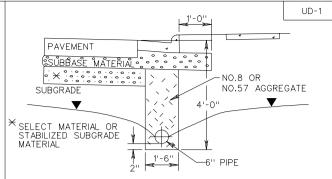
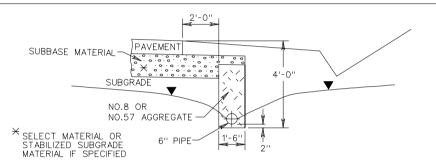


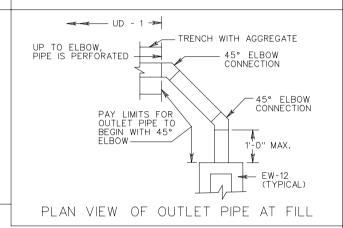
## PAVED SHOULDER SECTION



### CURB AND GUTTER SECTION



WITHOUT PAVED SHOULDER



#### LONGITUDINAL PERFORATED PIPE

| TYPE OF PIPE        | CRUSHING STRENGTH |                     |  |
|---------------------|-------------------|---------------------|--|
|                     | ×w.T.             | 6" NOMINAL DIAMETER |  |
| CORRUGATED ALUMINUM | 0.048             |                     |  |
| SMOOTH WALL PVC     | .153              |                     |  |
| CORRUGATED PE       |                   | AASHTO M-252        |  |

#### NON-PERFORATED OUTLET PIPE

| TYPE OF PIPE        | CRUSHING STRENGTH |                     |  |
|---------------------|-------------------|---------------------|--|
|                     | ₩.T.              | 6" NOMINAL DIAMETER |  |
| CORRUGATED ALUMINUM | 0.048             |                     |  |
| SMOOTH WALL PVC     | .153              |                     |  |
| SMOOTH WALL PE      |                   | 70 PSI * * *        |  |

★ WALL THICKNESS (MIN) - INCHES
★★★ TESTED ACCORDING TO ASTM D-2412
AT 5% DEFLECTION.

#### NOTES:

- WHEN THE LONGITUDINAL PIPE CONNECTS DIRECTLY INTO A DRAINAGE STRUCTURE (DROP INLET, MANHOLE, ECT.), NON-PERFORATED OUTLET PIPES ARE NOT REQUIRED.
- 2. INVERT ELEVATION AT OUTLET END OF OUTLET PIPE TO BE A MINIMUM OF 1'-O" ABOVE INVERT ELEVATION OF RECEIVING DRAINAGE DITCH OR STRUCTURE.
- 3. ALL CONNECTIONS (ELBOWS, WYES, ETC.) WITHIN PAY LIMITS FOR OUTLET PIPE ARE TO BE OF THE SAME CRUSHING STRENGTH AS THE OUTLET PIPE.
- 4. OUTLET PIPE ARE TO BE INSTALLED ON 2% MIN. (3% DESIRABLE) GRADE.
- 5. THE NORMAL DEPTH OF UNDERDRAIN IS TO BE 4'-0" BELOW THE NEAR EDGE OF PAVEMENT AS SHOWN. THE LONGITUDINAL GRADE OF THE UNDERDRAIN SHALL FOLLOW THAT OF THE ROADWAY WITH A MINIMUM GRADE OF 0.2 %
- 6. WHERE THE BOTTOM OF SELECT MATERIAL IS GREATER THAN 4'-O" BELOW THE PAVEMENT, THE BOTTOM OF THE UNDERDRAIN IS TO BE COINCIDENT WITH THE BOTTOM OF SELECT MATERIAL AND THE TRENCH DEPTH AND BACKFILL QUANITITY INCREASED ACCORDINGLY.
- 7. WHEN USED WITH STABILIZED OPEN-GRADED DRAINAGE LAYER, THE BOTTOM OF THE CURB AND GUTTER SHALL BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBBASE COURSES OUT TO THE DEPTH OF THE PAVEMENT.
- 8. OUTLET PIPE TO BE SECURELY CONNECTED TO EW-12 OR OTHER DRAINAGE STRUCTURE.
- 9. V DENOTES WATER TABLE.
- 10. OUTLET PIPE CONFIGURATION TO PROVIDE FOR PASSAGE OF INSPECTION CAMERA WITH  $2\frac{1}{2}$ " I. D. HEAD.

| SPECIFICATION<br>REFERENCE |  |
|----------------------------|--|
| 240                        |  |
| 501                        |  |
| 701                        |  |

# STANDARD GROUNDWATER UNDERDRAIN

VIRGINIA DEPARTMENT OF TRANSPORTATION

108.01