

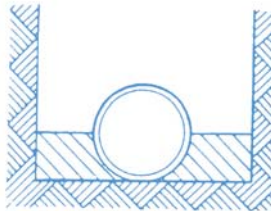
**DUCTILE IRON  
PIPE INSTALLATION**



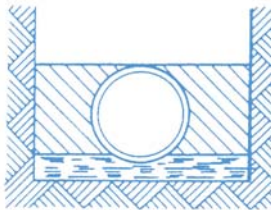
**TYPE 1** Flat-bottom trench.  
Loose backfill.



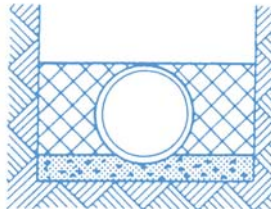
**TYPE 2** Flat-bottom trench.  
Backfill lightly consolidated to  
centreline of pipe.



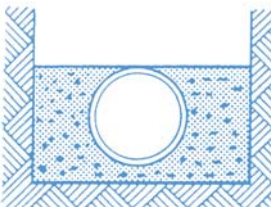
**TYPE 3** Pipe bedded in 4-inch loose  
soil.  
Backfill lightly consolidated to  
top of pipe.



**TYPE 4** Pipe bedded in sand, gravel  
or crushed stone to depth of  
1/8 pipe diameter, 4-inch  
minimum. Back-fill compacted  
to top of pipe (Approx. 80%  
Standard Proctor  
AASHO T-99).

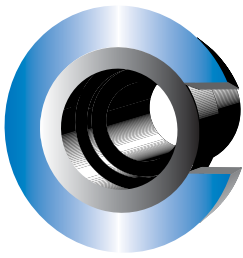


**TYPE 5** Pipe bedded in compacted  
granular material to centreline  
of pipe. Compacted granular  
or select material to top of  
pipe. (Approx. 90% Standard  
Proctor AASHO T-99).



"Flat-bottom" is defined as undisturbed earth.  
"Loose soil" or "Select" is defined as native soil excavated from the trench,  
free of rocks, foreign materials and frozen earth.

REFER TO THE SECTION ON 'MAXIMUM DEPTH OF COVER'  
TO OPTIMIZE TRENCH TYPE, DEPTH OF COVER AND PIPE  
CLASSIFICATION, WHEN DESIGNING WATERMAIN PROJECTS.



## DUCTILE IRON PIPE INSTALLATION



Small pipe can be assembled with the use of a long bar, while larger pipe will require additional power, such as a jack or come-along. A backhoe may be used to assemble pipe of intermediate and large size. The plain end of the pipe should be carefully guided by hand into the bell of the previously assembled pipe. The bucket of the backhoe may then be used to push the pipe until fully seated. A timber header should be used between the pipe and backhoe bucket to avoid damage to the pipe.



STEP 1



STEP 2



STEP 3A



STEP 3B



STEP 4



Completed  
Installation

### PUSH-ON PIPE JOINT ASSEMBLY

- STEP 1** Thoroughly clean out the bell with special attention to the gasket recess. Remove any foreign material or excess paint. Clean the spigot or bevelled plain end and remove any sharp edges with a standard file.
- STEP 2** After making sure that the correct gasket is being used, insert it into the recess in the bell with the small end of the gasket facing the bell face. Ensure that the gasket seats properly.
- STEP 3A, 3B** Apply lubricant to the *inside* surface only of the gasket, making sure that the entire surface is coated. Apply a generous coating of lubricant to the bevelled portion of the plain end.
- STEP 4** Guide the plain end into the bell and, *while maintaining straight alignment*, push the plain end into the bell socket. Once the joint is assembled, necessary deflection can be accomplished. When assembly is complete, the bell face should be aligned between the two white depth rings.