

## SECTION 421 BOX, PIPE, AND PLATE PIPE CULVERT UNDERCUTTING

### 421.1 DESCRIPTION

This work consists of the removal of unstable material and rock, either in ledge or boulder formation, below the bedding grade of box, pipe, and plate pipe culverts, and the backfilling of undercut areas.

### 421.2 MATERIALS

**A. Backfill Material:** Material for backfilling the undercut areas of pipe and plate pipe culverts shall conform to Section 882.

Material for backfilling the undercut areas of box culverts shall conform to the following:

<u>Sieve</u>	<u>% Passing</u>
1 ½" (37.5 mm)	100
1" (25 mm)	95 - 100
No. 4 (4.75 mm)	0 - 75
No. 200 (75 Fm)	0 - 18

**B. Bedding Material for Precast Concrete Box Culverts:** Bedding material for precast concrete box culverts shall be sand or selected sandy soil conforming to the following:

<u>Sieve</u>	<u>% Passing</u>
3/8" (9.5 mm)	100
No. 200 (75 Fm)	0 - 10

**C. Extruded Insulation Board (Polystyrene):** Extruded insulation board (polystyrene) shall conform to AASHTO M230.

### 421.3 CONSTRUCTION REQUIREMENTS

If the Engineer determines field conditions warrant change, the limits of the undercutting may be increased, decreased, or eliminated. The width of undercutting for pipe culverts will be the **outside** diameter of the pipe plus four feet (1.2 m) or the **outside** span of arch pipe plus four feet (1.2 m). **Undercut for box culverts shall be to the dimensions shown on the plans.** Undercut material shall be disposed of at locations acceptable to the Engineer.

Backfill shall be satisfactorily compacted in horizontal layers not to exceed six inches (150 mm) loose depth.

### 421.4 METHOD OF MEASUREMENT

## **BOX, PIPE & PLATE PIPE CULVERT UNDERCUTTING**

- A. Undercutting Box Culverts:** Undercutting box culverts will be measured by the cubic yard (cubic meter). The upper limit will be the bedding grade of the box culvert. The width, length and lower limits will be as specified on the plans unless otherwise directed by the Engineer.
- B. Undercutting Pipe and Plate Pipe Culverts:** Undercutting pipe and plate pipe culverts will be measured by the cubic yard (cubic meter). The upper limit will be the lower face of the pipe, except the upper limit for pipe culverts to be installed on a Class B bedding will be one foot (300 mm) below the lower face of the pipe. The width, length and lower limits will be as specified.

### **421.5 BASIS OF PAYMENT**

- A. Undercutting Box Culverts:** This work will be paid for at the contract unit price per cubic yard (cubic meter), under the item undercutting box culverts. The basis of payment will be for plans quantities unless additional undercutting is directed by the Engineer. When additional undercutting is required, the adjusted quantity of undercutting will be paid for at the contract unit price. Payment will be full compensation for equipment, labor, tools and incidentals required for undercutting and for furnishing, placing, watering and compacting backfill material, including bedding material when specified on the plans
- B. Undercutting Pipe and Plate Pipe Culverts:** This work will be paid for at the contract unit price per cubic yard (cubic meter), under the item undercutting culverts. When undercutting culverts is required at other locations or to a different depth than specified, the adjusted quantity of undercutting will be paid for at the contract unit price. When a bid item is not provided, undercutting pipe and plate pipe culverts will be paid for at the rate specified in the price schedule for miscellaneous items.

The above payments will be full compensation for equipment, labor, tools, and incidentals required for undercutting and for furnishing, placing and compacting backfill material, including water, in place of the excavated material.