

**ITEM 17203.1398 M - PIEZOMETER (OPEN WELL)**

**DESCRIPTION:**

Furnish, install and protect an open well piezometer (OWP) at the location and depth shown in the contract documents or as directed by the Engineer. See Figure 1, Typical Open Well Piezometer Installation Details.

**MATERIALS:**

A. Monitoring Pipe - Provide the following.

1. 25 mm (nominal diameter) threaded PVC pipe - Schedule 40.
2. 1.5 m long section of 25 mm (nominal diameter) threaded PVC slotted screen - Schedule 40.
3. 25 mm (nominal diameter) PVC pipe fitting - Schedule 40. Threaded male cap (top).
4. 25 mm (nominal diameter) PVC pipe fitting - Schedule 40. Threaded female cap (bottom).

Monitoring Pipe is available from:

Longyear Company  
2175 West Park Court  
P.O. Box 1959  
Stone Mountain, GA 30086  
1-800-241-9468

or an approved equal

B. Sand - Provide well rounded, uniformly graded silica sand. Ottawa sand is acceptable.

C. Bentonite Pellets - Provide 6 mm (nominal diameter) bentonite pellets.

D. Manhole - Provide a 200 mm (inside diameter) manhole with a 200 mm skirt.

E. Grout - Mix grout to the satisfaction of the Engineer conforming to the following requirements:

<b>COMPONENT</b>	<b>NYS DOT SPECIFICATION REQUIREMENT</b>	<b>PROPORTION</b>
Portland Cement Type 2	Subsection 701-01	12 kg (8 liters)
Water	Subsection 712-01	190 liters
Bentonite (ground to pass a 75 _m mesh sieve)	N/A	12 kg (12 liters)

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### **CONSTRUCTION DETAILS:**

The installation of all open well piezometers shall be inspected by a representative of the Geotechnical Engineering Bureau.

### **INSTALLATION PROCEDURE**

- A. Progress a 4 NPS nominal diameter cased drill hole to the depth specified on the contract plans. Use equipment conforming to the requirements contained in Subsection 732-01 of the NYSDOT Standard Specifications.
- B. Assemble the open well piezometer to form a continuous pipe as recommended by the manufacturer or as directed by the Engineer. Place the open well piezometer in the hole as shown in Figure 1 to the elevation or depth specified in the contract plans. Do not permit grout, debris or other foreign material to enter the PVC pipe.
- C. Form the sand filter around the screen as shown in Figure 1 by incrementally withdrawing the casing, without rotating, and backfilling with sand. The maximum allowable increment is 300 mm. The Engineer may increase this increment if conditions warrant. Do not allow sand to settle inside the casing as this may "grab" the PVC pipe and lift it out of the hole. Measure the level of the sand often to verify correctness of the backfill level.
- D. Withdraw the steel casing an additional 300 mm.
- E. Place bentonite pellets to form a 300 mm thick seal.
- F. Grout the hole from the bottom.
- G. Withdraw the casing. As the casing is being withdrawn, maintain the level of the grout within 1.5 m of the top of the hole at all times. Do not allow the PVC pipe to move vertically while withdrawing the casing.
- H. Wait 18 hours for the grout to cure. If the grout bleeds or shrinks, backfill the hole with sand to within 300 mm of the top of the hole. Mortar the manhole over the top of the open well piezometer as shown in Figure 1.

### **METHOD OF MEASUREMENT:**

The quantity is the number of lineal meters of PVC pipe satisfactorily installed in accordance with this specification measured from the top of the pipe to the bottom of the slotted screen.

### **BASIS OF PAYMENT:**

The unit price bid for this item includes the cost of all labor, materials and equipment necessary to satisfactorily install and protect the open well piezometer. The Contractor will receive full payment after the open well piezometer has been tested and approved by the State.

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