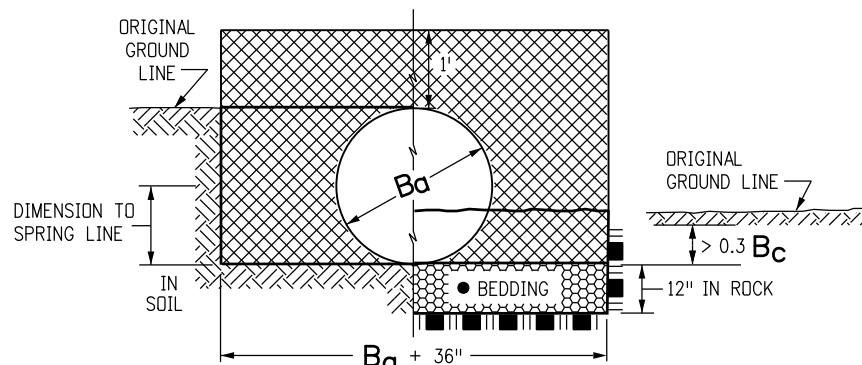


PIPE IN TRENCH

- THE BEDDING MATERIAL FOR RIGID PIPE IN SOIL SHALL BE 3 IN. OF LOOSE STRUCTURE BACKFILL (CLASS 1 OR 2). BEDDING IS NOT REQUIRED FOR FLEXIBLE PIPE IN SOIL. BEDDING MATERIAL FOR RIGID OR FLEXIBLE PIPE IN ROCK SHALL BE 12 IN. OF LOOSE STRUCTURE BACKFILL, CLASS 1.

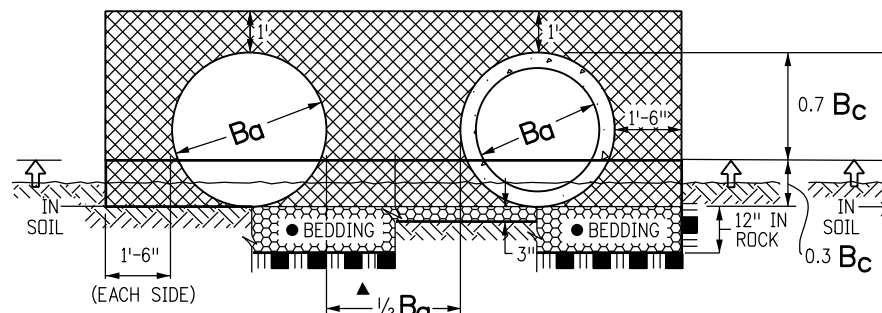
ALL EXCAVATION AND BACKFILL, INCLUDING BEDDING MATERIAL BELOW THIS LINE SHALL BE INCLUDED IN THE BID PRICE FOR THE PIPE. ABOVE THE LINE, THEY SHALL BE PAID FOR AS STRUCTURE EXCAVATION AND EMBANKMENT.



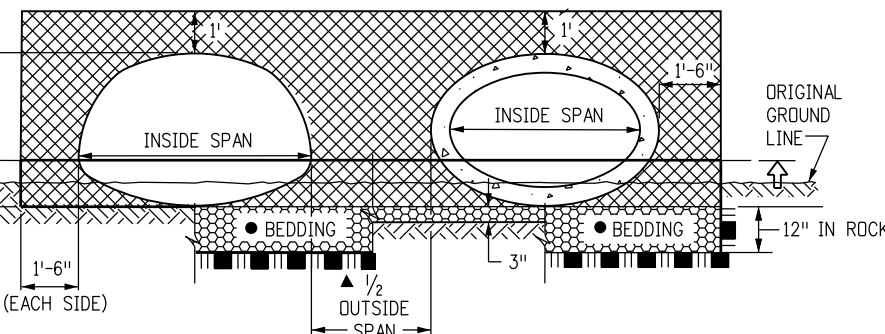
CIRCULAR PIPE

(WHERE ORIGINAL GROUND LINE IS BETWEEN $0.3 B_c$ AND $B_c + 1$ FT. ABOVE FLOWLINE)

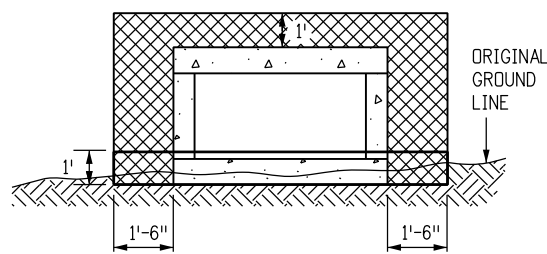
- ▲ WHEN TWO OR MORE CONDUITS ARE LAID SIDE-BY-SIDE, THEY SHALL BE PLACED SO THAT THEY ARE $\frac{1}{2}$ OUTSIDE DIAMETER, OR $\frac{1}{2}$ OUTSIDE SPAN, OR 3 FT. APART, WHICHEVER IS LESS. HOWEVER, IF END SECTIONS ARE USED, THE MINIMUM SPACING SHALL BE 1 FT. BETWEEN END SECTIONS.



CIRCULAR PIPE IN FILL

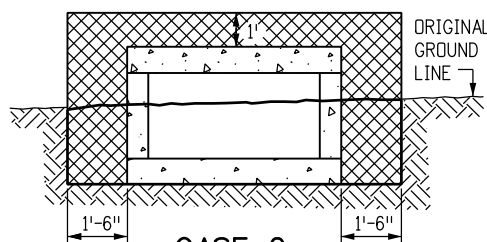


ARCH OR ELLIPTICAL PIPE IN FILL



CASE 1

APPLIES WHEN THE ORIGINAL GROUND LINE IS LESS THAN 1 FT. ABOVE THE BOTTOM OF THE BOX CULVERT. THE EMBANKMENT SHALL BE BUILT UP TO 1 FT. ABOVE THE BOTTOM OF THE BOX CULVERT AND THEN EXCAVATED TO THE BOTTOM OF THE BOX CULVERT. THIS EMBANKMENT AND EXCAVATION WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK.

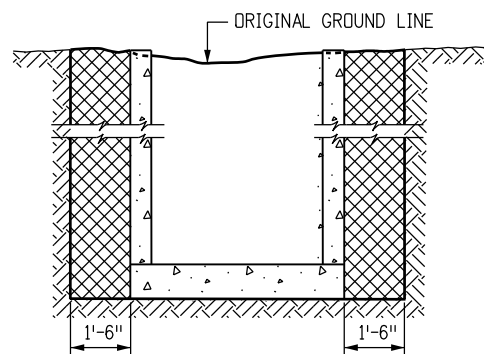


CASE 2

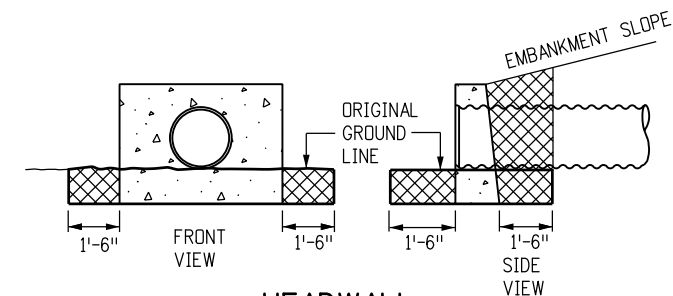
APPLIES WHEN THE ORIGINAL GROUND LINE IS MORE THAN 1 FT. ABOVE THE BOTTOM OF THE BOX CULVERT.

CONCRETE BOX CULVERT

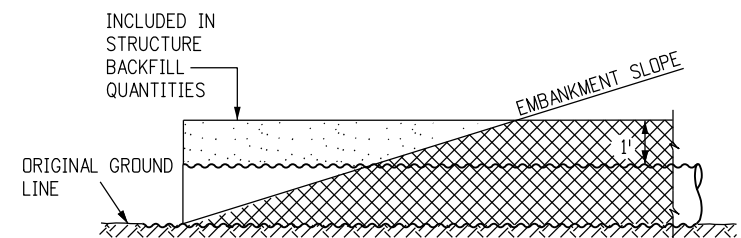
IN BOTH CASES, THE TRENCH (OUTLINED BY THE THICK SOLID LINE) SHALL THEN BE EXCAVATED TO ACCOMMODATE CONSTRUCTION OF THE BOX CULVERT.



DROP INLETS AND DIVISION BOXES



HEADWALL



END OF PIPE

GENERAL NOTES

1. EXCAVATION AND BACKFILL PATTERNS DIFFERENT FROM THOSE INDICATED ON THESE SHEETS WILL BE SHOWN ELSEWHERE ON THE PLANS.
2. EXCAVATION FOR CHANNEL CHANGE OR CHANNEL IMPROVEMENT WILL BE EITHER UNCLASSIFIED EXCAVATION OR MUCK EXCAVATION AND WILL BE NOTED ON THE PLANS. EXCAVATION FROM THE CHANNEL FLOWLINE TO THE DEPTH REQUIRED FOR THE NEW STRUCTURE AND INCIDENTAL CHANNEL EXCAVATION WILL BE PAID FOR AS STRUCTURE EXCAVATION.
3. STRUCTURE FOOTINGS WHICH ARE LOCATED IN ROCK SHALL BE POURED OUT TO UNDISTURBED ROCK WITHOUT FORMING IN CONFORMANCE WITH SUBSECTION 601.09(b).
4. STRUCTURAL PLATE CULVERTS SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS.
5. B_o EQUALS THE INSIDE DIAMETER OF A PIPE AND B_c EQUALS THE OUTSIDE DIAMETER OF A PIPE. FOR THIN WALLED PIPES, IT IS ASSUMED THAT $B_o = B_c$.
6. APPROXIMATE STRUCTURE EXCAVATION AND BACKFILL QUANTITIES, UP TO 1 FT. OVER THE PIPE WILL BE SHOWN ON THE PLANS, FOR INFORMATION ONLY.

LEGEND

	STRUCTURE EXCAVATION LIMITS		ROCK
	STRUCTURE BACKFILL, CLASS 1 OR 2, AS SHOWN ON PLANS		BEDDING
	STRUCTURE BACKFILL, CLASS 1		CONCRETE
	EMBANKMENT MATERIAL		= WHEN FLOW LINE OF CULVERT IS LESS THAN $0.3 B_c$ BELOW THE ORIGINAL GROUND LINE, EMBANKMENT SHALL BE BUILT UP TO $0.3 B_c$ ABOVE THE FLOW LINE AND TRENCH EXCAVATED TO THE BOTTOM OF PIPE OR AS SHOWN.
	EARTH		WIDTH OF APRON

CONDUIT WITH END SECTIONS

Computer File Information

Creation Date: 07/31/19	(R-X)
Designer Initials: JBK	(R-X)
Last Modification Date: 07/31/19	(R-X)
Detailer Initials: LTA	(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)

Sheet Revisions

Date:	Comments

Colorado Department of Transportation
 2829 West Howard Place
 CDDT HQ, 3rd Floor
 Denver, CO 80204
 Phone: 303-757-9021 FAX: 303-757-9868
 Project Development Branch JBK

EXCAVATION AND BACKFILL FOR STRUCTURES

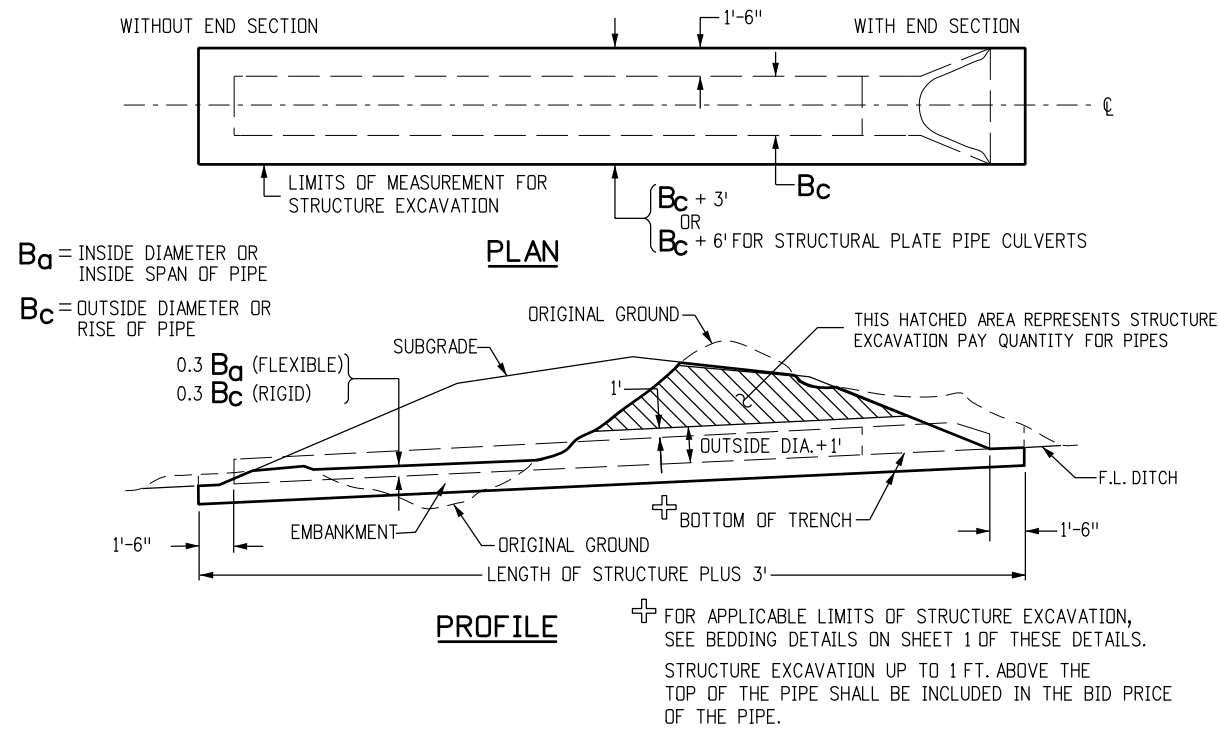
Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.

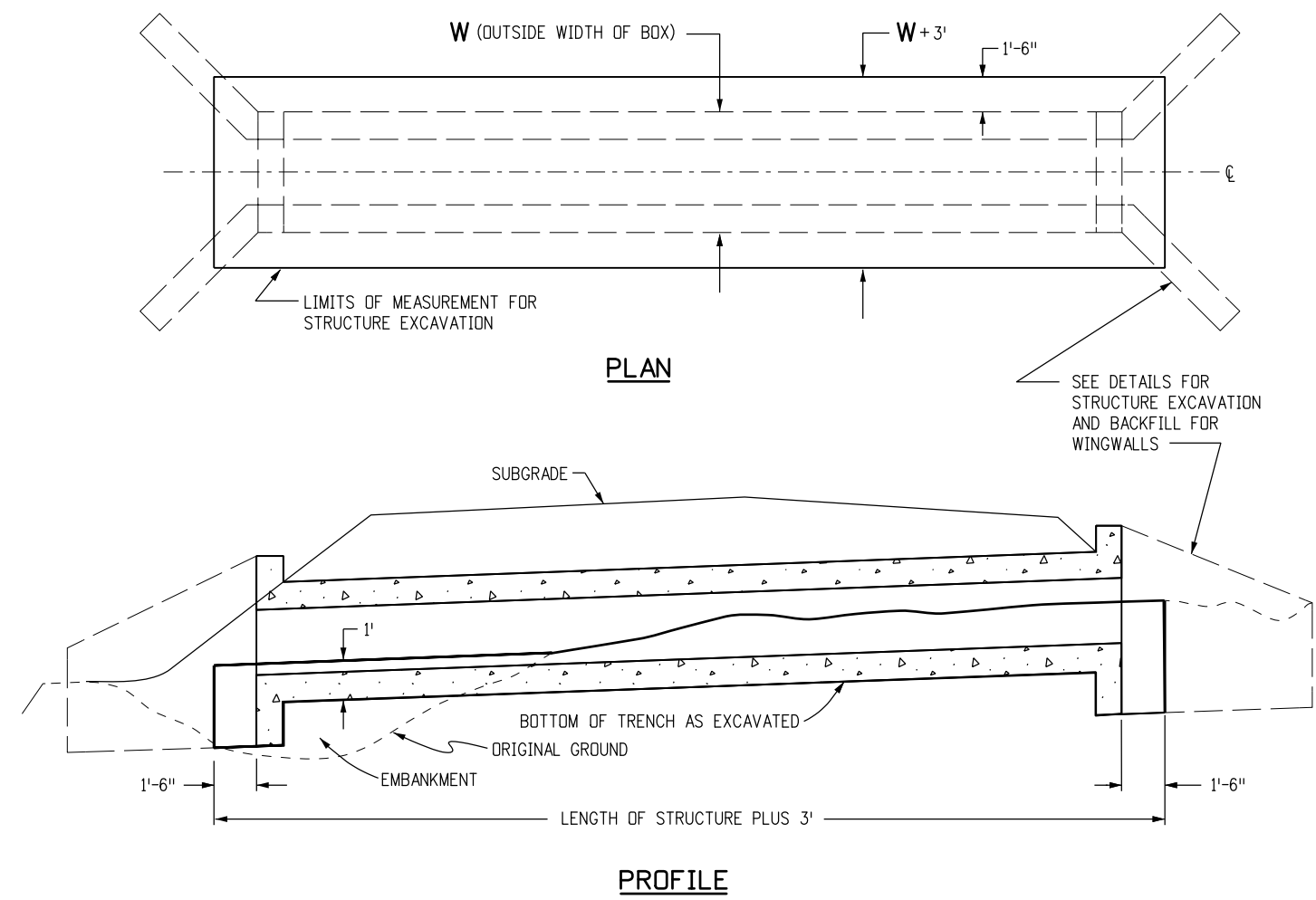
M-206-1

Standard Sheet No. 1 of 2

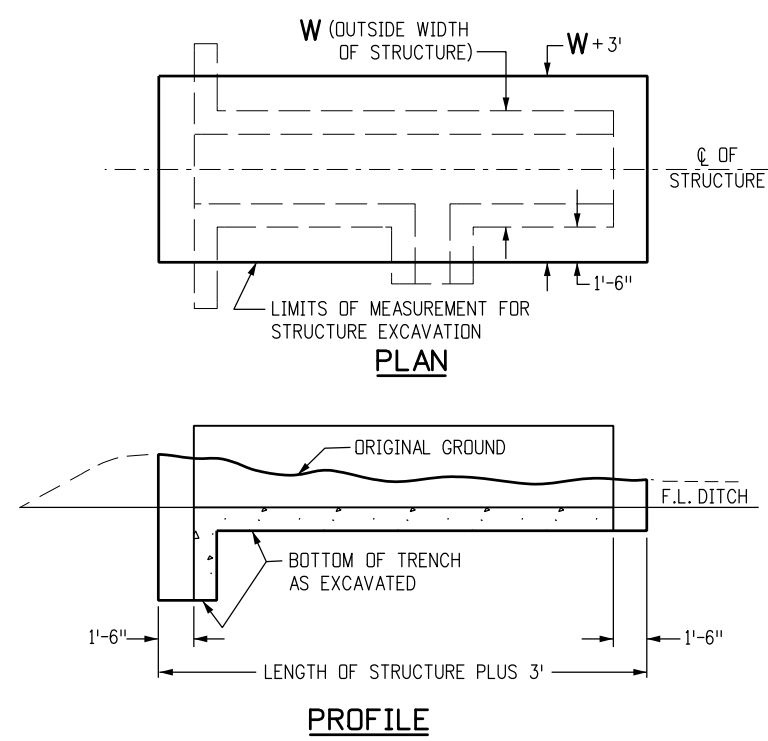
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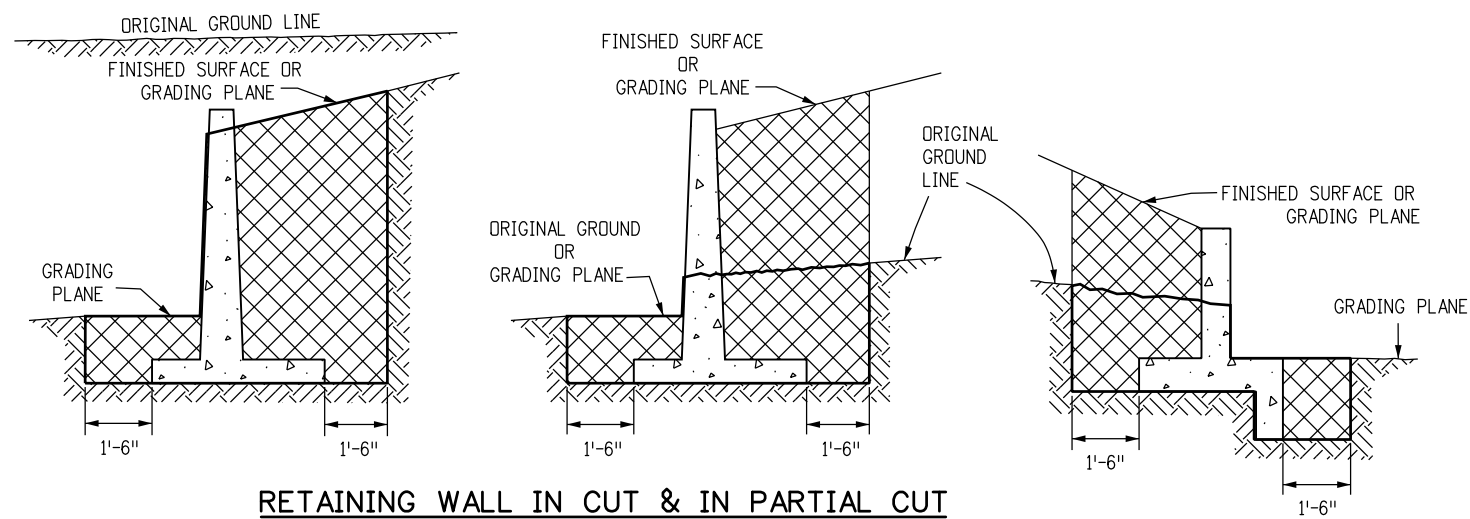
STRUCTURE EXCAVATION MEASUREMENT FOR PIPE CULVERTS



STRUCTURE EXCAVATION MEASUREMENT FOR CONCRETE BOX CULVERTS



STRUCTURE EXCAVATION MEASUREMENT FOR DIVISION BOXES



ANY ADDITIONAL EXCAVATION BEHIND THE LIMITS SHOWN SHALL BE FILLED WITH CLASS I BACKFILL MATERIAL. THE ADDITIONAL EXCAVATION AND BACKFILL WILL NOT BE MEASURED AND PAID FOR.

LEGEND

	STRUCTURE EXCAVATION LIMITS
	STRUCTURE BACKFILL, CLASS 1 OR 2, AS SHOWN ON PLANS
	CONCRETE

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Project Development Branch **JBK**

EXCAVATION AND BACKFILL FOR STRUCTURES

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M-206-1

Standard Sheet No. 2 of 2

Project Sheet Number: