

TECHNICAL SPECIAL PROVISIONS

FOR

Settlement Plates

Project Name

Project Number

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Date:

Pages 1 through 5

SECTION T141

SETTLEMENT PLATES

T141-1 Description

- A. The work specified in this Section consists of the fabrication, installation, protection and maintenance of settlement plates in accordance with these Technical Special Provisions, the details shown on the plans and as directed by the Engineer. The Contractor shall be responsible for the fabrication, installation, protection and maintenance of settlement plates.
- B. The system of settlement plates is designed to enable the Engineer to observe and determine the magnitude and rate of embankment settlement. The determination of the time at which the necessary consolidation has taken place and the embankment may be released for additional lifts of fill or the next stages of construction will be determined by the Engineer on the basis of the data obtained from the combined settlement monitoring instrumentation.

T141-2 Materials

The settlement plate assembly shall be constructed in accordance with the plate and stem options as shown in Standard Index 540. All iron pipe and fittings shall be fabricated from standard weight stock; all PVC pipe and fittings shall be Schedule 40; the sizes shall be as shown on Standard Index 540. Materials will be accepted on the basis of a visual inspection.

T141-3 Installation

- A. The settlement plates shall be installed after establishing the work platform at elevation +90 ft NAVD. The settlement plates shall be installed by an engineering firm pre-qualified in FDOT work groups 9.1, 9.2, 9.3 and 9.4.
- B. The settlement plate locations are presented on the following table:

Settlement Plate #	Station (BL Construction)	Offset (ft)
SP-1	108+60	65 RT
SP-2	108+60	130 RT
SP-3	108+60	195 RT
SP-4	109+20	65 RT
SP-5	109+20	110 RT
SP-6	109+20	165 RT
SP-7	109+20	220 RT
SP-8	109+60	130 RT

Settlement Plate #	Station (BL Construction)	Offset (ft)
SP-9	110+00	65 RT
SP-10	110+00	110 RT
SP-11	110+00	165 RT
SP-12	110+00	220 RT
SP-13	110+40	130 RT
SP-14	110+80	65 RT
SP-15	110+80	110 RT
SP-16	110+80	165 RT
SP-17	110+80	220 RT
SP-18	111+40	65 RT
SP-19	111+40	130 RT
SP-20	111+40	195 RT

- C. An excavation slightly larger than the settlement plate shall be made to an elevation established by the Engineer. The excavation shall form a pit having a minimum depth of twelve inches with a level bottom.
- D. The plate shall be placed in the pit with one section of marker pipe attached. The attached marker pipe shall be 4.5 feet in length as shown in Standard Index 540. The plate shall have full bearing and the marker pipe plumb before proceeding with the stem assembly. When realignment of the plate and marker pipe is necessary, the plate and pipe shall be removed and the pit bottom reshaped for proper alignment. If timber plates are selected for installation, and the soil is dense enough to suspend the plate on the fabrication bolts, the plate should be seated by grooving the bottom of the pit under the lines of bolts.
- E. With plate and marker pipe in place, wrap the lower six inches of marker pipe with oakum; slip one section of casing pipe over the marker pipe; and, lower the casing to uniformly encase the oakum seal while seating the casing on the plate as shown in Standard Index 540.
- F. With marker pipe and casing centered with respect to each other and maintained in a vertical position, the pit shall be backfilled in layers by hand and thoroughly compacted by hand. Prior to backfilling the pit, the elevation of the top of the plate shall be determined. A maximum of one foot of soil cover can be placed to stabilize the settlement plates.
- G. When the installation as described in these Technical Special Provisions is complete, the Contractor shall notify the Engineer to determine the elevation of the top of the marker pipe at that time. No embankment shall be placed until this elevation has been determined. The casing shall be capped, as shown in Standard Index 540, immediately after the elevation is determined. The settlement plate stem shall be flagged and protected from construction vehicles and equipment. If the settlement

plate assembly is disturbed, it shall be replaced in kind within 24 hours, unless otherwise directed by the Engineer.

- H. The embankment material in the immediate vicinity of the settlement plate stem shall be placed and compacted in accordance with the requirements of the FDOT Standard Specifications, or as directed by the Engineer. Embankment within three feet of the stem shall be placed and compacted by hand with non-impact, light vibratory plate compactors.
- I. When surface of the embankment reaches a level approximately two feet below the top of the stem section in place, the Engineer shall be notified. After the Engineer establishes the elevation of the marker pipe in place, the next section of marker pipe and casing shall be installed in the presence of the Engineer. As soon as the Engineer establishes the elevation of the added marker pipe, the casing shall be capped, and the stem flagged for protection. Added sections shall be five feet in length.
- J. As the height of the embankment increases, this procedure shall be repeated until the embankment is completed.
- K. Settlement plate assemblies shall remain in place and become the property of the Department.
- L. The Engineer will obtain and record all measurements and elevations necessary for accurate determinations of settlement data during construction of the embankment and surcharge.

T141-4 Protection and Maintenance

- A. The settlement plate stem shall remain in a vertical position at all times during the life of this Contract. The Contractor shall operate his equipment in a manner to insure that settlement plate assemblies are not damaged or displaced laterally. Each assembly shall be clearly marked and flagged as approved by the Engineer and protective barricades shall be erected around each assembly. Stems deviating from a vertical position, becoming uncoupled or broken shall be repaired or replaced by the Contractor, as directed by the Engineer, at the Contractor's expense.
- B. The Contractor will not be held responsible for repair or replacement of any settlement plate assembly which is made inoperable as a result of instability of the embankment caused by factors, which in the opinion of the Engineer, are beyond the control of the Contractor.

T141-5 Method of Measurement and Basis of Payment

Each settlement plate assembly acceptably installed and maintained in a satisfactory operating condition until final acceptance of the project, will be paid for at the unit price bid for each assembly which price and payment shall be full compensation for furnishing all

material, labor and equipment for proper installation of the assembly, for protecting the assembly, for repair and replacing damaged assemblies and for all other work and incidentals necessary to complete the work.

Payment shall be made under:

Item No. 141-70 - Settlement Plate Assembly - per assembly.

END OF SECTION