

# Special Specification 7228

## Maintenance of Underground Water Quality Facilities



### 1. DESCRIPTION

Perform hydraulic cleaning, vacuum removal and disposal of debris and litter in pond risers, material traps, splitter boxes, rock gabions, gabion mattress, sedimentation basins, sand filtration ponds, and outlet structures. Debris and litter are defined as dirt, trash, rocks, scrap metal, paper, wood, plastic, rubber, glass products, foreign objects and other material not part of the drainage system.

### 2. MATERIALS

Furnish materials unless otherwise shown on the plans. Furnish water that is free of industrial waste, oils, acid, organic matter and other objectionable material.

- 2.1. **Filter Material.** Furnish hard, durable, and clean washed sand, gravel, crushed stone, or crushed shell meeting the gradation by percent weight specified in Table 1 unless otherwise shown on the plans. Filter material must be free of clay balls or other organic or deleterious matter as determined by [Tex-413-A](#). Do not furnish manufactured sand or crushed limestone. Use only one type of filter material for any drain system on the project or replace in kind.

Table 1  
Percent Retained on Sieve ([Tex-401-A](#))

| Sieve Size | Type A              | Type B              | Type C              | Type D |
|------------|---------------------|---------------------|---------------------|--------|
| 1-1/2"     | –                   | –                   | 0–10                |        |
| 3/4"       | –                   | 0–10                | 20–40               |        |
| 3/8"       | –                   | 15–35               | –                   | –      |
| #4         | 0–10                | 35–55               | 40–60               | 0–5    |
| #8         |                     |                     |                     | 0–20   |
| #16        |                     |                     |                     | 15–50  |
| #20        | 35–65 <sup>1</sup>  | 35–65 <sup>1</sup>  | 35–65 <sup>1</sup>  |        |
| #30        |                     |                     |                     | 40–75  |
| #50        | 75–100 <sup>1</sup> | 75–100 <sup>1</sup> | 75–100 <sup>1</sup> | 70–90  |
| #100       |                     |                     |                     | 90–100 |

1. Of the portion finer than No. 4 sieve.

Loss by decantation as determined by [Tex-406-A](#) must not exceed 1% of the material retained on a No. 4 sieve or 4% of the material passing a No. 4 sieve. Use Type B or Type C filter material around the underdrains unless otherwise shown on the plans. Do not place Type A or Type D filter material within 6 in. of perforations.

- 2.2. **Pipe.** Furnish the types and sizes of pipe specified on the plans. Use only one type of pipe for any drain system on the project or replace in kind. Use perforated pipe in areas to be drained, and use non-perforated pipe between the perforated pipe and the outfall.
- 2.2.1. **Type 1.** Corrugated galvanized steel pipe (CSP) conforming to any type specified in AASHTO M 36, fabricated from corrugated galvanized sheet.
- 2.2.2. **Type 2.** Acrylonitrile-butadiene-styrene (ABS) pipe conforming to ASTM D2751, SDR-35. Perforations must meet the requirements of AASHTO M 278.
- 2.2.3. **Type 3.** Corrugated polyethylene plastic tubing conforming to AASHTO M 252.
- 2.2.4. **Type 4.** Corrugated polyvinyl chloride (PVC) pipe conforming to ASTM F949.

- 2.2.5. **Type 5.** Smooth-wall PVC pipe conforming to AASHTO M 278, Class PS 46.
- 2.2.6. **Type 6.** As shown on the plans.

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### 3. EQUIPMENT

- 3.1. **Vacuum Truck.** Provide a vacuum truck (self-contained, single-unit vehicle with a high-pressure water pump capable of pumping at least 60 gpm at 2,000 psi with at least 500 ft. of hose and a water storage tank with at least 1,300-gal. capacity) or as approved. Provide a debris storage bin of at least 14-cu. yd. capacity and an air conveying vacuum system capable of cleaning up to 55 ft. deep through 8-in. diameter tubing for underground detention facility and all associated elements.
- 3.2. **Portable Pressure Washer.** Provide a portable pressure washer with a minimum operating pressure of 2,500 psi to wash underground detention facility as shown on the plans.

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### 4. WORK METHODS

Comply with worker and public safety regulations including but not limited to 29 CFR Parts 1910, 1925, and 1926. Monitor permissible exposure limits in accordance with OSHA requirements.

Remove standing water and dispose of according to TCEQ requirements, federal, state, and local regulations.

Remove and dispose of all debris and litter, sand filter media and wash water off the right of way in accordance with federal, state, and local regulations. Submit waste disposal documentation from a permitted disposal facility.

Replace damaged pipes as directed or as shown in the plans.

Perform hydraulic cleaning and vacuum removal as follows:

- 4.1. **Underground Water Quality Pond Cleaning.** Clean the pond risers, material traps, splitter boxes, rock gabions, gabion mattress, sedimentation basins, sand filtration ponds, and outlet structures.
- 4.2. **Remove and Replace Sand Filter Bed.** Remove a minimum of 2", not to exceed 6", of existing sand in the filtration pond. Install sand filter bed according to the elevation provided in the plans. Place and spread filter material by hand methods.

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### 5. MEASUREMENT

This Item will be measured by the each or by cubic yard as follows:

- 5.1. **Underground Water Quality Pond Cleaning.** By each pond cleaned.
- 5.2. **Remove and Replace Sand Filter Bed.** By cubic yard of sand removed and replaced.

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### 6. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Underground Water Quality Pond Cleaning," and "Remove and Replace Sand Filter Bed." This price is full compensation for confined space certifications, air monitoring, ventilation, water removal and disposal, cleaning all elements of the water quality pond, removing and disposing of debris, litter, sand, and wash water, equipment, labor, materials, tools, and incidentals required to perform this work. Debris and litter are defined as dirt, trash, rocks, scrap metal, paper, wood, plastic, rubber, glass products, foreign objects and other material not part of the drainage system.

Payment for repairs or replacement of pond elements will be made in accordance with Section 9.7, "Payment for Extra Work and Force Account Method," only when approved by the Department.