STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION 6

PLANS

CONTRACT ID:	**DF00131**
WBS ELEMENT NO.:	**45336.3.4 & 17BP.6.R.53**
FEDERAL AID NO.:	**STP-0072(006)**
COUNTY:	**Robeson County**
TIP NO.:	**W-5206D**
MILES:	**0.05 MILES**
ROUTE NO.:	**NC 72**
LOCATION:	**0.5 Miles North of SR 2305**
TYPE OF WORK:	**Structure, Grading and Paving**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

December 17, 2014

COUNTY: Robeson

MEMORANDUM TO: Mr. Brice Bell, PE
Division Bridge Program Manager

FROM: for J. L. Lindsey, PE JLM
Hydraulics Project Manager OPS-East

SUBJECT: Drainage Structure Recommendation on NC 72
0.5 Miles North of SR-2305

Pursuant to your request of October 31, 2014, for pipe size recommendation at the subject site, the following is offered:

Drainage Area:	+/- 365 acres
Existing Pipe Size:	5 @ 6'-0" x 4'-9" Reinforced Concrete Box Culvert
Recommended Pipe Size:	1 @ 30'-6" x 7'-7" Aluminum Box Culvert w/Headwall

This site is located in a FEMA regulated flood hazard zone with a Detailed Study, therefore the existing grade must be maintained at this site.

This recommendation is made from an office review only. Specific site conditions or limitations may dictate the use of an alternate structure. If such conditions are noted, please contact this office for further analysis.

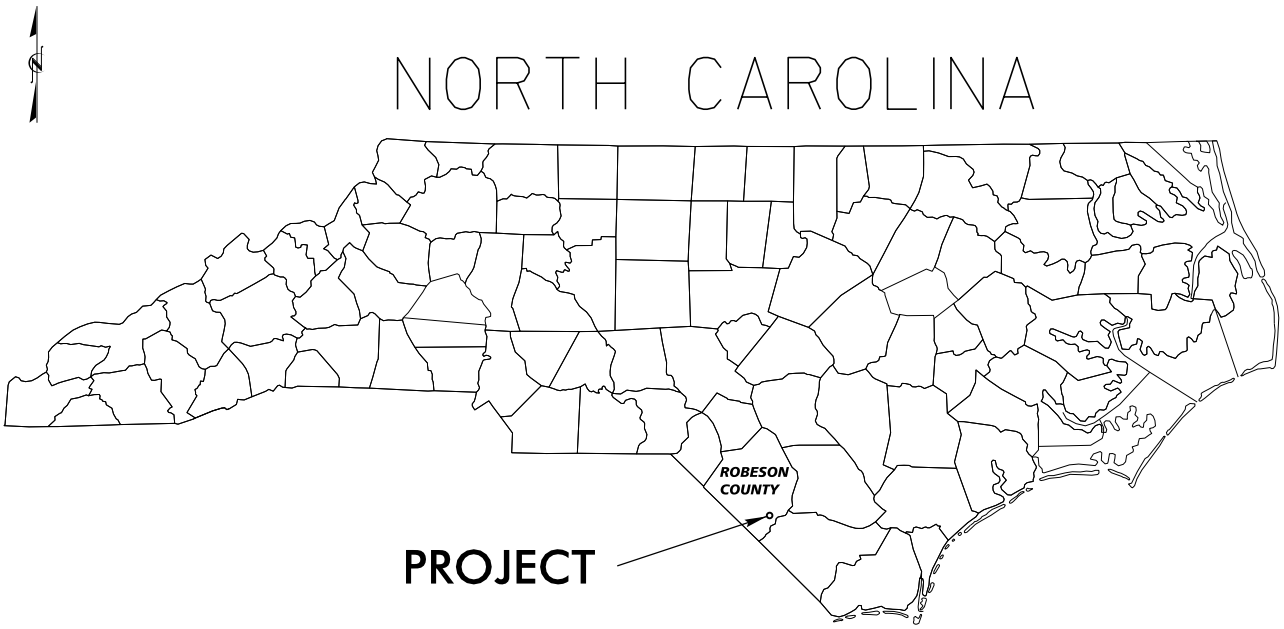
JLL/jlm

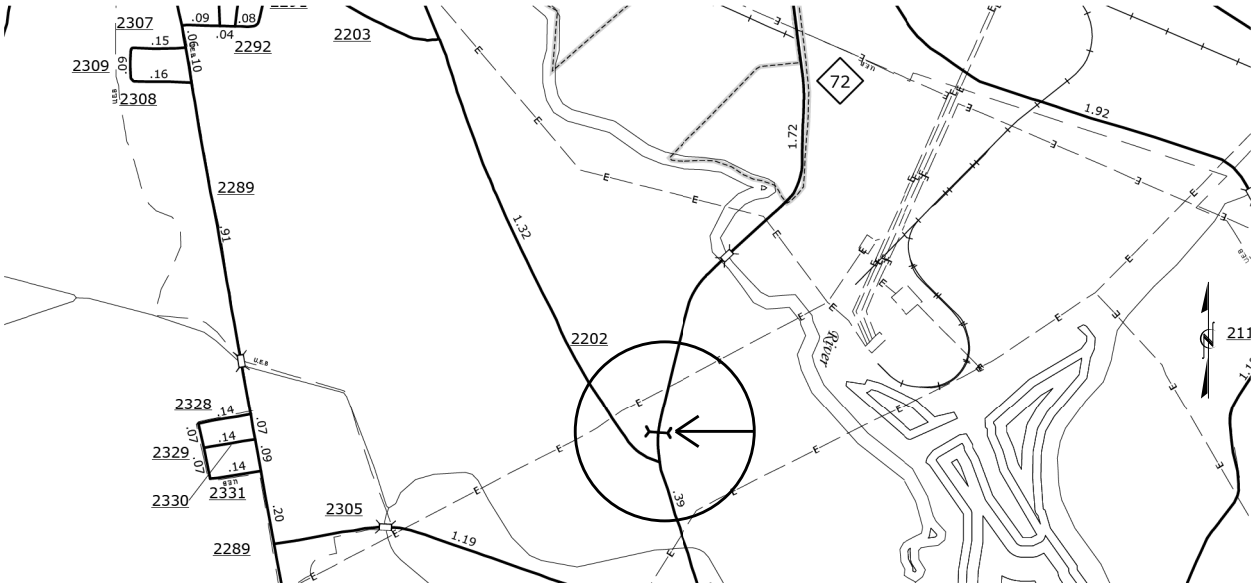
CC: Darren Pittman

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
HYDRAULICS UNIT
1590 MAIL SERVICE CENTER
RALEIGH NC 27699-1590

TELEPHONE: 919-707-6700
FAX: 919-250-4108
WEBSITE: WWW.NCDOT.ORG/DOH/

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC





PROJECT SITE

VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS

ROBESON COUNTY

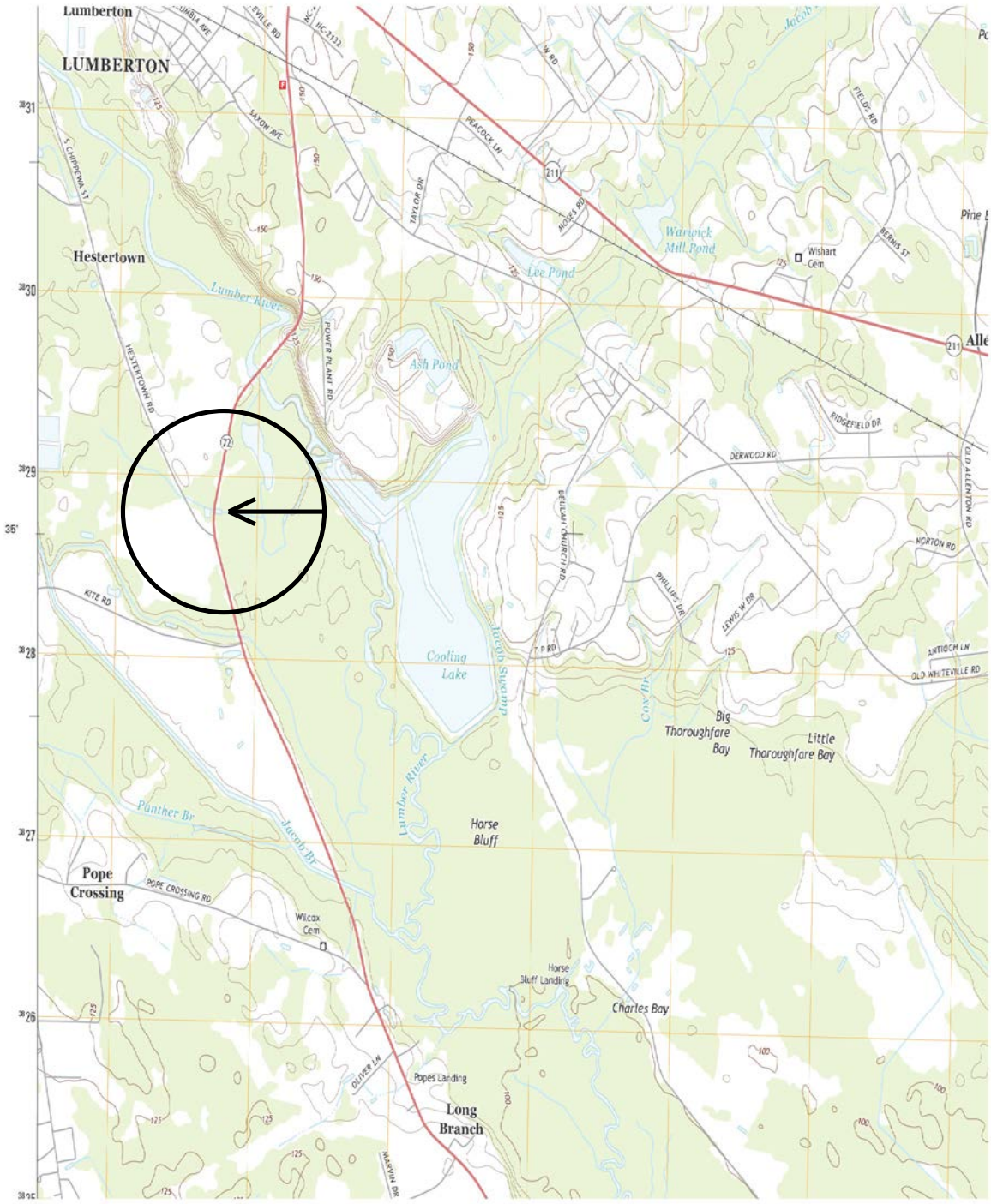
PROJECT: 45336.3.4 (W-5206D)

CULVERT REPLACEMENT

STRUCTURE C459

NC 72 EAST

SHEET 1 OF 5 19 MAY 2016

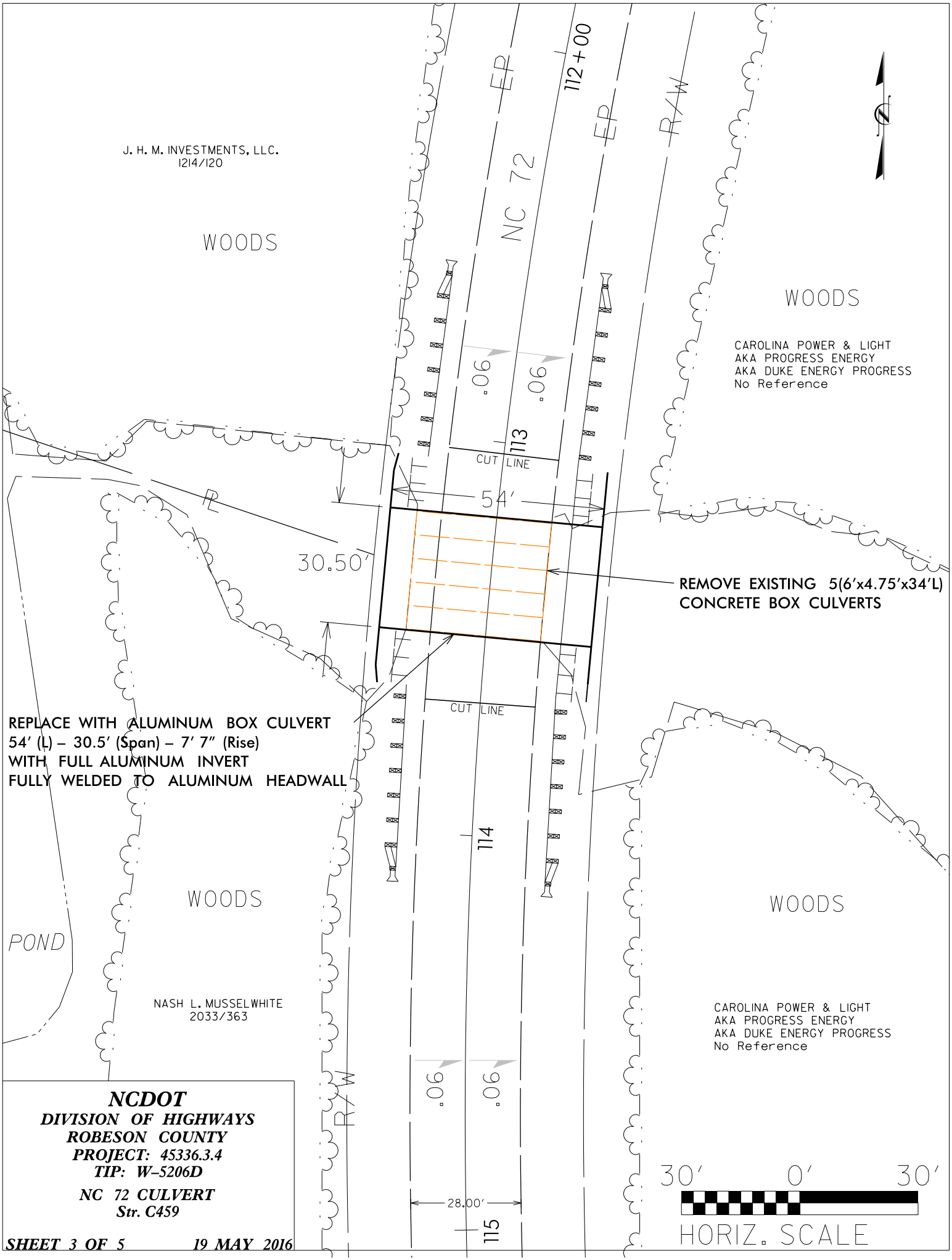


SITE MAP

NCDOT

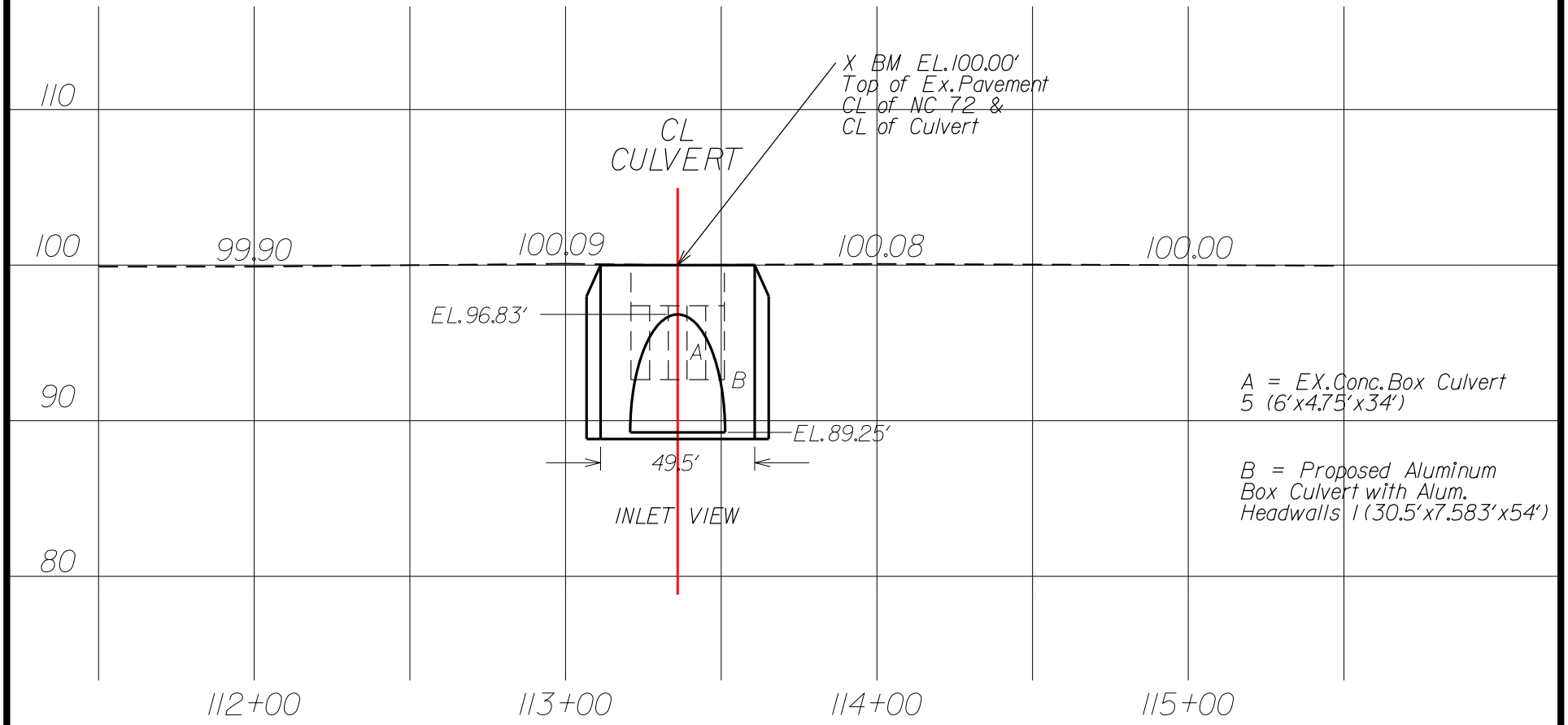
DIVISION OF HIGHWAYS
ROBESON COUNTY
PROJECT: 45336.3.4 (W-5206D)
CULVERT REPLACEMENT
STRUCTURE C459
NC 72 EAST

SHEET 2 OF 5 19 MAY 2016



NCDOT
DIVISION OF HIGHWAYS
ROBESON COUNTY
PROJECT: 45336.3.4
TIP: W-5206D
NC 72 CULVERT
Str. C459

SHEET 3 OF 5 ***19 MAY 2016***



ROADWAY PROFILE

NCDOT

DIVISION OF HIGHWAYS

ROBESON COUNTY

PROJECT: 45336.3.4 (W-5206D)

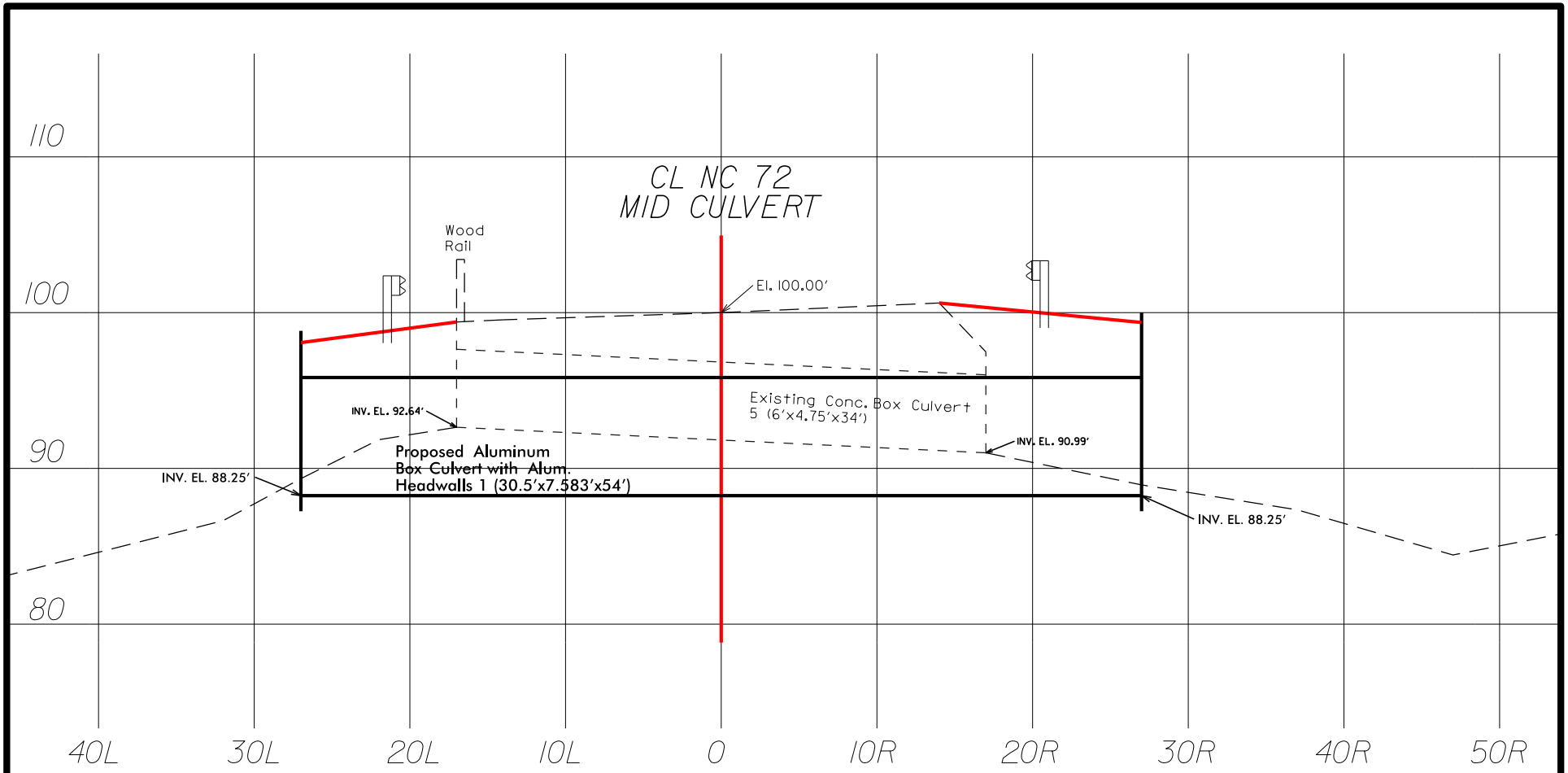
CULVERT REPLACEMENT

STRUCTURE C459

NC 72 EAST

SHEET 4 OF 5

19 MAY 2016



STREAM PROFILE

STA. 113 + 34 -L-

NCDOT

DIVISION OF HIGHWAYS

ROBESON COUNTY

PROJECT: 45336.3.4 (W-5206D)

CULVERT REPLACEMENT

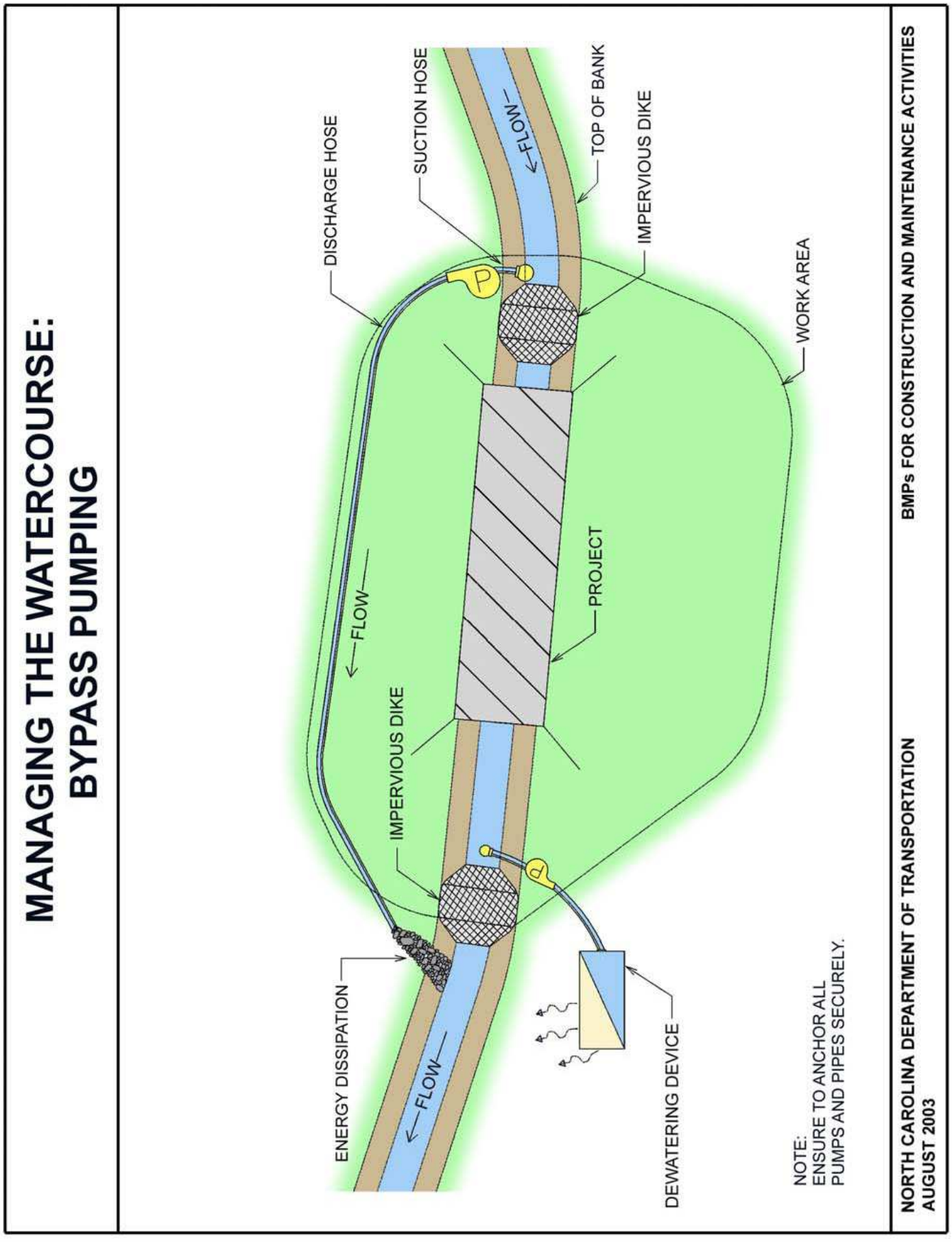
STRUCTURE C459

NC 72 EAST

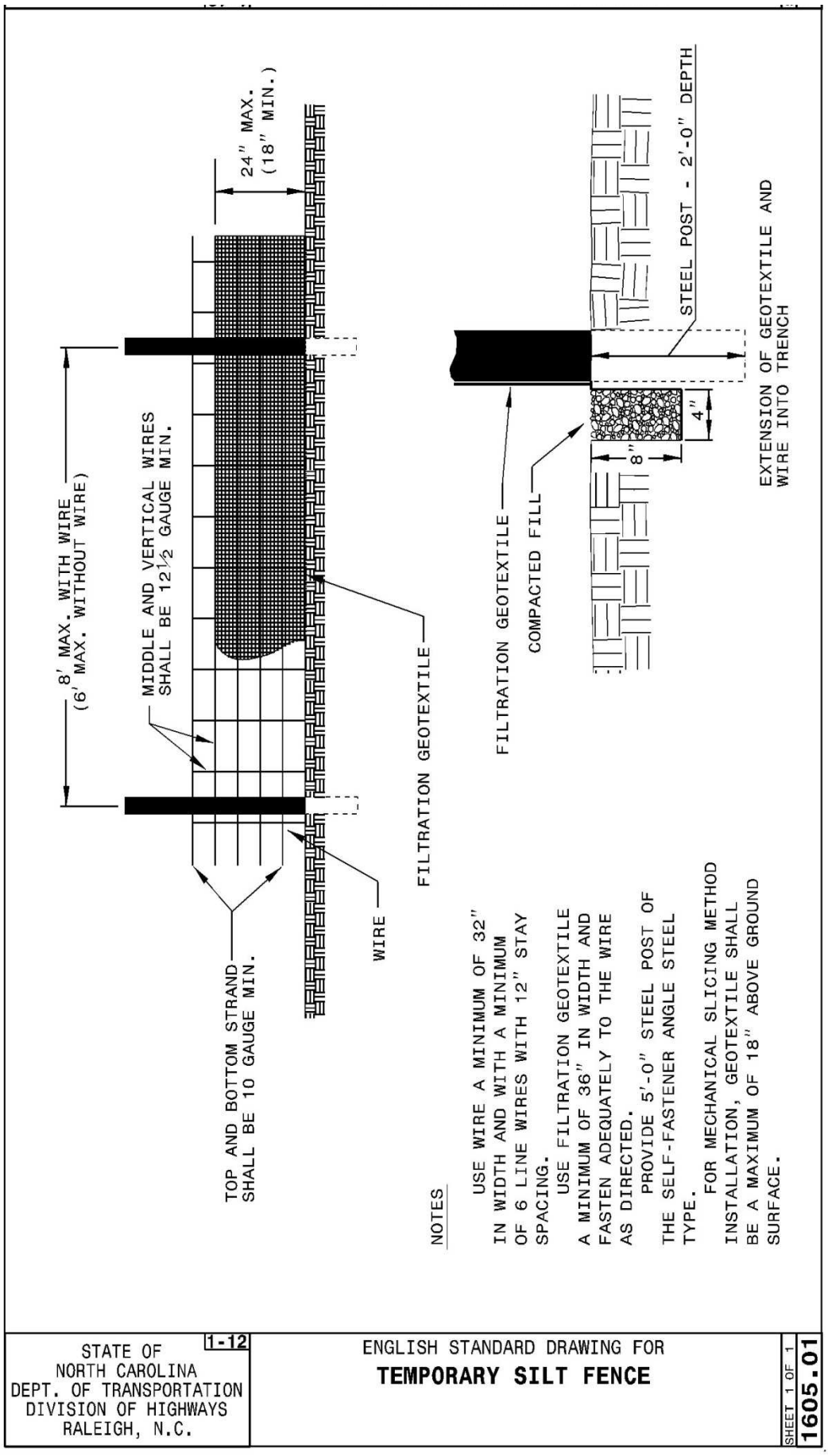
SHEET 5 OF 5

19 MAY 2016

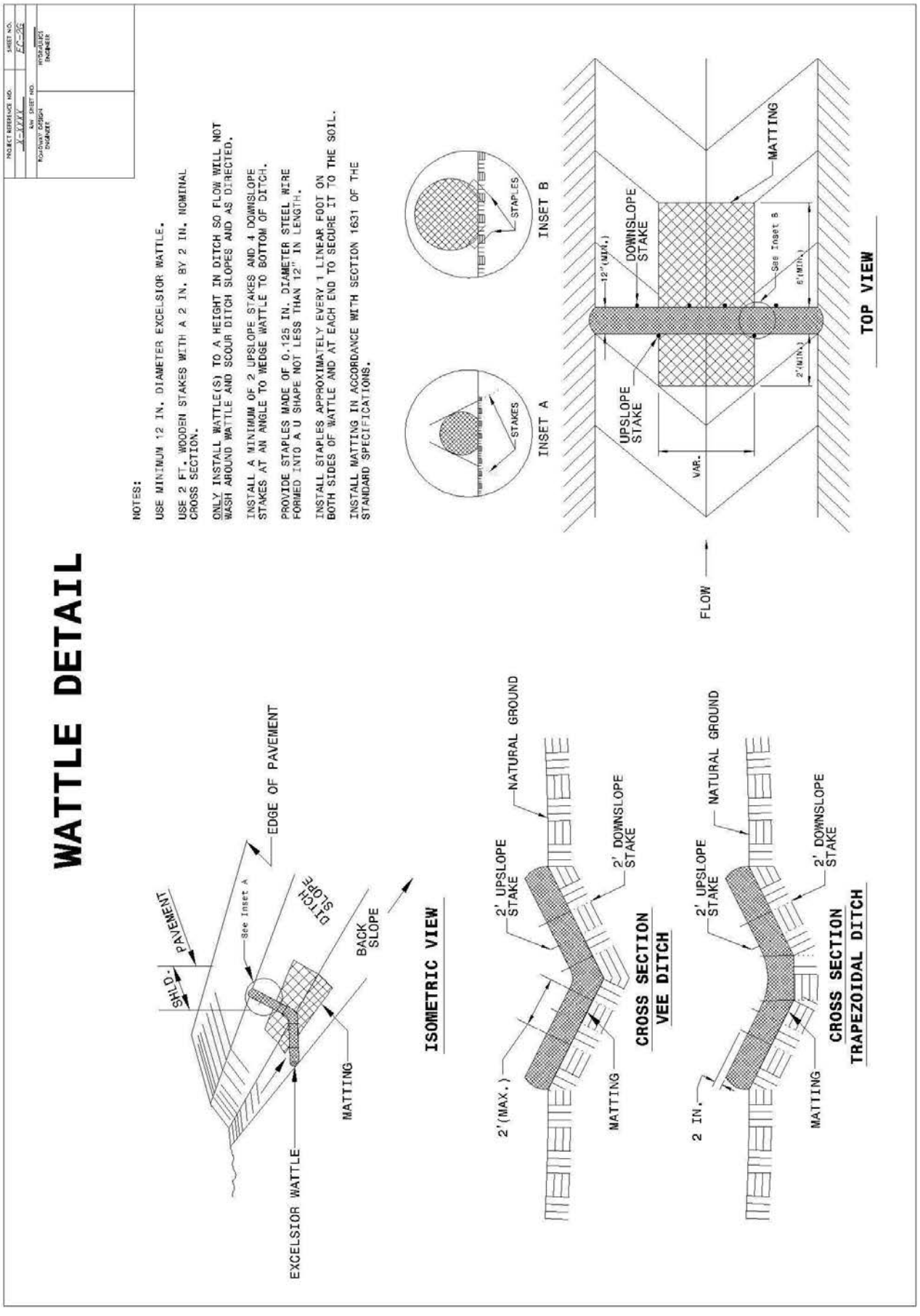
BYPASS PUMPING



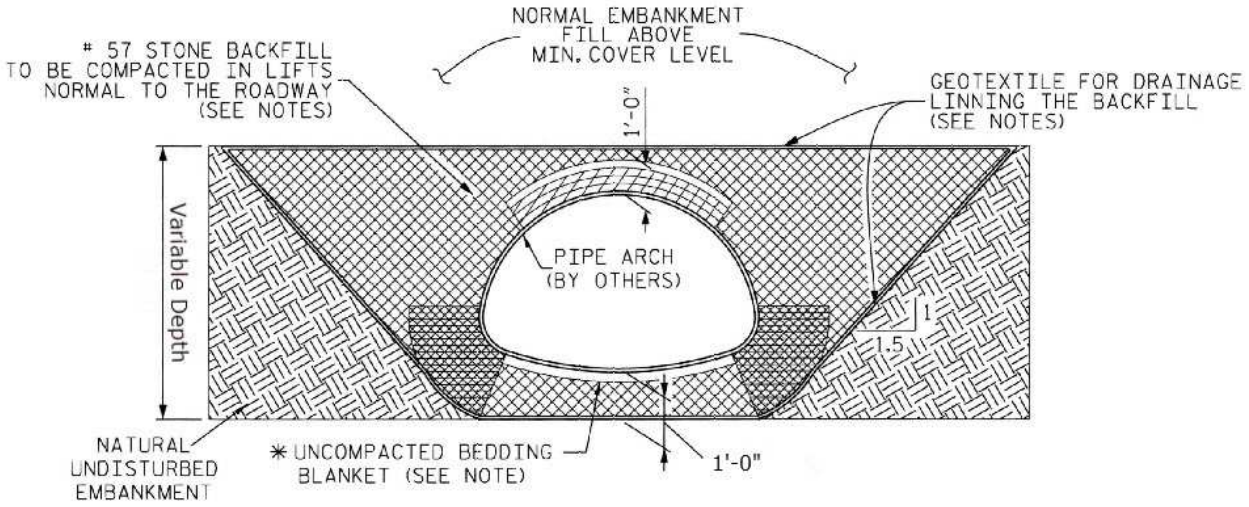
TEMPORARY SILT FENCE DETAIL



WATTLE DETAIL



TYPICAL BACKFILL SECTION



CRITICAL BACKFILL ZONE, PRESSURE ON SOIL GREATEST HERE.

INITIAL LIFTS OVER CROWN OF STRUCTURE AS INDICATED BY SHADED AREA TO BE COMPACTED TO REQUIRED DENSITY WITH HAND OPERATED EQUIPMENT

57 STONE BACKFILL LIMITS.

NOTES:

ALL BACKFILL TO BE PLACED IN A BALANCED FASHION IN THIN LIFTS (6"-8" LOOSE TYPICALLY) AND COMPACTED TO 90 PERCENT DENSITY PER AASHTO T-180.

GEOTEXTILE FOR DRAINAGE IN FOUNDATION BEDDING AND BACKFILL IS INCIDENTAL TO COST OF PIPE ARCH.

COMPLETE AND REGULAR MONITORING OF THE CSP ARCH SHAPE IS NECESSARY DURING ALL BACKFILLING OF THE STRUCTURE.

PREVENT EXCESSIVE DISTORTION OF SHAPE AS NECESSARY BY VARYING COMPACTION METHODS AND EQUIPMENT.

* SHAPED BED FOR A MINIMUM WIDTH OF SPAN/2. MINIMUM BEDDING THICKNESS IS TWICE THE CORRUGATION DEPTH.

EMBANKMENT SLOPE TO BE 1.5:1 MINIMUM SUCH THAT A STABLE EMBANKMENT CAPABLE OF RESISTING SIDE PRESSURES FROM CSP PIPE-ARCH SHAPE WILL BE MAINTAINED THROUGHOUT THE LIFE OF INSTALLATION.

TYPICAL BACKFILL SECTION ALONG PIPE

NTS