

REVISION: Updated Notes & Table

CHECKED BY (ENGINEERING): SJ

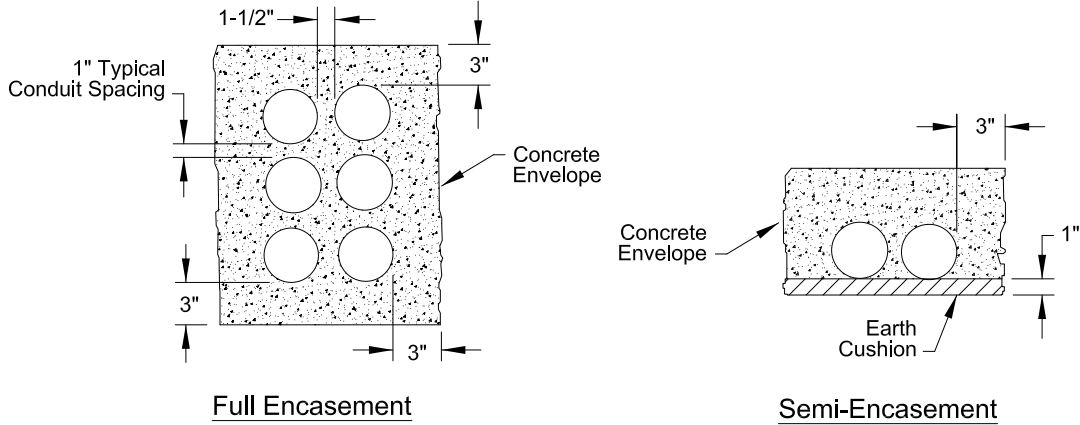
DATE: 08/28/18

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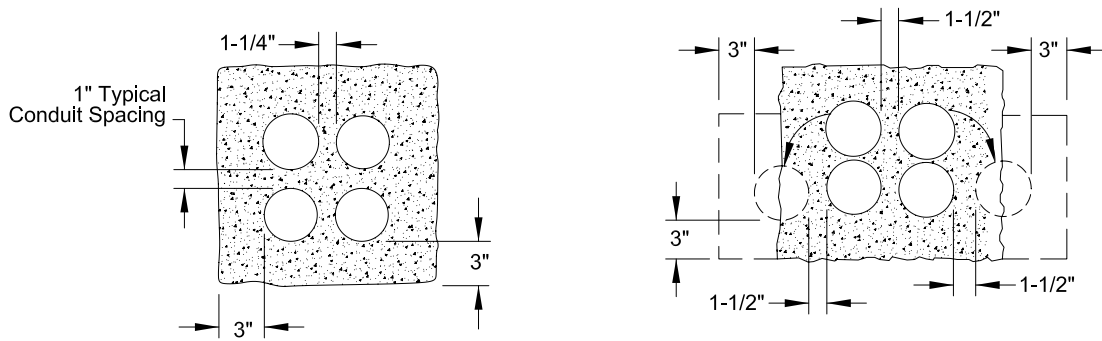
APPROVED BY: *Stephen E. Saford*

PREPARED BY: SJR

## Typical Duct Sections




## Special Duct Formation






**Duct Bank Terminations**  
 Minimum separation required between all types or duct at duct entrances to substructures.

**Duct Rolling**  
 Used only when specified or sanctioned for ducts to occupy minimum vertical space and maintain required cover.

Notes: 

1. Spacing and concrete coverage as shown minimum
2. Spacers approved by the department shall be placed at the following intervals.

Conduit Size	2"	3"	3-1/2"	4"	5"	6"
Spacing with Encasement	 6'	 8'			 8'	
Spacing with Non-Encasement	10'	8'			6'	

3. Base spacers are required on all banks of more than four conduits.
4. Conduit: to be of an approved make as set forth in drawing UGS-100
5. Use Sch. 40 PVC for encased, semi-encased installations, direct burial and inside bore casing.
6. For general duct bank, concrete, and trenching requirements, See UGS-100.1.

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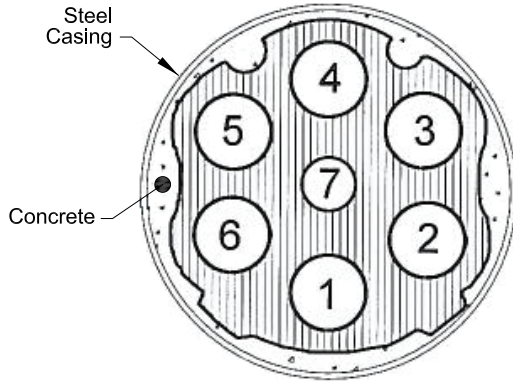
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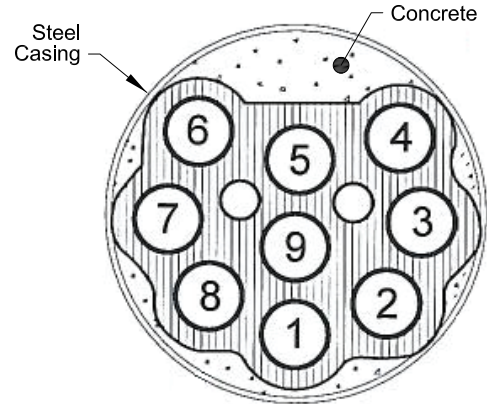
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## Installation in a Bore



Method A

Method A	
No. of 5" Conduits	Recommended Casing Size
4	16" O.D.
6	22" O.D.
8	28" O.D.
10	34" O.D.



Method B

Method B		
No. of 5" Conduits	Recommended Casing Size	Recommended Casing Size Using Circular Spacers
4	18" O.D.	-
6	26" O.D.	22" O.D.
8	32" O.D.	28" O.D.
10	38" O.D.	-

**Notes:**

1. Installation shall be made by machine during or by jacking. Sluicing and jetting with water is not permitted. A limited use of water for lubrication of drills may be permitted, however, by special arrangement with local governing inspection authorities.
2. A new steel casing will normally be used (used casing which shows little or no deterioration may be used if judged satisfactory by RPU inspector). The minimum allowable casing thickness is 1/4"; State highway construction requires a 1/4" wall thickness if under 30" in diameter; a 3/8" wall thickness for diameters up to 42", and a 1/2" thickness for diameters 42" and greater.
3. Ducts used in the casing will be Sch. 40 conduit.
4. Horizontal and vertical spacing between ducts shall be as shown above for typical duct bank sections. The distance between spacers shall be limited to a maximum of five feet.
5. The Approved Manufacturer for the module spacer is Formex Inc. (See UGS-125.1 for spacers).
6. Ducts shall maintain the same position entering and leaving the casing. After the ducts are in place, concrete shall be pumped in to fill all voids and plug the ends of the casing.