

SECTION 332020

JACK AND BORE

PART 1 - GENERAL

1.1 SCOPE

It is the intent of this specification to provide the requirements for any jacking-boring for the project. All jack-bore installations shall meet the requirements of the Florida Department of Transportation (FDOT) permit, if applicable.

1.2 GENERAL

A. WORK INCLUDED

The Contractor shall, unless specified otherwise, furnish all labor, materials, equipment, tools, and all other associated appurtenances necessary to do the work required under the contract to include but not limited installing the steel casing, installing the carrier pipe and the placement of spacers, between the carrier pipe and the steel casing, and sealing the ends of the casing pipe.

B. LOCATION OF THE WORK: The location of the work is as shown on the Contract Documents.

C. COORDINATION OF THE WORK

The Contractor shall be responsible for the satisfactory coordination of the jack-bore with other construction and activities in the project area. Delays in work resulting from lack of such harmony shall not in any way be a cause for extra compensation by any of the parties.

1.3 METHOD OF MEASUREMENT AND PAYMENT

The work shall be measured, and the compensation determined in the following manner.

A. JACKING-BORING

Jacking-Boring of the casing pipe shall be paid for at the contract bid price per linear foot installed for each size specified which shall include the cost of furnishing all casing pipe, casing end seals, casing pipe jointing material and all other appurtenances and the cost of the jacking pits, grouting, dewatering,

trenching, sheeting, backfilling, restoring the surface (unless separate bid item is provided), necessary permits and all other labor, equipment, and materials, necessary to install the casing pipe complete in place at the depth specified and in accordance with the plans and these specifications.

Carrier pipe shall be paid as per the applicable type of pipe specifications.

Restraints and carrier pipe spacers shall be considered incidental to the carrier pipe and no direct compensation will be made therefore.

1.4 REFERENCED STANDARDS (LATEST REVISION)

- ASTM Designation A252, ASTM Designation A139
- AASHTO Code
- NSF: Standard 61
- Florida Administrative Code
- FDEP:Wastewater Collection/Transmission System Requirements
- Ten States Recommended Standards for Wastewater
- Florida DOT Standard Specifications for Road and Bridge Construction
- FDOT Utility Accommodation Guide
- Specifications for Pipelines Conveying Nonflammable Substances (American Railway Engineering Association)

1.5 SUBMITTALS

- A. For only those materials that the Contractor is requesting deviations from these specifications, the Contractor shall submit in writing documentation to justify approval of these materials by NPU prior to the start of the project.
- B. The Contractor submittals shall include the statement that the submittals have been reviewed and the materials meet the contract specifications and/or standard details.
- C. Final approval is at the discretion of NPU.

PART 2 - PRODUCTS

2.1 MATERIALS - GENERAL

- A. The materials used in this work shall be all new and conform to the requirements for class, kind, size and material as specified below.
- B. Proper implements, tools, and facilities shall be provided and used by

the Contractor for the safe and convenient execution of the work. The Contractor shall meet the jointing and cutting pipe direct bury force main, low pressure sewer systems, potable water and reclaimed water mains requirements as they apply to the jack-bore.

2.2 STEEL CASING PIPE FOR JACKING-BORING

Steel casing pipe for jacking-boring shall conform to ASTM Designation A252, Grade 2 or ASTM Designation A139, Grade B. Recycled steel casing pipe conforming to the requirements of this section as approved by NPU may be used. Proper documentation shall be provided.

The minimum casing pipe size and wall thickness shall be as shown in the following table. For sizes not included, or for special design considerations and/or in the case of known aggressive soils, approval shall be obtained from NPU. The casing pipe nominal diameter shall be 10 inches larger than the carrier pipe outside diameter.

Casing Pipe Nominal diameter (inches)	Casing Pipe Minimum Shell Thickness (inches)
12	0.250
14	0.282
16	0.282
18	0.312
20	0.343
22	0.375
24	0.403
26	0.438
28	0.469
30	0.469
32	0.500
34	0.532
36	0.532
38	0.563
40	0.563
42	0.563

2.3 CARRIER PIPE FOR JACKING-BORING

The carrier pipe shall be PVC, ductile iron or HDPE in accordance with NPU technical specifications.

2.4 CASING END SEALS FOR JACKING-BORING

Casing end seals shall be Plico or approved equal

2.5 JOINTS FOR JACKING-BORING

All carrier pipe joints shall be restrained to include the first joint outside of the casing.

2.6 CASING SPACER

Casing spacer by Cascade Waterworks Manufacturing Co., or approved equal, shall be used. Stainless steel nuts and bolts shall be used.

PART 3 – EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor shall comply with all appropriate regulatory agency requirements respectively as per the permits issued for this project.

3.2 CONSTRUCTION REQUIREMENTS

- A. Steel casing pipe shall be jacked-bored in place to provide a casing for the carrier pipe.
- B. Jack-bore pits or shafts shall be excavated and maintained to the minimum dimension necessary to perform the operation. Said excavations shall be adequately barricaded, sheeted, braced and dewatered, as required, in accordance with NPU Specifications and OSHA requirements. Jack-bore pits will normally be no closer than four feet from the edge of pavement, with the permitting agency having final determination of the required setback distance.
- C. The jack-bore operations shall be done simultaneously, with continuous installation, until the casing pipe is in final position. Correct line and grade shall be carefully maintained. Add on sections of casing pipe shall be full-ring welded to the preceding length, developing watertight total pipe strength joints. The casing installation shall produce no upheaval, settlement, cracking, movement, or distortion of the existing roadbed or other facilities.
- D. Casing pipes crossing under roadways/railroads shall be located at suitable approved alignments in order to eliminate possible conflicts with existing or future utilities and structures, with a minimum 36-inch depth of cover between the top of the casing pipe and the surface of the roadway. For casing pipe crossings under roadways/railroads, the Contractor shall comply with the regulations of said authority in regard to design, specifications, and construction. State highway casing

installations shall be as specified in the FDOT, "Utility Accommodation Manual," and for railroads the American Railway Engineering Association, "Specifications for Pipelines Conveying Nonflammable Substances," shall be applicable.

- E. Casing pipe holes shall be mechanically bored through the soil by a cutting head on a continuous auger mounted inside the pipe. The auger shall extend a minimum distance beyond the end of the casing pipe to preclude formation of voids outside of the pipe shell.
- F. The casing pipe shall be adequately protected to prevent crushing or other damage under jacking pressures. Backstops shall be provided for adequately distributing the jack thrust without causing deformation of the soil or other damage. Should the casing pipe be damaged, such damaged portion, if not in the hole, shall be replaced; however, if inserted, the encasement pipe shall be abandoned in place, grouted full, and suitably plugged, and an alternate installation made.
- G. The ends of the casing pipe shall extend on both sides a minimum distance of four feet beyond the edge of pavement or as specified in the permit requirements or designated on the engineering drawings, whichever is greater.
- H. The casing pipe shall be cut and trimmed. Once cut and trimmed the ends of the casing pipe shall be sealed to the carrier pipe using casing end seals, mechanically fastened to both pipes.
- I. Once the casing pipe is in place, the actual carrier pipe shall be installed inside the casing. All carrier pipes shall be installed with restrained joints as shown on the details. The carrier pipe shall be installed within the casing pipe using stainless steel casing spacers to center the carrier pipe within the casing pipe. The casing runner height shall be large enough so that it does not interfere with the pipe-restrained joints. The spacers shall be equally spaced along the length of the casing pipe. All carrier pipe joints in the casing shall be restrained to include the first joints outside of the casing and the carrier pipe shall be restrained to the adjoining mains.

END OF SECTION