574 SPRING DEVELOPMENT
CONSTRUCTION SPECIFICATION

1. SCOPE

The work shall consist of furnishing materials and installing all components of the spring development, as outlined in this specification and the drawings.

2. MATERIALS

All materials used shall conform to the quality and grade noted on the plans, set forth in Section 6, or as otherwise listed below:

PIPE
Drain Pipe used for water collection purposes shall meet the requirements of one of the following pipe types or as otherwise set forth in Section 6 or on the drawings:

1. Corrugated polyethylene tubing and fittings, conforming to ASTM F-405.

2. Polyvinyl chloride (PVC) pipe and fittings, conforming to ASTM D-1785 for Schedule 40 pipe.

3. Polyvinyl chloride (PVC) pipe and fittings, conforming to ASTM D-3034 for SDR (Sewer and Drain) pipe.

All pipes shall be clearly marked with the appropriate specification designation. If the pipe is stored on site for a length of time, it should be protected from sunlight.

If perforations are specified, the water inlet area shall be at least 1 inch/foot of pipe length.

The perforations shall be either circular or slots equally spaced around the circumference of the pipe in not less than three rows. Circular perforations shall not exceed 3/16 inches in diameter and slots shall not be more than 1/8 inches wide and 1 ¼ inches long. All slots and circular perforations shall be cleanly cut.

Earth backfill material shall be placed in the trench in a manner to ensure that the pipe does not become displaced and so that the drainfill and bedding material, after backfilling, meet the requirements for the intended purpose.

If a gravel filter around the collection pipe is needed, no part of the pipe containing perforations shall be left exposed. The filter aggregate shall extend to a minimum of 3 inches around all surfaces of the collection pipe.

Outlet pipes, valves and valve housings shall be according to Conservation Practice Standard 516, Pipeline. Overflow pipes shall be according to Conservation Practice Standard 620, Underground Outlet.

AGGREGATE
Drainfill and filter aggregates shall meet the requirements of Penn DOT, Publication 408, Section 703, for coarse aggregate. The size and gradation shall be as specified in Section 6 or on the drawings. The aggregate shall be hard, durable, and resistant to weathering.

SEPARATION MATERIAL
Separation materials for the purpose of separating sediment from drainfill material or pipe perforations may be necessary.

Geotextile shall meet the requirements as outlined in PennDOT Publication 408, Section 735, Table A, Class 1- Subsurface Drainage. The geotextile material can be woven or non-woven.

Other materials used for separation shall be as specified in Section 6 or on the drawings.

RUBBER
Pre manufactured Anti-Seep Collars can be made of “gum” rubber material. The material shall have a minimum tensile strength of 3000 lbs and an elongation of 600 lbs. It shall also be able to withstand the extreme temperature variations. A tight

seal shall form around the pipe and resist water movement.

WOOD
Wood products used for anchoring, or framing around anti-seep collars shall be of a non-pressure treated type. Pressure treated wood products may contaminate the water supply and prove to be toxic to livestock.

CLAY
Clay material can be used for the cutoff wall. The clay material shall be free of rocks greater than 2 inches in diameter and be classified as a CL, CH, or MH soil, according to the Unified Soil Classification System.

Adjust the moisture of the material, as needed, prior to depositing the material in the trench. The clay shall be tamped with hand compacting equipment. Three passes of the tamping equipment is necessary. Maximum loose lift thicknesses shall not exceed 4 inches. The surface of each lift shall be scarified so to allow bonding with the next soil lift.

CONCRETE AND MASONARY
Precast concrete and masonry structures, for the use as spring boxes, and spring box access and lids, are acceptable when their design and construction have been reviewed and approved. Concrete shall have a minimum compressive strength, at 28 days, of 3000 psi. If the supplier cannot show evidence that a mix will meet strength requirements, a mix with a maximum net water content of seven gallons per bag (94#) of cement and a minimum cement content of six bags per cubic yard of concrete, may be used.

Course Aggregates shall be #57 or #67 for ready-mix and hand-mixed concrete. Hand-mixed concrete shall be mixed at a ratio of 1 part cement, 2 parts sand, and 3 parts coarse aggregate. Pre-bagged concrete mix will be mixed according to the manufacturer's recommendation. Mixing water will be clean and free of substances that would affect the strength or durability of the concrete.
.

Concrete shall be mixed to a consistency that will allow proper consolidation (Approximately 3"-6" Slump).

METAL
Steel spring boxes shall have a minimum thickness of 20 gauge. The steel shall be galvanized for protection from deterioration.

PLASTIC
Plastic spring boxes shall be made of ultraviolet resistant materials or shall have a durable coating for protection from sunlight.

3. FOUNDATION PREPARATION

The foundation area for the spring development or spring box shall be cleared of organic matter and all other unsuitable material.

All construction shall be performed in a workmanlike manner and the job site shall have a neat appearance when finished.

4. EROSION AND POLLUTION CONTROL

Construction operations will be carried out in such a manner so erosion and air and water pollution will be minimized.

5. SEEDING

All disturbed areas shall be revegetated according to the recommendations for permanent seeding as stated in Conservation Practice Standard 342, Critical Area Planting or the Pennsylvania Agronomy Guide

6. ADDITIONAL CONDITIONS WHICH APPLY TO THIS PROJECT ARE: