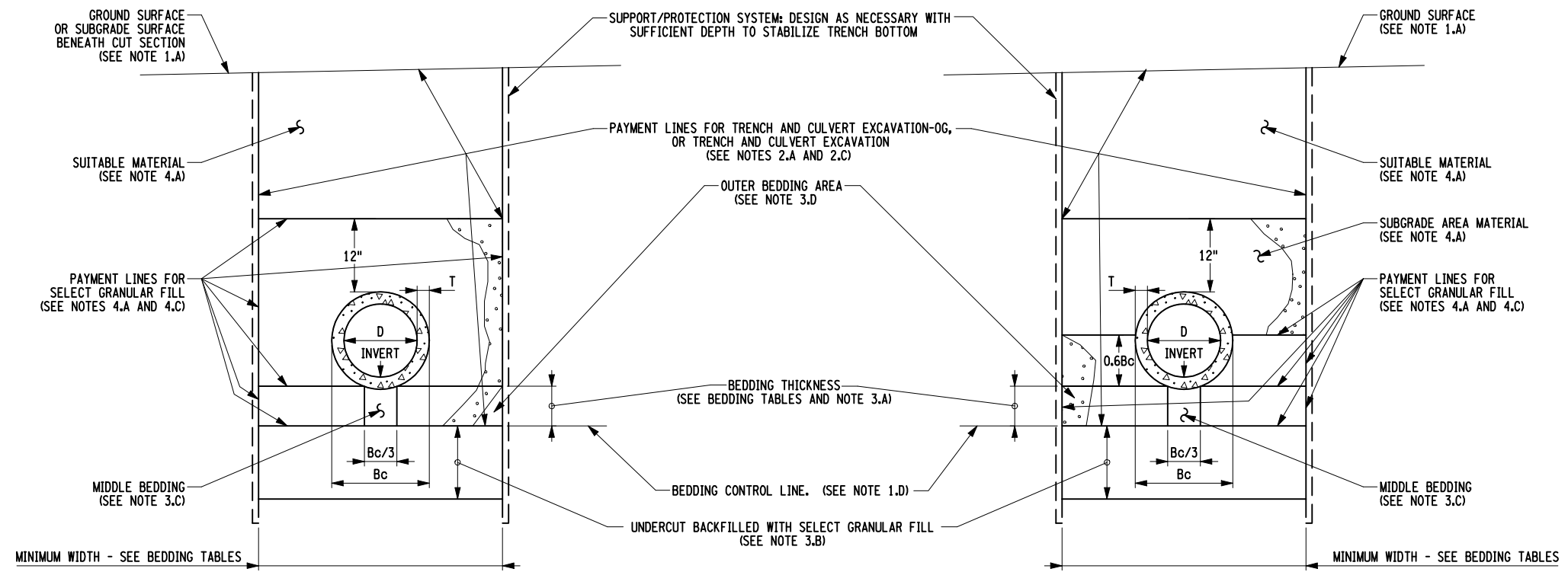
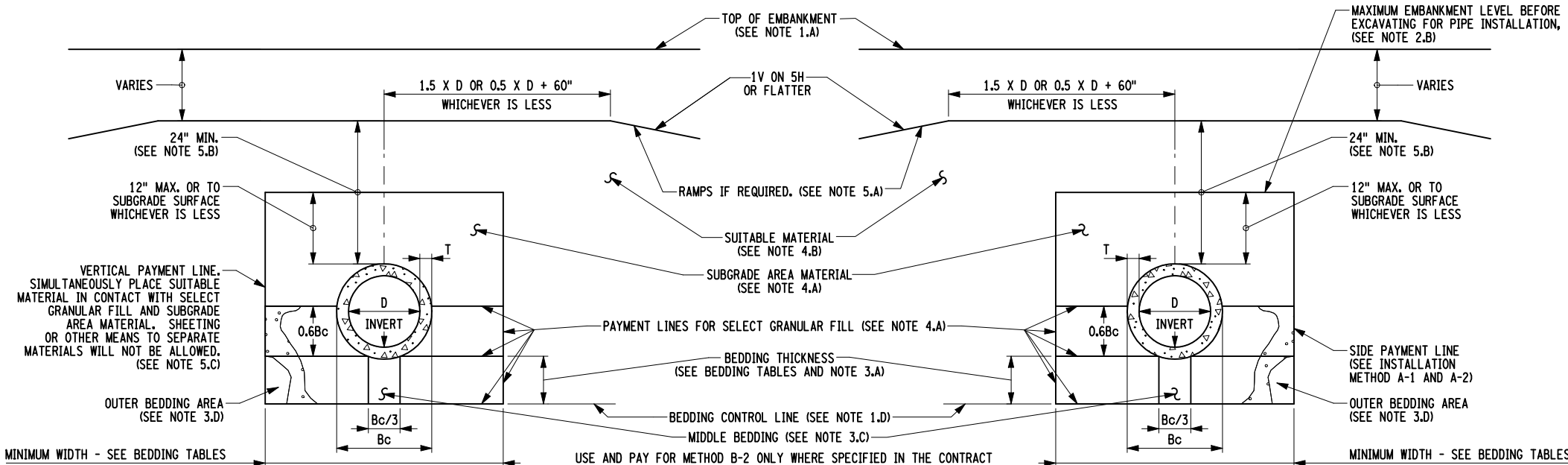


- GENERAL NOTES
 - SEE CHAP. 8, APP. A, OF THE HIGHWAY DESIGN MANUAL FOR MAXIMUM ALLOWABLE HEIGHT OF COVER.
 - WHERE DESIGN INFORMATION INDICATES UNSUITABLE MATERIAL EXISTS AT OR BELOW THE INVERT ELEVATION, SPECIAL DESIGN FEATURES AND CONSTRUCTION TREATMENTS BASED ON SUBSURFACE EXPLORATIONS ARE NECESSARY.
 - WHERE UNSUITABLE MATERIAL, NOT ANTICIPATED DURING DESIGN, IS ENCOUNTERED AT OR BELOW INVERT ELEVATION, CONSULT WITH THE REGIONAL GEOTECHNICAL ENGINEER FOR TREATMENT RECOMMENDATIONS.
 - THE BEDDING CONTROL LINE (BCL) IS A HORIZONTAL LINE LOCATED BELOW THE INVERT WHICH REPRESENTS THE BOTTOM ELEVATION FOR BEDDING MATERIAL PLACEMENT AND THE TOP ELEVATION OF UNDERCUT BACKFILL WHERE REQUIRED. THE BCL IS ALSO USED FOR QUANTITY PAYMENT PURPOSES FOR "TRENCH AND CULVERT EXCAVATION" ITEMS, BEDDING MATERIAL PLACEMENT, AND UNDERCUT MATERIAL PLACEMENT. THE LOCATION OF THE BCL AND THE ACTUAL BEDDING THICKNESS VARY WITH PIPE SIZE AND WALL THICKNESS. SEE BEDDING THICKNESS TABLE.
- EXCAVATION NOTES
 - WHERE A GENERAL EXCAVATION OF UNSUITABLE OR UNSTABLE MATERIAL IS REQUIRED TO EXTEND BEYOND THE LATERAL AND DEPTH LIMITS INDICATED FOR METHOD A-1 OR A-2, THE EXCAVATION WITHIN THE LIMITS SHOWN WILL BE PAID AS "UNCLASSIFIED EXCAVATION AND DISPOSAL" AND THIS QUANTITY WILL BE DEDUCTED FROM THE RESPECTIVE CONTRACT QUANTITIES FOR "TRENCH AND CULVERT EXCAVATION-OG" OR "TRENCH AND CULVERT EXCAVATION". INSTALL THE CULVERT IN ACCORDANCE WITH DETAILS FOR METHOD B-1 OR B-2 AS SHOWN ON THE PLANS.
 - WHERE A STABLE WORKING PLATFORM MUST FIRST BE ESTABLISHED OVER A SUBMERGED OR UNSTABLE SURFACE, THE ENGINEER IN CHARGE MAY SPECIFY A LOWER EMBANKMENT LEVEL FOR INITIATING THE EXCAVATION FOR THE PIPE. IN THIS CASE, COMPLETE THE REMAINDER OF THE INSTALLATION ABOVE THE "WORKING PLATFORM" USING METHOD B-1.
 - FOR PIPE INSTALLED IN A ROCK TRENCH, SIDE PAYMENT LINES FOR TRENCH EXCAVATION ARE THE SAME AS SHOWN FOR INSTALLATION METHODS A-1 AND A-2. THE PAYMENT LINE FOR DEPTH OF EXCAVATION IS THE DEPTH NEEDED TO PLACE THE BEDDING MATERIAL AND THE UNDERCUT BACKFILL MATERIAL, SELECT GRANULAR FILL.
 - THE MINIMUM TRENCH WIDTH MAY BE ADJUSTED TO (Bc+6"), IF CONTROLLED LOW STRENGTH MATERIAL (CLSM) IS TO BE USED AS BACKFILL. SEE MINIMUM BEDDING WIDTH TABLE.
- BEDDING NOTES
 - USE THE BEDDING THICKNESS TABLE TO DETERMINE THE LOCATION OF THE BEDDING CONTROL LINE (BCL) AND THE MINIMUM BEDDING THICKNESS FOR THE GIVEN PIPE SIZE. COMPUTE THE ACTUAL BEDDING THICKNESS AS THE DISTANCE FROM INVERT TO BCL MINUS THE PIPE WALL THICKNESS.
 - TO ESTABLISH STABLE BEDDING CONDITIONS, AN UNDERCUT BACKFILLED WITH SELECT GRANULAR FILL MATERIAL MAY BE ORDERED BY THE ENGINEER IN CHARGE. THE MINIMUM DEPTH OF UNDERCUT AS MEASURED FROM THE BCL IS 12" AND THE MAXIMUM IS 24".
 - LOOSELY PLACE SELECT GRANULAR FILL IN MIDDLE BEDDING AREA (Bc/3). DO NOT COMPACT MIDDLE BEDDING AREA.
 - COMPACT THE OUTER BEDDING AREAS IN CONFORMANCE WITH THE REQUIREMENTS OF §203-3.15 OF NYSDOT STANDARD SPECIFICATIONS.
- BACKFILL NOTES
 - COMPACT IN CONFORMANCE WITH THE REQUIREMENTS OF STANDARD SPECIFICATIONS §203-3.15.
 - COMPACT IN CONFORMANCE WITH THE REQUIREMENTS OF STANDARD SPECIFICATIONS §203-3.12.
 - CONTROLLED LOW STRENGTH MATERIAL (CLSM) PLACED IN CONFORMANCE WITH THE REQUIREMENTS OF SECTION 204 OF THE STANDARD SPECIFICATIONS AND APPLICABLE CLSM STANDARD SHEET MAY BE USED IN METHODS A-1, A-2 OR B-2.
- CONSTRUCTION OPERATION NOTES
 - AT THE CONTRACTOR'S RISK, CONSTRUCTION EQUIPMENT MAY BE ALLOWED TO CROSS OVER A PIPE INSTALLATION USING RAMPS CONSTRUCTED AS SHOWN IN METHOD B-1 OR B-2 COMPACTED IN CONFORMANCE WITH THE REQUIREMENTS OF §203-3.12 OF NYSDOT STANDARD SPECIFICATIONS. ALL RAMPS WHICH CANNOT BE USED AS PART OF THE COMPLETED EMBANKMENT ARE INSTALLED AND REMOVED AT THE CONTRACTOR'S EXPENSE. ANY PIPE OR STRUCTURE DAMAGED OR DISTURBED BY THESE ACTIVITIES MUST BE REPLACED BY THE CONTRACTOR AT NO EXPENSE TO THE STATE.
 - SEE PROOF ROLLING RESTRICTIONS IN §203-3.13E OF NYSDOT STANDARD SPECIFICATIONS.
 - THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, MAY PLACE A TRAPEZOIDAL SECTION OF SELECT GRANULAR FILL AROUND THE PIPE IN LIEU OF SIMULTANEOUS PLACEMENT WITH SUITABLE MATERIAL. THE MINIMUM DIMENSIONS OF THE TRAPEZOID MUST ENCOMPASS THE PAYMENT LINES FOR THE SELECT GRANULAR FILL AND SUBGRADE AREA MATERIAL AS SHOWN ON INSTALLATION METHOD B-1. NO PAYMENT WILL BE MADE UNDER THIS OPTION FOR SELECT GRANULAR FILL PLACED OUTSIDE THE LIMITS OF INSTALLATION METHOD B-1.



INSTALLATION METHOD A-1
TRENCH AREA BENEATH ROADWAYS,
PAVEMENTS, AND SURFACE LOADS

INSTALLATION METHOD A-2
TRENCH AREAS NOT SUBJECT TO SURFACE LOADS
TRENCH AREAS NOT SENSITIVE TO SETTLEMENT

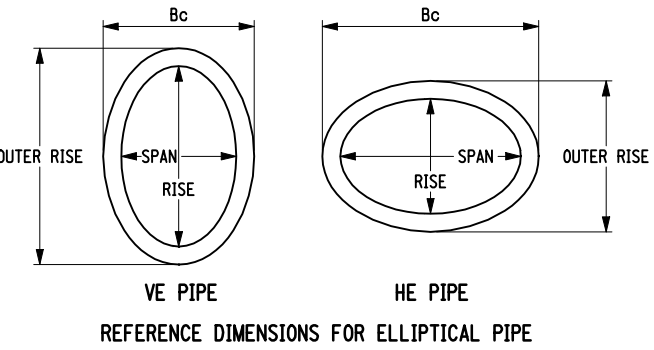


INSTALLATION METHOD B-1
BEFORE EMBANKMENT

INSTALLATION METHOD B-2
AFTER EMBANKMENT

FOUNDATION TYPE	PIPE DIAMETER OR SPAN (IN)	D ≤ 12"	12" < D ≤ 24"	24" < D ≤ 36"	36" < D ≤ 48"	48" < D ≤ 60"	60" < D ≤ 72"	72" < D ≤ 84"	84" < D ≤ 96"	96" < D ≤ 108"	108" < D ≤ 132"	132" < D ≤ 144"
SOIL	DISTANCE (IN) INVERT TO BCL	5"	6"	7"	8"	9"	11"	12"	13"	15"	18"	20"
	MINIMUM THICKNESS	3"	3"	3"	3"	3"	3"	4"	5"	5"	6"	7"
ROCK	DISTANCE (IN) INVERT TO BCL	8"	9"	10"	11"	12"	14"	16"	18"	20"	25"	27"
	MINIMUM THICKNESS	6"	6"	6"	6"	6"	6"	8"	10"	10"	13"	14"

TABLE VALUES ARE BASED ON WALL THICKNESS FOR CIRCULAR PIPE. FOR VERTICAL ELLIPTICAL PIPE, AN INCREASE OF ALL TABLE VALUES BY 1" IS REQUIRED. FOR HORIZONTAL ELLIPTICAL PIPE: A DEDUCTION OF 1" FROM TABLE VALUES IS ALLOWED FOR SPANS GREATER THAN 48" A DEDUCTION OF 2" FROM TABLE VALUES IS ALLOWED FOR SPANS GREATER THAN 108"



FOUNDATION TYPE	PIPE DIAMETER "D" OR SPAN (IN.)	WIDTH
SOIL	24" OR LESS	Bc + 2*D OR Bc + 2*SPAN
	GREATER THAN 24"	Bc + 48"
ROCK	ALL SIZES	Bc + 24"

Bc IS OUT-TO-OUT SPAN IN INCHES. (SEE NOTE 2.D)

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

U.S. CUSTOMARY STANDARD SHEET

INSTALLATION DETAILS
FOR
REINFORCED CONCRETE PIPES

APPROVED OCTOBER 01, 2008 ISSUED UNDER EB 08-036

/s/ ROBERT L. SACK, P.E.
DEPUTY CHIEF ENGINEER
(TECHNICAL SERVICES)

203-04

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