**SECTION 33 05 23.16**

# PIPE Jacking

**BASED ON DFD MASTER SPECIFICATION DATED 09/01/2015**

This section has been written to cover most (but not all) situations that you will encounter. Depending on the requirements of your specific project, you may have to add material, delete items, or modify what is currently written. The Division of State Facilities expects changes and comments from you.

# PART 1 - GENERAL

**SCOPE**

The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to complete boring and jacking and other work, as required in these specifications, on the drawings, and as otherwise deemed necessary to complete the work. Included are the following topics:

PART 1 - General

Scope

Related Work

Submittals

Quality Assurance

PART 2 - Materials

Blow Sand

Flowable Fill

Steel Casing Pipe

Casing End Seals

Casing Spacers

PART 3 - Execution

Excavation, Backfill, and Compaction

Casing Pipe Installation

Carrier Pipe Installation

#### RELATED WORK

Applicable provisions of Division 1 govern work under this Section.

(Note to the Designer: Include any additional related work sections)

Section 02 32 00 – Geo Technical Investigation

Section 30 05 00 – Common Work Results for All Exterior Work

Section 31 25 00 – Erosion Control

Section 31 20 00 – Earthmoving

Section 31 23 16.13 – Trenching

Section 33 11 00 - Water Utility Distribution Piping

Section 33 30 00 - Sanitary Sewerage Utilities

Section 33 40 00 - Storm Drainage Utilities

### SUBMITTALS

Provide copies of mix design reports for flowable fill, if used.

Provide the following submittals relative to drilling, boring, and casing:

* Methods and equipment: description of construction methods and equipment
* Casing pipe: description of casing pipe material, diameter, wall thickness, joint type, coating, end seal method, and other pertinent information.
* Carrier pipe: description of carrier pipe material, diameter, wall thickness, joint type, spacers, fittings, and other pertinent material.

#### quality assurance

Note to the A/E: Edit quality assurance testing requirements as necessary to account for project specific requirements.

Provide copies of material quality assurance testing reports.

Provide additional quality assurance testing for utility lines as required by applicable utility specification sections for that utility line.

**PART 2 - MATERIALS**

Note to the Designer: Edit material requirements as necessary to account for local variations in material availability. Comply with the substantive requirements of the materials described below.

#### Blow Sand

Screened sand material, graded as necessary to allow placement and avoid damage to casing or carrier pipes. Sand shall be free of any organic material, debris, or other deleterious material.

#### Flowable Fill

Lean concrete containing portland cement, water, air, fine aggregate, and mineral admixtures. Materials used in flowable fill shall meet the requirements of Section 501 of Standard Specifications for Highway Construction. Flowable fill shall have a minimum 28-day compressive strength of 2000 psi.

**steel casing pipe**

Provide steel casing pipe complying with ASTM A53, current version, Grade B. Steel casing shall be rated for minimum yield strength of 35,000 psi.

Casing shall be sized as shown on the drawings or larger as necessary to provide a minimum of 2” clearance between the inside of the casing pipe and nearest point on carrier pipe bell or other fitting.

Unless otherwise noted on the drawings, casing wall thickness shall be *[0.25” minimum] [as indicated on Table 33 05 23.16 -1].*

Table 33 05 23.16 -1

|  |  |
| --- | --- |
| Casing Nominal Diameter (inches) | Minimum Wall Thickness  (inches) |
| 12 or less | 0.188 |
| 14 | 0.282 |
| 16 | 0.282 |
| 18 | 0.313 |
| 20 | 0.344 |
| 22 | 0.375 |
| 24 | 0.407 |

Steel casing shall be provided with a factory applied coal tar exterior coating complying with AWWA C203. Field joints shall be coated after welding with coal tar enamel or hot-applied tape in accordance with AWWA C203.

**casing end seals**

End seal system manufactured for the sole purpose of sealing the ends of casing pipes. Seal shall be properly sized to fit over both the casing and carrier pipes. End seal shall be constructed of 1/8” thick synthetic rubber and provided with stainless steel clamps to provide water-tight seal around both pipes. Provide Cascade Waterworks Manufacturing, PSI Pipeline Seal and Insulator, PowerSeal Pipeline Products, or approved equal.

**casing spacers**

Spacer system manufactured for the sole purpose of supporting carrier pipes within casing pipes. Spacer system shall be manufactured of stainless steel and durable plastic components. Spacers shall attach securely to carrier pipes so that they do not slip or rotate. Spacers shall be provided with abrasion resistant dielectric skids with a low coefficient of sliding friction. Provide Cascade Waterworks Manufacturing, PSI Pipeline Seal and Insulator, PowerSeal Pipeline Products, or approved equal.

**PART 3 - EXECUTION**

#### excavation, BACKFILL, AND COMPACTION

Excavate jacking and receiving pits, and other access points as necessary to complete the work. Comply with applicable requirements of Section 31 23 16.13, Trenching.

#### Casing pipe installation

Advance casing by method of boring and simultaneously jacking. Remove spoil using mechanical methods; washing or sluicing of soil is not allowed.

Install casing to line and grade as shown on the drawings. Alignment shall be within 0.5’ horizontally and 0.25’ vertically.

**carrier pipe installation**

Install carrier pipe to line and grade shown on drawings. Alignment shall be within tolerances specified in applicable carrier pipe specification sections.

Install carrier pipes in accordance with applicable carrier pipe specification sections.

Carrier pipe joints located within casing pipes shall be provided with restrained joints.

Carrier pipes shall be uniformly supported within casing pipes using casing spacers. Casing spacers shall be installed as recommended by pipe and spacer manufacturers, but not greater than 7’ O.C..

If required by the drawings, completely fill the annular space between carrier pipe and casing pipe using blow sand or flowable fill.

Seal the ends of casing pipes with casing end seals.

**END OF SECTION**