

- 1 When a feeder circuit in conduit passes through electrical duct, make the conduit continuous  
 2 through the duct unless specifically noted otherwise in the plans. After feeder circuits in  
 3 conduit are extended through duct, plug the duct with oakum or duct seal.
- 4 When only feeder circuits are required, install the load current carrying conductors and  
 5 grounding conductors in either existing conduit or conduit installed under other contract  
 6 items.
- 7 When more than one circuit is installed in a single raceway, a single equipment grounding  
 8 conductor sized as required for the largest circuit may be used without change in the contract  
 9 unit bid prices.
- 10 Multiple circuits may be placed in the same trench if they are grouped and separated  
 11 a minimum distance of 3". When more than one circuit is installed in the same trench there  
 12 will not be any adjustment of the contract unit bid prices.

#### 13 **1410-4 MEASUREMENT AND PAYMENT**

14      *Feeder Circuits* will be measured and paid as the actual number of linear feet of each  
 15 size and type feeder circuit completed and accepted. Measurement will be to the nearest  
 16 whole foot from electrical terminal to electrical terminal of the longest load current carrying  
 17 conductor.

18 *Feeder Circuit in*      *Conduit* will be measured and paid as the actual number of linear feet  
 19 of each size and type feeder circuit completed and accepted. Measurement will be to the  
 20 nearest whole foot from electrical terminal to electrical terminal of the longest load current  
 21 carrying conductor.

22 Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
<u>    </u> Feeder Circuit	Linear Foot
<u>    </u> Feeder Circuit in <u>    </u> Conduit	Linear Foot

### 23 **SECTION 1411** 24 **ELECTRICAL JUNCTION BOXES**

#### 25 **1411-1 DESCRIPTION**

26 Provide junction boxes made from fiberglass reinforced polymer concrete and cast-metal  
 27 boxes encased in concrete of the appropriate type at locations noted in the plans, complete  
 28 with all necessary covers, conduits, duct and hardware, in accordance with the contract.

#### 29 **1411-2 MATERIALS**

30 Refer to Division 10.

<b>Item</b>	<b>Section</b>
Backfill	545, 1005
Electrical Junction Boxes	1091-5

31 Provide a polymer concrete junction box which is open bottom with a foot. Provide  
 32 a standard "Electric" logo on the cover unless specifically noted otherwise in the plans.  
 33 Backfill beneath and around the boxes using ABC in conformance with Section 1005.

#### 34 **1411-3 CONSTRUCTION METHODS**

35 Install conduits and duct before the polymer concrete (PC) boxes are set in place. Do not rest  
 36 the bottom of the box directly on conduits, ducts or cables.

**Section 1412**

1 Place the top of the box on the same grade as the surrounding area. Perform backfilling with  
2 sufficient care that no part of the junction box, conduit or duct is displaced or moved out of  
3 alignment. Backfill beneath and around the box to at least 12" using #67 washed stone  
4 aggregates in conformance with Section 545 and Section 1005.

5 Locate junction boxes for best routing of conduit and duct and to minimize drainage  
6 problems. Do not locate boxes in useable shoulders or pavements or other areas where they  
7 may be subjected to traffic loadings.

8 Stub the ends of conduit and duct up vertical as near the top of the box as practical and seal.  
9 Arrange wiring so that it will not lay in the bottom of the box.

10 Install cast-metal (BR) boxes and arrange conduits and ducts to best fit field conditions.  
11 During the construction of the median barrier reinforcement, accurately space and securely  
12 attach Type BR junction boxes and conduits inside the reinforcement. Bond junction box to  
13 the reinforcement in accordance with NEC Article 250.52. Place boxes with covers flush  
14 with surface of concrete (generally traffic side of median barrier).

15 Place mastic between the cast metal box frame and the cast concrete barrier, as shown on  
16 plans to allow easy replacement of the frame.

17 **1411-4 MEASUREMENT AND PAYMENT**

18 *Electrical Junction Boxes* \_\_\_\_ will be measured and paid as the actual number of the  
19 appropriate type and size junction boxes installed and accepted. Payment for the conduit,  
20 duct and wiring will be paid under other contract items. Items used for splicing are incidental  
21 to the junction boxes.

22 Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Electrical Junction Boxes ____	Each

23 **SECTION 1412**  
24 **UNDERPASS LIGHTING**

25 **1412-1 DESCRIPTION**

26 Furnish and install wall mounted and/or pendant mounted luminaires with electrical circuitry,  
27 for underpass lighting at locations shown in the plans. Work includes, but is not limited to,  
28 furnishing and installing underpass luminaires with lamp, ballast and mounting hardware as  
29 well as furnishing and installing circuit breakers and enclosure, pull boxes, conduit,  
30 conductors, expansion fittings, anchors, straps and ground rod.

31 **1412-2 MATERIALS**

32 Refer to Division 10.

<b>Item</b>	<b>Section</b>
Conduit	1091-3
Wire and Cable	1091-2

33 Use luminaires that are listed as "Suitable for Wet Locations" according to UL Standard 1572,  
34 with sealed and filtered optical assemblies. Use high power factor ballasts that are completely  
35 pre-wired integral units, for reliable starting and operating of high pressure sodium lamps  
36 at -40°F ambient temperature. Use heavy-duty mogul base lamp sockets, with split shell  
37 tempered brass lamp grips and a free-floating, spring-loaded center contact. Use the  
38 luminaire type, wattage, voltage and IES illumination distribution pattern as shown in the  
39 plans.