GENERAL NOTES

1. Longitudinal underdrain trenches shall be cut continuously across all twin outlet areas and all single outlet areas that have an adjacent run of Type 4 pipe. These pipeless portions of longitudinal underdrain trench shall be backfilled with aggregate for underdrains.

2. Transition pipe, 45°elbows, and elbow connector pipe shall be the same material as the underdrain outlet pipe.

3. If Type 4 pipe and underdrain outlet pipe are different sizes, an increaser of the same material as the underdrain outlet pipe shall be installed between the transition pipe and 45°elbow.

4. If a single outlet pipe is skewed 45°, only one 45°elbow is required. The second 45°elbow and elbow connector pipe are not required.

5. If underdrain run limits are not shown on Underdrain Table, use 150.

6. If underdrain outlet pipe elevations are not shown on Underdrain Table, the minimum outlet pipe slope shall be 0.3% and the minimum freeboard between the outlet pipe outfall and the ditch line shall be 300 for median ditches and 600 for side ditches.

7. The Type 4 pipe shall be installed in the longitudinal underdrain trench such that a minimum 50 clearance exists between the pipe and the trench wall.

8. See Standard Drawing 718-UNDR-06 for rodent screen details.

9. The outlet pipe or pipes shall be located as close as possible to the center of the outlet protector.

10. The #13 transverse bars in the upslope lug may be field cut to accomodate the outlet pipe or pipes. The 1304 bars in the upslope lug may be moved to accomodate the outlet pipe or pipes.

APPROXIMATE OUTLET PROTECTEOR QUANTITIES

TYPE	CONCRETE, CLASS A (m^3)	REINFORCING STEEL (kg)	SODDING (m^2)
1	0.6	13.1	4.0
2	0.5	11.3	3.3
3	0.2	9.8	2.6

All dimensions are in mm unless otherwise specified.

INDIANA DEPARTMENT OF TRANSPORTATION

UNDERDRAIN NOTES

JANUARY 2001

STANDARD DRAWING NO. **718-UNDR-07**

ANTHONY L. UREMOVICH REGISTERED No. 18095 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

/s/ Anthony L. Uremovich 1-02-01
DESIGN STANDARDS ENGINEER DATE

/s/ Firooz Zandi 1-02-01
CHIEF HIGHWAY ENGINEER DATE