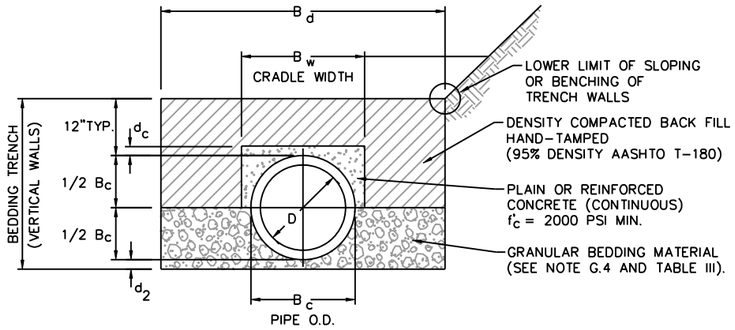
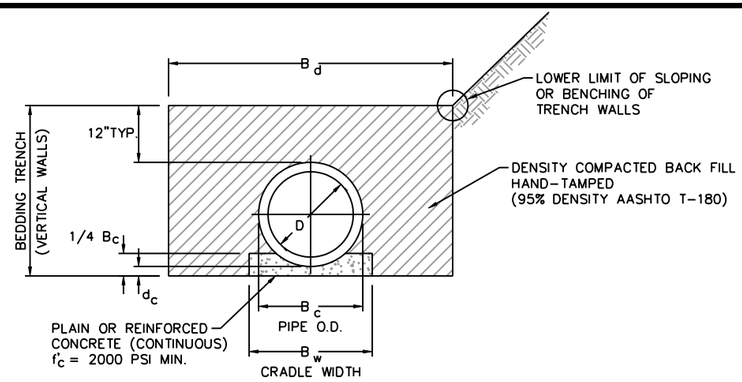
CLASS "A" BEDDING REQUIREMENTS



CONCRETE ARCH
CONCRETE STORM PIPE



CONCRETE CRADLE
CONCRETE STORM PIPE

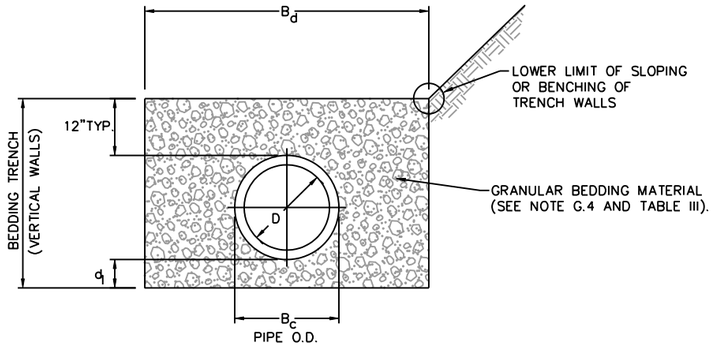
TABLE I		
NOMINAL DIAMETER (D)	MINIMAL THICKNESS (d_C)	MIN. WIDTH OF CRADLE (B_W)
18"	4"	B_C + 8"
21" TO 24"	6"	B_C + 8"
27" TO 33"	8"	B_C + 8"
36" TO 42"	10"	1.25 B_C
48" & LARGER	1/4" D	1.25 B_C

d_C = DEPTH OF BEDDING BELOW BOTTOM OF PIPE FOR CONCRETE CRADLE AND/OR DEPTH OF BEDDING ABOVE TOP OF PIPE FOR CONCRETE ARCH.

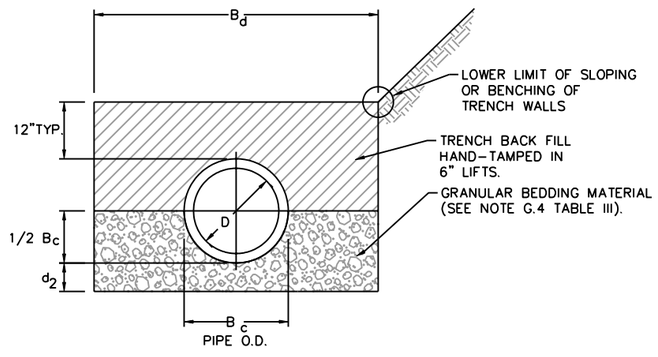
CLASS A NOTES:

1.1 THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR STRUCTURAL DESIGN OF THE CONCRETE CRADLE AND/OR CONCRETE ARCH.

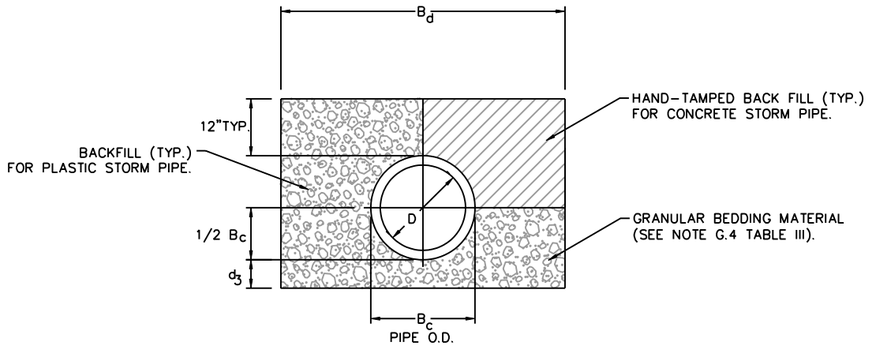
CLASS "B" BEDDING REQUIREMENTS – GRANULAR BEDDING



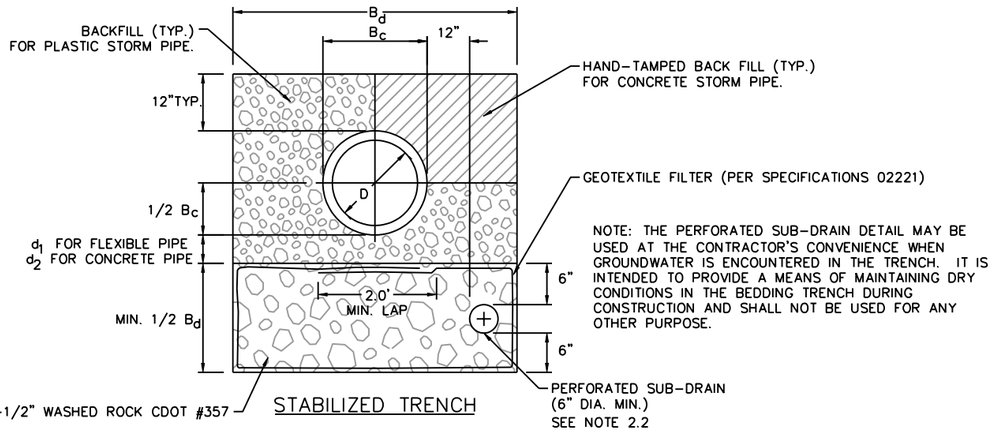
IDEAL TRENCH CONDITIONS
PLASTIC STORM PIPE



IDEAL TRENCH CONDITIONS
CONCRETE STORM PIPE



ROCK EXCAVATION



STABILIZED TRENCH

TABLE II			
MIN. DEPTH OF BEDDING MATERIAL BELOW BOTTOM OF PIPE			
PIPE SIZE – D*	d_1	d_2	d_3
18" TO 30"	6"	3"	6"
36" TO 60"	6"	4"	6"
66" & LARGER	8"	6"	8"
* FOR ARCH OR ELLIPTICAL PIPE D = SPAN DIMENSION.			

B_C = PIPE O.D.

B_d : MINIMUM TRENCH WIDTH = PIPE O.D. + 16"
MAXIMUM TRENCH WIDTH = PIPE O.D. + 30"

D = PIPE I.D. (OR SPAN DIMENSION FOR ARCH OR ELLIPTICAL PIPE).

d_1, d_2, d_3 = DEPTH OF BEDDING MATERIAL BELOW BOTTOM OF PIPE.

TABLE III	
* CLASS 67 GRADATION * ASTM C-33 OR ASTM D-448	
SIEVE SIZE	% BY WEIGHT
3/4"	90 – 100
3/8"	20 – 55
NO. 4	0 – 10
NO. 8	0 – 5

CLASS B NOTES:

2.1 BELL HOLES SHALL BE EXCAVATED AT ALL BELL AND SPIGOT JOINTS.

2.2 SUB DRAIN PIPE TO BE AN ACCEPTED PERFORATED PIPE CONFORMING TO APPLICABLE REQUIREMENTS OF THE SPECIFICATIONS.

2.3 BEDDING TRENCH BACK FILL TO BE COMPACTED TO 95% DENSITY, AASHTO T-180.

GENERAL NOTES:

G.1 THESE DETAILS ARE TYPICAL FOR NORMAL CONDITIONS. FOR INSTALLATIONS OTHER THAN THESE (SUCH AS EMBANKMENT, UNUSUAL OR UNSTABLE SOIL CONDITIONS OR TUNNEL INSTALLATIONS, ETC.) EXCAVATION, BEDDING AND BACK FILL REQUIREMENTS SHALL BE DETAILED ON THE CONSTRUCTION DRAWINGS.

G.2 ULTIMATE BACK FILL LOADS AND STRUCTURAL DESIGN OF PIPE OR CONDUIT SHALL BE BASED UPON B_d > TRANSITION WIDTH AS SET FORTH IN THE AMERICAN CONCRETE PIPE ASSOCIATION DESIGN MANUAL.

G.3 FOR INSTALLATION OTHER THAN TYPICAL CONDITIONS, EXCAVATION, BEDDING AND STRUCTURAL REQUIREMENTS SHALL BE DESIGNED IN ACCORDANCE WITH THE REFERENCES NOTED (DESIGN AND CONSTRUCTION OF SANITARY AND STORM SEWERS WPCF MANUAL OF PRACTICE NO. 9, ASCE MANUAL ON ENGINEERING PRACTICE NO. 37, LATEST REVISION) AND AS ACCEPTED BY THE CITY.

G.4 GRANULAR BEDDING SHALL BE HAND TAMPED IN 6" LIFTS AND SHALL CONFORM TO ASTM C-22 OR ASTM D-488 GRADATION SIZE #67 (PER TECHNICAL SPECIFICATIONS, SECTION 02221 AND TABLE III ABOVE).

TRENCHING & BEDDING (CLASS "A" & "B")

CITY OF LOVELAND
PUBLIC WORKS DEPT.
STORMWATER

STORMWATER CONSTRUCTION DRAWINGS

APPROVED: KWG
DATE: 8/17/07
DRAWN BY: TBK

DRAWING
SW-1