



# Florida Department of Transportation

**RICK SCOTT**  
GOVERNOR

605 Suwannee Street  
Tallahassee, FL 32399-0450

**ANANTH PRASAD, P.E.**  
SECRETARY

July 26, 2011

Monica Gourdine  
Program Operations Engineer  
Federal Highway Administration  
545 John Knox Road, Suite 200  
Tallahassee, Florida 32303

Re: Office of Design, Specifications  
Section 783  
Proposed Specification: 7830302 ITS - Fiber Optic Cable and Interconnect

Dear Ms. Gourdine:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Gene Glotzbach to update the specification to updated Index number and remove the requirement for hex bolts.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via Email to SP965RP or rudy.powell@dot.state.fl.us.

If you have any questions relating to this specification change, please call Rudy Powell, State Specifications Engineer at 414-4280.

Sincerely,

Signature on File

Rudy Powell, Jr., P.E.  
State Specifications Engineer

RP/ft

Attachment

cc: Calvin Johnson, Chief Civil Litigation  
Florida Transportation Builders' Assoc.  
State Construction Engineer

## INTELLIGENT TRANSPORTATION SYSTEMS - FIBER OPTIC CABLE AND INTERCONNECT.

(REV ~~12-7-105-31-11~~) (~~FA 1-24-11~~) (7-11)

SUBARTICLE 783-3.2.2 9 (of the Supplemental Specifications) is deleted and the following substituted:

**783-3.2.2 Pull Box:** Ensure that all pull boxes have an open bottom. Ensure that the pull box is equipped with a nonskid cover secured by ~~hex head~~ bolts and any other miscellaneous hardware required for installation or as shown in the in the plans.

Ensure that the minimum pull box size is approximately 2 feet wide by 3 feet long by 3 feet deep, or as required in the plans. Ensure that the pull box is large enough to house fiber optic cable without subjecting the cable to a bend radius less than 14 times the diameter of the cable.

SUBARTICLE 784-3.3 (of the Supplemental Specifications) is deleted and the following substituted:

**783-3.3 Installation Requirements.** Install all pull boxes and splice boxes according to the manufacturer's recommendations; as shown in the plans; and in compliance with Section 635 and Design Standards Index No. ~~1770018204~~. Complete the installation of pull boxes, splice boxes, and conduit prior to cable installation. Provide all pull boxes and splice boxes a final finish grade elevation as shown in the plans. Excavate pull box and splice box installation sites to a depth of 1 foot below the bottom of the box, and replace with a 1 foot bed of pearock or crushed stone at the excavation base prior to installing the box.

Ensure that the box cover is flush with the existing finish grade after installation. Taper the finish grade contour to provide drainage from the splice box.

**783-3.3.1 General Placement and Spacing:** Place pull boxes and splice boxes as detailed in the plans, and at the following locations, unless directed otherwise by the Engineer:

1. At all major fiber optic cable and conduit junctions.
2. Approximately every 2,500 feet in rural areas with any continuous section of straight conduit if no fiber optic cable splice is required.
3. At a maximum of 1,760 feet in metropolitan areas.
4. At each end of a tunnel, and on each side of a river or lake crossing.
5. On each side of an aboveground conduit installation, such as an attachment to a bridge or wall.
6. At all 90 degree turns in the conduit system.

Ensure that all pull boxes and splice boxes are flush mounted at grade level, and are located near the base of a service pole or near the communication equipment cabinet serving the ITS field device to provide:

1. A transition point between the fiber optic conduits extending from the fiber backbone and the conduit feeding the communication cabinet.

2. An assist point for the installation of fiber optic drop cable.

3. Storage of slack fiber optic drop cable.

Do not place the pull boxes in roadways, driveways, parking areas, ditches, or public sidewalk curb ramps. Avoid placing pull boxes and splice boxes on steep slopes where the cover cannot be leveled within a tolerance of 1 inch of drop to 1 foot of grade or in low-lying locations with poor drainage.

**783-3.3.2 Bonding and Grounding:** Ensure that pull box and splice box installation includes a bonding and grounding system including a driven rod that is a minimum of 10 feet in length and 5/8" in diameter. Ensure that grounding rod is constructed of copper clad steel and complies with the UL 467 standard. Ensure that bonding conductors are bare solid AWG #6 copper wire as required in the ASTM B1 standard. Ensure that splice and termination components meet or exceed the UL 467 requirements, and are clearly marked with the manufacturer, catalog number, and conductor size. Ensure that grounding system complies with the NEC.

**783-3.3.3 Material Removal and Restoration Specifications:** Provide all material, equipment and labor for the removal of turf, earth, concrete/asphalt pavement or other site specific material to be removed for box installation. Ensure that original turf, earth, concrete/asphalt pavement or other site specific material is restored to its original condition once box installation is complete.

## **INTELLIGENT TRANSPORTATION SYSTEMS - FIBER OPTIC CABLE AND INTERCONNECT.**

**(REV 5-31-11)**

SUBARTICLE 783-3.2.2 9 (of the Supplemental Specifications) is deleted and the following substituted:

**783-3.2.2 Pull Box:** Ensure that all pull boxes have an open bottom. Ensure that the pull box is equipped with a nonskid cover secured by bolts and any other miscellaneous hardware required for installation or as shown in the in the plans.

Ensure that the minimum pull box size is approximately 2 feet wide by 3 feet long by 3 feet deep, or as required in the plans. Ensure that the pull box is large enough to house fiber optic cable without subjecting the cable to a bend radius less than 14 times the diameter of the cable.

SUBARTICLE 784-3.3 (of the Supplemental Specifications) is deleted and the following substituted:

**783-3.3 Installation Requirements.** Install all pull boxes and splice boxes according to the manufacturer's recommendations; as shown in the plans; and in compliance with Section 635 and Design Standards Index No. 17700. Complete the installation of pull boxes, splice boxes, and conduit prior to cable installation. Provide all pull boxes and splice boxes a final finish grade elevation as shown in the plans. Excavate pull box and splice box installation sites to a depth of 1 foot below the bottom of the box, and replace with a 1 foot bed of pearock or crushed stone at the excavation base prior to installing the box.

Ensure that the box cover is flush with the existing finish grade after installation. Taper the finish grade contour to provide drainage from the splice box.

**783-3.3.1 General Placement and Spacing:** Place pull boxes and splice boxes as detailed in the plans, and at the following locations, unless directed otherwise by the Engineer:

1. At all major fiber optic cable and conduit junctions.
2. Approximately every 2,500 feet in rural areas with any continuous section of straight conduit if no fiber optic cable splice is required.
3. At a maximum of 1,760 feet in metropolitan areas.
4. At each end of a tunnel, and on each side of a river or lake crossing.
5. On each side of an aboveground conduit installation, such as an attachment to a bridge or wall.
6. At all 90 degree turns in the conduit system.

Ensure that all pull boxes and splice boxes are flush mounted at grade level, and are located near the base of a service pole or near the communication equipment cabinet serving the ITS field device to provide:

1. A transition point between the fiber optic conduits extending from the fiber backbone and the conduit feeding the communication cabinet.

2. An assist point for the installation of fiber optic drop cable.

3. Storage of slack fiber optic drop cable.

Do not place the pull boxes in roadways, driveways, parking areas, ditches, or public sidewalk curb ramps. Avoid placing pull boxes and splice boxes on steep slopes where the cover cannot be leveled within a tolerance of 1 inch of drop to 1 foot of grade or in low-lying locations with poor drainage.

**783-3.3.2 Bonding and Grounding:** Ensure that pull box and splice box installation includes a bonding and grounding system including a driven rod that is a minimum of 10 feet in length and 5/8" in diameter. Ensure that grounding rod is constructed of copper clad steel and complies with the UL 467 standard. Ensure that bonding conductors are bare solid AWG #6 copper wire as required in the ASTM B1 standard. Ensure that splice and termination components meet or exceed the UL 467 requirements, and are clearly marked with the manufacturer, catalog number, and conductor size. Ensure that grounding system complies with the NEC.

**783-3.3.3 Material Removal and Restoration Specifications:** Provide all material, equipment and labor for the removal of turf, earth, concrete/asphalt pavement or other site specific material to be removed for box installation. Ensure that original turf, earth, concrete/asphalt pavement or other site specific material is restored to its original condition once box installation is complete.