

**SPECIFICATIONS FOR STORM DRAIN CULVERTS**

**Excavation:**

Excavations shall be made to construct all work shown on plan. Bottom of trenches shall be excavated true to form and shape of bottom of inverts. All excavated material not required for backfilling to be removed from vicinity of work.

**Foundation & Grade:**

Where ground in which a structure is to be constructed is composed of soft or spongy material, said material shall be removed to such a depth, not exceeding two feet, so that the replacing thereof with gravel tamped firm and unyielding will provide a firm foundation. All foundations and sub-grade for structures shall be made unyieldingly firm.

**Concrete:**

All concrete structures shall be of the following mix:

Cement -- 1 sack; Sand -- 2 1/2 cubic feet; rock -- 3 1/2 cubic feet; water -- 55 pounds or 5 1/2 gallons.

Concrete must be carefully placed in horizontal layers, tamped, rammed, spaded and the face of the forms sufficiently tamped with mauls until the concrete is free from voids, air, water or rock pockets.

Layers of concrete shall not be tapered off wedge-shaped, but carried full thickness to the point of ending by using a trowel placed vertically and securely braced.

Before placing fresh concrete on concrete which has set, the latter shall be washed clean and brushed with a thin layer of cement grout.

No concrete shall be deposited under water and the excavation must be kept free from water by pumping or otherwise.

**Curing Concrete:**

All exposed concrete shall be protected from the sun and wind with wet burlap as soon as it can be placed upon the fresh concrete without marring the surface. After initial set the exposed concrete shall be covered with sand or dirt and kept wet continually for ten days. The whole structure shall be given an abundant sprinkling of water twice a day for ten days.

**Forms:**

Forms shall be built according to plans. Forms shall be thoroughly wet and clean just before the concrete is placed. All forms shall be given a sufficient application of stainless oil so that the concrete will not adhere to the forms. Forms shall not be used that have become broken or deformed in any manner that would result in the deformation of the finished structure.

**Manholes:**

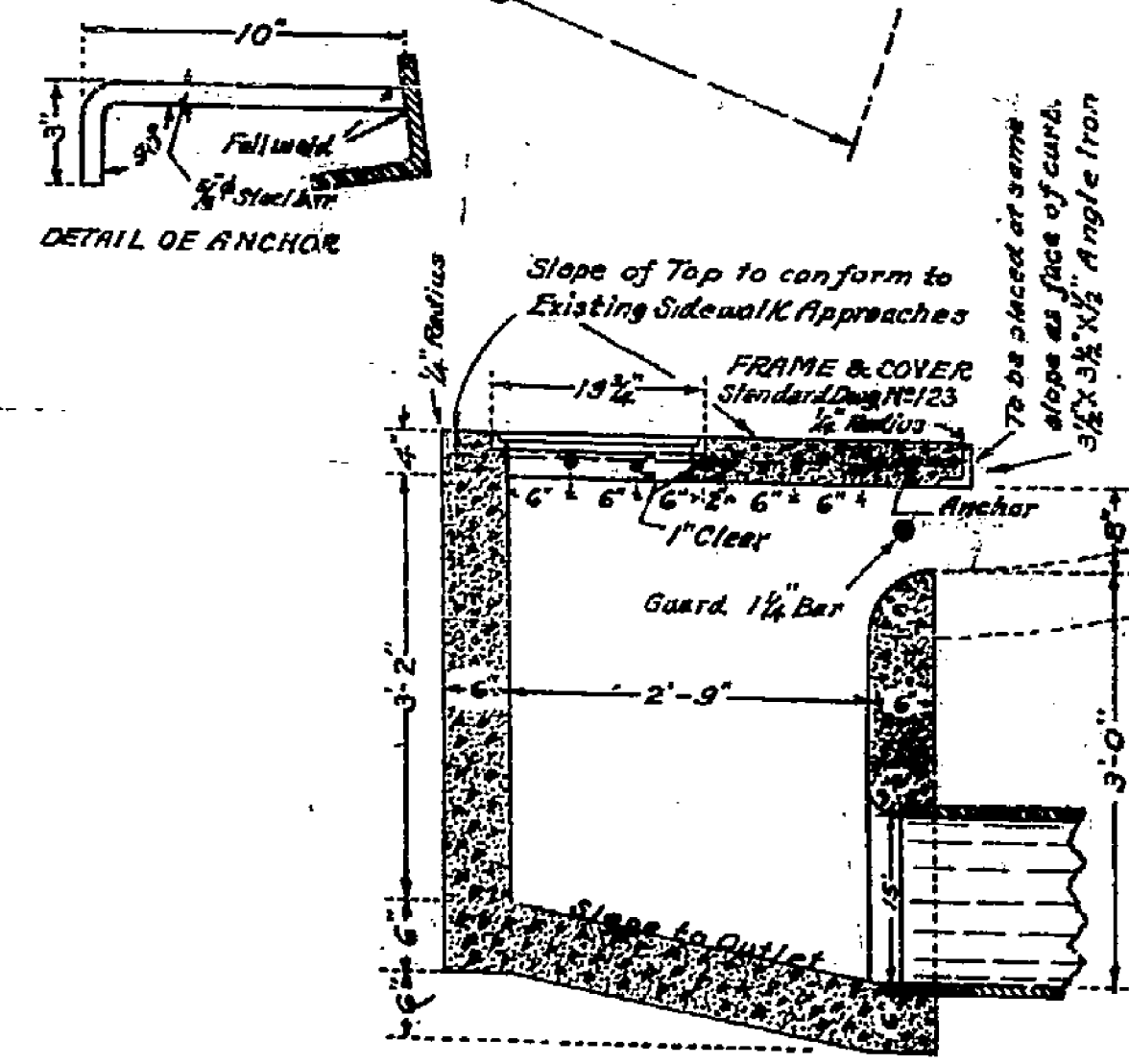
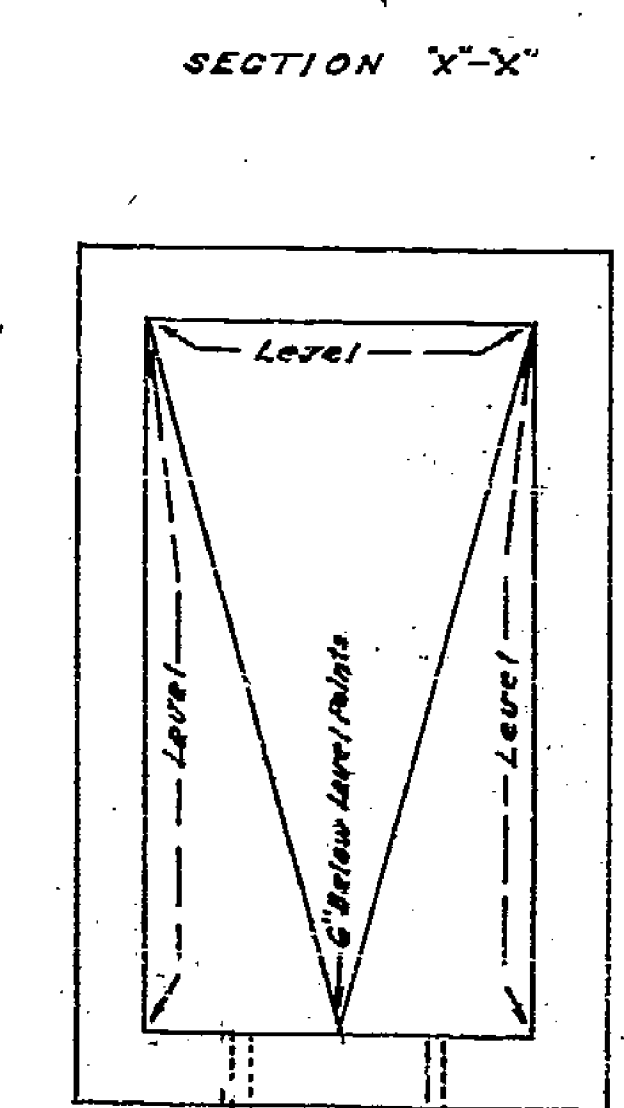
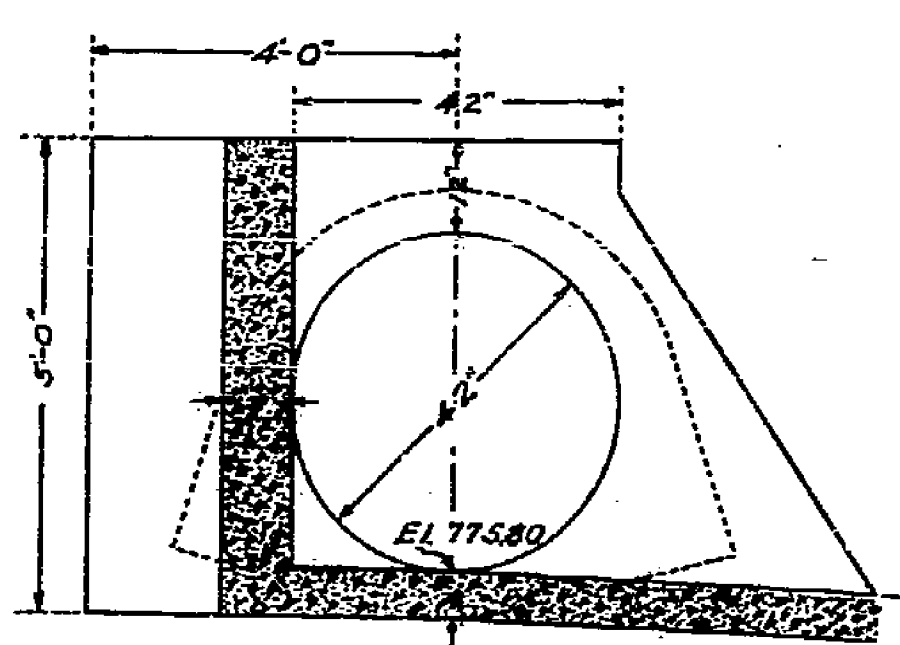
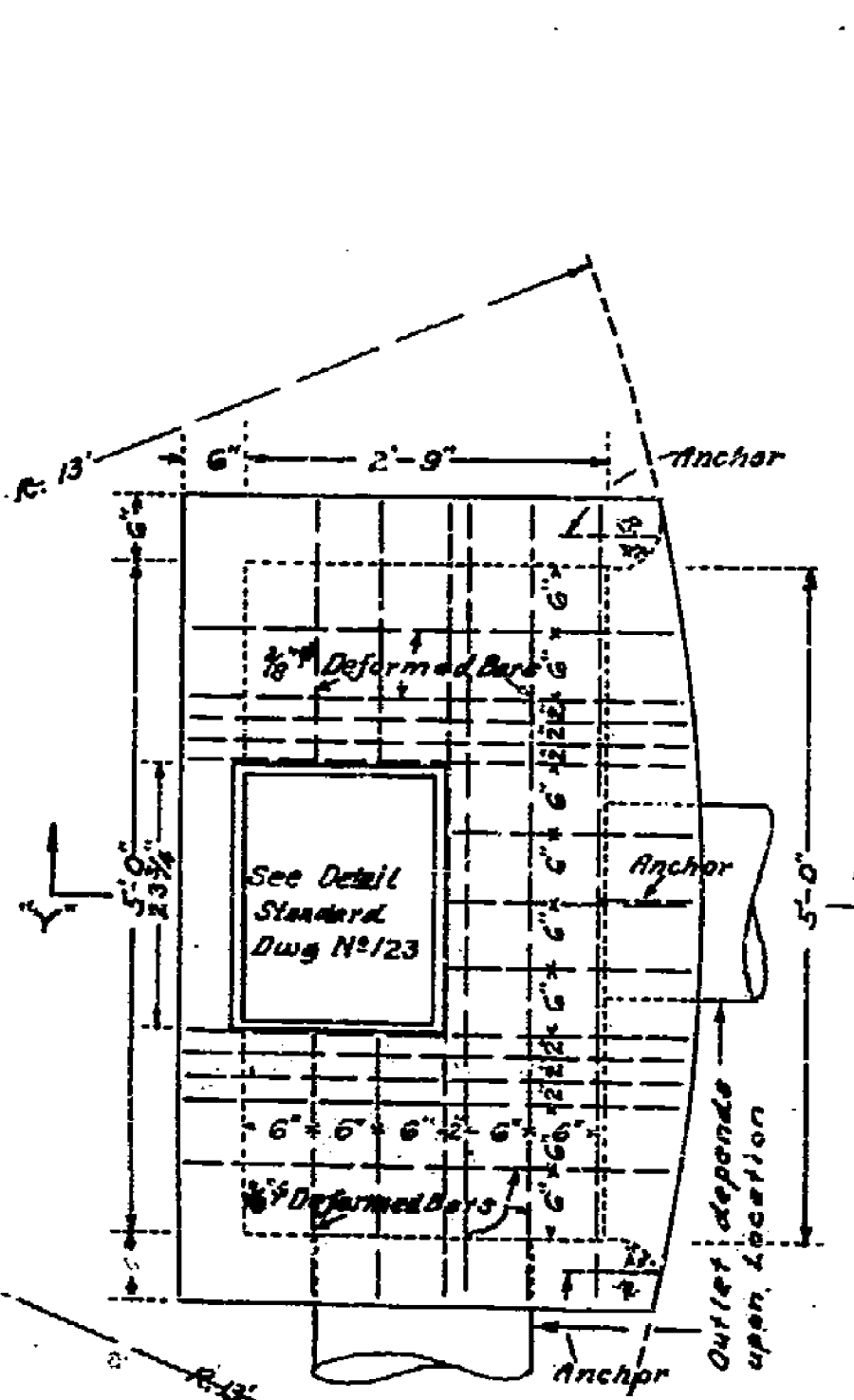
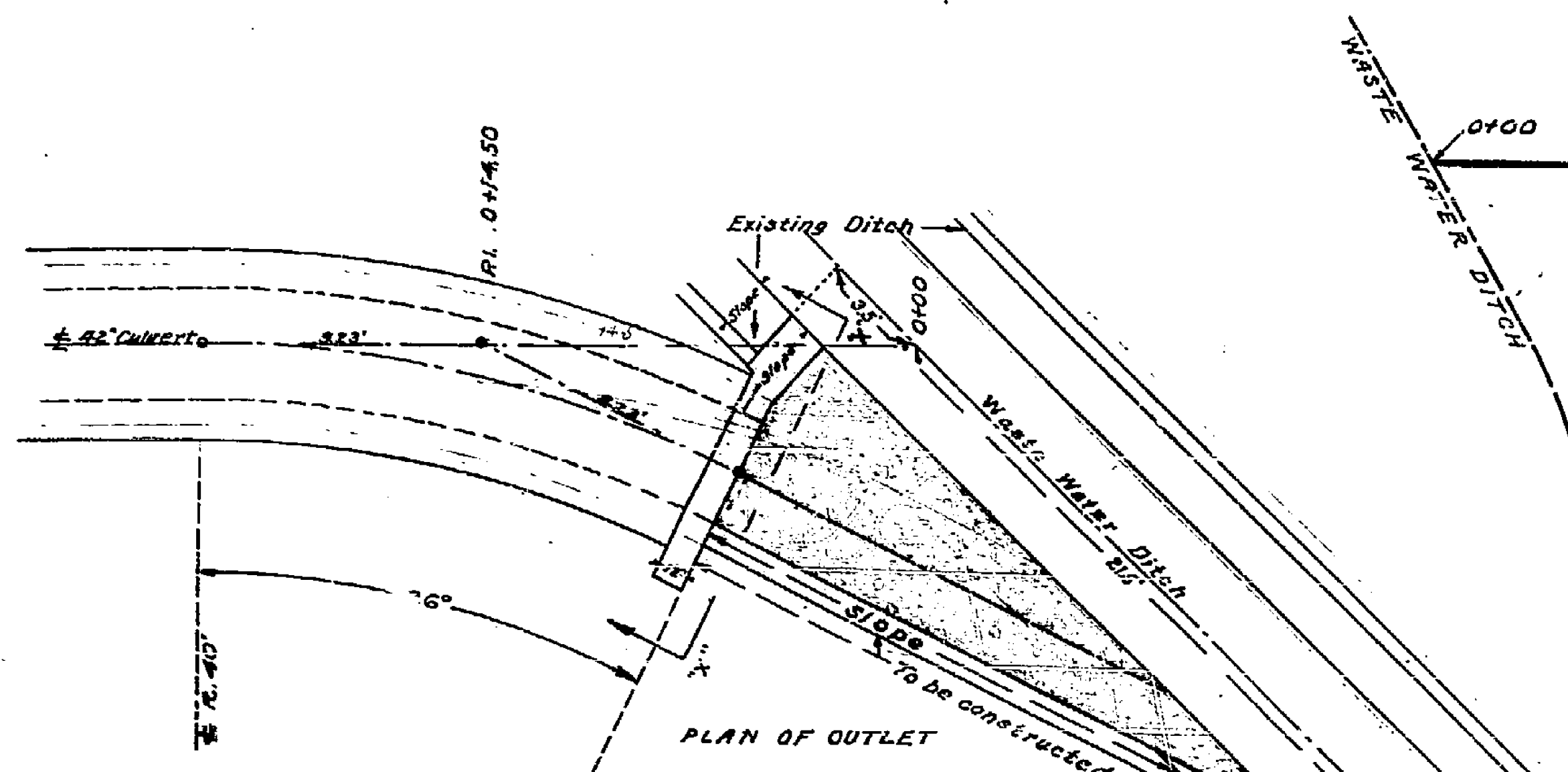
Manholes shall be constructed as shown on the plans.

**Inlets:**

Inlets shall be built as shown on the plans.

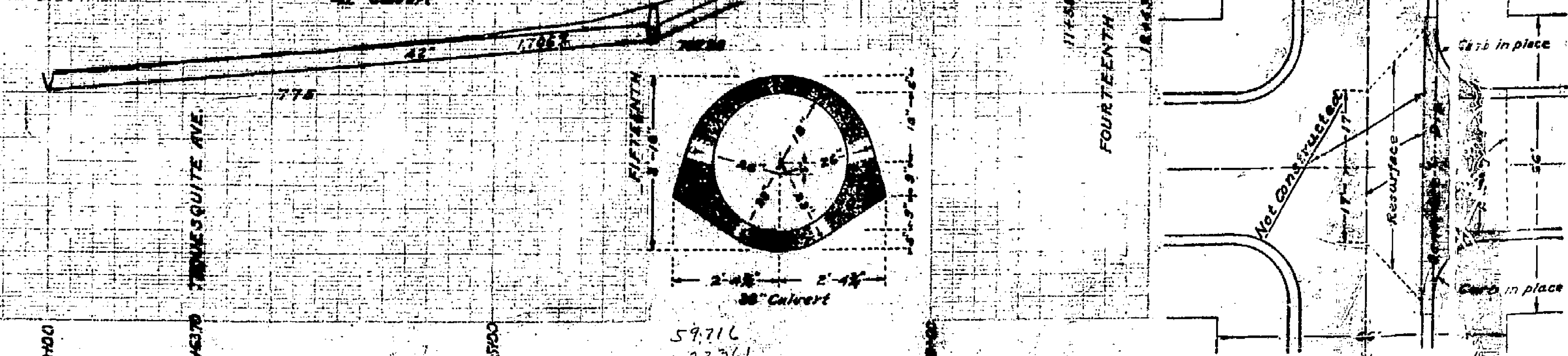
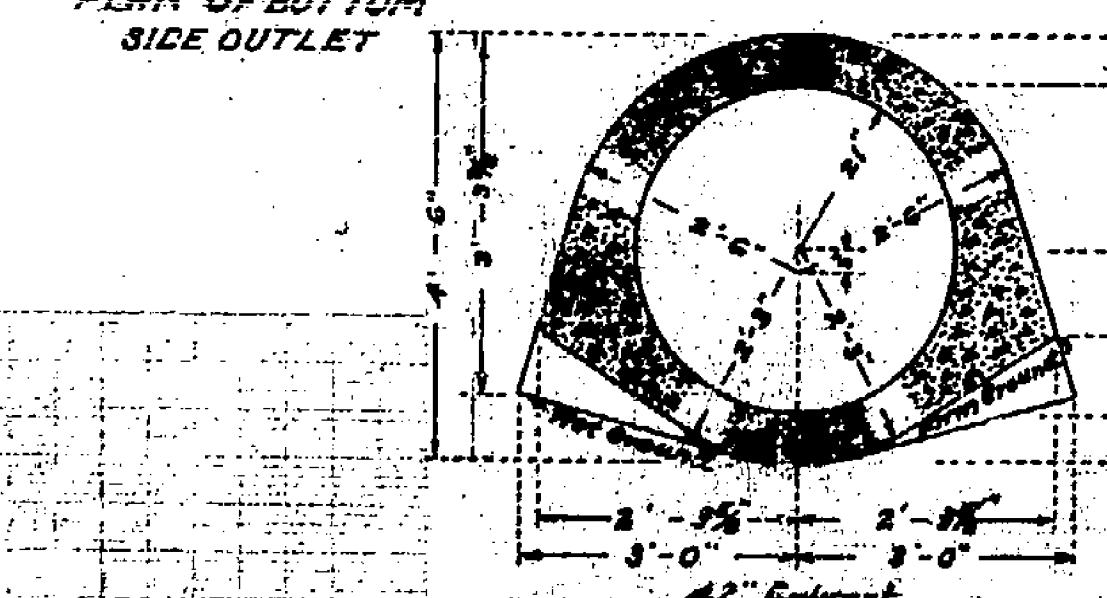
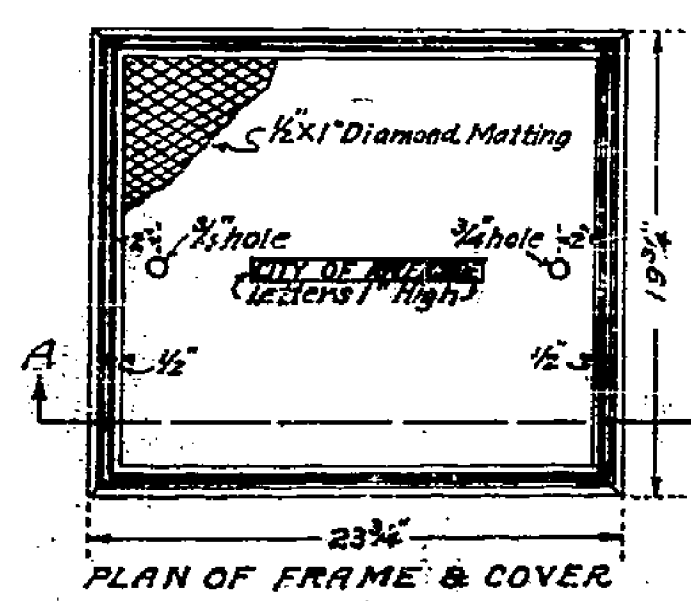
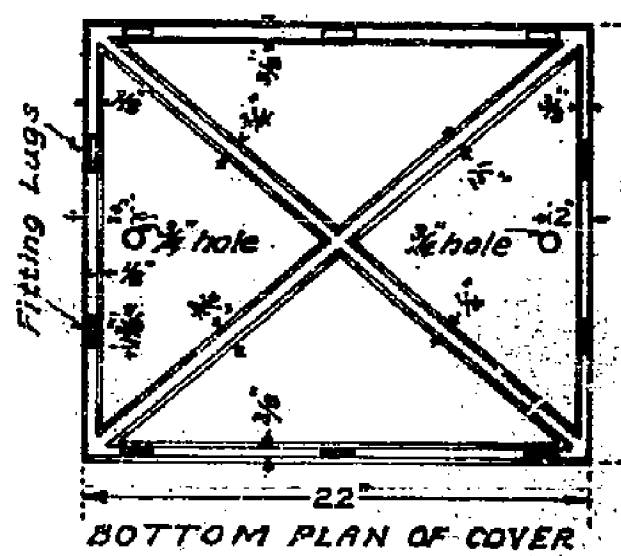
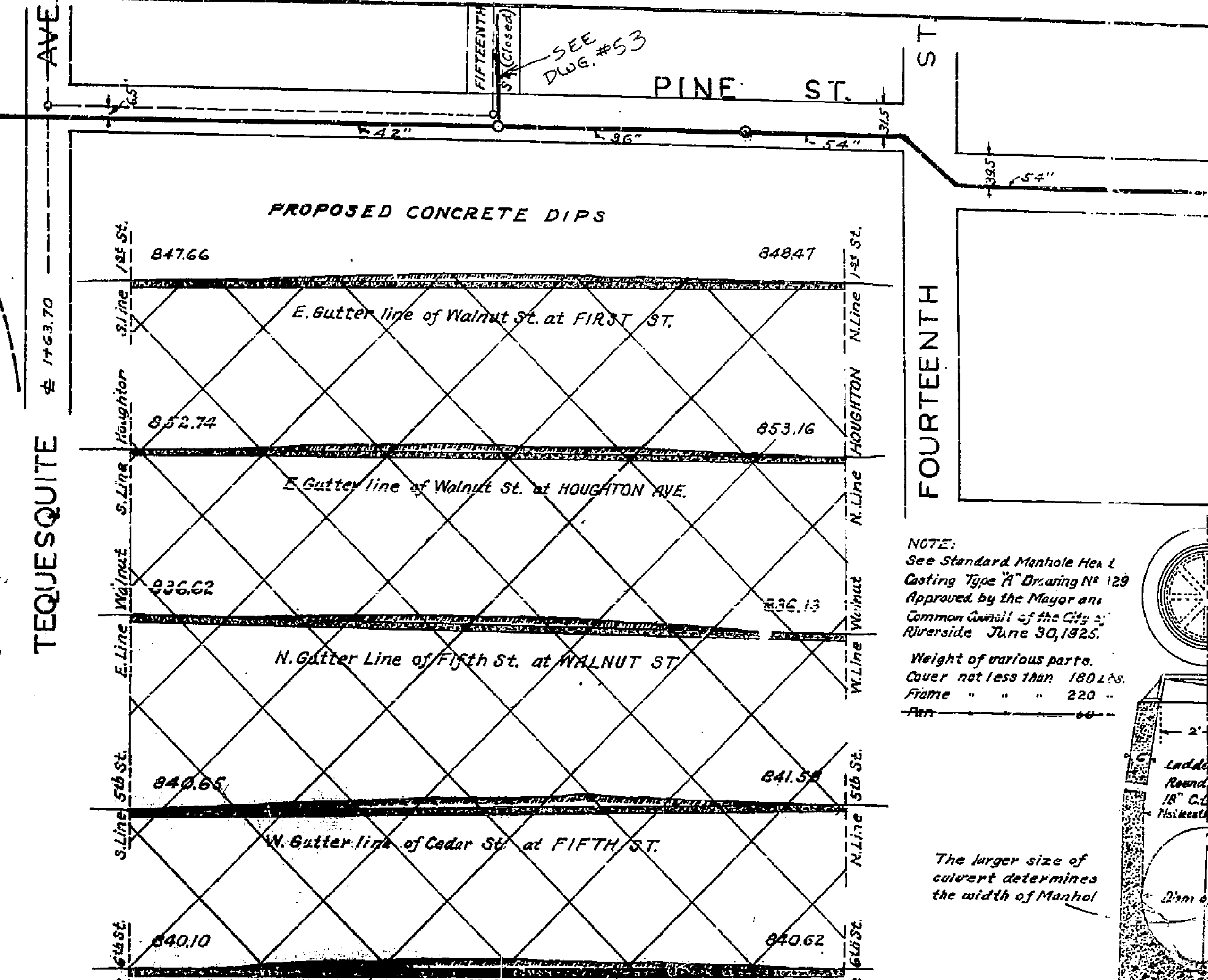
**Restoration of Surface Over Structures:**

All streets, alleys or rights of way where the surface over the trenches has been paved, shall, after being back-filled and compacted, be repaired without delay in a workmanlike manner with like material and in the same manner as to repair the surface with the same class of pavement as was removed.



**STEEL LIST**

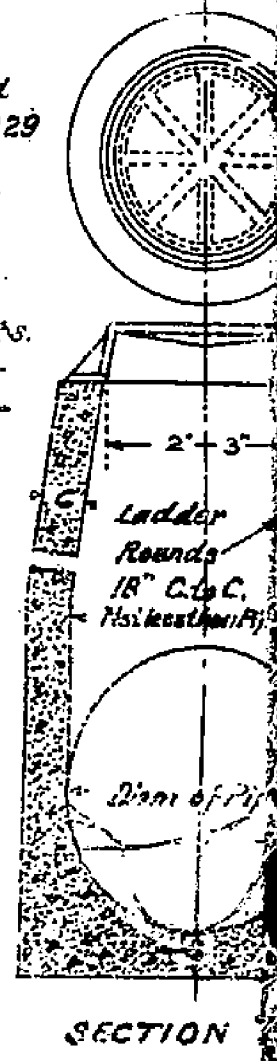
| Material   | Quantity |
|--|----------|
| 3/4" Deformed Bars 2'-0" Long  | 7        |
| 3/4" Deformed Bars 3'-10" "  | 10       |
| 3/4" Deformed Bars 5'-10" "  | 4        |
| 3/4" x 3/4" x 6'-0" Anchors attached to Angle Iron Frame & Cover Set | 1        |



**NOTE:**  
See Standard Manhole Hex L Casting Type A Drawing No. 129 Approved by the Mayor and Common Council of the City of Riverside June 30, 1925.

Weight of various parts:  
Cover not less than 180 lbs.  
Frame " " " 220 "  
Pan " " " "

The larger size of culvert determines the width of Manhole.



Typical Intersection Showing Location of Dip