

1 **SECTION 1044**
2 **SUBSURFACE DRAINAGE MATERIALS**

3 **1044-1 SUBDRAIN FINE AGGREGATE**

4 Subdrain fine aggregate shall meet Class III select material, Type 1 or Type 3.

5 **1044-2 SUBDRAIN COARSE AGGREGATE**

6 Subdrain coarse aggregate shall meet Class V select material.

7 **1044-3 PIPE AND FITTINGS**

8 Pipe and fittings may be, at the option of the Contractor, either concrete, corrugated steel,
9 bituminized fiber or corrugated plastic.

10 **1044-4 CONCRETE PIPE AND FITTINGS**

11 Non-perforated concrete pipe and pipe fittings shall meet AASHTO M 86 for standard
12 strength nonreinforced concrete pipe.

13 Perforated concrete pipe shall meet AASHTO M 175 for standard strength perforated
14 nonreinforced concrete underdrainage pipe.

15 Joint materials shall meet Section 1028.

16 **1044-5 CORRUGATED STEEL PIPE AND FITTINGS**

17 Non-perforated corrugated steel pipe and pipe fittings shall meet Subarticle 1032-3(A).

18 Perforated corrugated steel pipe shall meet AASHTO M 36.

19 Fabricate the corrugated steel pipe from steel sheets having a minimum thickness of
20 0.052 inch.

21 **1044-6 PVC PIPE**

22 PVC pipe shall meet ASTM D1785.

23 **1044-7 CORRUGATED PLASTIC PIPE AND FITTINGS**

24 Corrugated plastic pipe and fittings shall meet AASHTO M 294 for heavy duty tubing, except
25 that the maximum stretch resistance shall be 10%.

26 **1044-8 OUTLET PIPE**

27 Outlets constructed of PVC Schedule 40 pipe shall meet ASTM D2665. HDPE pipe shall
28 meet AASHTO M 294, Type S.

29 **SECTION 1046**
30 **GUARDRAIL MATERIALS**

31 **1046-1 GENERAL**

32 Use guardrail materials from sources meeting requirements of the Department's Brand
33 Registration Program for guardrail. A list of these sources is available from the Materials and
34 Test Unit's Central Laboratory. The Department will remove a manufacturer of guardrail
35 materials from this program if the monitoring efforts indicated that non-specification material
36 is being provided or test procedures are not being followed.

37 The following types of guardrail materials and all associated accessories may be accepted
38 under this program: rail elements, posts and offset blocks, terminal sections, anchor units,
39 transition sections and hardware.

40 **1046-2 RAIL ELEMENTS**

41 The rail element and terminal sections shall meet AASHTO M 180 for Class A, Type 2.