

SECTION 26 05 39
TRENWA PRECAST TRENCH SOLUTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. SCOPE

1. Provide a precast concrete underground utility trench system for electrical cable bus installation as manufactured by Trenwa, Inc. (Patent#2862367); 1419 Alexandria Pike; Fort Thomas, KY 41075. The manufacturer must have experience in design and fabrication of similar products and with facilities for fabricating them with the quality specified herein and without delay to the specified schedule.

B. DESIGN

1. The precast components shall be designed to conform to requirements stated in ASTM C857-07 "Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures, ASTM C858- 07 "Specifications for Underground Precast Concrete Utility Structures" and ACI-318 "Building Code Requirements for Structural Concrete and Commentary on Building Code Requirements in Structural Concrete".

C. MATERIALS

1. Cement shall conform to ASTM C150/C150M, "Specification for Portland Cement".
2. Fine and coarse aggregates shall conform to ASTM C33/C33M, "Specification for Concrete Aggregates".
3. Chemical Admixtures shall conform to ASTM C260/C260M "Air-Entraining Admixtures for Concrete and ASTM C494/C494M "Chemical Admixtures for Concrete".
4. Steel reinforcing bars shall conform to ASTM A615 "Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement".
5. Steel reinforcing wires shall conform to ASTM A496 "Specification for Steel Wire, Deformed, for Concrete Reinforcement".
6. Steel reinforcing welded wire mats shall conform to A1064 Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete".
7. Embedded steel shapes and plates shall conform to ASTM A36/C36M "Standard Specification for Carbon Structural Steel".

D. CONCRETE

1. Batching, mixing and placing of concrete shall conform to ACI A301 "Specifications for Structural Concrete" and ASTM C94/C94M "Specification for Ready-Mix Concrete" and ACI 304 "Guide for Measuring, Mixing, Transporting and Placing Concrete". All materials shall be pre-weighed prior to mixing.
2. Concrete shall obtain a minimum compressive strength of 5,000 psi at 28 days of age.
3. Concrete shall contain 6% entrained air by volume (plus or minus 1%).

E. REINFORCEMENT

1. Fabrication and placement shall conform to ACI-318 "Building Code Requirements for Reinforced Concrete".

F. SUBMITTALS

1. Engineering layout drawings will be provided for approval and to assist field installation. The drawings will include dimensions, identification and location of each trench part in the trench layout along with a bill of material.

1.2 ONE PIECE TRENCH SPECIFICATIONS

A. GENERAL

1. The trench system will consist of precast concrete U-shaped bases and removable covers equivalent to Trenwa's One Piece trench system to be installed in earth trenches with covers extending above the surrounding crushed rock surface.
2. The trench system will be designed to support at least 3,000 lbs. uniform load for pedestrian traffic.
3. The trench shall have an interior clear cross sectional area of 30" wide x 15" deep. The trench will be approximately 46" wide x 28-1/4" deep overall including cover. Note: The width / depth may need to change due to cable bus manufacturer requirements.
4. The precast U-shaped bases for the trench will be furnished in standard 10 foot lengths, except that special lengths will be furnished where required by the layout on the drawings. The U-shaped bases will have openings in the bottom.
5. The precast trench covers will be furnished in lightweight sections, sized to permit removal by a single person. The covers will have slots for lifting tools and will be made of Galvanize or Aluminum Checker Plate grating for free-air rating.
6. The precast trench system shall be designed and constructed so that neither the covers, nor temporary side-to-side braces need to be installed to facilitate installation or subsequent machine backfilling and tamping.
7. Unistrut supports should be installed at the bottom of the trench, approximately 5" from the base to support the lay-in cable bus. Spacing to be determined by manufacturer for coordination with the open windows at the bottom.

1.3 ROAD CROSSING TRENCH SPECIFICATIONS

A. GENERAL

1. Not used

1.4 COMPONENT TRENCH SPECIFICATIONS

A. GENERAL

1. The trench system shall consist of precast concrete support brackets, sidewalls and removable covers assembled to form a completely enclosed trench, except with open earth bottom.
2. The trench system will be designed to support at least 200 pounds per square foot live load for pedestrian traffic.
3. The trench shall have an interior clear cross sectional area of 30" wide by 16" deep. Note: The width / depth may need to change due to cable bus manufacturer requirements. The outside dimensions shall be approximately 42" wide x 28" deep overall (including cover).
4. The precast sides of the trench system shall be furnished in standard 5 foot lengths, except that special lengths shall be furnished where required by the layout on the drawings. The trench design is such that the sidewalls are held in place by the pressure of the external earth backfill. Provide U shaped support brackets at a maximum spacing of 5 feet center to center with rectangular sidewall panels spanning the brackets.
5. The precast trench covers will be furnished in lightweight sections, sized to permit removal by a single person. The covers will have slots for lifting tools and will be made of Galvanize or Aluminum Checker Plate grating for free-air rating.

END OF SECTION