

5550000 DIRECTIONAL BORE
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Comment: (12-3-10)

Conduit by definition implies a wire inside the conduit. That wire can be located. There is no need for locate wire for conduit, unless the conduit is empty and someone wants to prevent its damage, and that is worth paying to have someone locate it. My experience with FDOT lighting and signalization is that it is generally not located when locates are called. The request for locates is simply not acknowledged. Locate wire is helpful in locating water mains and services, force mains and services, reclaimed mains and services, and other underground pipes that do not have continuous wire in them. Direct bury locate wire is generally detectable to about 12-15' depth. Under high water table, the depth it can be read is less than 12-15'. Most locate wires cannot be detected deeper than 15' with any degree of accuracy.

Response:

Conduit may refer to:

- Conveyance (disambiguation)
- Channel (geography), for carrying water or other fluids (such as a pipe and aqueduct)
- Electrical conduit, a protective cover for cables
- Road
- Tunnel
- Waterway (such as a river and canal)
- Duct (HVAC), heating, ventilating and air-conditioning air duct
- Magma conduit, a channel created outside a volcano by molten magma and by which magma travels to the surface
- Conduit (channeling), a means for contact or communication between spiritual realms, energies, or entities

The spec reads: "For non-conductive installations, attach a minimum of two separate and continuous conductive tracking (tone wire) materials, either externally, internally or integral with the product." The key point is to have the ability to locate the facility in the future. It can be interpreted that installation of conduit with detectable wires is a conductive installation and this requirement is unnecessary. However, if a conduit contains fiber optic cables or wires that have low level signals that are not detectable, then a tone wire would be required.

No changes will be made.

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Comments: (12-7-10)

Directional Bore: Section 555-6 Documentation Requirement: Geotechnical Report is recommended to be added in this section. In case of very loose soil condition there will always be a potential for subsidence.

Response:

A geotechnical report is not required for all HDD installations; however, prudent drillers will require this report before they accept the job or they will reflect, in their bid, an analysis of the ground conditions before operations begin. A geotechnical report may be requested if there were problems during the drilling operation and the local maintenance office has reason to believe voids or loose soil conditions are the result. A geotechnical report is unnecessary after all drilling operations because any damage resulting from the installation is to be repaired by the permittee per Florida Statute 337.402. If the local permit office believes the requested operation is unsafe, then the permit application should be denied. No changes will be made.

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Comments: (12-13-10)

Below are some very worthwhile comments for your consideration when revising 5550000.

1. Any changes to this Spec should also be harmonized with the Utility Accommodation Manual.

Response:

Agree, and they have been.

2. Section 555-1.2 General.

- a. It should be noted that many oversized directional bores require more than one back reaming prior to pulling product through the pilot bore hole. It should be specified that if more than one back reaming pass is needed to up-size the bore hole prior to pulling product that the driller/operator shall trail drill stems in order to assure bore integrity and alignment through the installation process.

Response:

Agree. The following text will be added to 555-5.1

When conditions warrant, as determined by the Engineer, back reaming for enlarging the bore diameter shall be accomplished by connecting the reamer to trailing drill stems at the exit pit of the pilot bore. The drill pipe shall remain in the bore hole until the final product is pulled into place. After the pilot bore is established, do not push anything from the entry pit to the exit pit.

- b. It should also be noted that soils investigations are currently not required (in the UAM provided 10X depth requirements are met) so typically water table and soils information are not available in order to properly select drilling fluids and additives to the slurry mixture.

Response:

A geotechnical report is not required for all HDD installations; however, prudent drillers will require this report before they accept the job or they will reflect, in their bid, an analysis of the ground conditions before operations begin. Selection of the appropriate drilling fluid and additives is the responsibility of the driller and not that of the Department.

No changes made.

- c. Specifications should clearly require soils and water table information on all oversized bores

(larger than 6")...this will allow for proper design of the drilling fluid and selection of the correct drill bit and reamer for the installation.

Response:

A geotechnical report is not required for all HDD installations however, prudent drillers will require this report before they accept the job or they will reflect, in their bid, an analysis of the ground conditions before operations begin. Selection of the appropriate drilling fluid, additives, drill bit and reamer is the responsibility of the driller and not that of the FDOT.

No changes made.

3. Section 555-4.1.1 Product Testing. Additional verbiage should be included that requires a pressure test both before and after product is pulled through the bore hole.

Response:

There is nothing in the spec that prohibits a pressure test before the product is put in place and a special condition can be added to the contract if the Department is paying for the installation. A prudent driller will pressure test the pipe before the installation in most cases. A pressure test is impractical before installation if restrained pipe is being assembled during the pull back operation. The utility permittee is ultimately responsible for any damage to the Right of Way as a result of a leaking pipe.

No changed made.

4. 555-4.1.3 Failed Bore Path. Flowable fill is not always the best product to fill voids or failed product line, direct inject expansive epoxy should also be allowed to fill failed bore paths and pipes.

Response:

Currently, there is no specification for expansive epoxy. No changes made.

5. 555-5 Drilling Operations.

- a. Spec should include development of bore geometry plans (engineering) prior to initiating drilling activities. At a minimum, a scale bore profile that includes existing topography, entry/exit drill angles, set back distances, existing utilities (including FDOT drainage features) within installation area, water table/soils information, proposed installation path, depth under pavement, proposed bending radius of installed product and any other relevant installation details (design reamer size).

Response:

Section 3.4.1 of the 2010 UAM requires these items as part of a utility permit application. If the Department is paying for the installation, these items are to be included in the contract. No changes will be made.

- b. Additional verbiage should also be added to clarify that the drilling operation and product pull back shall be a continuous operation.

Response:

A prudent driller knows that the pull back should be a continuous operation to avoid getting the product stuck; however, they may choose to stop the operation (if there is too much down hole pressure generated for example). The driller is taking that risk based on their previous experience. No changes will be made.

6. Section 555-5.2 Boring Failure: Flowable fill is not always the best product to fill voids or failed product line, direct inject expansive epoxy should also be allowed to fill failed bore paths and pipes.

Response:

See response to No. 4. 555-4.1.3 Failed Bore Path. No changes made.

7. Section should be added that specifies minimum clearance distances from existing utilities and FDOT Stormwater Conveyance Features. It should also be noted that if a HDD product installation is proposed within 18” of FDOT drainage features that a pre and post video inspection of the line shall be provided to the Department. Pre video to be provided before drilling commences and post to be provided with the bore log/as-built certification.

Response:

See 62-555.314 F. A. C. (Location of Public Water System Mains) for offset distances. Post video inspection of FDOT drainage features can only be justified if there is evidence of damage caused by the dirller. Any damage resulting from the installation is to be repaired by the permittee per Florida Statute 337.402. No changes made.

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Comments: (12-21-10)

When the bore pipe is used as a carrier for storm water the materials/thickness must meet hydraulic and service life requirements as well as cover depth. It usually is not a problem with steel casing since the mechanical stiffness requirements for the jack and bore drive the pipe wall thickness up high enough that it has a long service life. The casing as carrier also needs to be completely welded around the pipe circumference. If it’s just a casing with a carrier inside, it generally is not welded to be watertight. The optional pipe handbook Section 3.2 (<http://www.dot.state.fl.us/rddesign/dr/files/Opt-Pipe-HB.pdf>) provides the method for determining service life. Maybe just the statement that using the casing as the carrier must also satisfy the requirements of the proposed installation and purpose. These are specific to the location just as the selection of optional pipe material is. This is covered well in the optional pipe handbook section I mentioned above for jack and bore.

Response:

This comment could be better addressed in a material specification. No changes made.
