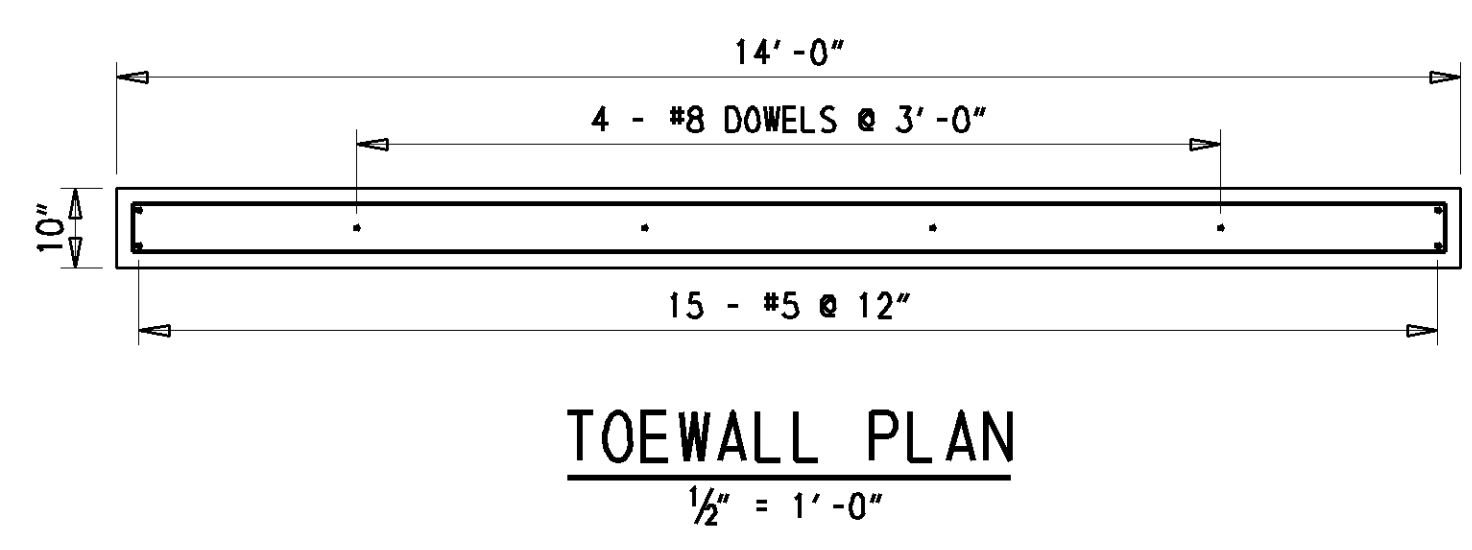
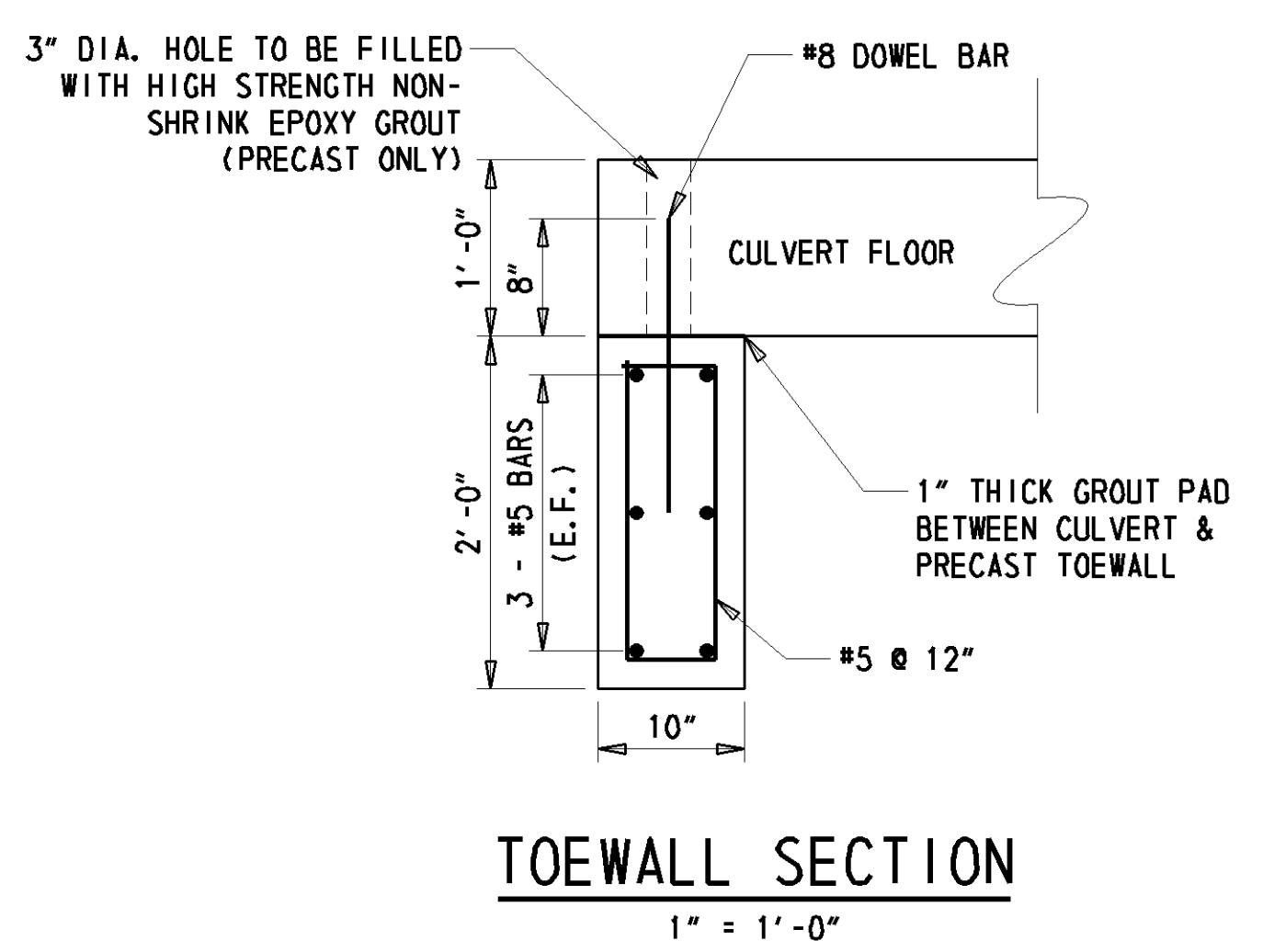
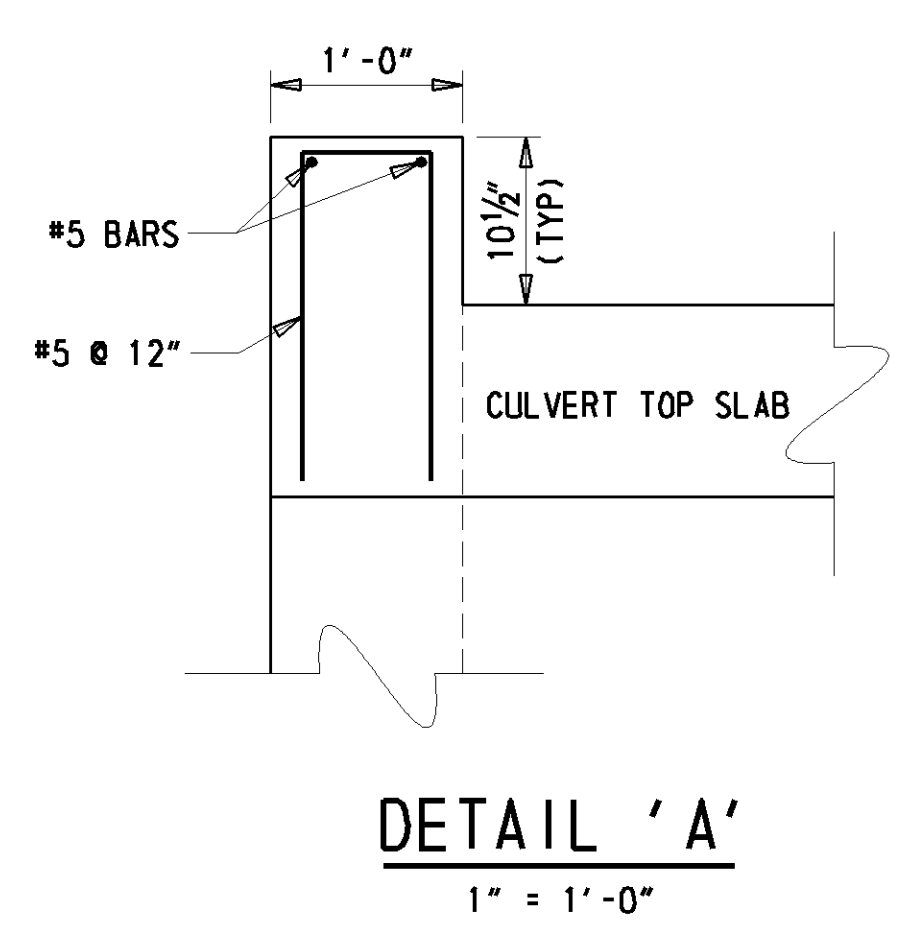
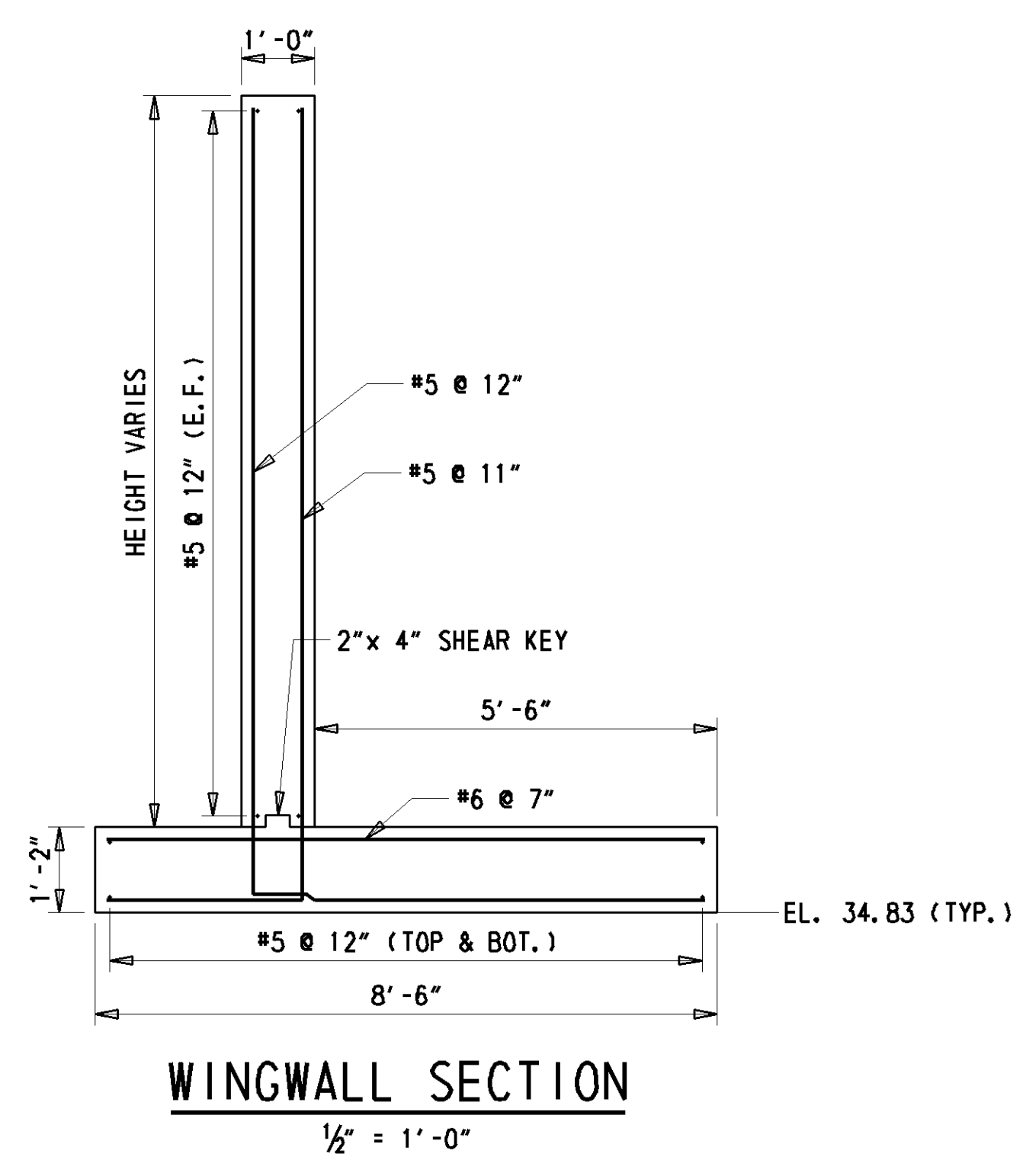


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NOTES FOR PRECAST ELEMENTS:

1. DESIGN PLANS / WORKING DRAWINGS
 INFORMATION PERTAINING TO THE PRECAST REINFORCED CONCRETE BOX CULVERT AND WINGWALL SECTIONS IS INTENDED TO SERVE AS AN INDICATION OF THE TYPE OF CONSTRUCTION ACCEPTABLE FOR USE. THE CONTRACTOR WILL BE REQUIRED TO PREPARE AND SUBMIT FOR APPROVAL. A COMPLETE SET OF DETAILED SHOP DRAWINGS FOR THE PRECAST CONCRETE UNITS THEY PROPOSE TO FURNISH. THE SHOP DRAWINGS SHALL INCLUDE:
 - A. AN OVERALL PLAN SHOWING ALL UNITS TOGETHER AND DETAILS OF EACH TYPE OF UNIT.
 - B. A PLAN VIEW OF REINFORCEMENT FOR ANY IRREGULAR SHAPED (SKEWED, CURVED, ETC.) SECTIONS.
 - C. REINFORCING BAR LIST
 - D. BILL OF MATERIALS INCLUDING ALL ACCESSORIES
 - E. METHOD AND SEQUENCE OF POST-TENSIONING
2. PRECAST ELEMENTS, ACCESSORIES AND INSTALLATION
 PAYMENT FOR ITEM 602536 - PRECAST CONCRETE CULVERT AND ITEM 602538 - PRECAST CONCRETE RETAINING WALL SHALL INCLUDE:
 - A. ALL PRECAST ELEMENTS BOX CULVERT, TOEWALLS, AND HEADWALLS UNDER ITEM 602536 AND WINGWALLS UNDER ITEM 602538.
 - B. ALL ASSOCIATED REINFORCEMENT.
 - C. ALL ACCESSORIES (INCLUDING, BUT NOT LIMITED TO, WEEP HOLES, CONCRETE FINISH, POST-TENSIONING TENDONS, CONNECTION PLATES, GROUT, JOINT WRAP, THREADED INSERTS) MENTIONED IN THE FOLLOWING NOTES UNLESS NOTED OTHERWISE.
 - D. DELIVERY AND INSTALLATION OF ALL PRECAST ELEMENTS AND ALL ACCESSORIES.
3. MISCELLANEOUS CONCRETE NOTES
 - A. ALL EXPOSED SURFACES SHALL BE PROTECTED WITH A WATER MISCIBLE, PENETRATING SILANE SEALER SUCH AS ENVIROSEAL 20 BY BASF SUPERIOR OR APPROVED EQUAL.
 - B. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.
4. BOX CULVERT POST-TENSIONING
 THE PRECAST BOX CULVERT SECTIONS SHALL BE POST-TENSIONED TOGETHER WITH A MINIMUM OF FOUR POST-TENSIONING TENDONS. THE CULVERT SHALL BE POST-TENSIONED SUCH THAT THE NEOPRENE GASKETS ARE COMPRESSED ALL AROUND AND THERE IS A 1/2" MAXIMUM GAP BETWEEN SECTIONS. MAXIMUM POST-TENSIONING FORCE SHALL BE 28,900 lbs. POST-TENSIONING DETAILS (PLACEMENT, SEQUENCE OF TENSIONING, etc.) SHALL BE SHOWN IN THE SUBMITTED SHOP DRAWINGS. ALL POCKETS FOR POST-TENSIONING DUCTS SHALL BE FILLED WITH NON-SHRINK GROUT.
5. WINGWALL POST TENSIONING
 - A. THE PRECAST WINGWALL SECTIONS SHALL BE POST TENSIONED TOGETHER AND POSITIVELY CONNECTED TO THE BOX CULVERT WITH A MINIMUM OF TWO POST-TENSIONING TENDONS. POST-TENSIONING SHALL BE AS PER NOTE 5.
 - B. AT LOCATIONS WHERE POST TENSIONING OF THE WINGWALLS IS NOT FEASIBLE, A BOLTED CONNECTION MAY BE USED. BOLTED CONNECTION DETAILS SHALL BE SHOWN IN THE SUBMITTED SHOP DRAWINGS.
6. BOLTED CONNECTIONS
 THE BOLTED CONNECTION MUST CONSIST OF A MINIMUM OF TWO 3'-0" WIDE x 2'-0" TALL x 1/4" THICK PLATES PER JOINT WITH AT LEAST FOUR 3/4" BOLTS PER PLATE. ANGLED PLATES SHALL HAVE 8 BOLTS. SLOTTED HOLES IN THE PLATE SHALL NOT BE PERMITTED. HOLES FOR ANCHOR BOLTS MAY BE FIELD DRILLED.
7. JOINTS BETWEEN PRECAST SECTIONS
 - A. NEOPRENE GASKETS SHALL BE PROVIDED AT THE JOINTS BETWEEN ALL PRECAST UNITS IN ORDER TO MAKE THE JOINTS WATERTIGHT. AFTER INSTALLATION, THE GASKETS SHALL BE COMPRESSED SUCH THAT GAPS ARE NOT VISIBLE.
 - B. ALL JOINTS BETWEEN PRECAST BOX CULVERT SECTIONS SHALL BE TONGUE AND GROOVE or ALL JOINTS BETWEEN RIGID FRAME SECTIONS SHALL HAVE A SHEAR KEY ALL AROUND.
 - C. ALL WINGWALL TO WINGWALL AND WINGWALL TO BOX CULVERT JOINTS SHALL HAVE A SHEAR KEY.
 - D. THE LOCATIONS OF THE JOINTS IN THE BOX CULVERT SHALL BE DETERMINED BY THE PRECASTER AND SUBMITTED IN THE SHOP DRAWINGS FOR APPROVAL.
 - E. THE REINFORCEMENT SHALL HAVE 2" COVER AT THE END OF EACH SECTION AND MEET OR EXCEED THE MINIMUM AREA OF STEEL PER FOOT DENOTED IN THE PLANS.
 - F. ALL JOINT EXTERIORS SHALL BE COVERED WITH A MINIMUM 9" WIDE WRAP CENTERED ON THE JOINT AS PER THE SPECIAL PROVISION FOR ITS RESPECTIVE ITEM.
8. TOEWALLS
 - A. TOEWALLS SHALL BE PLACED BENEATH THE BOTTOM SLAB OF THE CULVERT AT THE INLET AND OUTLET AND CONNECTED BY DOWELS GROUTED INTO THE BOTTOM SLAB AS SHOWN.
 - B. THE 1" GROUT LEVELING PAD SHALL BE PLACED IMMEDIATELY PRIOR TO PLACEMENT OF THE CULVERT SECTION.
 - C. COARSE AGGREGATE PLACED BENEATH THE CULVERT SHALL BE CONTAINED IN PLACE (BY FORMWORK OR OTHER ACCEPTABLE MEANS) WHILE ADJACENT EXCAVATIONS (I.e. INSTALLATION OF WINGWALLS) ARE COMPLETED. ANY VOIDS BETWEEN THE BOTTOM SLAB OF THE CULVERT AND THE COARSE AGGREGATE SHALL BE FILLED WITH FLOWABLE FILL PRIOR TO ANY BACKFILLING.

ADDENDUMS / REVISIONS	

CONTRACT T201007101	BRIDGE NO. DESIGNED BY: KRL	BR 1-404
COUNTY NEW CASTLE	CHECKED BY: BAB	