

SECTION 1210 - STEEL CASING PIPE BORED AND JACKED UNDER ROADWAYS

PART 1 - GENERAL

1.1 SCOPE OF WORK:

Provide all labor, materials, equipment and services required to furnish and install all steel casings bored and jacked under roads and highways as shown on the Drawings and/or specified herein.

1.2 SUBMITTALS:

- A. Descriptive literature, catalog cuts, and dimensional prints clearly indicating all dimensions and materials of construction, shall be submitted on all items specified herein to the ENGINEER for review before ordering.
- B. At the time of submission, the CONTRACTOR shall, in writing, call ENGINEER's attention to any deviations that the submittals may have from the requirements of the ENGINEER's Contract drawings and specifications.

PART 2 - PRODUCTS

2.1 ROADWAY CROSSINGS:

- A. Where designated on the drawings, crossings beneath state maintained roads, county roads, or other surfaces not to be disturbed, should be accomplished by boring and jacking a casing pipe.

Steel casing pipe diameter and wall thickness shall not be less than the following:

<u>Carrier Pipe Nom. Diameter</u>	<u>Min. Casing Pipe Diam. (O.D.)</u>	<u>Wall Thickness</u>
33"-36"	54"	0.719"
30"	48"	0.625"
27"	42"	0.562"
24"	36"	0.469"
20"-21"	36"	0.469"
18"	30"	0.406"
15"-16"	30"	0.406"
12"	24"	0.312"
10"	22"	0.312"
8"	20"	0.281"
6"	18"	0.250"

Larger diameter casing pipes may be substituted by the CONTRACTOR, but there shall be no extra cost to the OWNER for this substitution. The agency responsible for the roadway affected must approve any changes in casing pipe diameter or thickness. The roadway (right-of-way) permit shall govern if it specifies or requires a casing pipe thickness greater than indicated above. Permit approval sheets will be included in the bid documents when possible or otherwise made available to the CONTRACTOR.

- B. Steel casing pipe for road crossings shall be bored and/or jacked in place to the elevations shown on the drawings. All joints between lengths shall be solidly butt-welded with a smooth non-obstructing joint inside. The casing pipe shall be installed without bends. The carrier pipe shall be installed after the casing pipe is in place, and shall extend a minimum of two (2) feet beyond each end of the casing to facilitate making joint connections. The carrier shall be braced within the casing pipe with stainless steel casing spacers that place the carrier pipe in a "restrained" position to preclude possible flotation while providing ½-1" clearance between the top runners and the casing pipe. If carrier pipe grade adjustment is needed, CONTRACTOR shall obtain permission from OWNER to work with casing spacer manufacturer to obtain custom casing spacers. Casing

pipe filler shall NOT be used unless required on plans or by roadway authority. Casing spacers shall be installed within one (1) foot of each side of carrier pipe joints, within one (1) foot of each end of the casing pipe and on 6 foot centers thereafter. Casing spacers shall be bolt-on style with a shell made of heavy T-304 stainless steel or thermoplastic powder coated carbon steel. Connecting flanges shall be ribbed for extra strength. The shell shall be lined with a PVC or EPDM liner .090" thick with 85-90 durometer. All nuts and bolts are to be 18-8 stainless steel. Runners shall be made of ultra high molecular weight polymer with inherent high abrasion resistance and a low coefficient of friction. Runners shall be supported by risers made of heavy T-304 stainless steel. The supports shall be mig welded to the shell and all welds shall be fully passivated. The height of the supports and runners combined shall be sufficient to keep the carrier pipe at least .75" from the casing pipe wall at all times. There shall be two (2) runners on top and two (2) runners on bottom of casing spacer for carrier pipe diameters of 4-12" or two (2) runners on top and four (4) runners on bottom for carrier pipe diameters of 14-36". Casing spacers shall be Cascade Waterworks Mfg. Model CSS, Advance Products Systems Model SI or SSI, or approved equal.

Hardwood skids shall NOT be used in place of manufactured casing spacers.

- C. At each end of the casing pipe, the carrier and casing pipe shall be wrapped with Cascade Waterworks Mfg. Model CCES, Advance Products Systems Model AW, or approved equal end seals.
- D. Casing pipe shall be steel, plain end, have a minimum yield point strength of 35,000 psi and conform to ASTM A 252 Grade 2 or ASTM A 139 Grade B without hydrostatic tests. The steel pipe shall have welded joints and be in at least 18 foot lengths (except last section, if a shorter section is needed to obtain total casing length). The exterior of the casing pipe shall be coated with coal tar epoxy or bituminous asphalt.
- E. The CONTRACTOR shall excavate his own pits, as he may deem necessary, and will set his own line and grade stakes which shall be checked by the ENGINEER. Permits, as required, will be furnished or obtained by the OWNER, but shall be in the CONTRACTOR's hands before any excavating is commenced.
- F. In the event an obstruction is encountered in boring which cannot be removed and it becomes necessary to withdraw the casing and commence elsewhere, the hole from which the casing is withdrawn shall be completely backfilled with coarse sand rammed in.
- G. There shall be no extra payment for excavation, no matter what soil types or conditions are encountered (no extra payment for rock excavation, pumping of groundwater, encountering obstructions, etc.). If soil boring information is not included in the bid documents, the CONTRACTOR shall make his own subsurface investigations as necessary prior to submitting a bid to determine soil and groundwater conditions. This shall be coordinated with the Butler County Department of Environmental Services, Butler County Engineer's Office, ODOT, all property owners, the Ohio Utilities Protection Service, and all other appropriate agencies.
- H. Insurance to be furnished by the CONTRACTOR to cover this type of work shall be adequate to meet the requirements of the State or County Highway Departments. Insurance shall consist of comprehensive general liability and automobile liability insurance.
- I. Before award of the contract, the CONTRACTOR shall furnish a statement of his experience of such work, or if inexperienced, shall advise the OWNER as to whom he will sublet the work and give a statement of the experience of the subcontractor, which shall be satisfactory to the OWNER.
- J. Ductile iron carrier pipes shall have restrained joints in accordance with Section 2130.
- K. The OWNER reserves the right to make reasonable adjustments in the limits and lengths of all bores without affecting the unit price.

PART 3 - BASIS OF PAYMENT

The steel casing pipe required to be bored and jacked under roadways will be measured from end to end of the completed casing pipe in place, and paid for at the Contract unit price per linear foot, complete in place, which price shall include the casing pipe, the casing spacers, material for blocking the ends and all other items necessary for its construction as shown on the drawings and/or described in the specifications.

END OF SECTION