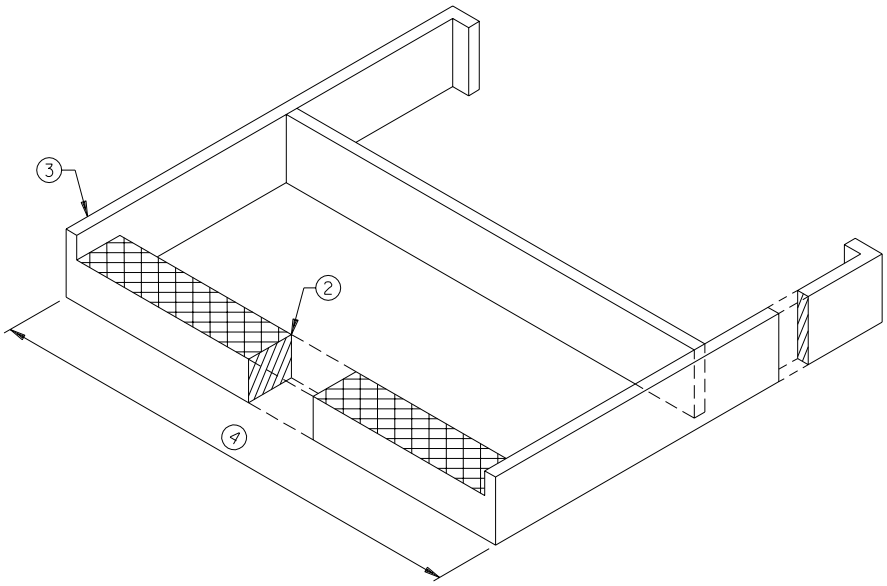
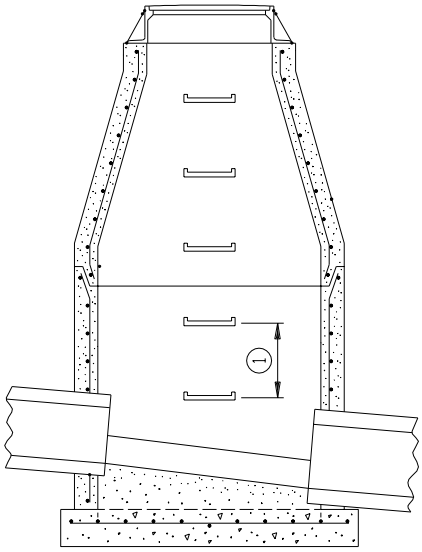
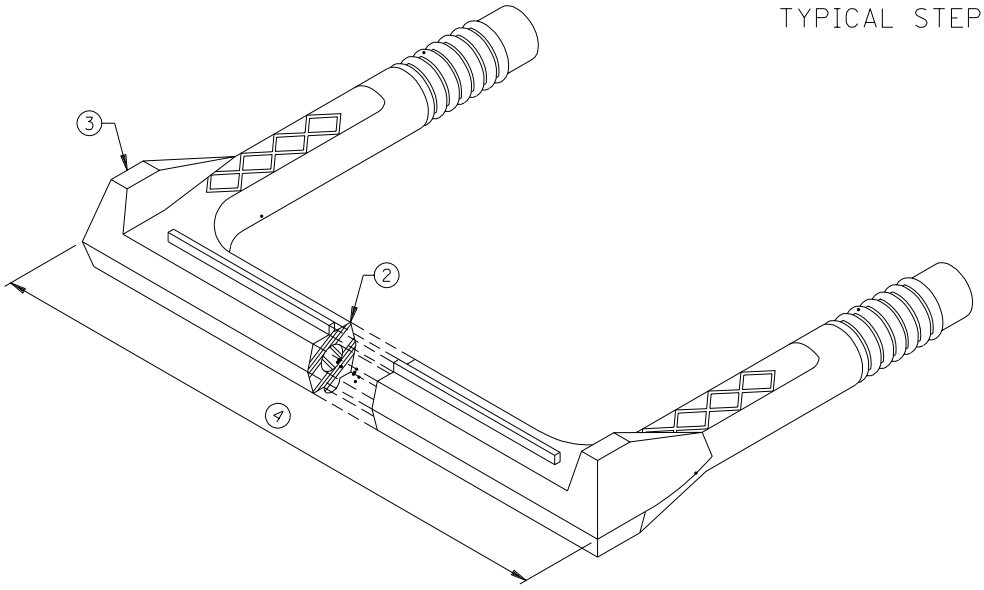


TYPICAL METAL STEP



TYPICAL STEP ALIGNMENT



TYPICAL REINFORCED PLASTIC STEP

NOTES:

STEPS SHOWN ARE BASIC DESIGNS ONLY. FINAL CONFIGURATIONS MAY VARY FROM THESE DRAWINGS.

VARIATIONS IN THE ABOVE DESIGNS WHICH WILL NOT DECREASE STRENGTH WILL BE PERMITTED.

THE OFFICE OF MATERIALS, RESEARCH AND ENGINEERING WILL MAINTAIN A LISTING OF APPROVED MANHOLE STEPS. CURRENTLY APPROVED STEPS ARE ALUMINUM, CAST IRON AND STEEL REINFORCED PLASTIC. SELECTION OF APPROVED STEP DESIGN IS THE OPTION OF THE CONTRACTOR OR SUPPLIER.

ALUMINUM STEPS SHALL CONFORM TO ASTM B26-64A, ALLOY AA 514.0. EMBEDDED LEG SECTIONS SHALL BE GIVEN A NEOPRENE PROTECTIVE COATING OR EQUIVALENT FOR CORROSION PROTECTION. COATINGS SHALL BE APPROVED BY MATERIALS ENGINEERING.

EXCEPT AS OTHERWISE NOTED ON THIS PLATE, STEPS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C478.

STEPS SHALL BE EMBEDDED IN THE RISER OR CONICAL TOP SECTION WALL A MINIMUM DISTANCE OF 3 IN.

THE RUNG OR CLEAT SHALL PROJECT A MINIMUM CLEAR DISTANCE OF 4 IN. FROM THE WALL OF THE RISER OR CONE SECTION MEASURED FROM THE POINT OF EMBEDMENT.

THE MIN. CLEAR DISTANCE BETWEEN THE RUNG OR CLEAT AND THE OPOSITE WALL OF THE MANHOLE RISER OR CONE SHALL BE 18 IN. MEASURED AT THE CENTER FACE OF THE STEP.

(1) STEPS SHALL BE SPACED AT A MAXIMUM DESIGN DISTANCE OF 16 IN. APART.

(2) STEPS SHALL HAVE A MINIMUM CROSS SECTION DIMENSION OF 1 IN.

(3) MINIMUM VERTICAL SIDE DIMENSION TO PREVENT FOOT FROM SLIPPING OFF IS 1/2".

(4) THE MINIMUM WIDTH OF RUNGS OR CLEATS SHALL BE 10 IN.

APPROVED DEC. 30, 1996 Gerald J. Rohrbach STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION MANHOLE OR CATCH BASIN STEP	SPECIFICATION REFERENCE 2506	STANDARD PLATE NO. 4180J