GENERAL REQUIREMENTS FOR UNDERDRAINS AND EDGE DRAINS

1. Underdrains are typically used for embankment drainage while edge drains are typically required for roadway autograde drainage.

2. Underdrain and edge drain outlet appurtenances are not paid for separately; but are considered incidental to the underdrain or edge drain.

3. Ensure the trench for non-perforated pipe for underdrain or edge drain outlets is a minimum of 2 in. (50) wider than the outlet pipe. Place the outlet pipe in the center of trench while the backfill is compacted. Provide the maximum possible cover on outlet pipes until backfilled.

**TYPICAL UNDERDRAIN DITCH**

*Note: See plans for edge drain ditch details.*

**UNDERDRAIN & EDGE DRAIN OUTLET DETAILS**
1. Ensure outlets for edge drain are spaced no greater than every 600 ft [180 m] along a run of edge drain.

2. Provide outlets off the edge drain at a 45 degree angle from the direction of water flow. Ensure the length of the leg of the 45 degree bend is 10 ft to 15 ft [3 m to 4 m]. Install a second 45 degree bend to deviate perpendicular to the edge drain (see detail). If the standard laying length of non-perforated pipe is greater than 12 ft [4 m], cut the pipe to 10 ft [3 m] to form the first leg of the 45 degree bend.

3. If a sag (low) point is along a run of edge drain, use two Type C outlets (see detail).

4. Provide 4 in [100] diameter edge drains and outlets unless otherwise shown in plans.