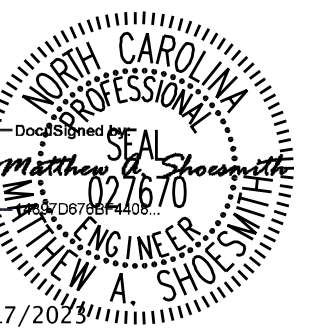


DESIGNED BY: MAS
DRAWN BY: SJJ
CHECKED BY: MAS
APPROVED BY: ---
REVISED:



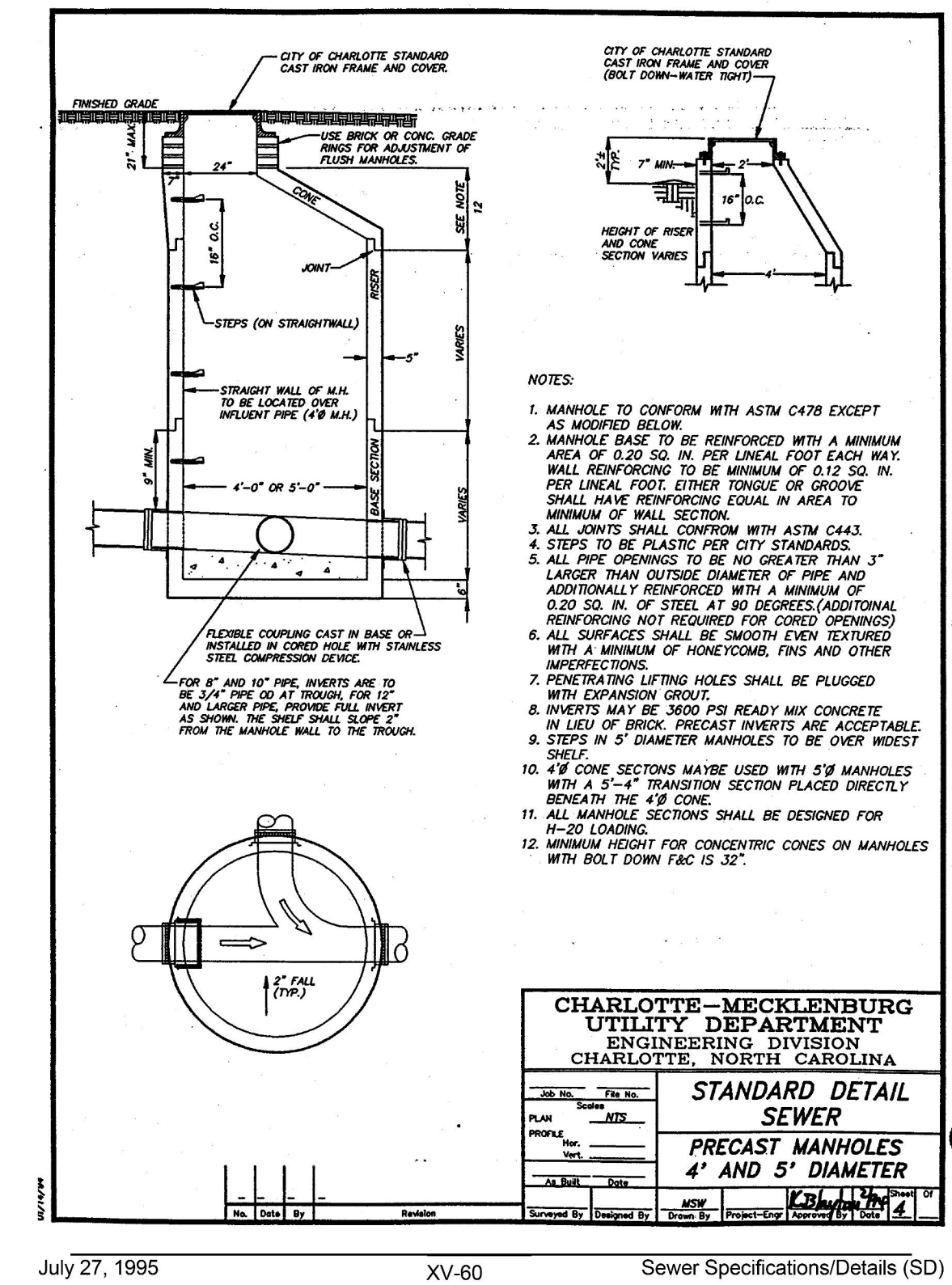
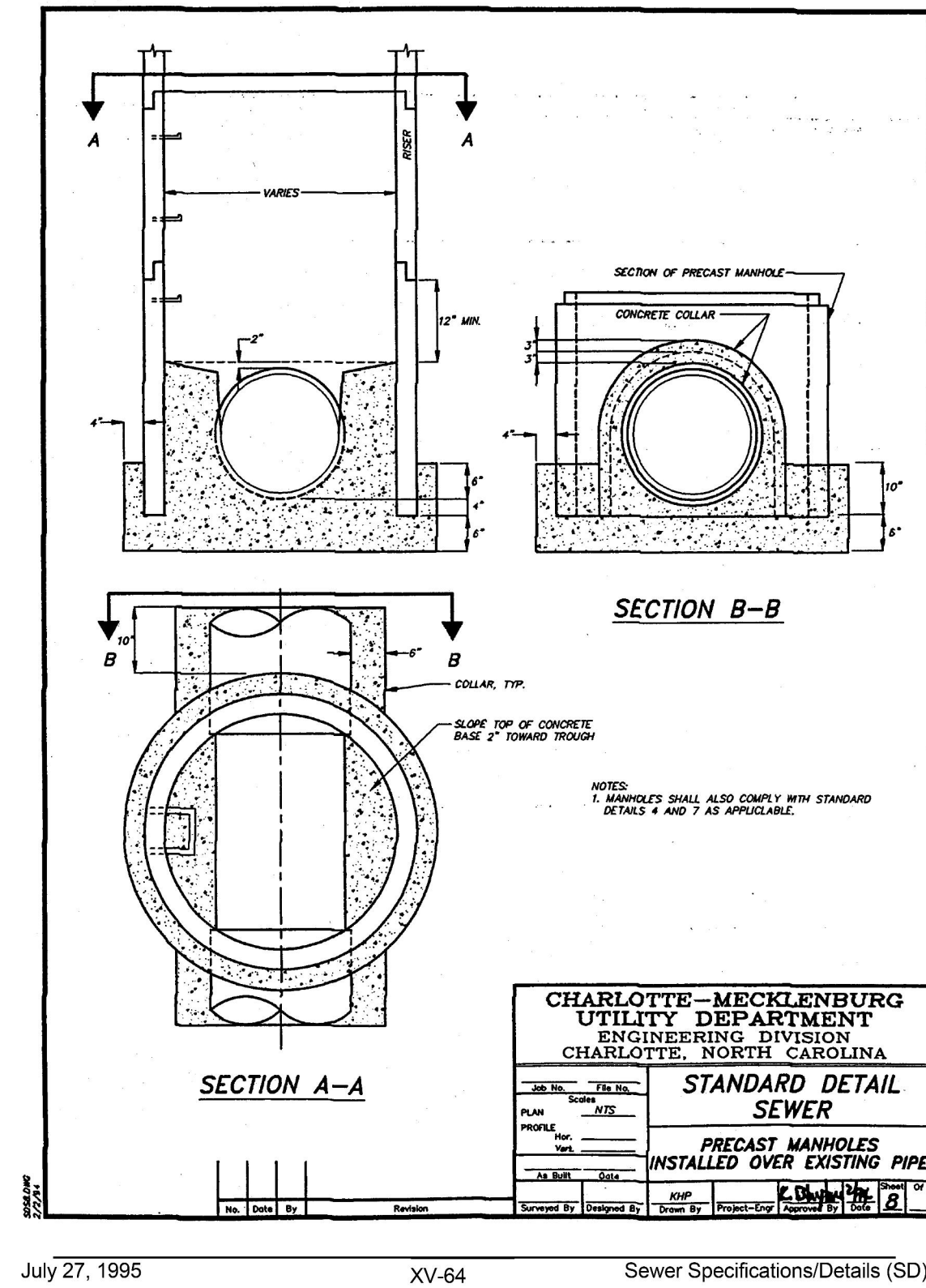
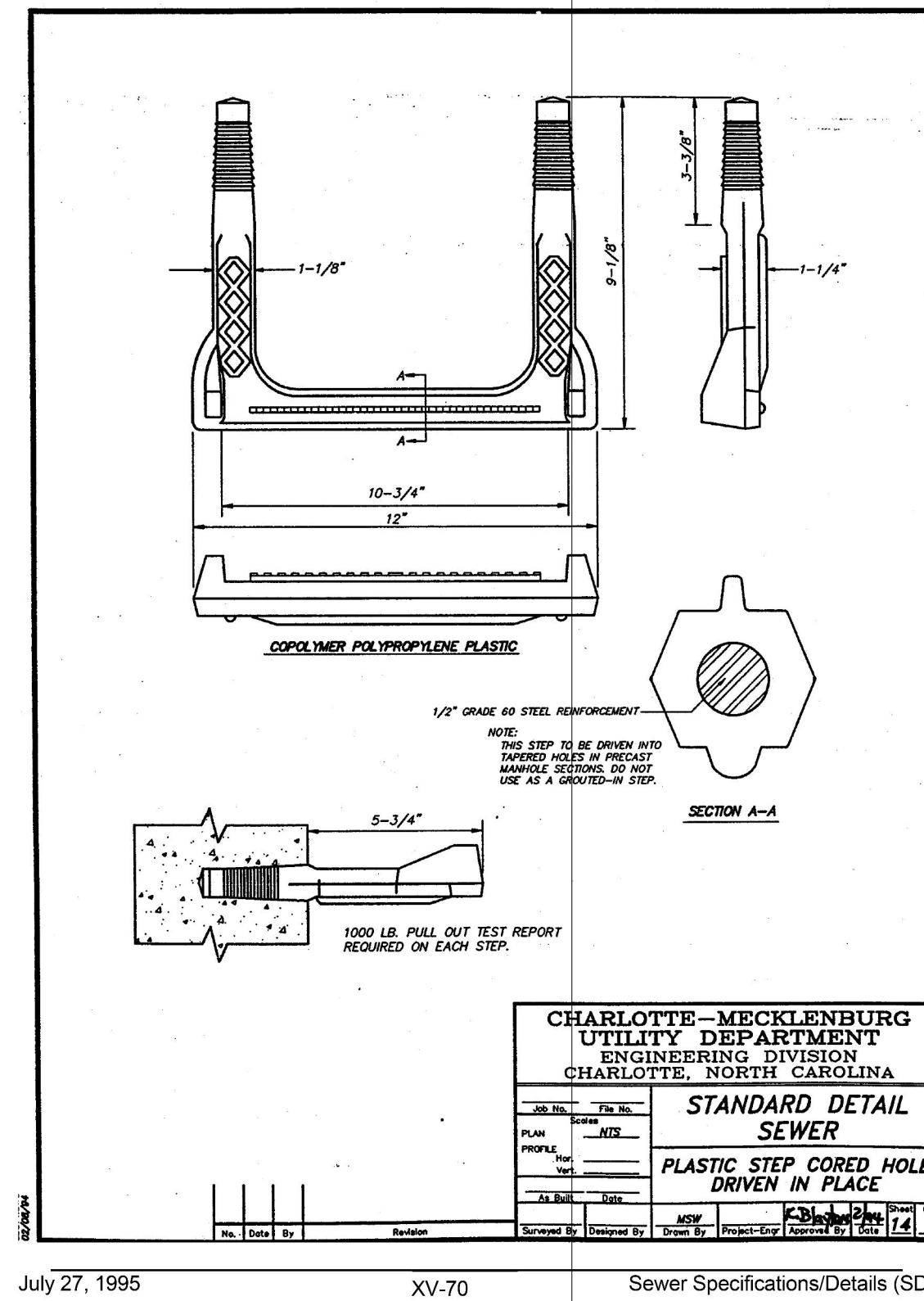
NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION

UTILITIES ENGINEERING SEC.
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7/17/2029
UTILITY CONSTRUCTION
PLANS ONLY

UTILITY CONSTRUCTION

REVISIONS



- NOTES:
1. MANHOLE TO CONFORM WITH ASTM C478 EXCEPT AS MODIFIED BELOW.
 2. MANHOLE BASE TO BE REINFORCED WITH A MINIMUM AREA OF 0.20 SQ. IN. PER LINEAL FOOT EACH WAY. WALL REINFORCING TO BE MINIMUM OF 0.12 SQ. IN. PER LINEAL FOOT, EITHER TONGUE OR GROOVE. SHALL HAVE REINFORCING EQUAL IN AREA TO MINIMUM OF WALL SECTION.
 3. ALL JOINTS SHALL CONFORM WITH ASTM C443.
 4. STEPS TO BE PLASTIC PER CITY STANDARDS.
 5. ALL PIPE OPENINGS TO BE NO GREATER THAN 3" LARGER THAN OUTSIDE DIAMETER OF PIPE AND ADDITIONALLY REINFORCED WITH A MINIMUM OF 0.20 SQ. IN. OF STEEL AT 90 DEGREES (ADDITIONAL REINFORCING NOT REQUIRED FOR CORED OPENINGS).
 6. ALL SURFACES SHALL BE SMOOTH EVEN TEXTURED WITH A MINIMUM OF HONEYCOMB, FINS AND OTHER IMPROVEMENTS.
 7. PENETRATING LIFTING HOLES SHALL BE PLOWED WITH EXPANSION GROUTS.
 8. INVERTS MAY BE 3000 PSI READY MIX CONCRETE IN LIEU OF BRICK. PRECAST INVERTS ARE ACCEPTABLE.
 9. STEPS IN 4" DIAMETER MANHOLES TO BE OVER WIDEST SHELF.
 10. 4" W/ CONE SECTIONS MAYBE USED WITH 5" MANHOLES WITH A 5'-4" TRANSITION SECTION PLACED DIRECTLY BELOW THE 4" W/ CONE.
 11. ALL MANHOLE SECTIONS SHALL BE DESIGNED FOR 14-20' LOADING.
 12. MINIMUM HEIGHT FOR CONCENTRIC CONES ON MANHOLES WITH BOLT DOWN FAC IS 32'.