

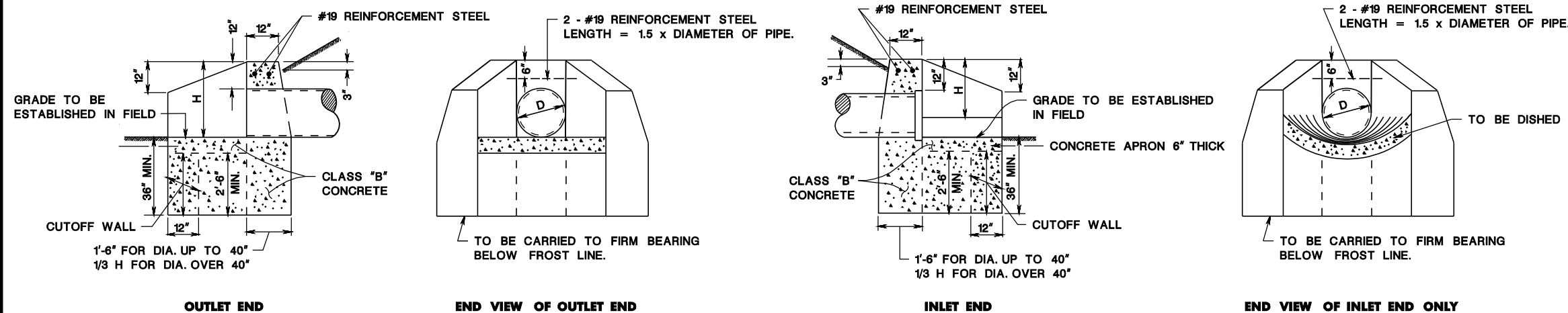
CONCRETE HEADWALL

HEADWALL QUANTITY IN CUBIC YARDS		
PIPE DIA.	CORR. STEEL PIPE	REINF. CONC. PIPE
12"	1.0	1.1
15"	1.3	1.4
18"	1.7	1.7
21"	2.0	2.1
24"	2.3	2.5
27"	2.7	2.8
30"	3.1	3.3
36"	3.9	4.2
42"	4.8	5.8
48"	6.3	7.6
54"	8.1	9.7
60"	10.1	12.1
66"	12.3	14.9
72"	14.5	18.0

GENERAL NOTES:

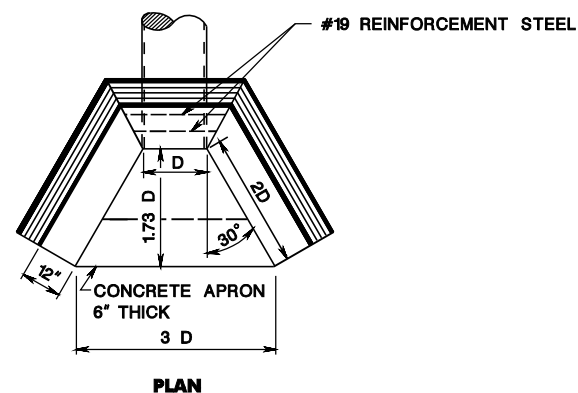
1. THE FINISHING OF CONCRETE HEADWALLS WILL NOT BE REQUIRED FOR HEADWALLS AT THE BOTTOM OF EMBANKMENTS IN RURAL AREAS.
2. ALL EDGES TO BE CHAMFERED 1 INCH.
3. FOR ARCH PIPE USE LENGTH OF HEADWALL AS $3H + \text{SPAN}$.
4. FOR MORE THAN ONE PIPE, SET THE PIPE A MINIMUM OF ONE FOOT APART (OUTSIDE BARREL TO OUTSIDE BARREL); THE ENDS OF THE HEADWALL TO BE SET 2 x DIAMETER OFF THE CENTERLINE OF THE CONTROLLING PIPE.

CD-602-10.1



NOTE:
REINFORCEMENT STEEL IS IN METRIC UNITS.

VOLUME OF CONCRETE IN HEADWALLS AND APRONS IN CUBIC YARDS			
PIPE DIA.	CORR. STEEL PIPE	REIN. CONC. PIPE	APRONS
12"	1.6	1.7	0.4
15"	2.0	2.1	0.5
18"	2.4	2.5	0.6
21"	2.8	3.0	0.8
24"	3.3	3.4	0.9
27"	3.7	4.0	1.1
30"	4.2	4.5	1.2
36"	5.3	5.6	1.5
42"	7.2	7.9	1.9
48"	9.4	10.4	2.3
54"	12.0	13.3	2.7
60"	15.0	16.6	3.2
66"	18.5	20.5	3.7
72"	22.4	24.8	4.2



CONCRETE HEADWALL WITH APRON

GENERAL NOTES:

1. ALL EDGES TO BE CHAMFERED 1 INCH.
2. THE FINISHING OF CONCRETE HEADWALLS WILL NOT BE REQUIRED FOR HEADWALLS AT THE BOTTOM OF EMBANKMENTS IN RURAL AREAS.
3. FOR MORE THAN ONE PIPE, SET THE PIPES A MINIMUM OF ONE FOOT APART (OUTSIDE BARREL TO OUTSIDE BARREL); THERE IS TO BE 12 INCHES ABOVE THE TOP OF A PIPE IN A WINGWALL: THE TERMINUS OF THE WINGWALL TO BE 2 X DIAMETER FROM THE CENTERLINE OF THE PIPE IN A WINGWALL.
4. SET THE TERMINUS FOR OUTLET AND INLET APRONS BY EXTENDING THE PIPE GRADE AHEAD AND BACK, RESPECTIVELY.
5. FOR ARCH PIPE, THE SPAN TO BE SUBSTITUTED FOR D.

CONCRETE HEADWALL AND APRON

N.T.S.

CD-602-10

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-602-10.2