

**STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
OFFICE OF MAINTENANCE OPERATION
TEMPORARY STEEL PLATE USE WITHIN HIGHWAY RIGHT OF WAY**

Description:

Work under this item covers the temporary bridging of the roadway or sidewalk to accommodate vehicular and pedestrian traffic during construction. Steel road plates are to be used in areas where there is trenching of the roadway or sidewalk while maintaining continued movement of traffic at the discretion of the District.

Restrictions:

1. The use of steel road plates will not be allowed from November 1 to April 30, holidays or weekends.
2. The placement of steel road plates will be restricted at intersections, limited access highways, bridges, schools, pedestrian ramps, crosswalks, or any other locations determined not suitable.
3. The length of time the steel road plates will be allowed in the roadway.
4. The length and width of the open trench requiring steel plates.
5. The temporary bridging plate system including the plates, blocking and anchors shall be designed by a Professional Engineer licensed in the State of Connecticut for conditions deemed necessary by the District Office.

The items list above including the circumstances requiring the placement of steel road plates will be approved by the District.

Materials:

The steel for plate(s) shall be either ASTM A 36 Grade 36 (Yield Strength of 36,000 psi) or ASTM A 572 Grade 50 (Yield Strength of 50,000 psi).

All plating used shall be without deformations (warping, cracking, etc.) and shall be subject to 10' to 12' straight edge testing. Plate removal will be required if plate is permanently deformed. Steel road plate deformation may occur during loading, but if a steel plate is deformed without loading to at least 0.5 inch per 10 feet in length the plate shall be removed and replaced.

Attachment hardware for bolting the plate to the roadway shall be a carbon steel reusable concrete anchor system that is suitable to be removed and reused.

Steel grates may also be used if all the requirements of this specification and the plans can be satisfied. Use of steel grates needs to be approved.

Material for temporary transition/wedge pavement leading to the plate shall be 2.1 Hot-mix asphalt (specifically HMA S0.375) conforming to the requirements of the Section 4.06. Material for final course (if reqd.) after removal of the temporary bridging plate shall be in accordance with Section M.04 and as shown on the plans.

Construction Methods:

Design:

The contractor shall review the location where the steel road plate(s) are to be used and shall identify irregularities of the roadway which preclude the plates from lying flush with the road surface. The Contractor shall develop a permit drawing for submission.

The contractor shall submit permit drawings to the Office of Maintenance – Permit Section for review in accordance with the requirements of the standard specifications and shown on the drawings if required by the District.

The maximum width of an individual section of plate transverse to traffic shall be 6 feet.

Live Loads including dynamic allowance: Each transverse plate section and anchorages shall be designed for the following conditions at a minimum and shall consider the effects from the actual wheel placement:

32-kip wheel load over a 4' transverse width of plate.

64 kips axle load over a 6' transverse width of plate.

Braking Forces: The plate and the anchor system shall be designed for the forces resulting from a truck braking on the plate.

The plate(s) must extend beyond the edge of the trench to safely and adequately support the traffic loads on it. Steel road plate(s) shall be large enough to allow minimum of 2' beyond the limits of each side of the trench.

Steel road plates shall be placed perpendicular or parallel to the direction of travel and shall be fabricated to accommodate any skews. In all situations, the longitudinal edges of the steel road plates shall not be in the wheel path.

The minimum thickness of plate shall be 1½ ". The maximum live load deflection allowed is 'L'/400. Where 'L' is the span between the anchor locations as noted on the plans. The minimum gap between the plate and the top of concrete header shall be the maximum of the computed deflection or ½".

Installation:

When a trench walls have unstable material, approved shoring or side support treatment will be require.

The details of the plates shall include an original manufactured non-skid plate surface, or a plate surface alternative approved by the District. Alternative Skid resistant surface treatments such as the use of high-friction synthetic polymer resin aggregate filled coating or anti-slip tapes for transportation may be used if approved. Plate(s) without the required skid-resistant surfacing will require removal. Surfacing requirements are not required in areas not exposed to traffic or pedestrian movements. Epoxy-coated plates are not approved for use. The contractor shall be responsible for periodically monitoring skid resistance, reporting results to the Inspector, and removing deficient plates from service. If imprinted waffle-shaped patterns or right-angle undulations to achieve skid resistance on the steel road plate is used. The maximum vertical deviation within the pattern shall be no more than 0.25 inch.

Traffic control devices shall be in place before and during plating period in accordance with the requirements of the “Work Zone Plan for Temporary Steel Plates Over Trench” Drawing.

Each steel road plate must be fully supported around the perimeter to prevent wobbling or rocking with non-asphaltic shims and installed to operate with minimum noise in accordance with requirements of the “Temporary Steel Plate Over Trench” Drawing.

Steel road plates shall not be overlapped or stacked on top of another plate. Steel road plate bridging shall be secured against displacement by using adjustable cleats, shims, blocking or other devices. Securing devices shall not extend above the wearing surface of the plate. The roadway surface milling and paving shall include the anchor bolt holes after the holes are filled with a pre-mix non-shrink rapid set material.

The gap between the edge of the plate(s) and the adjacent pavement (not being reconstructed) shall be filled with a temporary bituminous overlay wedge.

The plates shall be secured by an approved method to prevent any movement. If the plates are to be left in place for an extended period of time, the method of securing the plates shall be inspected every 3 days, at the Contractor’s expense to ensure that they have not become loose.

Plates shall be secured, transitioned and ramped as required by the District on all sides using temporary pavement in accordance with these specifications to ensure a smooth transition from the road surface to the top of the plate surface and back to the road surface.

Ramping transition slope shall be as noted in Section 4.06 – Bituminous Concrete.