

S-507 PRECAST CONCRETE BOX CULVERT: This work shall consist of furnishing and placing precast reinforced concrete box barrels and cast in place wing walls and soil savers. Precast reinforced concrete culvert barrels shall be furnished in accordance with the requirements of ASTM C 1577 for less than 2 feet of cover with live loads and greater than 2 feet of cover. Design shall be based on AASHTO HS-20 loading. In addition, specific design requirements for culvert barrels shall be as indicated on the Plans. Reinforcing steel shall be Grade 60 in accordance with Section 1600 of the Standard Specifications. Concrete and reinforcing steel shall meet the requirements of these Specifications as described in “Concrete Construction”, “Reinforcing Steel”, and “Aggregate For Concrete”. Shop drawings shall be required for precast sections and for required modifications to wing walls, toe walls, and hub guards.

- A. A minimum length section of the RCB adjacent to the wing walls shall be poured in place with hub guards and toe walls shown on the Plans. KCMMB 5K concrete shall be used. This section length shall be as indicated on the Plans or as determined by the project engineer. The end barrel segments of the precast RCB will be constructed with a key and tie steel of an adequate length and bar size for a lap with the toe wall and hub guard reinforcing steel in the poured in place section. Pipe blockouts shall be cast into the RCB barrel sections at the locations shown on the Plans, with the reinforcing steel running through the blockout to be cut out in the field. Extra reinforcement as per the Plans shall be installed around the blockout and shall be so indicated on the shop drawings.
- B. The last three barrel sections on each end will be connected with a minimum of four tie bolts per joint, unless another joint system is approved by the Engineer.
- C. Excavation and backfill for precast culverts shall be in accordance with the requirements of these Specifications as described in “EXCAVATION FOR STRUCTURES”. A granular bedding shall be placed to provide an even surface of uniform density. The placing of precast barrel segments shall be started at the outlet end, with barrel segments placed with ends tightly abutting and true to line and grade. Barrel segments shall be match cast to each other or shall be otherwise formed at the joints with such precision as to limit joint openings in the installed position to not more than 3/4 inch wide. The completed barrel shall form a smooth uniform invert. The space between parallel segments in a multiple RCB shall be filled with grout or aggregate backfill, as indicated on the Plans. An approved mastic joint filler shall be applied to the joints prior to placement of the barrel segments. All precast barrel joints shall be wrapped in an external sealing band meeting the requirements of ASTM C 1577 and installed in accordance with the manufacturer’s requirements.
- D. METHOD OF MEASUREMENT: “Precast Concrete Box Culvert” shall be measured per linear foot of completed and accepted work, measured horizontally along the centerline of the box. No measurement shall be made for concrete, reinforcing steel, aprons, wire mesh, wing walls, headwalls, soil saver, excavation, or backfill. These items shall be subsidiary to the RCB.
- E. BASIS OF PAYMENT: “Precast Concrete Box Culvert” shall be paid for at the contract unit price, measured as stated above.