FURNISHED SEPERATELY ON RECEIPT OF DETAILS OF CM & CD WORKS FROM THE CE (P) ANANTAHAPUR

2) HP'S AND ALIGNMENT FORM KM 360.900 TO 370.825 ARE PROPOSED BY THE CE (P)ANANTHAPUR WITH DISCHARGE OF 51.68 CUMECS AS PER AGRREMENT IS VETTED AND APPROVED

Sd/-(dt.17.11.2007)
Executive Engineer
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APPROVED
Sd/-) (dt.16.11.2007
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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.13)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) 1) FROM KM 380.000 TO 380.500, 2) KM 380.850 TO KM 381.250, 3) KM 382.975 TO KM 383.550, 4) KM 385.100 TO KM 385.500, 5) KM 394.650 TO KM 395.750, 6) KM 395.750 TO KM 396.190/400.000

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	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		380.000	380.500	500	45.140	11.00	3.25	1.12000	1.50:1	51.59	22.718	2.271	1.728	0.876	45.208	0.042	0.08	0.117	442.743	442.701	445.993	445.951	FSL @ KM 380.000 AS PER AGREEMENT +445.993	SDR/HDR/F&F/HR
2		380.850	380.900	50	Transition		3.25	1.10100								0.0050	0.00	0.005	442.672	442.667	445.922	445.917	-	
		380.900	381.200	300	45.140	11.50	3.25	1.8200	0.50:1	42.660	18.767	2.273	1.729	1.061	45.240	0.037	0.00	0.037	442.667	442.630	445.917	445.880	FULL CUTTING	HR REACH
		381.200	381.250	50	Transition		3.25	1.11200								0.005	0.00	0.005	442.630	442.625	445.880	445.875		
3		382.975	383.025	50	Transition		3.25	1.9500								0.005	0.00	0.005	442.492	442.487	445.742	445.737	HR FULL CUTTING VARIES FROM 9.40 M TO 13.10 M	HP's ARE WITH HOLD FOR WANT OF HORE HOLE DATA
		383.025	383.500	475	45.140	11.00	3.25	1.7000	0.50:1	41.030	18.267	2.246	1.715	1.139	46.729	0.068	0.00	0.068	442.487	442.419	445.737	445.669		
		383.500	383.550	50	Transition		3.25	1.8500								0.005	0.00	0.005	442.419	442.414	445.669	445.664	-	
4		385.100	385.150	50	Transition		3.25	1.10550								0.005	0.00	0.005	442.276	442.271	445.526	445.521	-	
		385.150	385.500	350	45.140	12.10	3.25	1.9100	0.50:1	44.610	19.367	2.303	1.744	1.016	43.306	0.038	0.00	0.038	442.271	442.233	445.521	445.483	FULL CUTTING	HR REACH
		394.650	394.700	50	Transition		3.25	1.10100								0.005	0.00	0.005	441.127	441.122	444.377	444.372		
5		394.700	395.700	1000	45.140	11.50	3.25	1.8200	0.50:1	42.660	18.767	2.273	1.729	1.061	45.240	0.122	0.00	0.122	441.122	441.000	444.372	444.250	FULL CUTTING	HR REACH
		395.700	395.750	50	Transition		3.25	1.10100								0.005	0.00	0.005	441.000	440.995	444.250	444.245		
6		395.750	396.190/ 400.000	440	45.140	11.00	3.25	1.12000	1.50:1	51.590	22.718	2.271	1.728	0.876	45.208	0.037	0.00	0.037	440.995	440.958	444.245	444.208	HR FULL CUTTING VARIES FROM 5.70 M TO 17.10 M	FSL @ KM 396.190/400.000 AS PER AGREEMENT +444.208

Co-efficiect of Rugosity :0.018

Note: The HP's in the above reaches of packages 13 proposed vide Lr no (1) CE(P)/ATP/P-13/VOL4478CE DT-20-12-2002

2) ENCTGS/HNSS/Ph-II/Pkg 13-1 Dt-09.09.2008

3) ENCTGS/HNSS/Ph-II/Pkg 13-2 Dt-09.09.2008

4) ENCTGS/HNSS/Ph-II/Pkg 13-2 Dt-09.09.2008 are vetted and approved.

5)Approved subject to the condations that the ENC TGP/SKHT Shall approach Govt and obtained approval for devation of orginal canal now modified to Tunnel of certain reach.

Sd/-(dt.17.09.2008)
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Hyderabad.

GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2 PACKAGE NO.13)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 380.500 TO 382.975

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	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	380.500	380.850	350	45.140	11.00	3.25	1.12000	1.50:1	51.59	22.718	2.271	1.728	0.876	45.208	0.029	0.00	0.029	442.701	442.672	445.851	445.922	FSL +380.400 AS PER AGREEMENT BASICS PARAMETERS +446.993	PARTIAL CUTTING AND FILLING,ASK /HDR/ F&F
2		380.850	381.250	400	PROPOSED AS H.R REACH																			
3	2	381.250	381.950	700	45.140	11.00	3.25	1.14200	2.00:1	56.88	25.534	2.227	1.706	0.795	45.224	0.049	0.00	0.049	442.626	442.577	445.876	445.827	AKS/HDR/F&F	BED FILLING ABOUT 4.0M FOR A LENGTH 350M
4		381.950	382.000	50	Transition		3.25	1.13100								0.004	0.00	0.004	442.577	442.573	445.827	445.823		
5	3	382.000	382.975	975	45.140	11.00	3.25	1.12000	1.50:1	51.59	22.718	2.271	1.728	0.876	45.208	0.081	0.00	0.081	442.573	442.492	445.823	445.742	PARTIAL CUTTING AND FILLING	AKS/ HDR/ F&F

1) Co-efficiect of Rugosity :0.018

2) HP'S IN HR REACHING FROM KM 380.850 TO KM 381.250 ARE WITH HELD FOR WANT OF BORE HOLE DATA

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APPROVED
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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.13)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 386.500 TO 393.000

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	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	386.500	393.000	6500	45.140	11.00	3.25	1.12000	1.50:1	51.590	22.718	2.271	1.728	0.876	45.208	0.541	0.00	0.541	441.956	441.414	445.206	444.664	PARTIAL CUTTING	ALL SOILS,SDR & HDR

Co-efficiect of Rugosity :0.018

Note: The HP'S in the above reach are approved subject to the condation of undertaking sought from the agency for full filling of the tunnel and providing of the cut and cover at the approach and exit of the tunnel as per IS code and general practice as discussed in the joint inspection of the committee dated 06.03.2008.

Sd/-(dt.24.04.2008)
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APPROVED
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Hyderabad.

GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

(H.N.S.S. PHASE-2,PACKAGE NO.13)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 383.550 TO 394.650

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		383.550	384.000	450	45.140	11.20	3.25	1.10000	1.00:1	46.96	20.392	2.303	1.744	0.969	45.499	0.045	0.00	0.045	442.414	442.369	445.664	445.619	FULL CUTTING	F&F
2		384.000	384.050	50	Transition		3.25	1.11000								0.005	0.00	0.005	442.369	442.364	445.619	445.614	-	
		384.050	385.100	1050	45.140	11.00	3.25	1.12000	1.50:1	51.590	22.718	2.271	1.728	0.876	45.208	0.088	0.00	0.088	442.364	442.276	445.614	445.526	PARTIAL CUTTING FILLING	AKS/SDR/HDR/ F&F/HR
3		385.500	385.550	50	Transition		3.25	1.70	SLOPED FALLING ENTRY TRANSITION TO TUNNEL										442.232	441.521	445.483	445.371	-	
		385.550	386.000	450	45.140	6.00	3.25	1.1500	0.00:1	23.100	13.700	1.686	1.417	2.032	46.941	0.300	0.00	0.300	441.521	441.221	445.371	445.071	TUNNEL "D"SHAPE 6M * 6M	
		386.000	386.075	75	Transition		3.25	1.97									0.00	0.000	441.221	441.991	445.071	445.241	-	
		386.075	386.500	425	45.140	11.00	3.25	1.12000	1.50:1	51.590	22.718	2.271	1.728	0.876	45.208	0.035	0.00	0.035	441.991	441.956	445.241	445.206	PARTIAL CUTTING	ALL SOILS,SDR & HDR
5		393.000	393.400	400	45.140	11.00	3.25	1.12000	1.50:1	51.590	22.718	2.271	1.728	0.876	45.208	0.033	0.00	0.033	441.414	441.381	444.664	444.631		ALL SOILS,SDR & HDR
		393.400	393.450	50	Transition		3.25	1.12000								0.004	0.00	0.004	441.381	441.377	444.631	444.627		
6		393.450	393.800	350	45.140	10.00	3.25	1.12000	2.00:1	53.630	24.534	2.186	1.684	0.854	45.803	0.029	0.00	0.029	441.377	441.198	444.627	444.448	BED FILLING ABOUT 3.5M	AQUEDUCT PROPOSED
		393.800	393.850	50	Transition		3.25	1.12000								0.004	0.00	0.004	441.198	441.194	444.448	444.444		
7		393.850	394.650	800	45.140	11.00	3.25	1.12000	1.50:1	51.590	22.718	2.271	1.728	0.876	45.208	0.067	0.00	0.067	441.194	441.127	444.444	444.377	PARTIAL CUTTING FILLING	AKS/HDR/F&F

Co-efficiect of Rugosity :0.018

Note:

1) The HP's of the package with tunnel proposal furnished by ENC/TGP/HNSS/Ph-II/Pkg 13-1 Dt-18.04.2008 are vetted and approved subject to condation that the ENC will apprise the Government of the deviaion of the agreement.

2) The HP's of the package with the tunnel are approved subject to the approval of Governament for the deviation for which the ENC/TGP/SKHT to approach the Government and seek ratification.

Sd/-(dt.21.05.2008)
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Division
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APPROVED
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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.13)

HYDRAULIC PARTICULARS HNSS MAIN CANAL(STAGE-II) FROM KM 394.700 TO 395.700

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	394.700	395.700	1000	45.140	10.10	3.25	1.8200	1.00:1	43.390	19.292	2.249	1.717	1.053	45.692	0.122	0.00	0.122	441.122	441.000	444.372	444.250	FULL CUTTING	F&F , HR

1)Co-efficiect of Rugosity :0.018

2)THE PROPOSAL OF REVISION OF HP'S IN THE REACH FROM KM 394.700 TO 395.700 FURNISHED VIDE LR NO ENC/TGP/SKHT/DW/DD2/DEE2/HNSS-ATP/PKG-13/731 DT 10/12/2008 IS VETTED AND APPROVED.

3)APPROVED SUBJECT TO THE CONDATION THAT ENC/TGP/SKHT SHALL APPROACH THE GOVERNMENT AND OBTAIN APPROVAL FOR DEVIATION OF ORGINAL CANAL NOW MODIFIED TO TUNNEL OF CERTAIN REACH.

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GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

H.N.S.S. PHASE-2,PACKAGE NO.52

AVR HNSS PROJECT - MADAKASIRA BRANCH CANAL- HYDRAULIC PARTICULARSFROM KM 0.000 TO 4.050

SL.No	Reach No	Sub Reach	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			10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	III	1	0.000	0.150	150	18.180	4.40	2.20	1 In	4000	1.5	IN 1	16.940	12.332	1.374	1.236	1.085	18.388	0.037	0	0.037	451.560	451.523	453.760	453.723	
2			0.150	0.200	50	Transition		2.20		4000									0.013	0	0.013	451.523	451.510	453.723	453.710	
3		2	0.200	0.900	700	18.180	5.00	2.20	1 In	3600	1.0	IN 1	15.840	11.223	1.410	1.258	1.165	18.450	0.194	0	0.194	451.510	451.316	453.710	453.516	
4			0.900	0.950	50	Transition		2.20		3600									0.014	0	0.014	451.316	451.302	453.516	453.502	
5		3	0.950	1.225	275	18.180	5.80	2.20	1 In	3300	0.5	IN 1	15.180	10.719	1.416	1.261	1.220	18.510	0.083	0	0.083	451.302	451.219	453.502	453.419	
6	IV		1.225	1.425	200	1ST LIFT GAP																				
7																										
8	V		1.425	3.200	1775	18.180	4.40	2.20	1 In	4000	1.5	IN 1	16.920	12.332	1.374	1.236	1.085	18.388	0.444	0	0.444	473.300	472.856	475.500	475.056	
9			3.200	3.250	50	Transition		2.20		4000									0.013	0	0.013	472.856	472.843	475.056	475.043	
10			3.250	3.500	250	18.180	5.00	2.20	1 In	3600	1.0	IN 1	15.840	11.223	1.411	1.258	1.165	18.450	0.069	0	0.069	472.843	472.774	475.043	474.974	
6			3.500	3.550	50	Transition		2.20		3600									0.014	0	0.014	472.774	472.760	474.974	474.960	
7			3.550	3.850	300	18.180	5.00	2.20	1 In	3300	0.5	IN 1	15.810	10.719	1.416	1.261	1.220	18.510	0.091	0	0.091	472.760	472.669	474.960	474.869	
8			3.850	4.050	200	2ND LIFT GAP													0.972		0.972		490.800	493.000		

Finished Bed Width	Excuted Bedwidth in Physical	Side Slope	Remarks
4.40	4.46	1:1/2:1	For all soil & HDR
5.00	5.12		For F&F strata
5.80	5.83	1/2:1	For HR strata (0.23 side and 0.10 m bed)

Bed level @End	=	490.800	Total lift Height	=	40.212
Bed level @ Start	=	451.560	Bed Fall	=	0.972
Difference	=	39.240	Difference	=	39.240

// t.c.f //

Deputy Executive Engineer
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TGP,SRIKALASTI

Sd
(B.V.S.PRAKSA RAO)
Engineer -in-Cheif.
TGP,SRIKALAHSHI

GOVERNMENT OF ANDHRA PRADESH
IRRIGATION AND CAD DEPARTMENT
H.N.S.S. PHASE-2,PACKAGE NO.52
AVR HNSS PROJECT - MADAKASIRA BRANCH CANAL- HYDRAULIC PARTICULARSFROM KM 4.050 TO 8.625

SL. No	Reach No	Sub Reach	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			10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	III	1	4.050	4.500	450	18.18	4.40	2.20	1 IN	4000	1.50	IN 1	16.940	12.332	1.374	1.235	1.085	18.388	0.113	0.00	0.113	490.800	490.688	493.000	492.888	
2			4.500	4.550	50	TRANSITION		2.20		4000	1.25								0.013	0.00	0.013	490.688	490.675	492.888	492.875	
3		2	4.550	5.025	475	18.18	5.00	2.20	1 IN	3600	1.00	IN 1	15.840	11.223	1.411	1.258	1.165	18.450	0.132	0.00	0.112	490.675	490.513	492.875	492.713	
4			5.025	5.225	200	3RD LIFT GAP		2.20																		
5		3	5.225	5.550	325	18.18	5.00	2.20	1 IN	3600	1.00	IN 1	15.840	11.223	1.411	1.258	1.165	18.450	0.090	0.00	0.030	508.800	508.710	511.000	510.910	
6	IV		5.550	5.750	200	4TH LIFT GAP		2.20																		
7			5.750	6.950	1200	18.18	4.40	2.20	1 IN	4000	1.00	IN 1	16.940	12.332	1.374	1.236	1.085	18.388	0.300	0.00	0.330	529.800	528.500	531.000	530.700	
8	V		6.950	7.000	50	TRANSITION		2.20		4000	1.25								0.013	0.00	0.013	528.500	528.487	530.700	530.687	
9			7.000	7.300	300	18.18	5.00	2.20	1 IN	3600	1.00	IN 1	15.840	11.223	1.411	1.258	1.165	18.450	0.083	0.00	0.083	528.487	528.404	530.687	530.604	
10			7.300	7.350	50	TRANSITION		2.20		3600	0.75								0.014	0.00	0.014	528.404	528.390	530.604	530.590	
6			7.350	8.200	850	18.18	5.80	2.20	1 IN	3300	0.50	IN 1	15.180	10.710	1.416	1.261	1.220	18.510	0.258	0.00	0.258	528.390	528.132	530.590	530.332	
7			8.200	8.250	50	TRANSITION		2.20		3600	1.00								0.014	0.00	0.014	528.132	528.118	530.332	530.318	
8			8.250	8.625	375	18.18	5.00	2.20	1 IN	3600	1.00	IN 1	15.840	11.220	1.411	1.258	1.165	18.450	0.104	0.00	0.104	528.118	528.014	530.318	530.214	
																					1.134					

Finished Bed Width	Excuted Bedwidth in Physical	Side Slope	Remarks
4.4	4.46	1:1/2:1	For all soil & HDR
5	5.12	1:1	For F&F strata
5.8	6.03	1/2:1	For HR strata (0.23 side and 0.10 m bed)

Bed level @End	=	490.800	Total lift Height	=	38.347
Bed level @ Start	=	528.014	Bed Fall	=	1.134
Difference	=	37.214	Difference	=	37.214

// t.c.f //

Deputy Executive Engineer
(Designs)
TGP,SRIKALASTI

Sd
(B.V.S.PRAKSA RAO)
Engineer -in-Cheif.
TGP,SRIKALAHSHI

GOVERNMENT OF ANDHRA PRADESH

IRRIGATION AND CAD DEPARTMENT

H.N.S.S. PHASE-2,PACKAGE NO.52

AVR HNSS PROJECT - MADAKASIRA BRANCH CANAL- HYDRAULIC PARTICULARS FROM KM 10.000 TO KM 19.598/20.000

SL. No	Reach No	Sub Reach	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			10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		1	10.000	12.000	2000	20.64	5.50	2.20	1 IN	4300	1.50	IN 1	19.360	13.432	1.441	1.276	1.081	20.928	0.465	0.00	0.465	517.800	517.335	520.000	519.535	Cutting 3 to 5 m
2			12.000	12.050	50	Transition		2.20		4300									0.012	0.00	0.012	517.335	517.323	519.535	519.523	
3		2	12.050	12.850	800	20.64	5.80	2.20	1 IN	3600	1.00	IN 1	17.600	12.023	1.464	1.289	1.194	21.010	0.222	0.00	0.222	517.323	517.101	519.523	519.301	Cutting 5 to 8 m
4			12.850	12.900	50	Transition		2.20		3600									0.014	0.00	0.014	517.101	517.087	519.301	519.287	
5		3	12.900	13.550	650	20.64	5.50	2.20	1 IN	4300	1.50	IN 1	19.360	13.432	1.441	1.276	1.081	20.928	0.151	0.00	0.151	517.087	516.936	519.287	516.136	Cutting 3 to 6 m
6			13.550	13.600	50	Transition		2.20		4300									0.012	0.00	0.012	516.936	516.924	516.136	519.124	
7		4	13.600	14.450	850	20.64	5.50	2.20	1 IN	5300	2.00	IN 1	21.780	15.339	1.420	1.263	0.964	20.997	0.160	0.00	0.160	516.924	516.764	519.124	518.964	Full banking
8			14.450	14.500	50	Transition		2.20		5300									0.009	0.00	0.009	516.764	516.735	518.964	518.955	
9		5	14.500	17.700	3200	20.64	5.50	2.20	1 IN	4300	1.50	IN 1	19.360	13.432	1.441	1.276	1.081	20.928	0.744	0.00	0.744	516.735	516.011	518.955	518.211	Cutting 3 to 5 m &Partial banking
10			17.700	17.750	50	Transition		2.20		4300									0.012	0.00	0.012	516.011	515.999	518.211	518.199	
11		6	17.750	18.800	1050	20.64	5.80	2.20	1 IN	3600	1.00	IN 1	17.600	12.023	1.464	1.289	1.194	21.010	0.292	0.00	0.292	515.999	515.707	518.199	517.907	Cutting 3 to 6 m
12			18.800	18.850	50	Transition		2.20		3600									0.014	0.00	0.014	515.707	515.693	517.907	517.893	
13		7	18.850	19.000	150	18.18	5.80	2.20	1 IN	3300	0.50	IN 1	15.180	10.719	1.416	1.261	1.220	18.510	0.045	0.00	0.045	515.693	515.648	517.893	517.848	Cutting 10 to 14 m
14			19.000	19.200	200	LIFT GAP														0.00	0.000	515.648	561.100	517.848	563.300	
15			19.200	19.250	50	Transition		2.20	1 IN	3300									0.015	0.00	0.015	561.100	561.085	563.300	563.285	
16		8	19.250	19.525	275	18.18	TUNNEL			1330									0.207	0.00	0.207	561.085	560.578	563.285	563.078	
17			19.525	19.575	50	Transition		2.50		8000									0.006	0.00	0.006	560.578	560.572	563.078	563.072	
18		9	19.575	19.598/ 20.000	23	18.18	6.00	2.50		8000	1.5	IN 1	24.375	15.014	1.623	1.381	0.858	20.914	0.003	0.00	0.003	560.572	560.569	563.072	563.069	Cutting 3 to 5 m
																			2.383	0.00	2.383					

// t.c.f //

Sd/-(dt.29.10.07)
Executive Engineer
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Division,CDO, Hyderabad.

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