

## SECTION 02261A – REQUIREMENTS FOR TEMPORARY SHEETING AND SHORING TO SUPPORT AMTRAK TRACKS

## PART 1 - GENERAL

## 1.1 SCOPE

- A. This engineering practice describes items to be included in the design and construction of temporary sheeting and shoring construction adjacent and proximate to Amtrak tracks.
- B. Use of this specification is as required by Amtrak, as described in Amtrak Engineering Practice EP3014.

## 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

## 1.3 DEFINITIONS

- A. CHIEF ENGINEER: Amtrak Vice President, Chief Engineer
- B. RAILROAD: National Railroad Passenger Corporation (Amtrak), and/or the duly authorized representative
- C. ENGINEERING PRACTICE: Amtrak Engineering Practices establish a system of uniform practices, notices and instructions for the Amtrak Engineering Department, providing current, permanent and temporary, departmental procedures and policies.

## 1.4 SUBMISSION REQUIREMENTS

- A. Unless otherwise directed in the Contract, the Contractor shall submit five sets of plans and calculations to the authorized representative of the Chief Engineer, Structures, whose name and address will be provided at the project pre-construction meeting.
- B. Submitted calculations and plans shall be signed and sealed by a Professional Engineer, registered in the State in which the work will be performed.
- C. The Contractor shall revise and resubmit plans and calculations as many times as necessary, until a complete and correct site-specific work plan for temporary sheeting and shoring has been approved.

## PART 2 - PRODUCTS (Not Used)

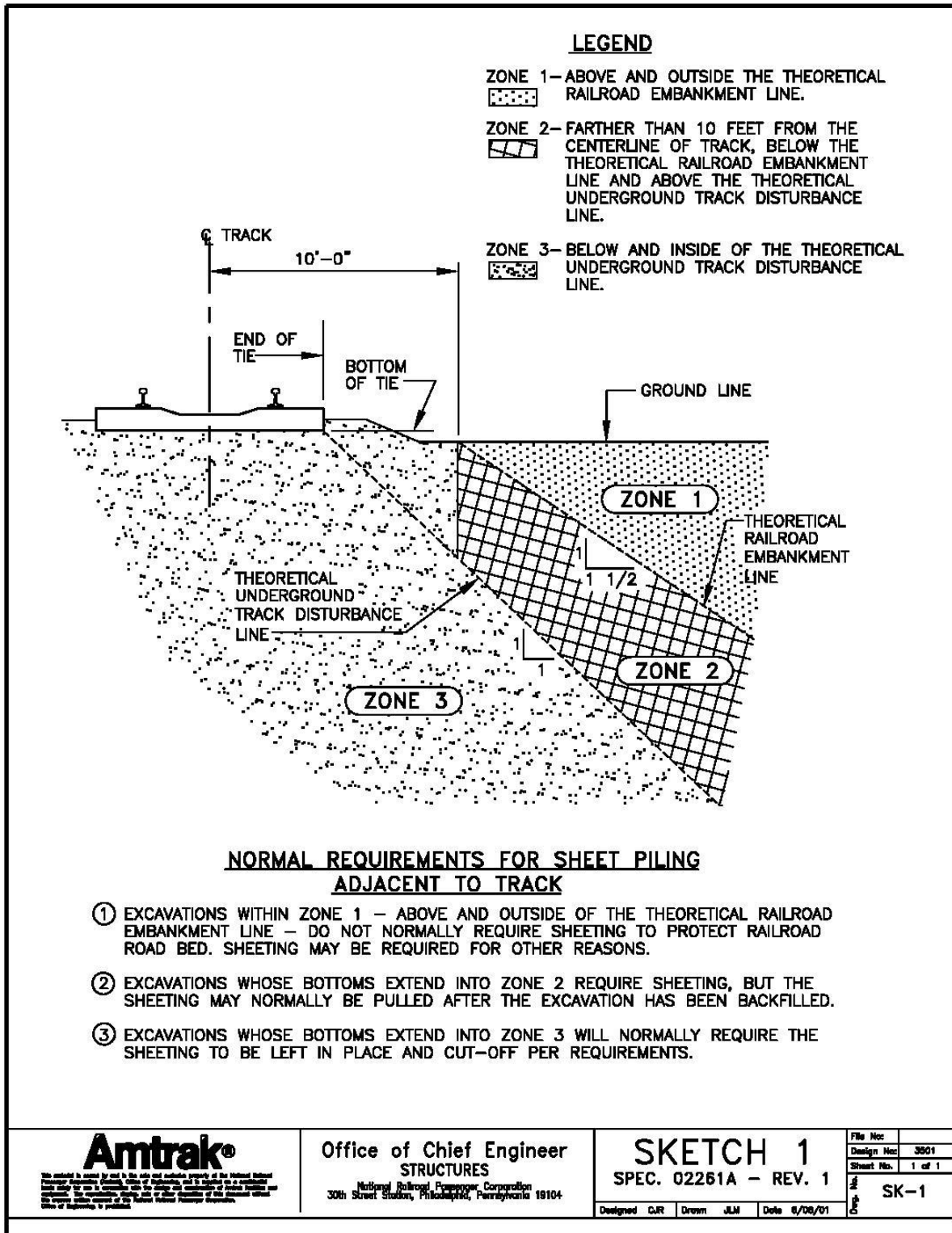
## PART 3 - EXECUTION

## 3.1 CONTRACTORS INSTALLING TEMPORARY CONSTRUCTION SHEETING AND SHORING TO SUPPORT AMTRAK TRACKS SHALL CONFORM TO THE FOLLOWING:

- A. Footings for all piers, columns, walls, or other facilities shall be located and designed so that any temporary sheeting and shoring for support of adjacent track or tracks during construction, will not be closer than toe of ballast slope. The dimension from gage of rail to toe of ballast, along tangent track, is 7'-5"; see dimensions on Track standard plans for curved track dimensions.
- B. USE OF SHEETING: When support of track or tracks is necessary during construction of the above-mentioned facilities, interlocking steel sheeting, adequately braced and designed to carry Cooper E80 live-load plus 50 percent impact allowance is required. Soldier piles and lagging will be permitted for track support ONLY when required penetration of steel sheet piling cannot be obtained, due to site-specific conditions that make steel sheet piling placement impracticable, in the opinion of the authorized, Amtrak design review engineer.
  - 1. For usual soil conditions and limited excavations, sheeting is required when the near-track excavation extends beneath or nearer to the track than the Theoretical Railroad Embankment Line. The Theoretical Railroad Embankment Line is defined as a line that starts at grade, ten foot from the centerline of the outer track, and extends downward, away from the track, at a slope of 1-1/2 horizontal to one vertical.
  - 2. For special soil conditions, such as soft organic soils and rock conditions, and for unusual excavation conditions, temporary supports for excavations may be necessary even when the limits fall beyond the Theoretical Railroad Embankment Line, requiring site specific analysis by a professional, geotechnical engineer.
  - 3. See Sketch SK-1, "Normal Requirements for Sheet Piling Adjacent to Tracks".
- C. Exploratory trenches, three feet deep and 15 inches wide in the form of an "H", with outside dimensions matching the proposed outside dimensions of sheeting, shall be hand dug, prior to placing and driving the sheeting, in any area where railroad or utility underground installations are known or suspected. These trenches are for exploratory purposes only, and shall be backfilled and immediately compacted, in layers. This work shall be performed only in the presence of a railroad inspector.
- D. Absolute use of track is required while driving sheeting adjacent to running track. Track usage shall be prearranged per standard procedures, through the Amtrak project representative.
- E. Cavities adjacent to sheet piling, created by pile driving, shall be filled with sand, and any disturbed ballast shall be restored and tamped immediately.
- F. Sheet piling cutoffs
  - 1. During construction, sheeting shall be cut off at an elevation no higher than the top of tie.
  - 2. At the completion of construction activities involving the use of sheet piling, sheet piling may be pulled if there will be no adverse impact to the railroad track support bed, as determined by the Amtrak site engineer. This will generally be permitted when both of these conditions are met:
    - a. the sheeting face is at least ten feet distant from the centerline of track, and
    - b. the bottom of the excavation that the sheeting supported prior to backfilling, does not fall within an assumed influence zone under the tracks. The assumed influence

zone is defined as the area, as seen in cross-sectional view, falling beneath the Theoretical Underground Track Disturbance Line. This line is defined as a line that starts at the end and bottom of the ties, and extends from the track outward and downward at a one-to-one (45-degree) slope.

3. Sheet piling that is to be left in-place, shall be cut off below the ground line
    - a. at least eighteen inches below final ground line at the sheeting, and
    - b. no higher than 24 inches below the elevation of the bottom of the nearest ties
  4. See Sketch SK-1, "Normal Requirements for Sheet Piling Adjacent to Tracks".
- G. The excavation adjacent to the track shall be covered, ramped and protected by handrails, barricades and warning lights, as required by applicable safety regulations, and as directed by Amtrak.
- H. Final backfilling of excavation shall conform to project specifications.
- I. The Contractor shall provide Amtrak with a detailed schedule of proposed construction operations, detailing each step of the proposed temporary construction operations in proximity to Amtrak tracks, so that Amtrak may review and approve the proposed operations, and may properly inspect and monitor operations.
- J. Drawings for the proposed temporary sheeting and shoring shall be signed and sealed by a Licensed Professional Engineer. Complete design calculations, clearly referenced to the drawings, and easy to review, shall be provided with submission of drawings.
- K. Where site specific conditions impose insurmountable restrictions to the design of temporary construction conforming to the limitations listed above, the design of temporary construction shall be developed in close coordination with Amtrak design review personnel. The Chief Engineer, Structures shall provide final approval of temporary construction that does not conform to the above limitations.
  1. When Amtrak grants approval for sheeting closer than standard minimum clearances, the Contractor shall develop a survey plan, if not already required by the project, for the adjacent tracks, to be conducted prior to, during, and after the temporary sheeting construction operations. If settlement is detected, construction operations shall be suspended until the track has been returned to its initial condition, and stabilized, as determined by the Amtrak project site representative.
  2. The Contractor shall stockpile ten (10) tons of approved ballast at the project site, and maintain that amount in ready reserve, to allow for the possible need to restore track profile.
- L. Particular care shall be taken in the planning, design and execution of temporary construction, as relates to railroad slope protection and drainage facilities. Erosion and sediment control best management practices shall be designed and employed, as approved by Amtrak. Any unintended disruption to railroad drainage facilities, caused by the temporary construction, shall be promptly remedied, as directed by the Engineer, solely at the Contractor's cost.
- M. The following Information Sketch is attached:
  1. Figure No. SK-1: Normal Requirements for Sheet Piling Adjacent to Track



END OF SECTION 02261A