1. The type of underdrain should be selected to meet design water removal rate and soil conditions. Caution is prescribed in the use of these typical sections since special designs may be required to satisfy project conditions.

2. Type ~ underdrain is intended for minimum water removal conditions.

3. Type ~~ underdrain is intended for moderate water removal conditions. Where reactive conditions may create chemical clogging, the use of an inert material and/or elimination of the filter fabric may be necessary.

4. Type ~~~ underdrain is intended for maximum water removal conditions. Filter fabric is required between the coarse aggregate or fine aggregate including those described in general notes 2 and 3. Design note 3 applies for reactive conditions.

5. Type < underdrain is intended for use in detention basins and other locations which require a filtration system. The standard fine aggregate specified for Type < underdrain conforms to filtration gradation requirements of Chapter 62-25 FAC.

6. The designer should detail in the plans, the location of:
   (a) Type < underdrain, (b) nonstandard locations of Type ~, ~~, and ~~~ underdrain, (c) underdrain inspection boxes, (d) cleanouts for Type < underdrain, and (e) underdrain outlet pipes.

7. The designer should specify the flow line elevations at the beginning, bends, junctions and ends of underdrain pipes and outlet pipes.

8. The designer should evaluate whether an external filter fabric envelope is required around underdrain Types ~ and ~~~. When required, fabric shall be specified in the plans.

9. The underdrain pipe shall be either 4" smooth or 5" corrugated tubing unless otherwise shown in the plans. The size to be furnished will be based on the nominal internal diameter of a pipe with a smooth interior wall. Except when prohibited by the plans, the special provisions of this standard, pipe with a corrugated interior wall may be provided based on the following size equivalencies:
   - 4" smooth interior equivalent to 5" corrugated interior
   - 5" smooth interior equivalent to 6" corrugated interior
   - 6" smooth interior equivalent to 8" corrugated interior
   - 8" smooth interior equivalent to 10" corrugated interior

2. Fine aggregate shall be gravel or sand meeting the requirements of Sections 902-2 or 903-3. The gradation shall meet Section 906. Grades 4, 467, 5, 56 or 57 shall be utilized unless otherwise shown in the plans.

3. Coarse aggregate shall be gravel or sand meeting the requirements of Sections 902-2 or 903-3. The gradation shall meet Section 906. Grades 4, 467, 5, 56 or 57 shall be utilized unless otherwise shown in the plans.

4. Underdrain Type I and II shall be in accordance with Section 440.

5. Filter fabric shall be Type D-3 (See Index No. 199). The internal filter fabric of Type I underdrain shall have a permeability of 0.7 sec. and an AOS of #40 sieve.

6. When Type I is used, a filter fabric and meeting Section 948 is required.

7. See Index No. 500 for the standard location of Type I and II underdrains. The location of Type I underdrain and nonstandard locations of Type I and II underdrains will be as detailed in the plans.

8. All filter fabric joints shall overlap a minimum of 1'. The internal filter fabric of Type I underdrain shall overlap the coarse aggregate or fine aggregate a minimum of 1'.

9. Underdrain outlet pipes shall be nonperforated and all bends shall be made using 90 deg. joints. 90 deg. bends shall be constructed with two 45 deg. elbows separated by at least 1' of straight pipe. Outlet pipes should be directed into basins or other drainage structures shall be not less than 6' above the structure flow line. Outlet pipes discharging into grading areas shall have concrete aprons, hardware cloth, and additional soil as shown in Index No. 287 for Edgedrain outlets.

10. Pay Item shall be based on the size of the smooth interior products. The contract unit price for Underdrain, LF, shall include the cost of pipe, fittings, aggregates, sock, filter fabric, underdrain cleanouts, and concrete aprons.

The contract unit price for Underdrain Inspection Box, EA, shall be for the number completed and accepted.