GENERAL NOTES

1. Flared end sections shall conform to the requirements of ASTM C76 with the exception that dimensions and reinforcement shall be as prescribed in the table above. Consequential reinforcement may consist of either one cage or two cages of steel. Fiber-reinforced concrete may be substituted for conventional reinforcement in accordance with Structures Design Guidelines, Section 3.17. Compressive strength of concrete shall be 4000 psi. Shop drawings for flared end sections having fiber reinforcing or dimensions other than above must be submitted for approval to the State Drainage Engineer.

2. Connections meeting the requirements of Section 449 of the Standard Specifications (O-Ring Gasket). Flared end section joint dimensions and tolerances shall be identical or compatible to those used in the pipe culvert joint. When pipe culvert and flared end section manufacturers are different, the compatibility of joint designs shall be certified to by the manufacturer of the flared end sections.

a. Joints meeting the requirements of Section 449 of the Standard Specifications (O-Ring Gasket). Flared end section joint dimensions and tolerances shall be identical or compatible to those used in the pipe culvert joint. When pipe culvert and flared end section manufacturers are different, the compatibility of joint designs shall be certified to by the manufacturer of the flared end sections.

b. Joints coated with preformed plastic gaskets. The gaskets shall meet the requirements of Section 942 of the Standard Specifications and the minimum sizes for gaskets shall be as specified for equivalent sizes of elliptical pipe.

c. Reinforced concrete jackets, as detailed on this drawing. Cost of the reinforced concrete jacket to be included in the contract unit price for the flared end section. Concrete jacket shall be as specified on Index No. 280. Cost of concrete and reinforcement shall be included in the contract unit price for the pipe culvert.

3. Toe walls shall be constructed when shown on the plans or at locations designated by the Engineer. Toe walls are to be cast-in-place with Class I Concrete and paid for under the contract unit price for Flared End Section (Concrete). EA. Reinforcing steel shall also be included in the cost of the Flared End Section (Concrete). EA.

4. On skewed pipe culvers the flared end sections shall be placed in line with the pipe culver. Side slopes shall be warped as required to fit the flared end sections.

5. Flared End Section to be paid for under the contract unit price for Flared End Section (Concrete). EA. Sodding shall be in accordance with Index No. 261, and paid for under the contract unit price for Performance Test, SI.

DESIGN NOTES

1. Flared end sections are intended for use outside the clear zone on median drain and cross drain installation, except that flared end sections for pipe sizes 12" and 15" are permitted within the clear zone. When the slope intersection of pipe culvert and flared end section occurs where the slope of pipe culvert and flared end section doesn't change, the clear zone shall be determined by the clear zone requirements for each type of construction. The clear zone requirement for pipe culvert shall be determined by the Engineers specifications and section design. Flared end sections are not intended for side drain installations.

2. Reinforced concrete jackets shall be used at all locations where high velocities and/or heavily eroding soils may cause disjointing. These locations are to be shown on the plans.

3. Toe walls shall be used whenever the anticipated velocity of discharge and soil type are such that erosive action would occur. Toe walls are not required where ditch pavement is provided, except when disjointing would occur if the ditch pavement should fail.