PART I - GENERAL

1.1 SUMMARY
A. Electrical manholes shall be of the pre-cast type. Cast-in-place electrical manholes shall only be used when specifically required by Project requirements. Electrical manholes shall be provided at all direction changes of underground electric duct.

1.2 RELATED DRAWINGS
A. Drawing 33 71 19-1, Electrical Manholes

1.3 DESIGN REQUIREMENTS
A. ASTM C858 C857: Design shall conform to ASTM C858 C857, including minimum earth cover of 2 feet and maximum earth cover of 5 feet.
B. AASHTO HS-20: Design shall conform to AASHTO HS-20, Wheel load and applicable impact; Vertical and lateral soil pressures determined using 120 P.C.F. soil density, groundwater at 3 feet below grade, reinforcing cover per ACI 318.

PART 2 - PRODUCTS

2.1 MANHOLES
A. Size: Electrical manholes shall be sized 12 feet long, 7 feet high and 6 feet wide.
B. Concrete: Concrete shall be 4,500 PSI at 28 Days. Walls, base, and top shall be a minimum of 6 inches thick.
C. Rebar: Rebar shall be ASTM A615 GRD 60.
D. Duct Entrance: Duct Entrance shall be by standard knockout windows.
E. Parts And Features Shall Include:
   1. Structural fiberglass vertical cable support racks and horizontal cable support arms.
   2. Pulling irons opposite each duct entrance.
   3. Ground rod and bonding ribbon that shall bond all metal parts to ground. Ground wire shall be bonded to the manhole ground rod by exothermic weld.
   4. Lifting anchors.
   5. Sump with grate cover.
   6. Permanently secured ladder.
   7. Cast iron manhole frame and 30 inch diameter lid engraved with word “ELECTRIC”.
F. Electrical manholes shall be as shown on Drawing 33 71 19-1, Electrical Manholes.

PART 3 - EXECUTION

3.1 INSTALLATION
A. Foundation: Adequate manhole foundation shall be provided.
B. Bedding Course: Pre-cast base section shall be placed on a well-graded granular bedding course, but not less than 6 inches in thickness and extending to the limits of the excavation. The bedding course shall be firmly tamped and made smooth and level to ensure uniform contact and support.
C. Schematic: Pre-cast manholes shall be constructed with a pre-cast base section as shown on Drawing 33 71 19-1, Electrical Manholes.
D. Vertical Alignment: Pre-cast sections shall be placed and aligned to provide vertical sides and vertical alignment. The completed manhole shall be rigid true to dimensions, and watertight.

E. Ducts Entering Manholes: Electrical ducts entering pre-cast manholes shall enter through knock-out type windows. The concrete encasement of the duct shall extend to the interior plane of the manhole wall, in a continuous pour. Rebar shall be provided from the plane of the interior wall and extended to the duct.

F. Endbell Fittings: Conduits entering the manhole, through the concrete encasement, shall be provided with endbell fittings.

G. Flush with Finished Grade: The manhole frame and lid shall be provided flush with the final finished grade.

H. Where Duct Changes Direction: Electrical manholes shall be placed at all locations where underground electrical duct changes direction.

I. GPS Data Collection
   1. Minimum 24 hours: The contractor shall contact the Facilities & Services project representative a minimum of 24 hours prior to backfilling any underground utility installation exterior to the building including excavation for maintenance and/or repair of an existing utility for the purpose of GPS data collection.

END OF SECTION 33 71 19

This section of the U of I Facilities Standards establishes minimum requirements only. It should not be used as a complete specification.