

#3112

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

A-UI-1052 (3)

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	A-UI-1052(3)	1

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

TOLEDO EXPRESSWAY SYSTEM

LUC 120 - 3.46
LUCAS COUNTY
CITY OF TOLEDO

FOR PART 2-A SEE PLANS FOR
LUC-120-3.46, SOUTHERLY APPROACH
EMBANKMENT, FED. NO. A-UI-1052(4)

MAUMEE RIVER BRIDGE PART 2 - APPROACH PIERS & ABUTMENTS

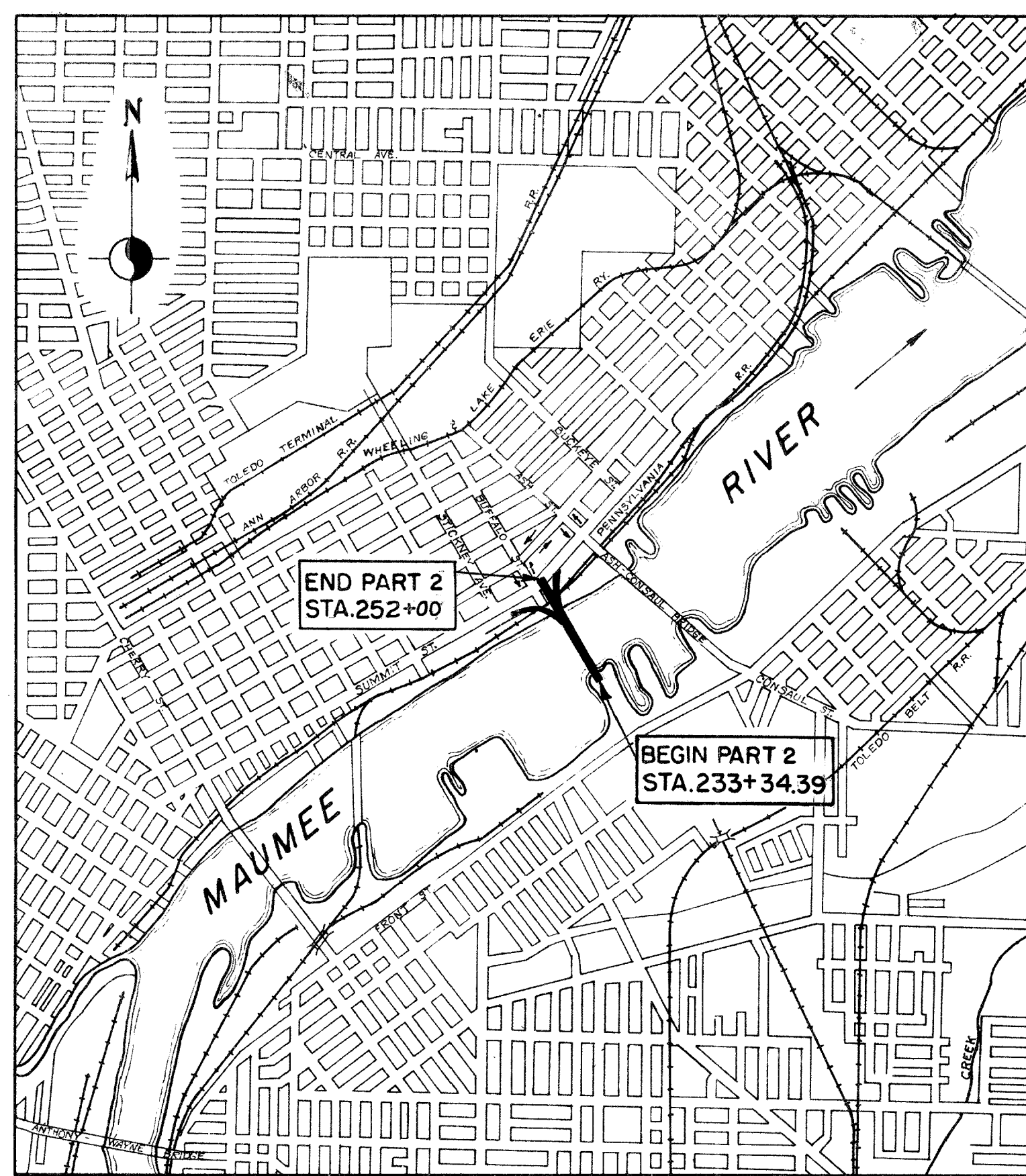
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PRINT APPROVED B. R. MacRitchie
DATE 4-16-53 DIRECTOR OF PUBLIC SERVICE, CITY OF TOLEDO

PRINT APPROVED Arnold V. Finch
DATE 4-16-53 CITY MANAGER, CITY OF TOLEDO

PRINT APPROVED D.L. SUMMERVILLE
DATE 8-10-53 CHIEF ENGINEER, PENNSYLVANIA RAILROAD



DELIVERY POINT: TOLEDO, OHIO AVERAGE HAUL: 1/2 MILE

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO DEPARTMENT OF HIGHWAYS, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH IN THE PLANS AND ESTIMATE.

THE RIGHT OF WAY FOR THIS IMPROVEMENT WILL BE PROVIDED BY THE STATE OF OHIO.

APPROVED George M. Rubin
DATE 4-14-53 DIVISION DEPUTY DIRECTOR

APPROVED John W. Hines
DATE 4-22-53 CHIEF ENGINEER, BUREAU OF PLANNING & PROGRAMMING

APPROVED Richard P. Smith
DATE 4-16-53 CHIEF ENGINEER, BUREAU OF BRIDGES & R. R. CROSSINGS

APPROVED H. W. Johnson
DATE 4-21-53 CHIEF ENGINEER, BUREAU OF LOCATION & DESIGN

APPROVED V. J. Kahaner
DATE 4-22-53 FIRST ASSISTANT DIRECTOR & CHIEF ENGINEER

APPROVED W. A. Bell
DATE 4-22-53 DIRECTOR OF HIGHWAYS

LINE DATA

BEGIN PART 2 STA. 233+34.39 EXPRESSWAY
 END PART 2 STA. 252+00.00 EXPRESSWAY
 NET LENGTH PART 2 1865.61 FT OR .353 MI.
 ADD FOR APPROACH 252-00 TO STA. 252+08 8.00 FT.
 ADD FOR RAMP E-E 729.00 FT.
 ADD FOR RAMP X 1519.82 FT.
 NET LENGTH OF WORK 4122.43 FT. OR .780 MI.

BRIDGE LIMITS

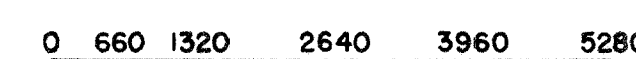
STA. 233+34.39 TO STA. 250+97.31=1762.92 FT. OR .334 MI.

PREPARED AND RECOMMENDED BY
HOWARD NEEDLES TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

H. G. SOURS
ASSOCIATE
COLUMBUS

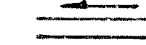
R. N. Bergendoff

LOCATION PLAN



SCALE IN FEET

PORTION TO BE IMPROVED
DETOUR FOR SUMMIT ST.



NOTE: THIS SET OF PLANS, THE SUBSTRUCTURE OF THE MAUMEE RIVER BRIDGE, COVERS ONLY PART 2 OF THIS PROJECT. PART 1, THE 5 RIVER PIERS IS COVERED BY AN EARLIER CONTRACT. THE SUPERSTRUCTURE AND THE CONTIGUOUS HIGHWAY WORK WILL BE LET IN SUBSEQUENT CONTRACTS.

SUPPLEMENTAL SPECIFICATIONS
T-171.19 REV. 3-19-53
M-101.7 1-24-53

STANDARD DRAWINGS
NONE

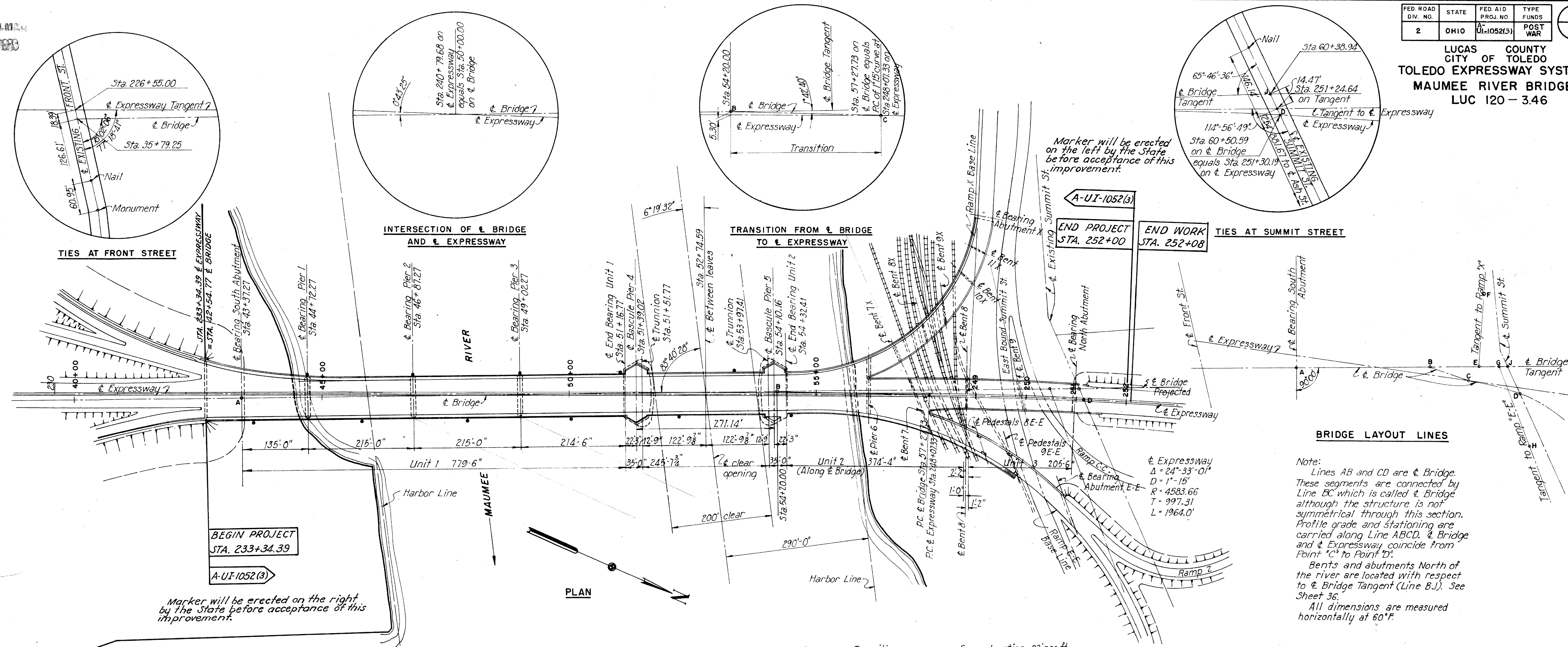
DEPARTMENT OF COMMERCE BUREAU OF PUBLIC ROADS	
RECOMMENDED FOR APPROVAL	
DISTRICT ENGINEER	DATE
APPROVED	
FOR THE DIVISION ENGINEER	DATE

FILE NO	LUCAS COUNTY
SEC	LUC 120 - 3.46, PART 2
DATE OF LETTING	_____, 195
CONTRACT NO.	

MICROFILMED
JUL 25 1980

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	2
2	OHIO	01-1052(3)	POST WAR	38

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120-3.46

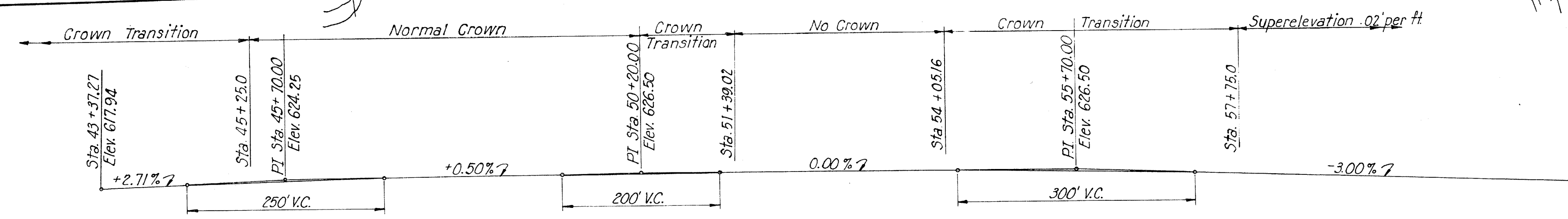


Marker will be erected on the right by the State before acceptance of this improvement.

Marker will be erected on the left by the State before acceptance of this improvement.

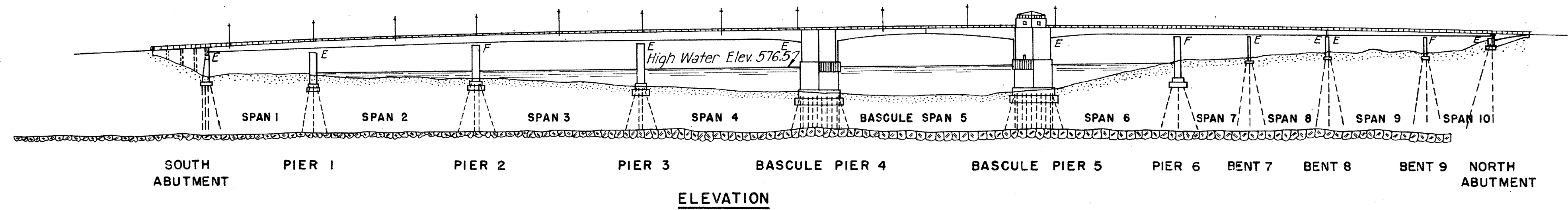
BRIDGE LAYOUT LINES

Note:
Lines AB and CD are & Bridge. These segments are connected by Line BC which is called & Bridge although the structure is not symmetrical through this section. Profile grade and stationing are carried along Line ABCD. & Bridge and & Expressway coincide from Point 'c' to Point 'd'.
Bents and abutments North of the river are located with respect to & Bridge Tangent (Line B). See Sheet 36.
All dimensions are measured horizontally at 60°F.



PROFILE GRADE ALONG LINE ABCD

BENCH MARK
City Bench Mark No. 1112 at Ash Street Bridge, northwesterly end of bridge. Brass Bench Mark Plate set in northwesterly end of northerly retaining wall, 28 feet southeasterly of newel post on northerly side of bridge at Summit Street end of railing. Elevation 601.615 feet above Mean Sea Level, New York.



ELEVATION

PART 2
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
BR. NO. LU 120-35
GENERAL PLAN AND ELEVATION
TOLEDO LUCAS COUNTY OHIO
SCALE: 1" = 100'
MADE H.B.A. DATE 8-16-51 HOWARD, NEEDLES, TAMMEN & BERGENOFF
TRCD. B.L.E. DATE 8-21-51 CONSULTING ENGINEERS
CRD. J.T. DATE 7-29-52 KANSAS CITY NEW YORK
810 SHEET 2.32

GENERAL NOTES

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	A-UI-1052(3)	POST WAR

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

1. DESIGN SPECIFICATIONS.

"DESIGN SPECIFICATIONS FOR HIGHWAY STRUCTURES", STATE OF OHIO DEPARTMENT OF HIGHWAYS DATED OCTOBER, 1951 (WITH A LOAD FREQUENCY RATING OF CF 1200-51) ARE USED IN THE DESIGN OF THIS PROJECT.

2. CONSTRUCTION SPECIFICATIONS.

"CONSTRUCTION AND MATERIAL SPECIFICATIONS", STATE OF OHIO, DEPARTMENT OF HIGHWAYS, DATED JANUARY 1, 1953, AS MODIFIED BY NOTES ON THE PLANS AND IN THE PROPOSAL, SHALL GOVERN.

3. SCOPE OF CONTRACT.

A. THE WORK INCLUDED IN THIS CONTRACT CONSISTS OF CONSTRUCTING THE SOUTH ABUTMENT ON THE SOUTH BANK OF THE RIVER AND ON THE NORTH BANK, THE CONSTRUCTING OF PIER 6; BENTS 7 TO 9 INCLUSIVE AND THE NORTH ABUTMENT INCLUDING WINGWALLS FOR THE EXPRESSWAY PORTION OF THE BRIDGE; BENTS 7X TO 11X INCLUSIVE AND THE ABUTMENT INCLUDING TOE WALL FOR RAMP X; PEDESTALS 9E-E AND 9E-E AND THE ABUTMENT INCLUDING WALLS FOR RAMP E-E; PILES FOR STAIRWAY FROM RAMP E-E; SITE GRADING FOR THE NORTH ABUTMENT AND THE RAMP ABUTMENTS; ANCHOR BOLTS FOR ROADWAY EXPANSION JOINT CASTINGS AT THE ABUTMENTS AND ANCHOR BOLTS AND TEMPLATE-SCREED FRAMES FOR SUPERSTRUCTURE SHOES ON THE SOUTH ABUTMENT AND PIER 6.

B. WORK TO BE PERFORMED LATER AS PART OF THE CONTRACT FOR SUPERSTRUCTURE, PART 3, INCLUDES HANDRAILING, ROADWAY EXPANSION JOINTS ON ABUTMENTS EXCEPT ANCHOR BOLTS, AND ANCHOR BOLTS FOR ATTACHING SUPERSTRUCTURE SHOES EXCEPT WHERE TEMPLATE-SCREED FRAMES ARE PROVIDED.

4. MINIMUM TEMPORARY CONSTRUCTION CLEARANCE FOR RAILROAD TRACKS.

THE MINIMUM TEMPORARY CONSTRUCTION CLEARANCE FOR THE PENNSYLVANIA RAILROAD TRACKS SHALL BE 19'-0" VERTICALLY ABOVE TOP OF RAIL AND 8'-0" HORIZONTALLY FROM CENTERLINE OF THE NEAREST TRACK.

5. SITE GRADING AND EXCAVATION.

A. BORROW FROM SITE GRADING OF THE AREAS AT THE ABUTMENTS ON THE NORTH BANK WILL BE GOVERNED BY ITEM E-4. BORROW MATERIAL MAY BE OBTAINED FROM AREAS LOCATED ON THE SOUTH SIDE OF EXISTING SUMMIT STREET AS SHOWN ON THE PLANS BETWEEN STA. 4 + 00 AND STATION B + 20 AND WILL BE AVAILABLE TO THE CONTRACTOR FREE OF CHARGE. THE EXCAVATION SHALL NOT EXTEND BELOW ELEVATION SHOWN ON THE PLANS. EXCESS STRUCTURAL EXCAVATION NOT REQUIRED FOR BACKFILLING AND WHICH IS OF SUITABLE MATERIAL SHALL BE USED IN EMBANKMENTS. PAYMENT FOR EMBANKMENT SO CONSTRUCTED SHALL BE CONSIDERED FULLY COVERED BY PAYMENTS MADE UNDER ITEM E-2, "EXCAVATION FOR STRUCTURES".

B. EXISTING PAVEMENT IN THE AREA TO BE OCCUPIED BY THE NORTH ABUTMENT SHALL BE REMOVED. PAYMENT FOR SQUARE YARDS OF PAVEMENT REMOVED WILL BE MADE UNDER ITEM E-8, "REMOVAL OF EXISTING PAVEMENT".

C. EXCAVATION FOR STRUCTURES IN COMPACTED EMBANKMENTS SHALL BE MEASURED FOR PAYMENT ACCORDING TO ITEM E-2 EXCEPT THAT THE DEPTH OF SUCH EXCAVATIONS SHALL BE CONSIDERED TO BE TWO FEET. ALL EXCAVATIONS FOR STRUCTURES SHALL BE BACKFILLED TO ORIGINAL GROUND LINE OR APPROXIMATELY TO THE FINAL GROUND LINE SHOWN ON THE PLANS, WHICHEVER IS LOWER, EXCEPT EXCAVATIONS IN EMBANKMENTS SHALL BE BACKFILLED TO THE LIMITS OF EMBANKMENTS AS SHOWN ON THE PLANS.

D. THE EMBANKMENT ON WHICH THE SOUTH ABUTMENT IS TO BE CONSTRUCTED WILL BE PLACED BY OTHERS APPROXIMATELY TO THE GROUND LINES SHOWN ON THE PLANS. PAYMENT FOR STRUCTURE EXCAVATION AT THE SOUTH ABUTMENT WILL BE BASED ON THE ACTUAL VOLUME EXCAVATED WITHIN THE LIMITS SPECIFIED UNDER ITEM E-2.

6. EXISTING BUILDINGS.

EXISTING BUILDINGS WITHIN THE PROJECT RIGHT OF WAY WILL BE REMOVED BY OTHERS TO THE LEVEL OF EXISTING GROUND AND BASEMENTS SHALL, IF SO DIRECTED BY THE ENGINEER, BE FILLED BY THE CONTRACTOR WITH COMPACTED EMBANKMENT MATERIAL. PAYMENT WILL BE MADE UNDER ITEM E-4.

7. COFFERDAM.

A. A STEEL SHEET PILE COFFERDAM WILL BE REQUIRED FOR THE CONSTRUCTING OF PIER 6. AT LEAST FIFTEEN DAYS BEFORE COMMENCING WORK ON THE COFFERDAM THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, DRAWINGS SHOWING THE CHARACTER AND SUFFICIENCY OF THE COFFERDAM HE PROPOSES TO USE. THE COFFERDAM SHALL BE CONSTRUCTED WITH SUFFICIENT ACCURACY THAT THE CENTER OF THE CONCRETE SEAL COURSE OF THE PIER SHALL BE WITHIN A CIRCLE SIX INCHES IN DIAMETER OF WHICH THE CENTER IS THE SPECIFIED TRUE CENTRAL VERTICAL AXIS OF THE PIER. THE MAXIMUM SKEW IN THE PIER BASE SHALL BE SUCH THAT THE LONGITUDINAL AXIS OF THE SEAL COURSE DOES NOT DEVIATE FROM THE TRUE SPECIFIED LONGITUDINAL AXIS BY MORE THAN SIX INCHES AT EITHER END OF THE SEAL COURSE. THE COFFERDAM SHALL BE REMOVED AFTER THE PIER IS CONSTRUCTED.

B. THE METHOD OF MEASUREMENT FOR THE EXCAVATION OF THE COFFERDAM SHALL BE AS SET FORTH IN SEC. E-2.09 OF THE "CONSTRUCTION AND MATERIAL SPECIFICATIONS" EXCEPT THAT THE BOTTOM PLANE SHALL BE CONSIDERED AS AT THE BOTTOM OF THE SEAL COURSE AND THE VERTICAL PLANES SHALL BE CONSIDERED AS AT THE EDGES OF THE SEAL COURSE ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS.

C. THE LUMP SUM ITEM OF "COFFERDAMS AND PUMPING" ALSO CONTemplates AND PROVIDES PAYMENT FOR COFFERDAMS, CRIBS, SHEETING AND PUMPING FOR THE OTHER SUBSTRUCTURE UNITS.

8. STEEL BEARING PILES.

A. BEARING PILES FOR THE SOUTH ABUTMENT SHALL BE 12 INCH BP AT 53 POUNDS, FOR THE NORTH ABUTMENT SHALL BE 14 INCH BP AT 73 POUNDS, AND FOR PIER 6 SHALL BE 14 INCH BP AT 117 POUNDS. PILES SHALL BE DRIVEN TO THE PENETRATION REQUIRED TO BEAR ON ROCK OR IN BouldERS AND BROKEN ROCK OVERLYING THE SOLID ROCK STRATA AND TO DEVELOP BEARING CAPACITY, ACCORDING TO THE SPECIFICATION FORMULA, OF 100 TONS FOR 12 INCH PILES, OF 100 TONS FOR 73 POUND 14 INCH PILES, AND OF 200 TONS FOR 117 POUND 14 INCH PILES. THE ACTUAL DESIGN WORKING CAPACITY FOR DEAD LOAD PLUS LIVE LOAD IS 52 TONS AT SOUTH ABUTMENT, 52.9 TONS AT NORTH ABUTMENT, AND 104 TONS AT PIER 6.

B. THE HAMMER USED SHALL DEVELOP NOT LESS THAN 25,000 FOOT POUNDS ENERGY PER BLOW. PILE DRIVING MAY, IF NECESSARY, BE SUPPLEMENTED BY AIR JETTING, WATER JETTING OR A COMBINATION OF AIR AND WATER JETTING TO FACILITATE PENETRATION, EXCEPT THAT WATER JETTING WILL NOT BE PERMITTED FOR THE DRIVING OF THE ABUTMENT PILES.

C. SPLICES IN THE STEEL PILES SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS. ALL PILES SHALL HAVE TIP REINFORCING PLATES AS SHOWN ON THE PLANS. THE COST OF TIP REINFORCING PLATES AND ANY SPLICES WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR STEEL PILES.

D. THE USE OF A FOLLOWER IN THE DRIVING OF PILES UNDER WATER IS PERMISSIBLE. ANY ADJUSTMENT OF THE COEFFICIENT OF THE DRIVING FORMULA THAT IS NECESSARY BECAUSE OF LOSS OF ENERGY DUE TO THE USE OF A FOLLOWER WILL BE DETERMINED FROM THE RESULTS OF TEST LOADING.

E. AFTER ALL THE PILES IN A FOOTING HAVE BEEN DRIVEN TO THE REQUIRED CAPACITY THE HAMMER SHALL BE REAPPLIED TO FIVE PILES IN THAT FOOTING AND EACH OF SUCH PILES SHALL BE SUBJECTED TO AT LEAST 100 ADDITIONAL BLOWS TO DETERMINE IF THE CAPACITY HAS BEEN RETAINED. IF ANY OF THESE PILES PENETRATES AT A RATE GREATER THAN THE FINAL PENETRATION PER BLOW OF THE ORIGINAL DRIVING ALL THE PILES IN THAT FOOTING SHALL BE SUBJECTED TO SUCH SUBSEQUENT DRIVING.

F. THE PILE SPACING DIMENSIONS GIVEN ON THE DRAWINGS ARE AT THE LEVEL OF BOTTOM OF FOOTINGS FOR THE SOUTH ABUTMENT, AND NORTH ABUTMENT, AND AT THE BOTTOM OF SEAL FOR PIER 6.

9. CONCRETE BEARING PILES.

A. CONCRETE BEARING PILES SHALL BE PRECAST OR CAST-IN-PLACE PILES DRIVEN TO THE PENETRATION REQUIRED TO DEVELOP AT LEAST 40 TONS FOR 12 INCH PILES, 50 TONS FOR 14 INCH PILES AND 60 TONS FOR 16 INCH PILES ACCORDING TO THE SPECIFICATION FORMULA. THE ESTIMATED PROPOSAL QUANTITIES ARE BASED ON CONCRETE PILES PENETRATING TO ELEVATION 515.0.

B. THE PILE SPACING DIMENSIONS GIVEN ON THE DRAWINGS ARE AT THE LEVEL OF BOTTOM OF FOOTINGS.

10. TEST LOADING PILES.

A. THE FIRST PILE TEST LOAD SHALL BE APPLIED ON EACH TYPE AND SIZE OF PILE WHERE DIRECTED BY THE ENGINEER. A SUBSEQUENT PILE TEST LOAD SHALL BE APPLIED IF AND WHERE DIRECTED BY THE ENGINEER. THE ENGINEER MAY DIRECT THE SUBSEQUENT TEST LOAD TO BE APPLIED ON THE SAME PILE AS THE FIRST OR ON ANOTHER PILE IN THE SAME FOOTING OR IN A DIFFERENT FOOTING.

B. THE TEST LOADS ON THE STEEL H PILES SHALL BE CARRIED TO A VALUE OF 300 TONS FOR THE 117 POUND 14 INCH PILES, OF 200 TONS FOR THE 73 POUND 14 INCH PILES, AND OF 140 TONS FOR THE 12 INCH PILES UNLESS THE YIELD POINT IS REACHED AT A LESSER TONNAGE.

C. THE TEST LOAD ON THE CONCRETE PILES SHALL BE CARRIED TO A VALUE OF 3 R FOR EACH TYPE UNLESS THE YIELD POINT IS REACHED AT A LESSER TONNAGE.

11. CONCRETE SEAL COURSE FOR PIER 6.

A. CONCRETE FOR SEAL COURSE DEPOSITED UNDER WATER SHALL BE CLASS "C", EXCEPT THAT CEMENT CONTENT SHALL BE INCREASED ONE-HALF BAG OF CEMENT PER CUBIC YARD OF CONCRETE AND SHALL HAVE A SLUMP OF ABOUT SIX INCHES. ADmixTURES TO INCREASE PLASTICITY, OF A CHARACTER SUITABLE FOR UNDER-WATER DEPOSIT, SHALL BE ADDED IF ORDERED OR APPROVED BY THE ENGINEER. CONCRETE DEPOSITED UNDER WATER SHALL BE CAREFULLY PLACED IN A COMPACT MASS IN ITS FINAL POSITION BY MEANS OF TREMIE PIPES OR BY BOTTOM DUMP BUCKETS IN SUCH WAY AS TO PRODUCE A CONTINUOUS COMPLETE MONOLITH OF CONCRETE WITHOUT JOINTS, AND THE CONCRETE SHALL NOT BE DISTURBED AFTER BEING DEPOSITED. CONCRETE SHALL BE DEPOSITED ONLY UNDER STILL WATER. CONCRETE SHALL BE PLACED IN A CONTINUOUS OPERATION UNTIL THE ENTIRE MASS OF THE SEAL HAS BEEN PLACED. A SUFFICIENT NUMBER OF TREMIES OR BUCKETS SHALL BE USED TO INSURE THE CONSTRUCTION OF THE SEAL AS A MONOLITHIC MASS.

B. TREMIES SHALL CONSIST OF WATERTIGHT TUBES PREFERABLY OF STEEL PIPE TEN INCHES IN DIAMETER OR AS MAY BE APPROVED. COUPLINGS IN TREMIE TUBES SHALL BE WATERTIGHT SCREWED JOINTS OR FLANGED COUPLINGS FITTED WITH GASKETS. TREMIES CONSTRUCTED OF RIVETED SHEET STEEL PIPES WILL BE ACCEPTABLE IF COMPLETELY WELDED SO AS TO BE WATERTIGHT AND CONNECTED WITH SUITABLE FLANGES PROVIDED WITH GASKETS. THE TOP OF EACH TREMIE SHALL CONSIST OF A SHEET STEEL HOPPER OF WATERTIGHT CONSTRUCTION CONNECTED BY WATERTIGHT JOINT TO THE TREMIE. TREMIE PIPES SHALL BE SUFFICIENTLY LONG SO THAT WHEN SET ON THE BOTTOM OF EXCAVATION WHERE CONCRETE IS TO BE DEPOSITED THE HOPPER SHALL EXTEND ABOVE WATER. TREMIES SHALL BE SUPPORTED SO AS TO PERMIT PROPER FILLING OF THE HOPPERS AND SO THAT THE TREMIE CAN BE RAISED VERTICALLY WITH A SLOW MOVEMENT AND LOWERED RAPIDLY TO RETARD THE FLOW OF CONCRETE. THE DISCHARGE END OF THE TREMIE SHALL BE ENTIRELY SEALED AT ALL TIMES BY BEING SET UPON THE BOTTOM OF EXCAVATION OR UPON CONCRETE ALREADY DEPOSITED AND THE TREMIE TUBE SHALL BE KEPT FULL TO THE BOTTOM OF THE HOPPER. WHEN A BATCH OF CONCRETE IS DUMPED INTO THE HOPPER THE TREMIE SHALL BE SLOWLY RAISED (BUT NOT OUT OF THE CONCRETE AT THE BOTTOM OF THE TREMIE) UNTIL THE BATCH DISCHARGES TO THE BOTTOM OF THE HOPPER; THE TREMIE SHALL THEN BE QUICKLY LOWERED AND THE FLOW OF CONCRETE STOPPED. THE CONTRACTOR SHALL PROVIDE A BOTTOM PLUG OR COVER TO KEEP WATER OUT OF THE TREMIE PIPE DURING THE INITIAL FILLING, AND WHEN STARTING TREMIE WORK ON A SANDY BOTTOM HE SHALL PROVIDE A PLATFORM OR DEFLECTOR PLATE WHICH WILL PERMIT CONCRETE TO DISCHARGE LATERALLY AND PREVENT DISPLACEMENT OF MATERIAL BELOW THE BEARING SURFACE.

C. IF CONCRETE IS PLACED UNDER WATER BY MEANS OF A BOTTOM DUMP BUCKET, THE BUCKET SHALL HAVE A CAPACITY OF NOT LESS THAN TWO CUBIC YARDS AND THE TOP OF THE BUCKET SHALL BE COVERED. THE BOTTOM DOORS SHALL OPEN FREELY DOWNWARD AND OUTWARD WHEN TRIPPED. THE BUCKET SHALL BE COMPLETELY FILLED AND SLOWLY LOWERED TO AVOID BACKWASH. IT SHALL BE SO DESIGNED THAT IT CANNOT BE DUMPED UNTIL IT RESTS ON THE SURFACE UPON WHICH THE CONCRETE IS TO BE DEPOSITED AND WHEN DISCHARGED SHALL BE WITHDRAWN SLOWLY UNTIL WELL ABOVE THE CONCRETE, WITH THE INTENT TO MAINTAIN AS NEARLY AS POSSIBLE STILL WATER AT THE POINT OF DISCHARGE AND TO AVOID AGITATING THE CONCRETE.

D. DEPOSIT OF SUCCESSIVE BUCKETS OF CONCRETE SHALL BE MADE CONTINUOUS FROM THOSE PREVIOUSLY DEPOSITED SO AS TO ASSURE A CONTINUOUS BED OF CONCRETE. THE NUMBER OF BUCKETS AND OTHER EQUIPMENT USED SHALL BE ADEQUATE SO THAT A SECOND LAYER OF CONCRETE SHALL BE STARTED ABOVE THE FIRST LAYER BEFORE ANY OF THE CONCRETE SHALL HAVE TAKEN INITIAL SET AND SO THAT THERE MAY BE PRODUCED A COMPLETE, CONTINUOUS MONOLITH OF CONCRETE WITHOUT JOINTS OR DIVISIONS.

E. TYPES OF BOTTOM DUMP BUCKETS AND DETAILS OF TREMIES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

F. CONCRETE SEAL COURSE WILL BE MEASURED FOR PAYMENT UNDER ITEM S-1, AND WILL BE COMPUTED FROM THE WIDTH AND LENGTH OF SEAL COURSES SHOWN ON THE PLANS AND PLACED IN CORRECT PLAN POSITION, AND THE ACTUAL AVERAGE DEPTH OF SEAL COURSE PLACED, EXCLUDING THE VOLUME OF ANY CONCRETE PLACED OUT OF POSITION AND IN RECESSES FORMED BY COFFERDAM PILING. JUST BEFORE THE SEAL COURSE IS PLACED IN A COFFERDAM THE ENGINEER WILL DETERMINE THE AVERAGE ELEVATION OF GROUND IN THIS COFFERDAM AND THAT AVERAGE ELEVATION SHALL BE CONSIDERED THE BOTTOM OF THE SEAL COURSE CONCRETE IN THE DETERMINATION OF QUANTITY.

12. CONCRETE.

A. ALL CONCRETE SHALL BE CLASS "C", EXCEPT THE CONCRETE FOR THE SHOE RECESSES IN THE SOUTH ABUTMENT AND PIER 6 WHICH SHALL BE AS SPECIFIED HEREIN. THE CLASS "C" CONCRETE FOR THE SEAL COURSE OF PIER 6 SHALL BE AS MODIFIED UNDER "CONCRETE SEAL COURSE".

B. SHOE RECESSES SHALL BE FILLED WITH NON-SHRINKING CONCRETE, SIMILAR AND EQUAL TO "EMBECO" CONCRETE, COMPOSED OF A MIXTURE OF PORTLAND CEMENT, FINE AGGREGATE, COARSE AGGREGATE, WATER AND EMBECO METALLIC AGGREGATE MANUFACTURED BY THE MASTER BUILDERS COMPANY, CLEVELAND, OHIO OR EQUAL. THE AMOUNT OF EMBECO AGGREGATE IN THE MIXTURE SHALL BE ONE POUND OF EMBECO PER POUND OF WATER IN EXCESS OF TWO GALLONS OF WATER PER SACK OF CEMENT USED. CEMENT CONTENT SHALL BE NOT LESS THAN 6.3 BAGS PER CUBIC YARD AND THE COARSE AGGREGATE SHALL BE NO. 4 SIZE. (SEE NOTE 18).

C. ALL CONCRETE EXCEPT THAT IN THE SEAL COURSE SHALL BE VIBRATED.

D. BEFORE PROCEEDING WITH CONCRETING OPERATIONS THE CONTRACTOR SHALL FURNISH, FOR APPROVAL OF THE ENGINEER, A SCHEDULE SHOWING THE EXTENT OF THE INDIVIDUAL POURS AND THE SEQUENCE IN WHICH THE POURS ARE TO BE MADE. EACH POUR SHALL BE MADE IN ONE CONTINUOUS OPERATION SO AS TO ASSURE MONOLITHIC WORK WITH CONSTRUCTION JOINTS IN APPROVED LOCATION. ALL CONSTRUCTION JOINTS SHALL BE SO LOCATED AND FORMED AS TO LEAST IMPAIR THE STRENGTH AND APPEARANCE OF THE STRUCTURE.

E. MATERIAL FOR EXPANSION AND CONTRACTION JOINTS SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

BITUMINOUS PREMOLDED EXPANSION JOINT FILLER	SEC. M-10.01 OF THE SPECS.
WOOD BOARD EXPANSION JOINT FILLER	SEC. M-10.03 OF THE SPECS.
COPPER WATER STOP	SEC. M-7.13 OF THE SPECS.
GRAPHITE IMPREGNATED ASBESTOS	SEC. M-10.12 OF THE SPECS.
TAR PAPER JOINT MATERIAL	SUITABLE COMMERCIAL GRADE

PAYMENT FOR ALL JOINT MATERIAL SHALL BE CONSIDERED INCLUDED IN THE PAYMENT MADE UNDER ITEM S-1, "CONCRETE".

JOINT MATERIALS SHALL BE SECURELY FASTENED TO THE CONCRETE AND SHALL BE PROTECTED AGAINST DAMAGE DURING THE PLACING OF CONCRETE.

F. ALL JOINTS IN WALLS AGAINST WHICH EARTH IS TO BE PLACED (EXCEPT JOINTS AT TOP OF FOOTING) SHALL HAVE A 3 FOOT WIDE STRIP OF TYPE "B" WATERPROOFING OVER THAT PART OF JOINT WHICH IS BELOW GROUND LINE. PAYMENT WILL BE MADE UNDER ITEM S-3, TYPE "B" WATERPROOFING.

G. EXCEPT WHERE A RUBBED FINISH IS SPECIFIED THE FINISHED SURFACES OF BENTS AND ABUTMENTS EXPOSED TO VIEW SHALL BE GROUT CLEANED IN ACCORDANCE WITH SEC. S-1.22 OF THE SPECIFICATIONS. TOPS OF BENTS AND ABUTMENT BRIDGE SEATS SHALL BE GIVEN A WOOD FLOAT FINISH EXCEPT FOR BEARING AREAS UNDER SUPERSTRUCTURE SHOES WHICH SHALL BE FINISHED SMOOTH AT THE ELEVATIONS SHOWN TO A TRUE PLANE SURFACE IN ACCORDANCE WITH SEC. S-7.23 OF THE SPECIFICATIONS. TOPS OF ROADWAY AND SIDEWALK SLABS SHALL BE FINISHED IN ACCORDANCE WITH SEC. S-1.23 AND SEC. S-1.24 OF THE SPECIFICATIONS. A RUBBED SURFACE FINISH IN ACCORDANCE WITH SEC. S-1.22 OF THE SPECIFICATIONS SHALL BE PROVIDED ON SURFACES EXPOSED TO VIEW OF THE NORTH ABUTMENT AND RAMP E-E ABUTMENT INCLUDING FACES AND TOPS OF WALLS AND CURBS DOWN TO ROADWAY LEVEL; TOP AND NORTH FACE OF THE NORTH WALL OF RAMP X ABUTMENT; VERTICAL AND HORIZONTAL FACES OF CURBS AT SIDEWALKS, EXTENDING 11 INCHES ONTO THE SIDEWALK; ALL TERMINAL POSTS; BENT 9 AND PEDESTALS 9 E-E.

H. FORM LINER SHALL BE USED ON ALL FORMS FOR SURFACES EXPOSED TO VIEW. FORMS AND FALSEWORK INSIDE THE CELLULAR ABUTMENTS SHALL BE REMOVED. FALSEWORK PILES, IF USED IN THE ABUTMENTS, MAY BE CUT OFF AT FINISHED GROUND LEVEL.

I. PROVIDE 3/4 INCH CHAMFER ON ALL EXPOSED EDGES OF CONCRETE UNLESS OTHERWISE SHOWN.

13. REINFORCING STEEL.

A. REINFORCING STEEL SHALL CONFORM TO ITEM S-4 OF THE SPECIFICATIONS EXCEPT AS MODIFIED HEREIN. BARS SHALL HAVE DEFORMATIONS CONFORMING TO A.S.T.M. SPECIFICATION A305-50T. BARS SHALL BE LAPPED SO DIAMETERS TO MAKE A SPLICE. CLEAR DISTANCE FROM FACE OF CONCRETE TO BARS SHALL BE NOT LESS THAN 2 INCHES EXCEPT FOR SLABS THE CLEAR DISTANCE SHALL BE 1 INCH OR AS SHOWN ON THE PLANS AND IN FOOTINGS THE CLEAR DISTANCE SHALL BE 3 INCHES. IN FACES HAVING RUSTICATIONS THE CLEAR DISTANCE SHALL BE MEASURED FROM THE INNER FACE OF RUSTICATIONS.

B. ALL BAR SIZES ARE DESIGNATED ON THE PLANS BY NUMBER, THE FIRST DIGIT IN THE BAR MARK INDICATES THE SIZE OF THE BAR.

C. BEFORE ORDERING BARS, THE CONTRACTOR SHALL VERIFY THE CORRECTNESS OF THE BAR SCHEDULES SHOWN ON THE DRAWINGS.

14. TEMPLATE-SCREED-FRAMES.

ON THE SOUTH ABUTMENT AND PIER 6 THERE SHALL BE PROVIDED AT THE LOCATIONS INDICATED TEMPLATE-SCREED-FRAMES MADE OF ANGLES WITH DIMENSIONS AS SHOWN ON THE DRAWINGS. THESE FRAMES SHALL HAVE HOLES FOR THE ANCHOR BOLTS, SHALL BE SCRIBED WITH BOTH TRANSVERSE AND LONGITUDINAL CENTERLINES, AND SHALL BE USED AS TEMPLATES FOR SETTING ANCHOR BOLTS AND AS SCREEDS FOR FINISHING THE TOP SURFACE OF SPECIAL CONCRETE PADS. FRAMES SHALL BE STRAIGHTENED AFTER WELDING AND SHALL BE WAXED ON THE TOP IF NECESSARY TO PROVIDE A TRUE PLANE SURFACE. A SIMILAR FRAME COMPOSED OF CHANNELS SHALL BE PROVIDED FOR HOLDING THE BOTTOMS OF THE BOLTS IN CORRECT POSITION. ALL ANCHOR BOLTS SHALL BE THREADED TO APPROXIMATELY FOUR INCHES BELOW THE FINAL ELEVATION FOR BOTTOM OF SHOE OR BEARING PLATE AND EACH BOLT SHALL BE EQUIPPED WITH TWO NUTS, ONE ABOVE AND ONE BELOW THE UPPER FRAME. A THIRD NUT SHALL BE PROVIDED FOR EACH BOLT BEFORE COMPLETION OF THE CONTRACT. THE FRAMES TOGETHER WITH THE ANCHOR BOLTS SHALL BE SET IN PLACE, SUITABLY SUPPORTED FROM THE TOP OF THE FORMS AND ADJUSTED TO CORRECT HORIZONTAL POSITION BEFORE PLACING THE BRIDGE SEAT OR TOP OF PIER CONCRETE. AFTER THE PIER CONCRETE HAS FULLY CURED, THE UPPER FRAME SHALL BE ADJUSTED TO EXACT ELEVATION BY USE OF THE NUTS ABOVE AND BELOW THIS FRAME. THE UPPER FRAME WILL THUS FORM THE SIDES OF A PAD AT LEAST ONE INCH HIGHER THAN THE GENERAL TOP SURFACE OF THE CONCRETE. THE RECESSES SHALL BE FILLED WITH SPECIAL NON-SHRINKING CONCRETE AS DESCRIBED UNDER "CONCRETE". THIS SPECIAL CONCRETE SHALL BE SCREDED, TROWELED AND FINISHED TO PROVIDE A SMOOTH LEVEL SURFACE EVEN WITH THE TOP OF THE TEMPLATE-SCREED-FRAME.

15. STRUCTURAL STEEL.

A. ITEM S-7, "STRUCTURAL STEEL", INCLUDES TEMPLATE-SCREED-FRAMES COMPLETE WITH LOWER TEMPLATES AND ANCHOR BOLTS; METALWORK IN THE SOUTH ABUTMENT EXPANSION JOINT; DOORS, DOOR FRAMES AND VENTILATION GRILLS AND ANCHOR BOLTS FOR SUPERSTRUCTURE EXPANSION JOINT CASTINGS.

B. ALL ANCHOR BOLTS SHALL BE SET WITH TEMPLATES TO INSURE PROPER FIT OF THE SUPERSTRUCTURE ITEMS.

C. ALL STRUCTURAL STEEL PARTS, EXCEPT PORTIONS EMBEDDED IN CONCRETE AND ANCHOR BOLT THREADS SHALL BE GIVEN ONE SHOP COAT OF PAINT AS PER ITEM S-8 BUT NEED NOT BE GIVEN THE FIELD COATS AS SPECIFIED UNDER THIS ITEM. THREADED ENDS OF ANCHOR BOLTS SHALL BE GREASED.

D. ALL WELDING SHALL BE CLASS "A".

16. EXISTING UTILITIES.

A. POWER AND COMMUNICATION POLES AND ANY OTHER PRIVATELY OWNED UTILITIES INTERFERING WITH THE NEW CONSTRUCTION WILL BE RELOCATED BY OTHERS AT NO EXPENSE TO THE CONTRACTOR.

B. THE NORTH ABUTMENT WILL BE LOCATED DIRECTLY OVER AN EXISTING 87-IN. SEWER AND AN EXISTING 6-IN. WATER LINE IN SUMMIT STREET. THE LOCATIONS OF THIS SEWER AND WATER LINE AS SHOWN ON THE PLANS ARE TO BE CONSIDERED APPROXIMATE ONLY AND BEFORE PROCEEDING WITH ANY CONSTRUCTION OPERATIONS WHICH MIGHT CAUSE DAMAGE TO THESE UTILITIES, THE CONTRACTOR SHALL DETERMINE THEIR EXACT LOCATIONS BY BORINGS, EXCAVATIONS, SURVEYS OR OTHER SUITABLE MEANS. IF IT IS FOUND THAT THE LOCATION OF THESE UTILITIES VARIES CONSIDERABLY FROM THAT INDICATED ON THESE PLANS AND INTERFERES WITH FOOTINGS OR PILING, THE DESIGN OF THE ABUTMENT WILL BE MODIFIED AS NECESSARY.

C. THE EXISTING SEWER IS OF CIRCULAR SECTION, 87-IN. INSIDE DIAMETER, 12-IN. WALL THICKNESS, OF MONOLITHIC NON-REINFORCED CONCRETE. FOR THE PROTECTION OF THIS SEWER WHILE PILING ARE BEING DRIVEN, THE CONTRACTOR SHALL FURNISH AND INSTALL INTERNAL SHORING CONSISTING OF SUBSTANTIAL, EXPANDABLE RINGS, JACKED SO AS TO EXERT PRESSURE OVER THE FULL PERIMETER OF THE RING, SUCH SHORES SHALL BE SPACED AT ABOUT 6 FT. CENTERS FOR A LENGTH OF ABOUT 100 FT. IN THE AREA WHERE PILING ARE BEING DRIVEN. THE SHORINGS SHALL BE OF SUCH DESIGN AS TO REDUCE THE HYDRAULIC CAPACITY OF THE SEWER AS LITTLE AS PRACTICABLE. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL COMPLETE WORKING DRAWINGS OF THE SHORING PROPOSED FOR USE.

D. THE SEWER NORMALLY FLOWS ABOUT 60 PER CENT FULL, BUT BY PROPER OPERATION OF THE CITY'S PUMPING STATION THE WATER LEVEL IN THE SEWER CAN BE LOWERED TO ABOUT 2 FT DEPTH BETWEEN THE HOURS OF 2:00 A.M. AND 7:00 A.M. ON A NORMAL DAY. ACCESS TO THE SEWER CAN BE HAD THROUGH MANHOLES IN SUMMIT STREET AT ASH, BUFFALO AND MIDWAY BETWEEN BUSH AND STICKNEY STREETS.

E. PILE DRIVING OPERATIONS SHALL BE SO CONDUCTED AS TO MINIMIZE VIBRATION OR HEAVING OF THE CLAY STRATA WHICH MIGHT CAUSE DAMAGE TO THE SEWER. DRIVING SHALL BE SUPPLEMENTED BY AIR JETTING OR BY PREBORING IF IT DEVELOPS THAT VIBRATION OR HEAVING IS EXCESSIVE. PILING SHALL BE DRIVEN SUCCESSIVELY ON ALTERNATE SIDES OF THE SEWER TO AVOID CUMULATIVE DISPLACEMENT. THE CONTRACTOR SHALL STATION AN INSPECTOR IN THE SEWER TO CHECK FOR EXCESSIVE VIBRATION OR DAMAGE TO THE SEWER WHILE PILE DRIVING IS IN PROGRESS.

F. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE CITY, REPAIR ANY DAMAGE WHICH MAY RESULT FROM HIS CONSTRUCTION OPERATIONS.

G. PAYMENT FOR PROTECTION OF THE SEWER AGAINST DAMAGE DUE TO PILE DRIVING SHALL BE CONSIDERED AS INCLUDED IN THE LUMP SUM BID FOR THE 14873 FIRST TEST PILE AND THE PRICE PER LINEAR FOOT BID FOR THE 14873 PILES.

17. ELECTRICAL GROUNDS.

AT PIER 6 AND BENTS 9, 7X AND 11X THERE SHALL BE EMBEDDED IN THE CONCRETE A SOLID NO. 0 BARE COPPER WIRE, BRAZED AT ITS LOWER END TO A STEEL FOUNDATION PILE OR CONCRETE PILE CASING AND AT ITS UPPER END SHALL EXTEND SUFFICIENTLY ABOVE TOP OF CONCRETE TO PROVIDE FOR A SUITABLE SPLICE AND EXTENSION BY CONTRACTOR FOR PART 3.

THE ELECTRICAL GROUNDS SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR CONCRETE.

18. NON-SHRINKING CONCRETE.

THE CEMENT USED IN THE NON-SHRINKING CONCRETE SHALL BE OF THE NON-AIR-ENTRAINING TYPE.

THE NUMBER OF CUBIC YARDS OF SUCH CONCRETE IN THE SHOE RECESSES AND IN THE TOP THREE FEET OF THE VENTILATING PIPES IS INCLUDED IN THE QUANTITY OF CONCRETE FOR THE RESPECTIVE SUBSTRUCTURE UNITS.

FIELD OFFICE

The contractor shall provide a field office, in accordance with Sec. S-0.01(c) of the "Construction and Material Specifications" as soon as possible after the award of the contract. The office shall have a minimum of 250 square feet of floor space. The contractor shall have a telephone installed and maintained during the construction of this project.

The South Abutment shall be the last substructure unit constructed in order that the South Approach embankment of Part 2-A shall have as much time as possible, and not less than six months, for settlement after the embankment has been completed to full depth.

TOLEDO EXPRESSWAY SYSTEM

MAUMEE RIVER BRIDGE

BR. NO. LU 120-35

GENERAL NOTES

TOLEDO LUCAS COUNTY OHIO

SCALE: As Shown	HOWARD, NEEDLES, TAMMEN & BERGENDORF CONSULTING ENGINEERS KANSAS CITY NEW YORK
MADE: J.L. DATE: 7-22-52	
TRCD: H.S. DATE: 12-3-52	
CKD: D.L.J. DATE: 12-3-52	

PHOTOFILMS
JUL 25 1952

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	11-105213	POST WAR

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 — 3.46

ESTIMATED QUANTITIES FOR SUBSTRUCTURE

ITEM	DESCRIPTION	UNIT	SOUTH ABUTMENT	PIER 6	BENT 7	BENT 8	BENT 9	NORTH ABUTMENT	PEDESTALS 8EE	PEDESTALS 9EE	RAMP E-E ABUTMENT	BENT 7X	BENT 8X	BENT 9X	BENT 10X	BENT 11X	RAMP X ABUTMENT	RAMP X TOEWALL	TERMINAL POSTS	GENERAL	TOTAL	
E-2	Cofferdams and Pumping.	Lump Sum																		Lump Sum	Lump Sum	
E-2	Excavation for Structures (Unclassified).	Cubic Yards	710	1800	200	120	180	530	140	60	240	80	80	110	120	60	210	1130			5770	
E-8	Removal and Disposal of Existing Pavement.	Square Yards																		1600	1600	
S-1	Class "C" Concrete (Pier and Bents).	Cubic Yards		2270	420	170	130		130	90		110	110	100	80	40			10		3660	
S-1	Class "C" Concrete (Abutments and Walls).	Cubic Yards	1240					320			600						610	780			3550	
S-3	Type "B" Waterproofing.	Square Yards						20			25							70			115	
S-4	Reinforcing Steel.	Pounds	170,070	14,260	49,010	16,190	17,460	19,330	10,950	8,470	25,340	10,200	9,740	8,410	8,020	6,030	74,600	25,240	560	1040**	473,910	
S-7	Structural Steel.	Pounds	9290	2090				1290									2560				15230	
S-16	First Test Pile (12BP53).	Lump Sum																			Lump Sum	Lump Sum
S-16	First Test Pile (14BP73).	Lump Sum																			Lump Sum	Lump Sum
S-16	First Test Pile (14BP117).	Lump Sum																			Lump Sum	Lump Sum
S-16	First Test Pile (12" Concrete.)	Lump Sum																			Lump Sum	Lump Sum
S-16	First Test Pile (14" Concrete.)	Lump Sum																			Lump Sum	Lump Sum
S-16	First Test Pile (16" Concrete.)	Lump Sum																			Lump Sum	Lump Sum
S-17	First Pile Test Load. (12BP53).	Lump Sum																			Lump Sum	Lump Sum
S-17	First Pile Test Load. (14BP73).	Lump Sum																			Lump Sum	Lump Sum
S-17	First Pile Test Load. (14BP117).	Lump Sum																			Lump Sum	Lump Sum
S-17	First Pile Test Load. (12" Concrete.)	Lump Sum																			Lump Sum	Lump Sum
S-17	First Pile Test Load. (14" Concrete.)	Lump Sum																			Lump Sum	Lump Sum
S-17	First Pile Test Load. (16" Concrete.)	Lump Sum																			Lump Sum	Lump Sum
S-17	Subsequent Pile Test Loads. (12BP53).	Each																			Lump Sum	Lump Sum
S-17	Subsequent Pile Test Loads. (14BP73).	Each																			1	1
S-17	Subsequent Pile Test Loads. (14BP117).	Each																			1	1
S-17	Subsequent Pile Test Loads. (12" Concrete.)	Each																			1	1
S-17	Subsequent Pile Test Loads. (14" Concrete.)	Each																			1	1
S-17	Subsequent Pile Test Loads. (16" Concrete.)	Each																			1	1
S-18	Steel Bearing Piles (12BP53).	Linear Feet	9220																		1	1
S-18	Steel Bearing Piles (14BP73).	Linear Feet						3830														9220
S-18	Steel Bearing Piles (14BP117).	Linear Feet		6370																		3830
S-18	Precast or Cast-in-place Concrete Piles (12" Butt Dia.)	Linear Feet																				6370
S-18	Precast or Cast-in-place Concrete Piles (14" Butt Dia.)	Linear Feet										800	850	850	950	750		10250		140*	10390	
S-18	Precast or Cast-in-place Concrete Piles (16" Butt Dia.)	Linear Feet			2560	1480	2000		1170	1110	4770											4200
S-20	Porous Backfill.	Cubic Yards						60			130						3550					16,640
																	10					200

TYPE CODE 0010

ESTIMATED QUANTITIES FOR ROADWAY						
ITEM	DESCRIPTION	UNIT	NORTH ABUTMENT	RAMP E-E ABUTMENT	RAMP X ABUTMENT	TOTAL
E-4	Borrow (Site Grading)	Cu.Yd.	2190	8090	3230	13,510
E-11	Wafer	M.Gal.				38

* Piles for stairway from E-E.
** Replacement Steel.

TOLEDO EXPRESSWAY SYSTEM

MAUMEE RIVER BRIDGE
BR. NO. LU 120-35

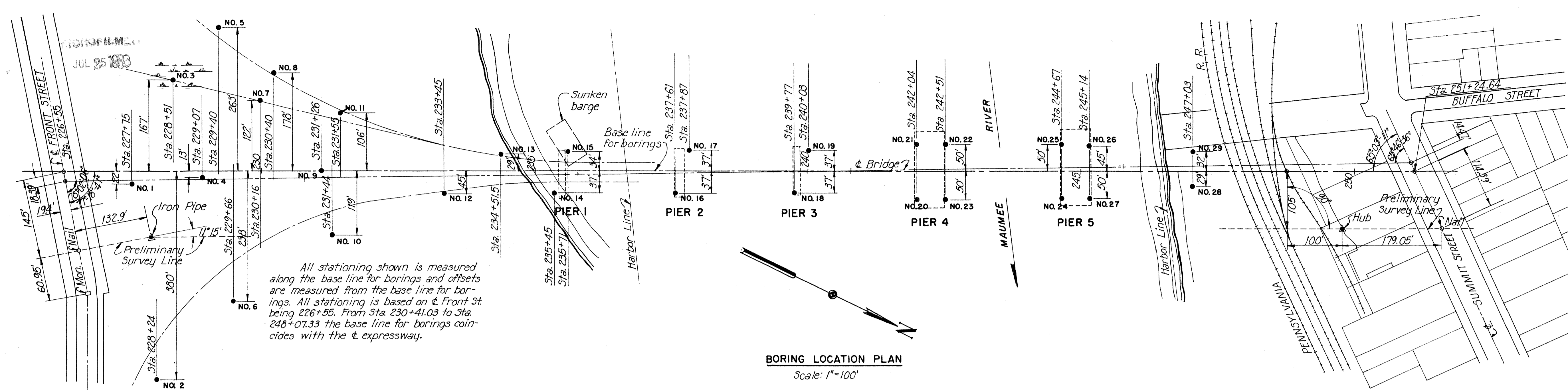
ESTIMATED QUANTITIES

TOLEDO LUCAS COUNTY, OHIO

SCALE: MADE B.K.H. DATE 12-1-52 HOWARD, NEEDLES, TAMMEN & BERGENSON CONSULTING ENGINEERS KANSAS CITY NEW YORK
TRCD E.M.P.R. DATE 12-2-52
CRD D.L.J. DATE 12-3-52
810 SHEET 2.34

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

Note:
Boring information, logs and samples of materials encountered may be examined in the Division Office, but the State does not guarantee these borings to present a complete picture of subsurface conditions to be encountered.



All stationing shown is measured along the base line for borings and offsets are measured from the base line for borings. All stationing is based on $\frac{1}{4}$ Front St. being 226+55. From Sta. 230+41.03 to Sta. 248+07.33 the base line for borings coincides with the $\frac{1}{4}$ expressway.

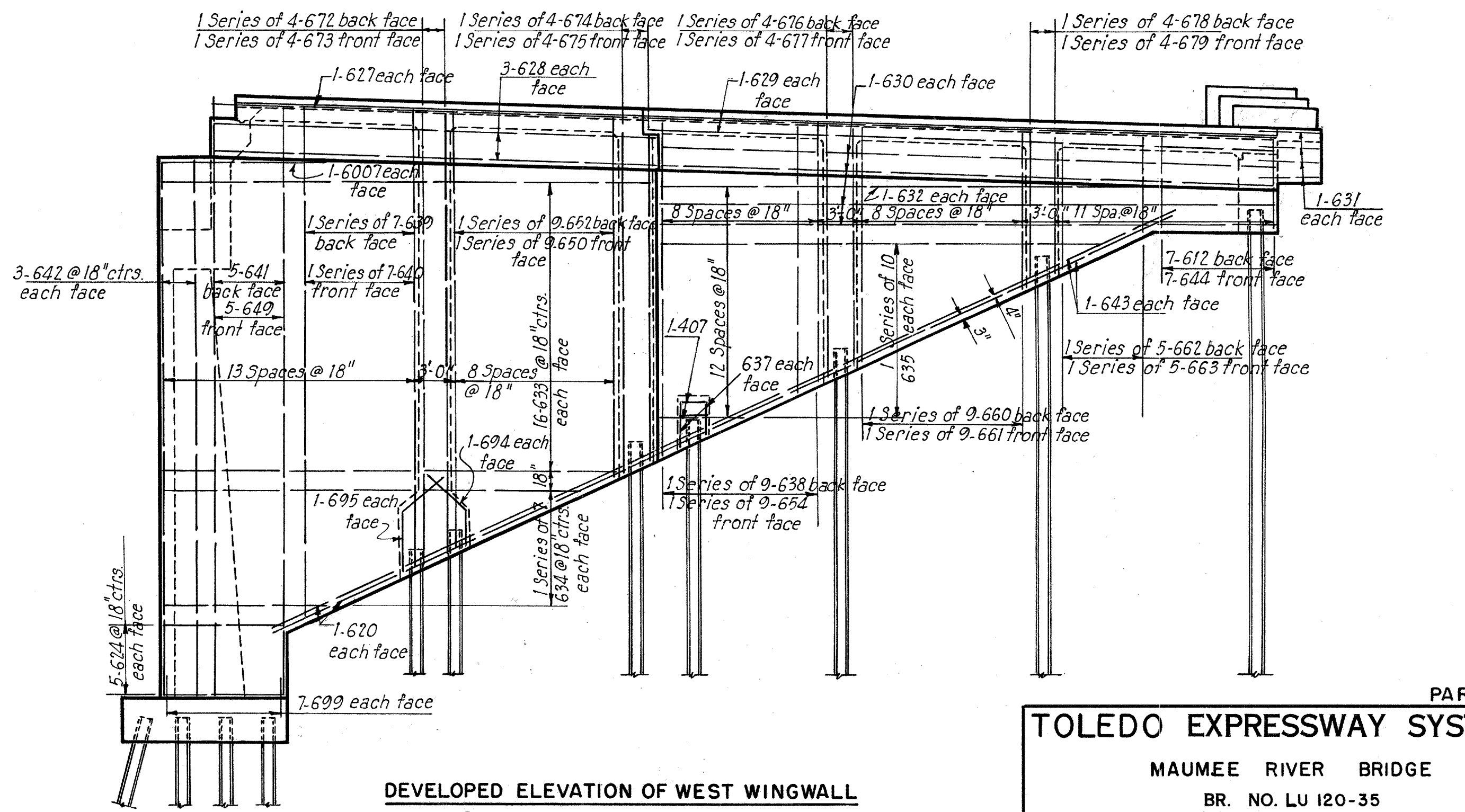
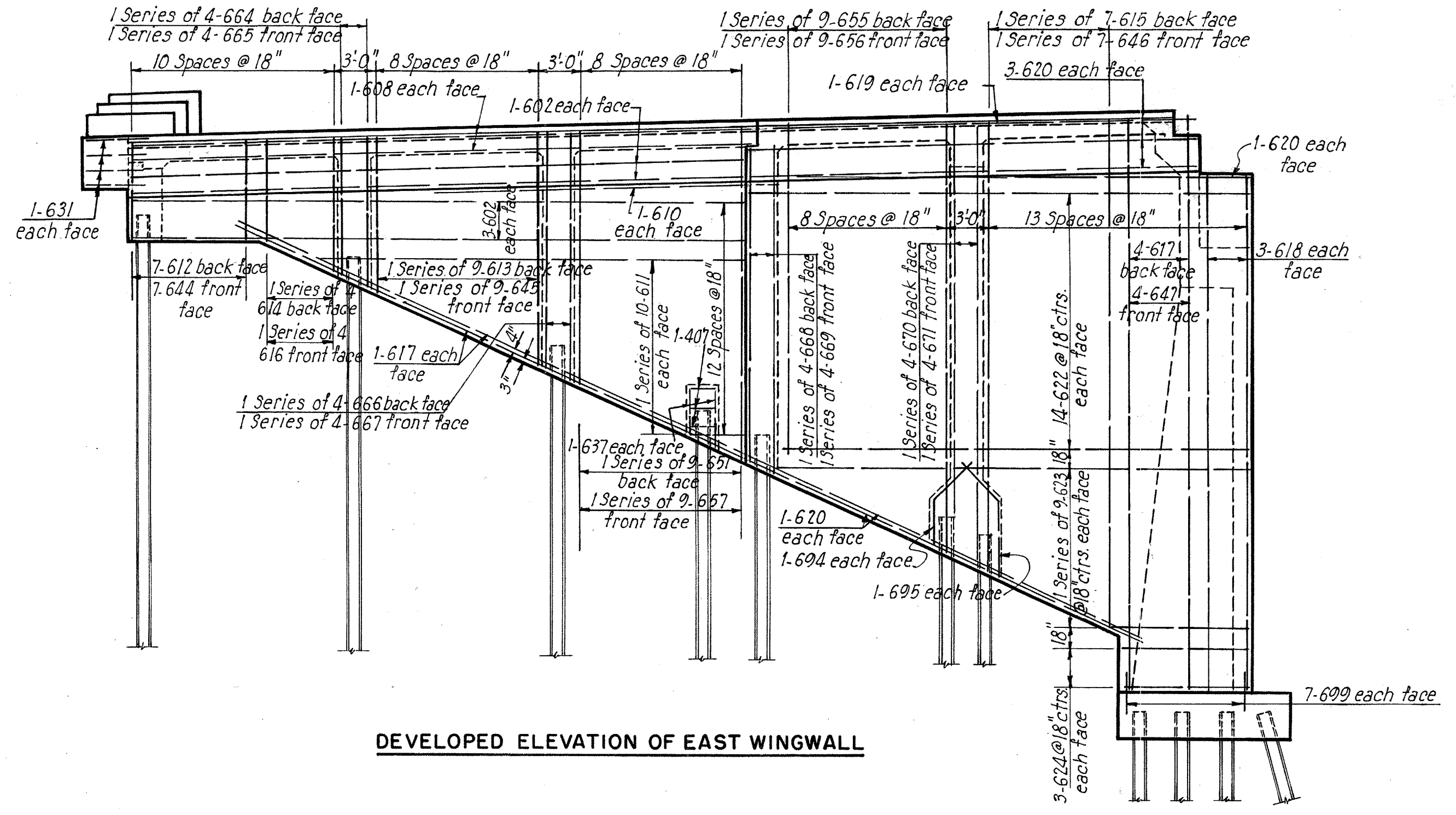
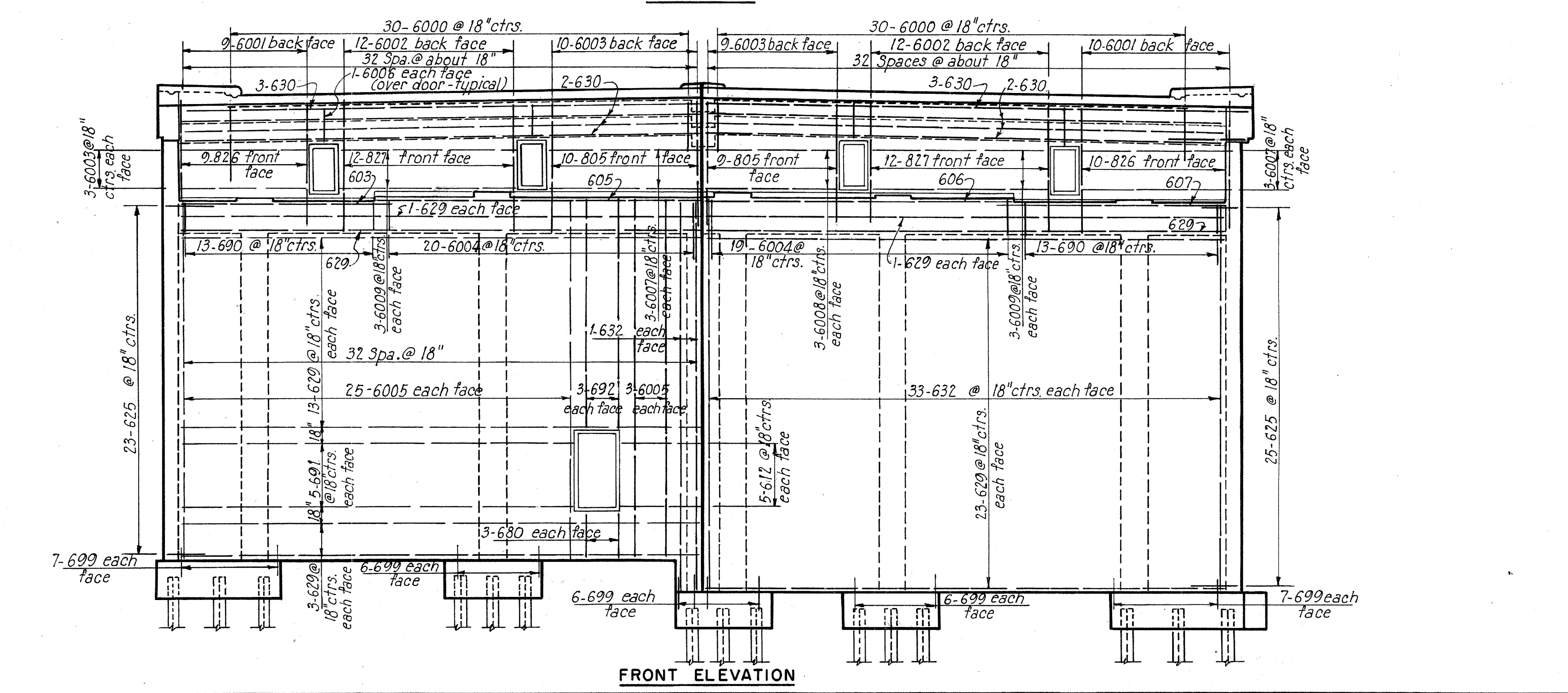
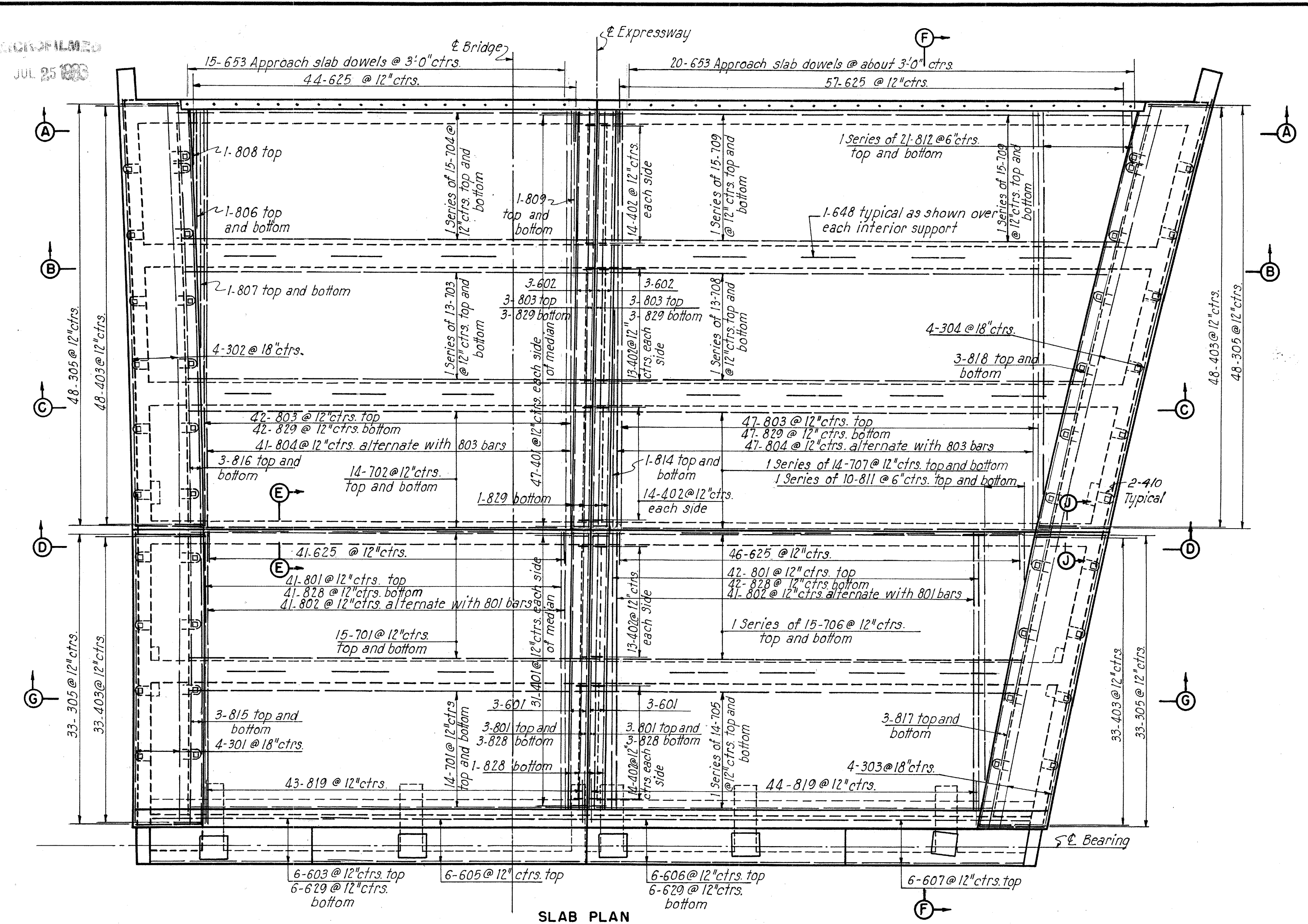
BORING LOCATION PLAN
Scale: 1"=100'

BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile	BORING NO.	Soil Profile																								
BORING NO. 1	El. 598.9 Top soil El. 597.9 Top soil El. 588.9 Med. stiff clay El. 564.9 Med. clay (scat. peb.) El. 544.9 Stiff clay (scat. peb.) El. 523.9 Stiff pebbly clay El. 512.9 Very hard pebbly clay El. 505.9 Stiff pebbly clay El. 499.3 Compact sand, gravel, boulders and broken limestone Top of limestone	BORING NO. 2	El. 601.1 Top soil El. 600.1 Med. clay El. 590.1 Med. clay (scat. peb.) El. 553.1 Stiff pebbly clay El. 531.1 Silt El. 526.1 Compact sand, gravel and boulders El. 521.1 Very hard pebbly clay El. 515.1 Stiff pebbly clay El. 505.6 Compact sand, gravel, boulders and broken limestone Top of limestone	BORING NO. 3	El. 574.5 Med. sand El. 574.0 Water El. 571.5 Med. clay El. 569.5 Med. clay (scat. peb.) El. 557.5 Stiff clay (scat. peb.) El. 549.3 Clay, sand and gravel El. 528.5 Stiff pebbly clay El. 522.5 Compact sand, gravel and little clay El. 506.0 Very hard pebbly clay El. 499.6 Very compact fine sand, gravel, boulders and broken limestone Top of limestone	BORING NO. 4	El. 575.0 Water El. 574.3 Med. sand El. 569.3 River mud & vegetation El. 564.8 Med. clay (scat. peb.) El. 549.3 Med. clay (scat. peb.) El. 525.3 Stiff pebbly clay El. 506.3 Hard pebbly clay El. 497.3 Compact sand, gravel, boulders and broken limestone Top of limestone	BORING NO. 5	El. 575.0 Water El. 573.5 Water El. 565.5 Loose sand & large gravel El. 559.5 River mud & vegetation El. 527.5 Stiff clay, pebbly El. 521.5 Very compact sand, gravel & boulders El. 515.5 Very hard pebbly clay El. 513.1 Sand, gravel, broken limestone & clay El. 497.8 Broken limestone El. 495.5 Broken limestone El. 492.5 Solid limestone	BORING NO. 6	El. 578.1 Sand & fine gravel El. 572.1 Med. sand (Muddy) El. 567.1 Pebbly clay El. 554.1 Stiff clay, scat. pebbles El. 545.1 Stiff pebbly clay El. 529.1 Silty clay El. 526.6 Very compact sand & gravel El. 525.1 Very hard pebbly clay El. 505.1 Stiff pebbly clay El. 499.1 Sand, clay, gravel & stones El. 493.6 Limestone bedrock	BORING NO. 7	El. 575.0 Water El. 573.6 Med. sand El. 568.6 River mud & vegetation El. 564.6 Med. clay El. 556.6 Med. pebbly clay El. 546.8 Stiff pebbly clay El. 527.6 Compact sand & gravel El. 523.6 Hard pebbly clay El. 504.8 Hard pebbly clay El. 501.6 Compact sand & gravel El. 497.6 Sand, gravel, broken limestone & clay mix El. 492.5 Limestone bedrock	BORING NO. 8	El. 573.8 Clay & gravel layered El. 558.8 River mud & vegetation El. 559.2 Mud & vegetation El. 546.8 Med. pebbly clay El. 529.7 Stiff pebbly clay El. 524.3 Stiff pebbly clay El. 522.2 Silt El. 517.7 Stiff pebbly clay El. 504.7 Very hard pebbly clay El. 497.0 Compact fine sand, gravel, stone & very little clay El. 494.2 Broken limestone El. 491.7 Solid limestone	BORING NO. 9	El. 575.6 Med. sand El. 569.6 Med. sand El. 558.6 Fine sand layered with mud El. 545.6 Stiff pebbly clay El. 532.6 Clay & scat. pebbles El. 527.6 Stiff clay (showing some silt) El. 523.6 Loose sand & gravel El. 514.6 Very hard pebbly clay El. 505.1 Hard pebbly clay El. 496.6 Compact sand, clay, gravel & stones El. 493.6 Broken limestone El. 488.6 Solid limestone bedrock	BORING NO. 10	El. 575.6 Med. sand El. 569.6 Med. sand El. 558.6 Fine sand layered with mud El. 545.6 Stiff pebbly clay El. 532.6 Clay & scat. pebbles El. 527.6 Stiff clay (showing some silt) El. 523.6 Loose sand & gravel El. 514.6 Very hard pebbly clay El. 505.1 Hard pebbly clay El. 496.6 Compact sand, clay, gravel & stones El. 493.6 Broken limestone El. 488.6 Solid limestone bedrock	BORING NO. 11	El. 573.7 Mud & soft clay El. 559.7 Sand & gravel El. 557.7 Stiff pebbly clay El. 529.7 Fine sand & gravel loose El. 524.2 Stiff pebbly clay El. 501.7 Compact sand, gravel, very little clay & stones El. 497.7 Broken limestone, bedrock El. 492.5 Solid limestone	BORING NO. 12	El. 580.8 Sand, clay & gravel mixture El. 569.8 Med. sand El. 564.8 River mud layered with sand El. 556.8 Med. sand & vegetation El. 551.8 River mud & sand El. 545.8 Stiff pebbly clay El. 542.8 Coarse sand & gravel El. 523.8 Stiff clay El. 519.8 Sand & gravel El. 508.8 Hard pebbly clay El. 501.0 Mix compact sand, clay, stone El. 496.0 Limestone bedrock El. 491.7 Limestone bedrock	BORING NO. 13	El. 576.7 Mix sand, clay, gravel El. 566.7 River mud with layer of sand El. 559.7 Mud, sand (very loose) El. 551.7 Loose muddy sand (very active) El. 543.7 Stiff pebbly clay El. 532.7 Stiff clay El. 525.7 Very fine clay-like sand El. 521.2 Sand & gravel El. 517.7 Very fine silty sand El. 516.5 Very hard stoney clay El. 510.7 Very hard pebbly clay El. 505.0 Compact sand, gravel, boulders & broken limestone El. 499.0 Solid limestone El. 496.7 Very compact clay, sand & stones El. 491.7 Limestone bedrock	BORING NO. 14	El. 574.0 Water El. 570.5 Coarse sand El. 567.5 Fine sand & river mud El. 560.5 Med. sand - loose El. 542.5 Stiff clay - scat. pebbles El. 520.5 Very fine silty sand El. 516.5 Very hard stoney clay El. 505.0 Hard pebbly clay El. 499.0 Compact sand, gravel, boulders & broken limestone Solid limestone	BORING NO. 15	El. 574.0 Water El. 569.5 Muddy sand & old timber El. 565.0 Med. loose sand El. 541.5 Stiff clay (scat. pebbles) El. 525.5 Very fine silty sand El. 516.0 Very hard pebbly clay El. 505.5 Hard pebbly clay El. 497.5 Very compact sand, gravel & broken limestone El. 491.5 Solid limestone	BORING NO. 16	El. 574.0 Water El. 566.5 River mud & sand El. 563.0 Med. loose sand El. 540.0 Stiff clay (scat. pebbles) El. 518.5 Stiff clay (scat. pebbles) El. 517.0 Sandy silt El. 512.5 Very hard pebbly clay El. 506.0 Hard pebbly clay El. 501.5 Compact sand, gravel, boulders & broken limestone Top of bedrock - limestone	BORING NO. 17	El. 574.0 Water El. 566.5 River mud & sand El. 557.0 Med. sand - loose El. 540.5 Stiff clay (scat. pebbles) El. 514.5 Stiff clay (scat. pebbles) El. 512.5 Silty sand El. 502.5 Hard pebbly clay El. 506.0 Compact sand, gravel, boulders & broken limestone El. 499.0 boulders & broken limestone Top of bedrock - limestone	BORING NO. 18	El. 573.5 Water El. 555.5 River mud El. 549.5 Med. loose sand El. 545.5 Sand & gravel El. 541.5 Stiff clay (scat. pebbles) El. 529.0 Stiff clay (scat. pebbles) El. 515.0 Med. clay El. 514.0 Med. coarse gravel El. 504.0 Hard pebbly clay El. 498.6 Very compact sand, gravel, boulders & broken limestone El. 494.0 boulders & broken limestone Solid limestone	BORING NO. 19	El. 573.5 Water El. 555.0 River mud & vegetation El. 544.3 River mud & vegetation El. 542.3 Med. loose sand El. 541.5 Sand & gravel El. 529.0 Stiff clay (scat. pebbles) El. 515.0 Med. clay El. 514.0 Med. coarse gravel El. 501.8 Hard pebbly clay El. 498.6 Very compact sand, gravel, boulders & broken limestone El. 493.0 boulders & broken limestone Solid limestone	BORING NO. 20	El. 573.8 Water El. 544.3 River mud El. 541.3 Stiff clay (scat. pebbles) El. 517.8 Med. hard pebbly clay El. 502.8 Very compact sand, gravel, stones, boulders & broken limestone El. 498.8 Very compact sand, gravel, boulders & broken limestone El. 490.8 Solid limestone	BORING NO. 21	El. 574.3 Water El. 545.3 River mud El. 544.3 Stiff clay - scat. pebbles El. 517.8 Med. hard pebbly clay El. 502.8 Very compact sand, gravel, stones, boulders & broken limestone El. 498.8 Very compact sand, gravel, boulders & broken limestone Solid limestone	BORING NO. 22	El. 573.8 Water El. 544.3 River mud El. 541.3 Stiff clay (scat. pebbles) El. 512.8 Med. hard pebbly clay El. 502.8 Very compact sand, gravel, boulders & broken limestone El. 498.8 Very compact sand, gravel, boulders & broken limestone El. 490.8 Solid limestone	BORING NO. 23	El. 573.8 Water El. 543.8 River mud El. 540.8 Med. clay (scat. peb.) El. 535.8 Water bearing sand El. 534.3 Med. clay (scat. peb.) El. 521.8 Stiff pebbly clay El. 513.3 Med. hard pebbly clay El. 504.6 Very compact sand, gravel, boulders & broken limestone El. 500.3 Very compact sand, gravel, boulders & broken limestone El. 498.3 Limestone	BORING NO. 24	El. 573.5 Water El. 545.0 River mud El. 542.5 Stiff clay (scat. peb.) El. 513.5 Med. hard stoney clay El. 502.0 Very compact sand, gravel, boulders & broken limestone (little clay) El. 497.7 Very compact sand, gravel, boulders & broken limestone El. 489.5 Limestone	BORING NO. 25	El. 573.4 Water El. 545.4 River mud & vegetation El. 540.9 Stiff clay (scat. peb.) El. 512.4 Med. hard pebbly clay El. 502.4 Very compact sand, gravel, boulders & broken limestone El. 497.9 Very compact sand, gravel, boulders & broken limestone El. 489.9 Bedrock - solid limestone	BORING NO. 26	El. 574.4 Water El. 546.4 River mud El. 542.4 Stiff clay (scat. peb.) El. 514.9 Hard pebbly clay El. 509.4 Med. hard stoney clay El. 503.4 Very compact sand, gravel, boulders & broken limestone El. 497.9 Very compact sand, gravel, boulders & broken limestone El. 489.9 Bedrock - solid limestone	BORING NO. 27	El. 574.2 Water El. 547.7 River mud, sand & vegetation El. 541.2 Stiff clay (scat. peb.) El. 515.7 Hard pebbly clay El. 508.7 Med. hard stoney clay El. 502.7 Very compact sand, gravel, boulders & broken limestone El. 499.7 Very compact sand, gravel, boulders & broken limestone Solid limestone	BORING NO. 28	El. 573.3 Misc. fill El. 567.3 River sand El. 567.3 River mud El. 553.3 Soft clay El. 544.3 Sand & gravel El. 520.3 Stiff clay & pebbles El. 515.7 Stiff stony clay El. 505.3 Clay, sand & gravel El. 495.3 Glacier drift & gravel El. 487.8 Limestone	BORING NO. 29	El. 573.5 Cinder fill El. 569.0 Fine sand El. 556.5 Soft clay & vegetation El. 551.5 Silty clay (soft) El. 547.5 Sand & gravel El. 521.5 Stiff clay (scat. peb.) El. 500.5 Very stiff pebbly clay El. 500.5 Very compact clay, sand & gravel El. 493.5 Glacier drift broken limestone, gravel El. 489.5 Limestone El. 484.0 Bedrock - limestone

PART 2
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
BR. NO. LU 120-35
BORINGS NO. 1 TO NO. 29
TOLEDO, LUCAS COUNTY, OHIO
SCALE: As Noted
MADE: L.E.T. DATE 5-7-51
TRCD: A.L.B. DATE 8-22-51
CHK: E.B.J. DATE 9-27-51
HOWARD, NEEDLES, TAMMEN & BERGENCOFF
CONSULTING ENGINEERS
KANSAS CITY, NEW YORK
810 SHEET 2-35

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	8
2	OHIO	A 01-1052(3)	POST WAR	3E

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



PART 2
TOLEDO EXPRESSWAY SYSTEM

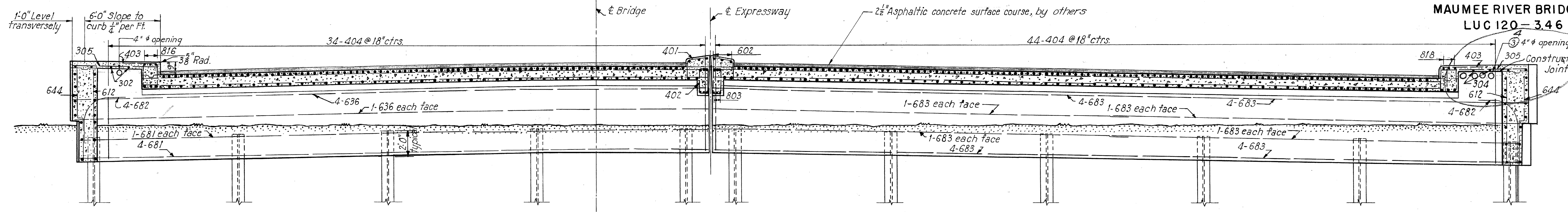
MAUMEE RIVER BRIDGE
BR. NO. LU 120-35

SOUTH ABUTMENT

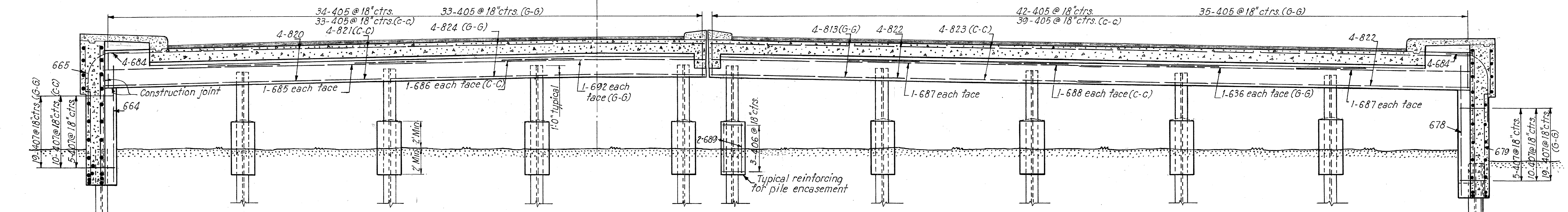
TOLEDO LUCAS COUNTY, OHIO
SCALE: 1/8" = 1'-0"
MADE C.R. DATE: 1-9-52
TRCD 043, RE DATE: 8-18-52
CRD J.P.S., DATE: 8-20-52
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
810 SHEET - 2.38

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	A 01-1052(3)	POST WAR

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120-346

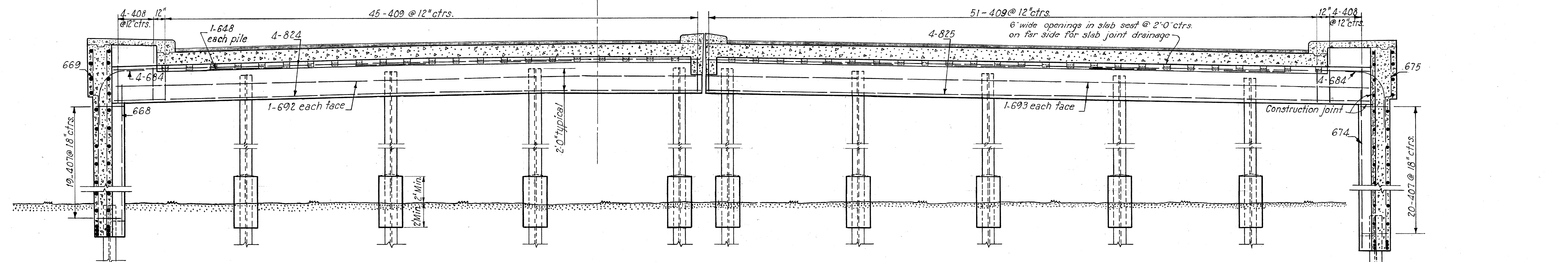


SECTION A-A



SECTIONS B-B, C-C AND G-G

Section B-B shown
Section C-C and G-G similar.



SECTION D-D

Note:
Reinforcing steel in slab and sidewalk of Section B-B, C-C, D-D and G-G similar to that in Section A-A. For location of sections, see Sheet 8.

Rev. 2-8-54

PART
TOLEDO EXPRESSWAY SYSTEM

MAUMEE RIVER BRIDGE

BR. NO. LU 120-35

SOUTH ABUTMENT

TOLEDO LUCAS COUNTY, OH

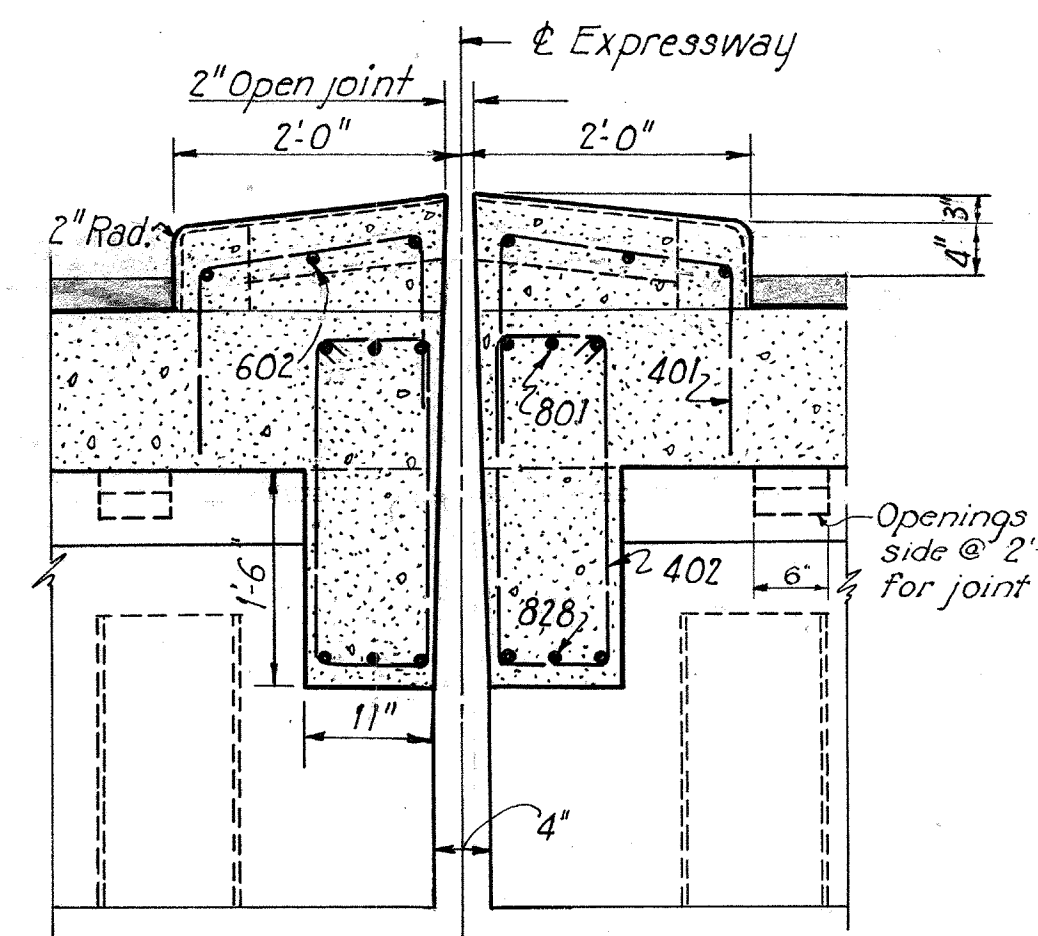
SCALE 1/2" = 1'-0"
MADE C.R. DATE 1-8-52
TRCD L.H.R. DATE 7-9-52
CKD J.D.P. DATE 7-10-52

HOWARD, NEEDLES, TAMMEN & BERGEN
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
810 SHEET 2.39

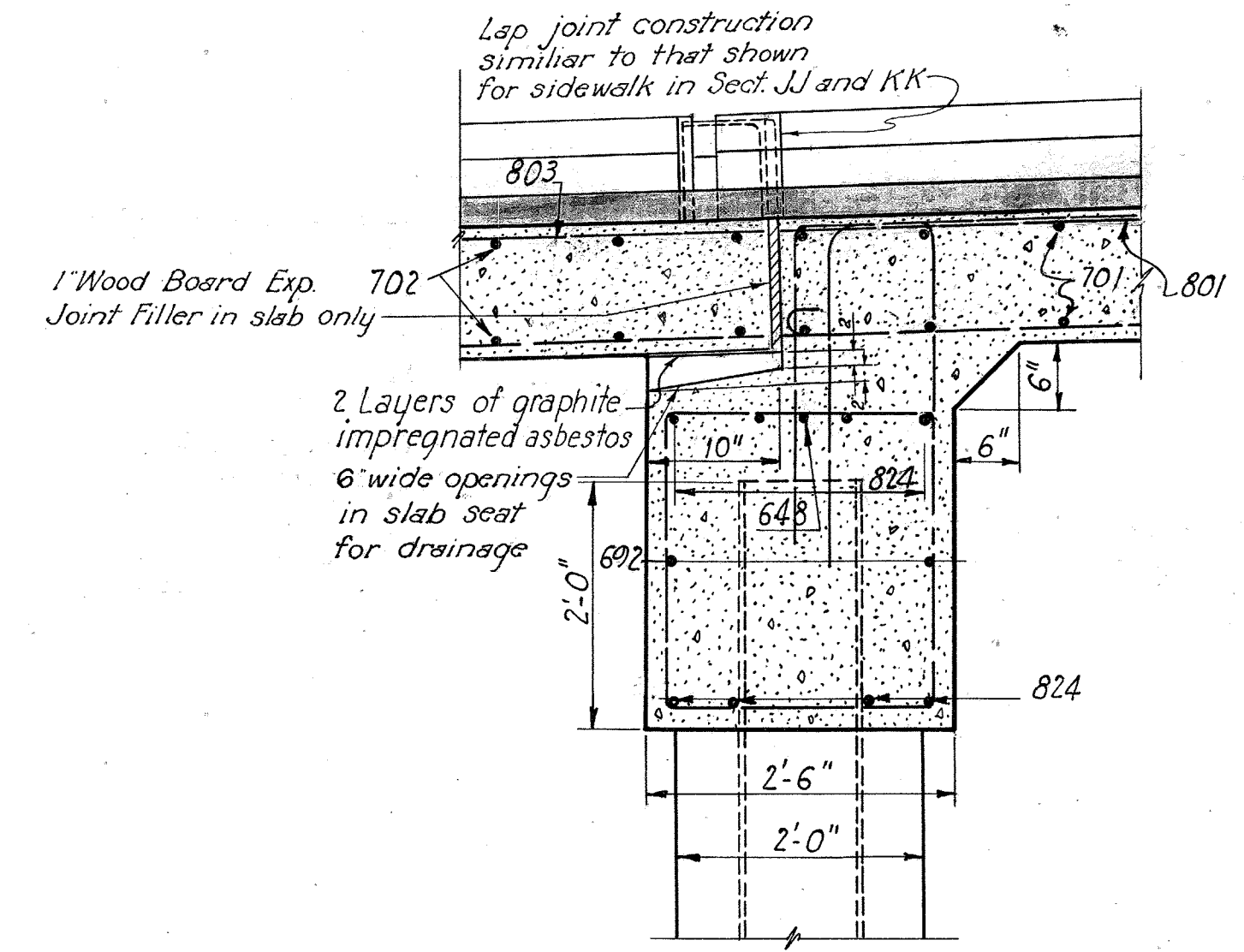
608

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	11-1052(3)	POST WAR

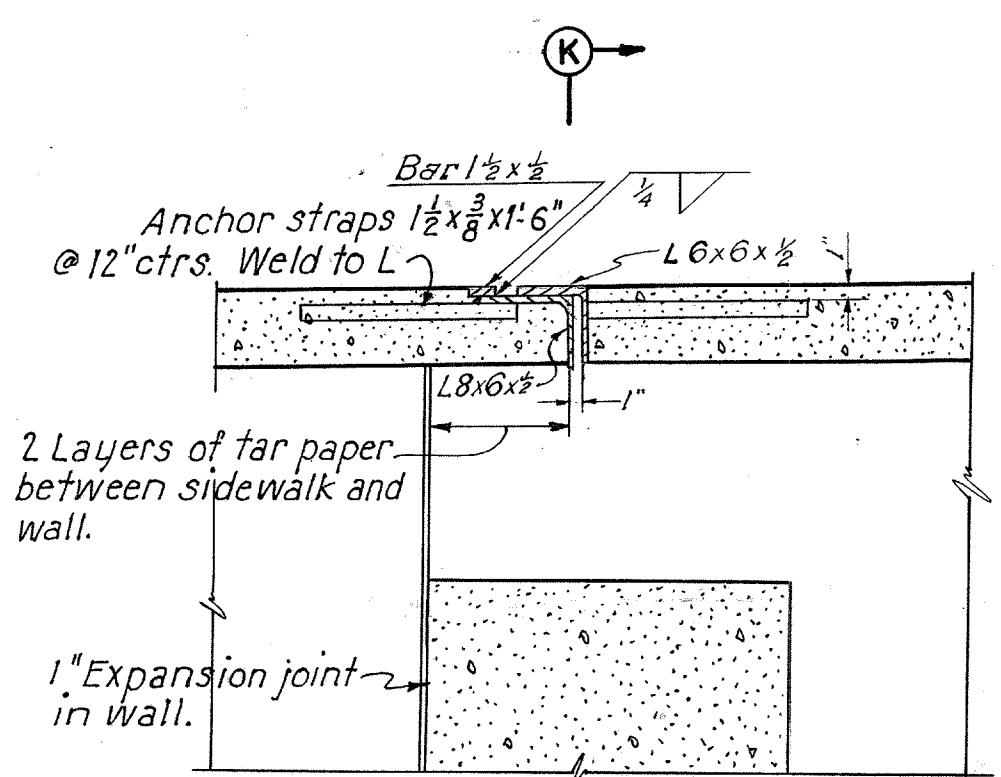
LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



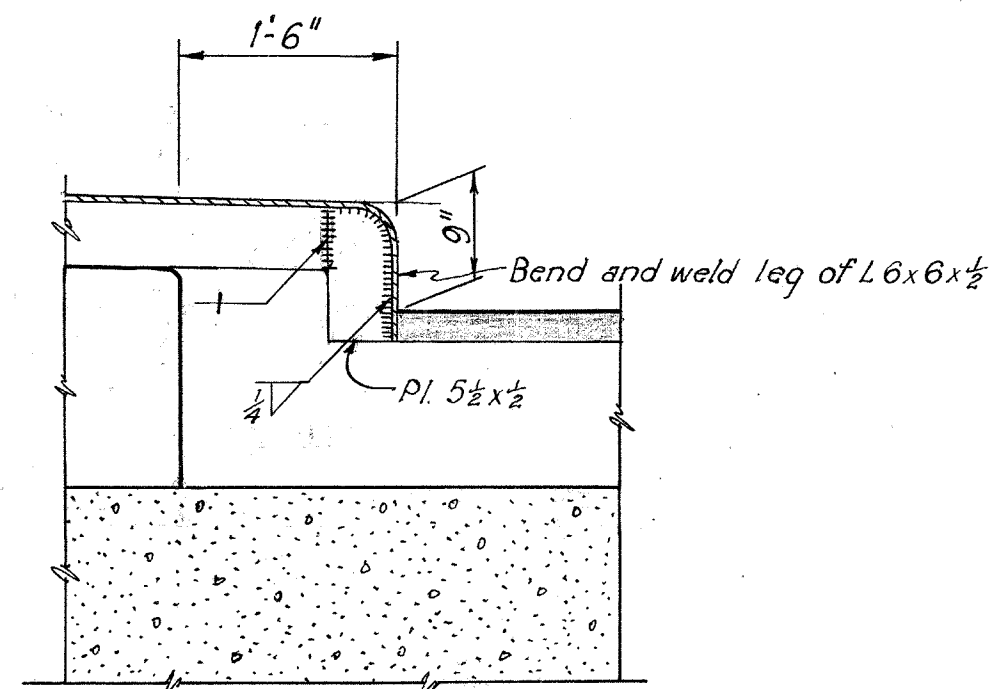
MEDIAN DETAIL
At Section D-D
See Sheet 9



SECTION E-E
Scale: 3/4" = 1'-0"

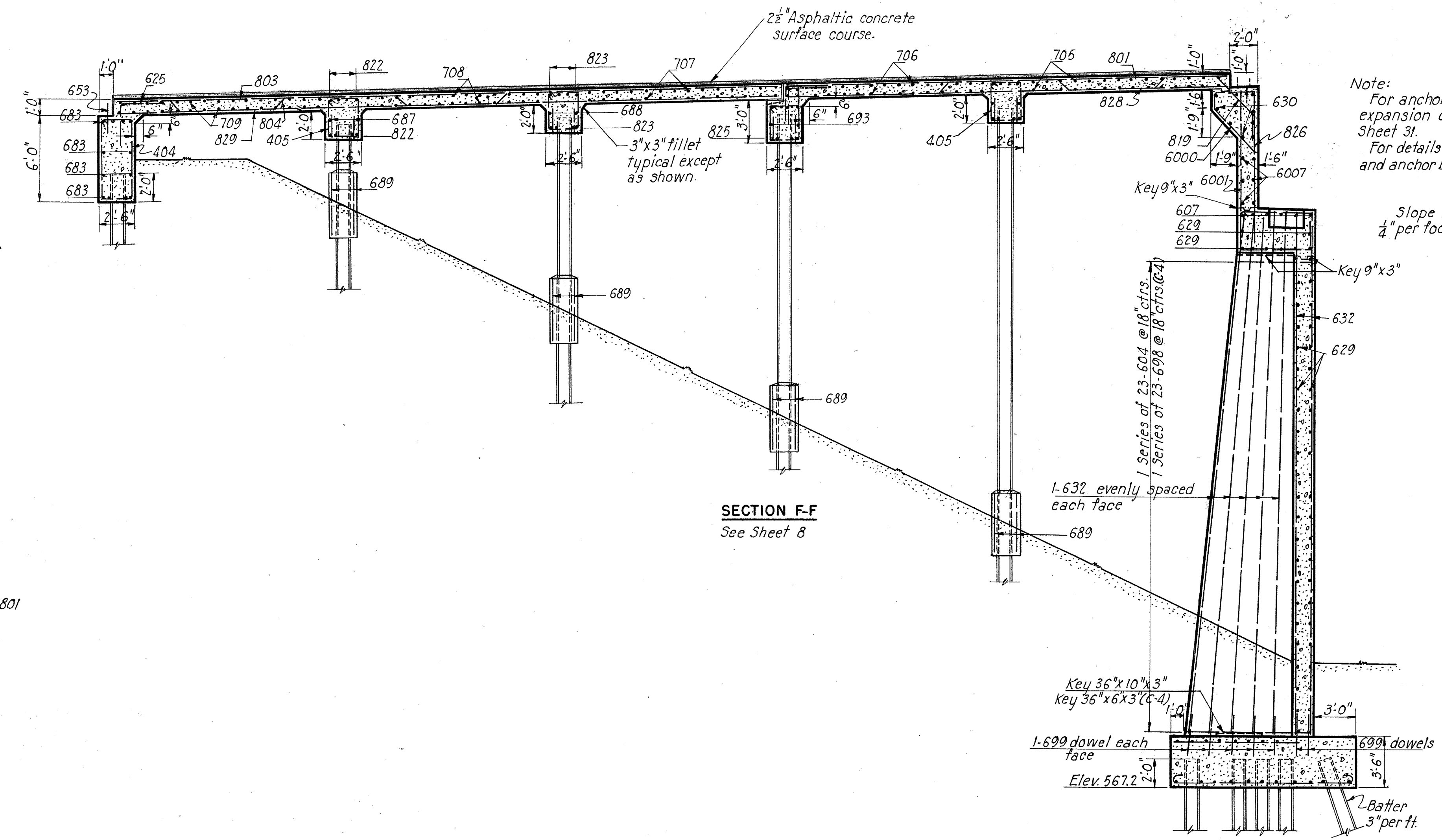


SECTION J-J



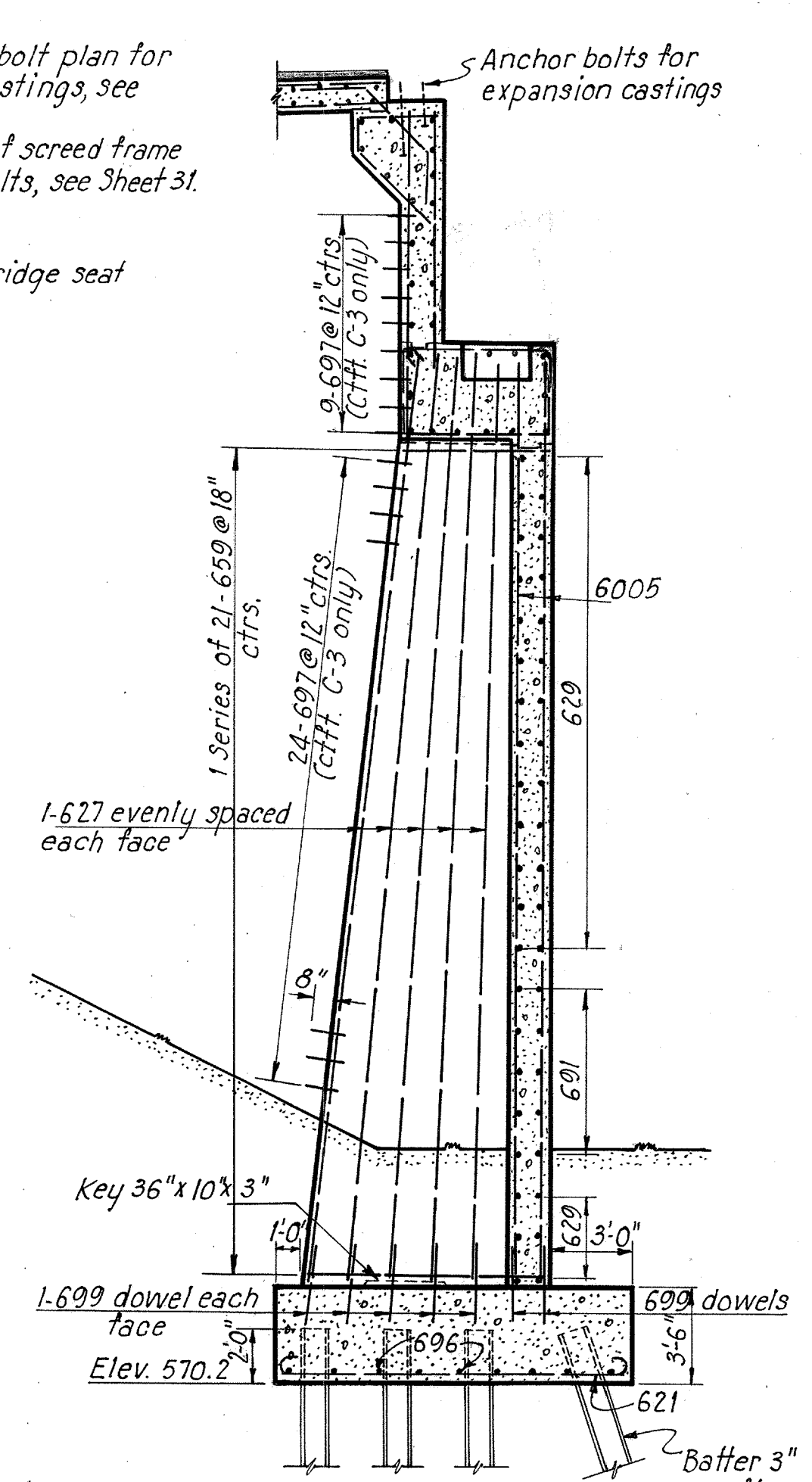
SECTION K-K

EXPANSION JOINT DETAILS
Scale: 3/4" = 1'-0"

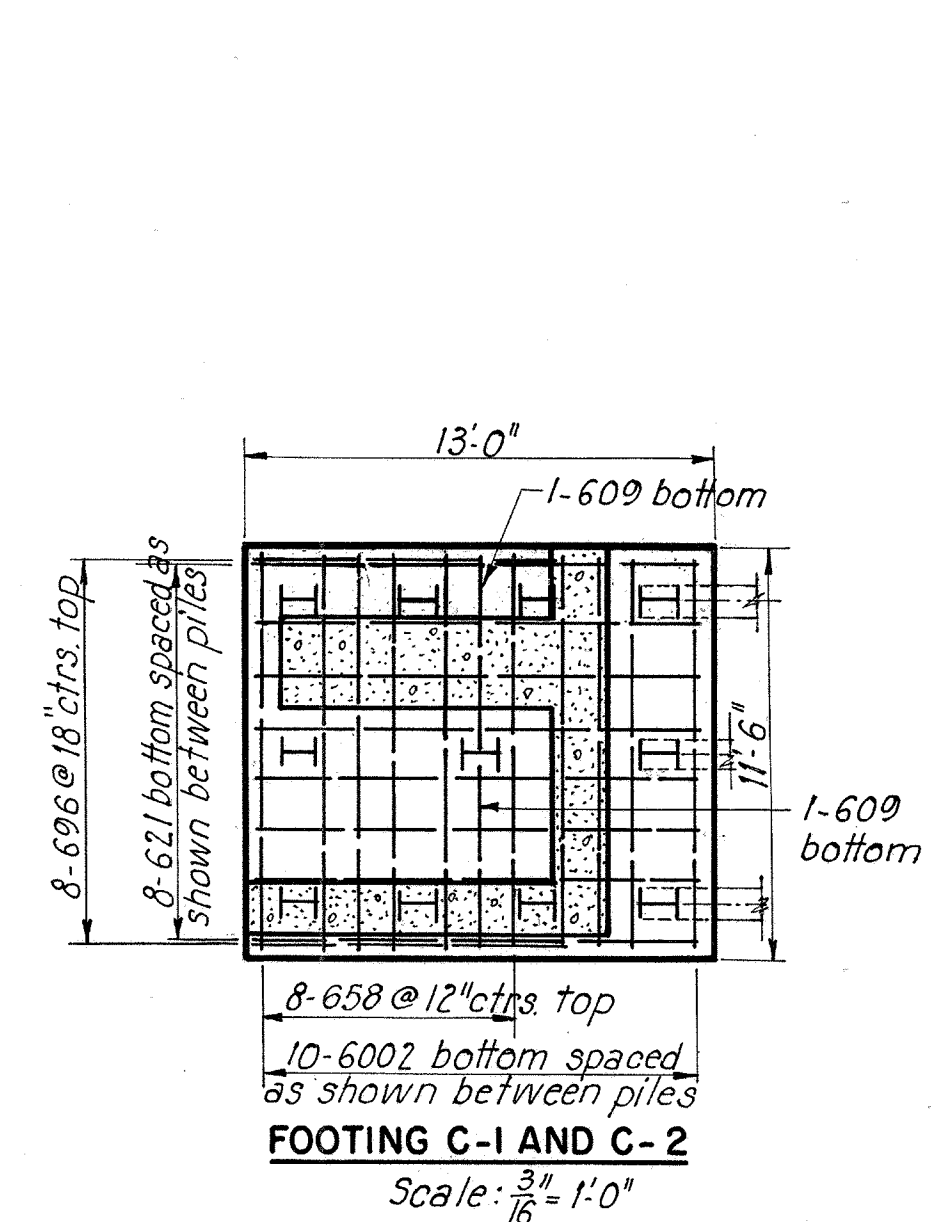


SECTION F-F
See Sheet 8

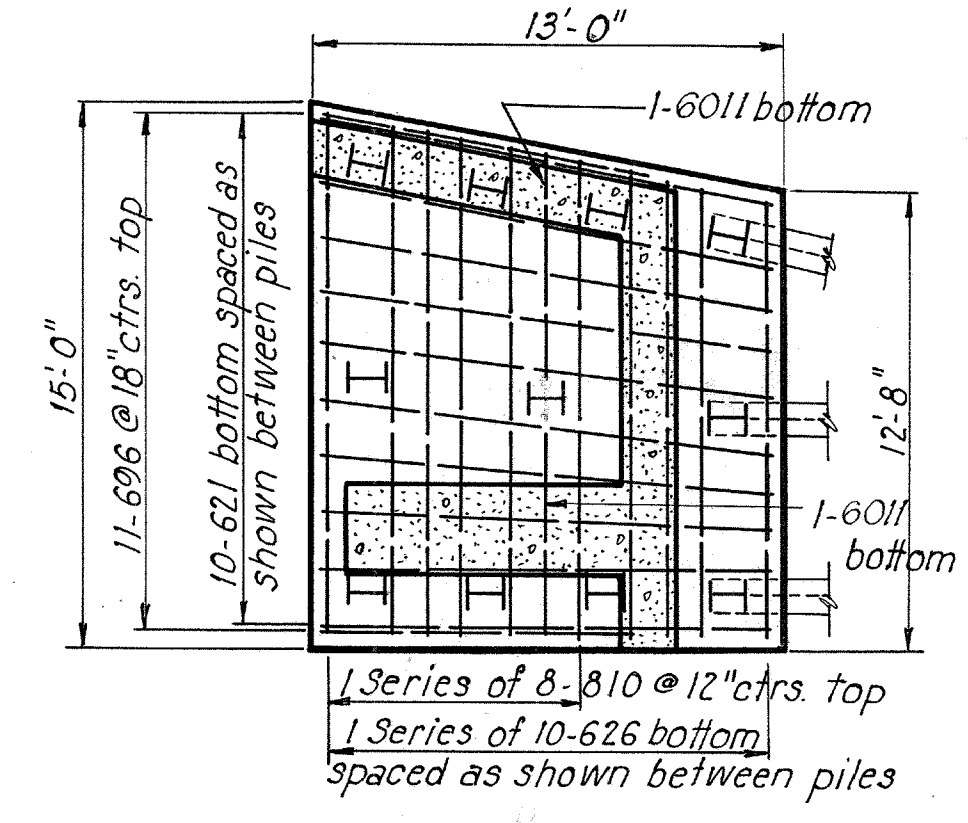
COUNTERFORTS C-4 & C-5, C6 AND C7
Counterfort C-7 shown - Counterforts C-4, C-5 and C-6 similar.



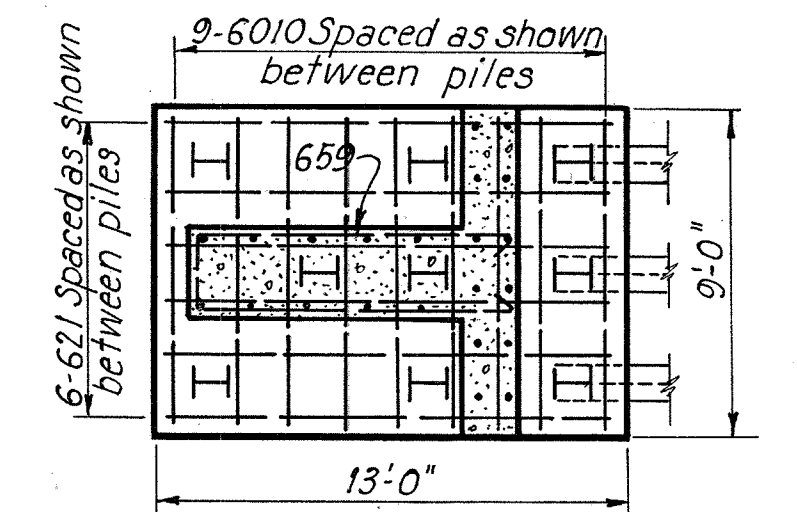
COUNTERFORTS C-2 AND C-3
Counterfort C-3 shown - Counterfort C-2 similar
Scale: 3/16" = 1'-0"



FOOTING C-1 AND C-2
Scale: 3/16" = 1'-0"



FOOTING C-7 AND C-8
Scale: 3/16" = 1'-0"



FOOTINGS C-3, C-4 & C-5, AND C-6
Footing C-3 shown. Footings C-4 & C-5, and C-6 similar.
Scale: 3/16" = 1'-0"

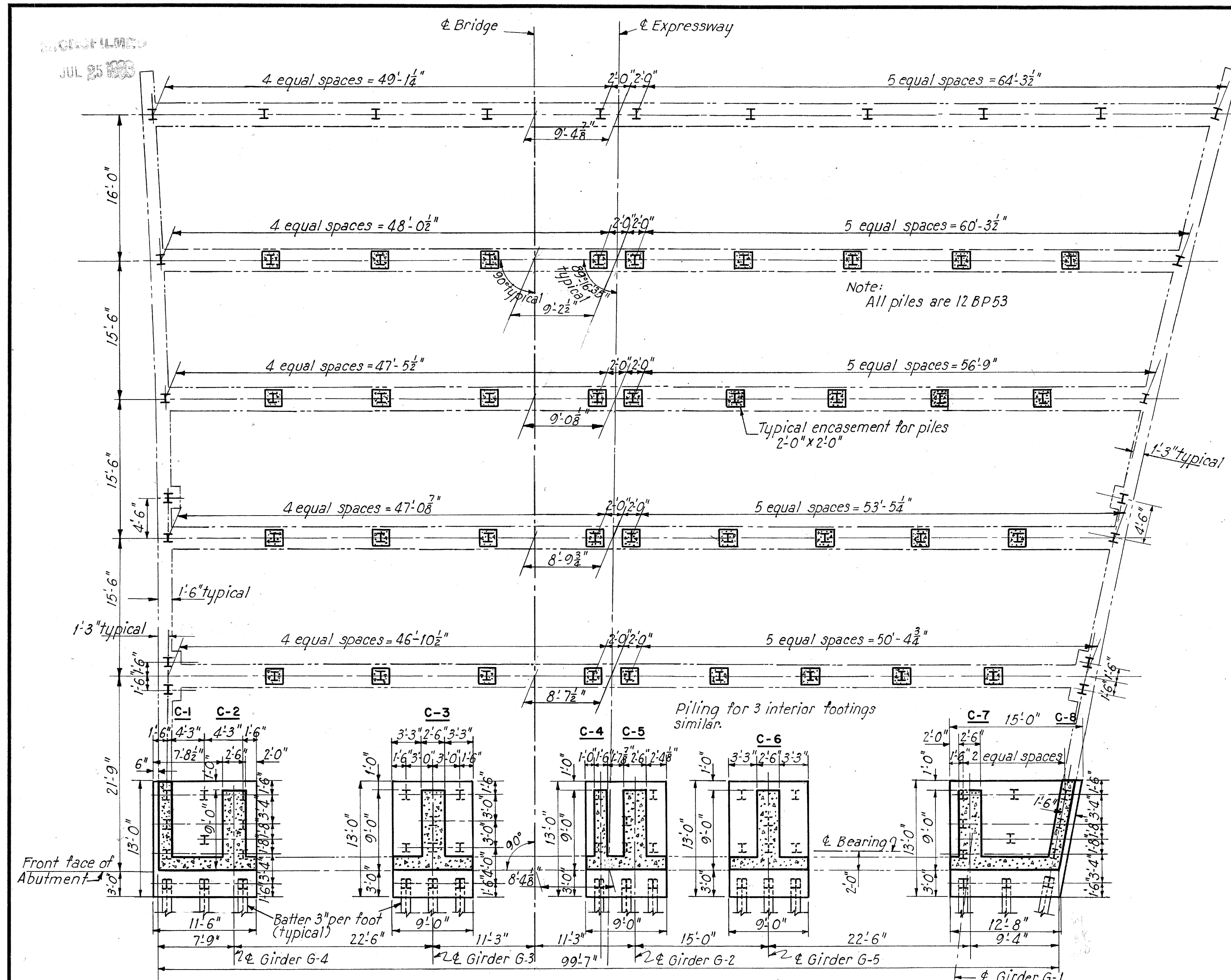
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
BR. NO. LU 120 - 35
SOUTH ABUTMENT

TOLEDO LUCAS COUNTY, OHIO

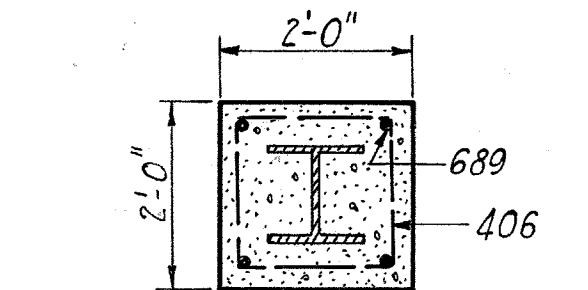
SCALE: 3/16" = 1'-0"
MADE G. R. DATE 1-15-52
TRCD. R. P. DATE 7-15-52
CKD. J. D. F. DATE 7-21-52

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810 SHEET 2.40

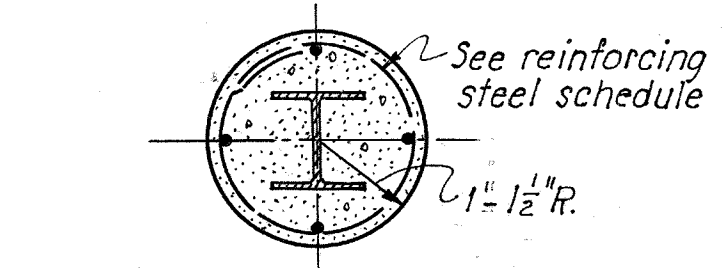
609



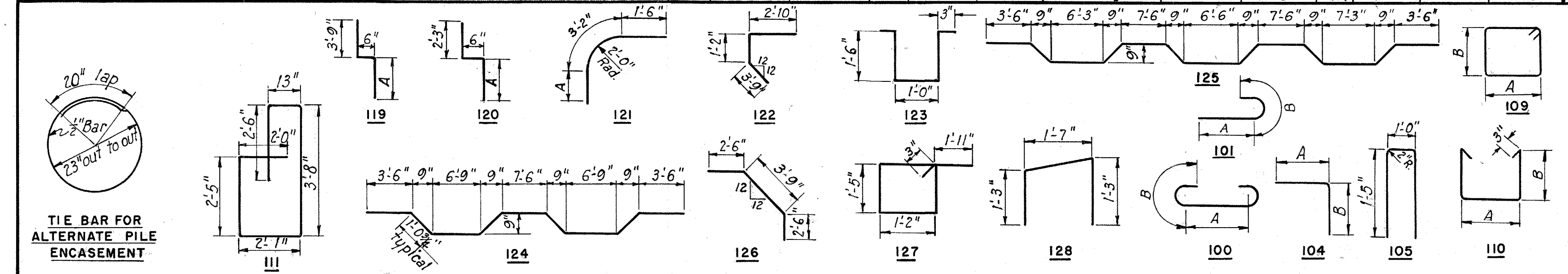
FOOTING PLAN
Scale: 1/8" = 1'-0"



TYPICAL PILE ENCASEMENT
Scale: 1/2" = 1'-0"



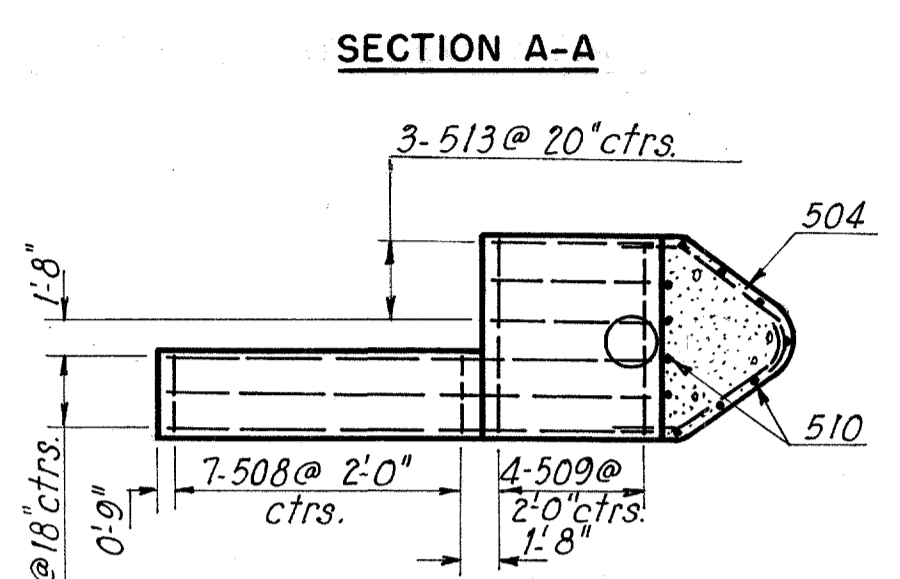
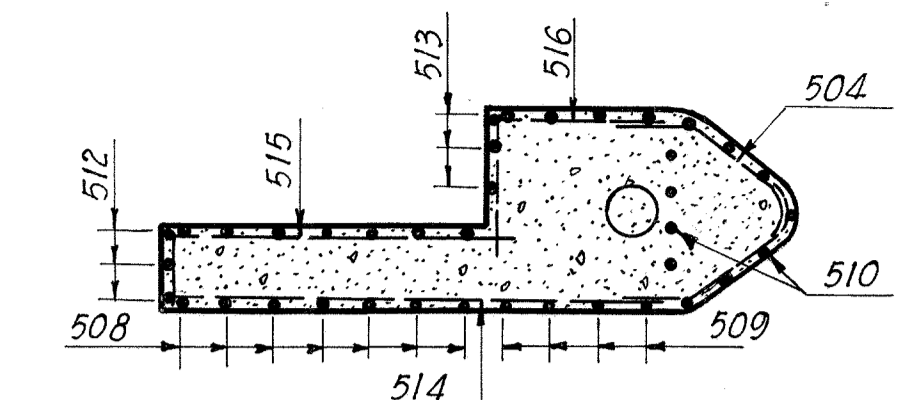
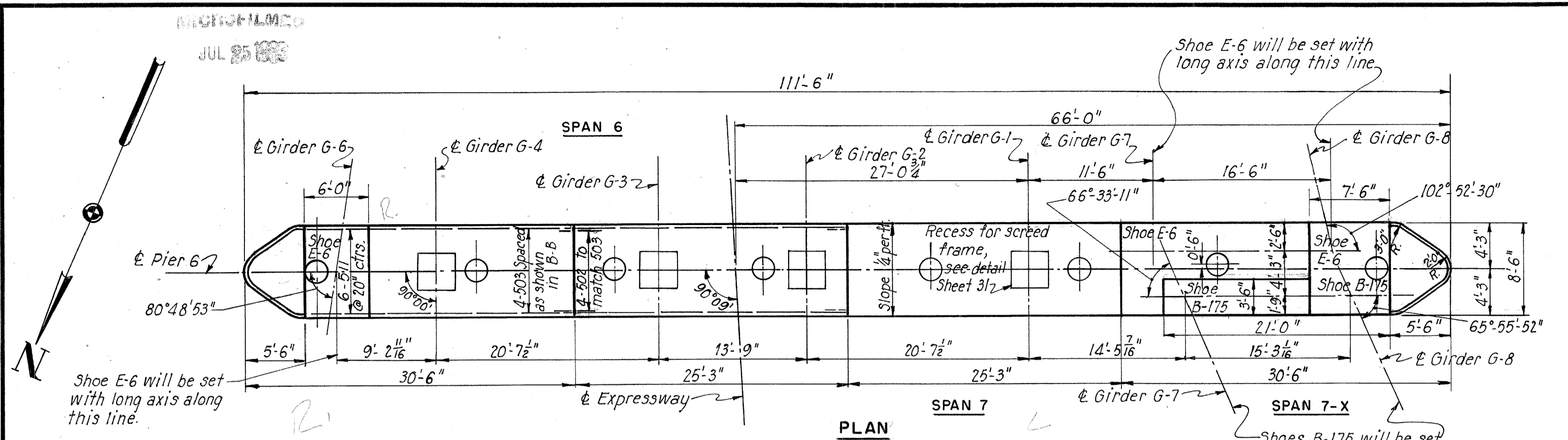
ALTERNATE PILE ENCASEMENT
Scale: 1/2" = 1'-0"



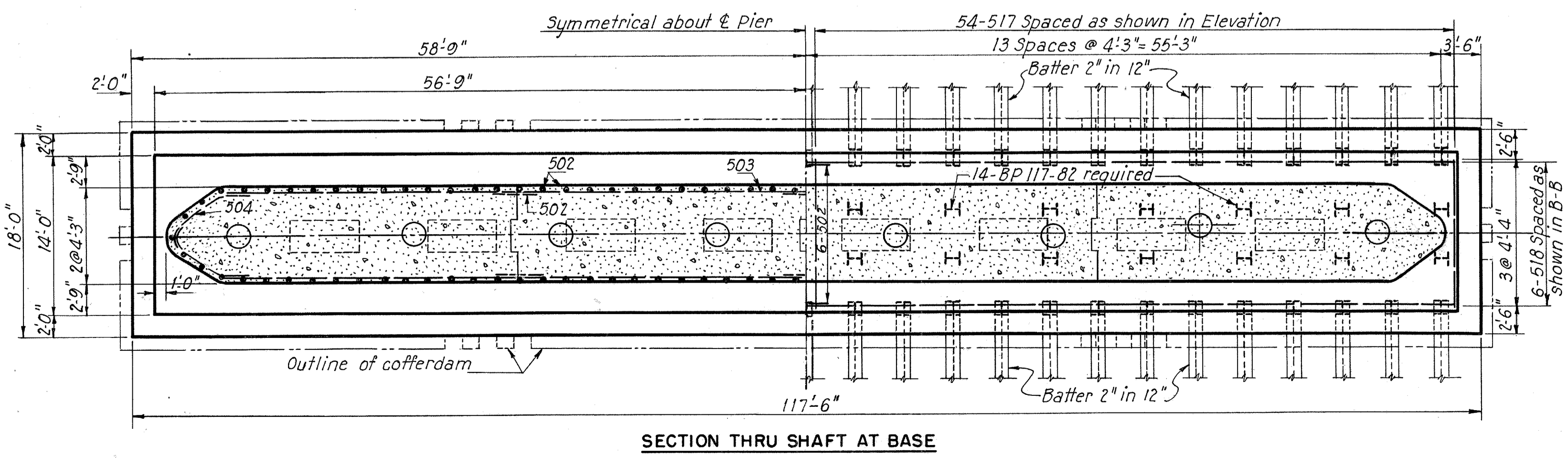
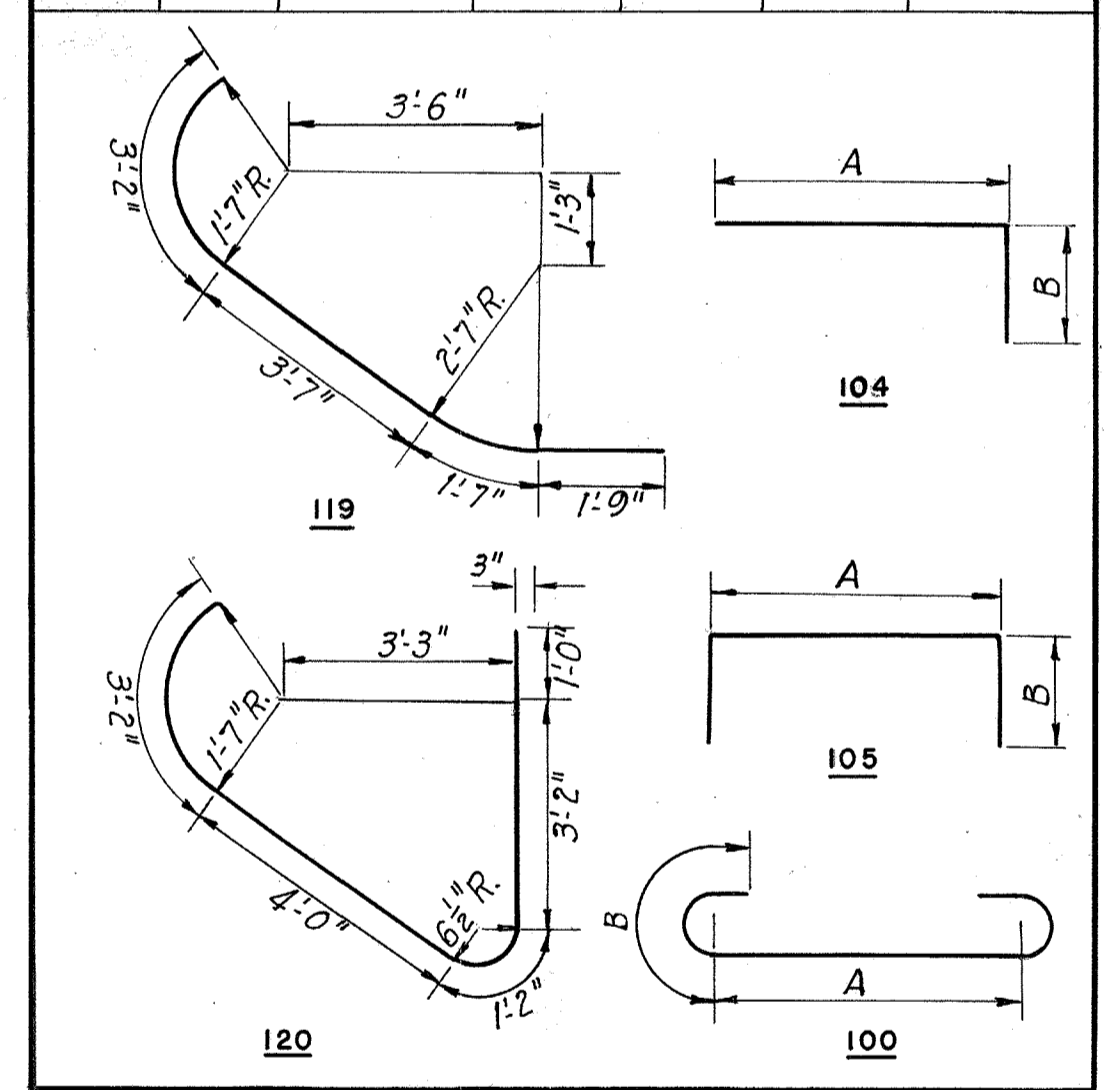
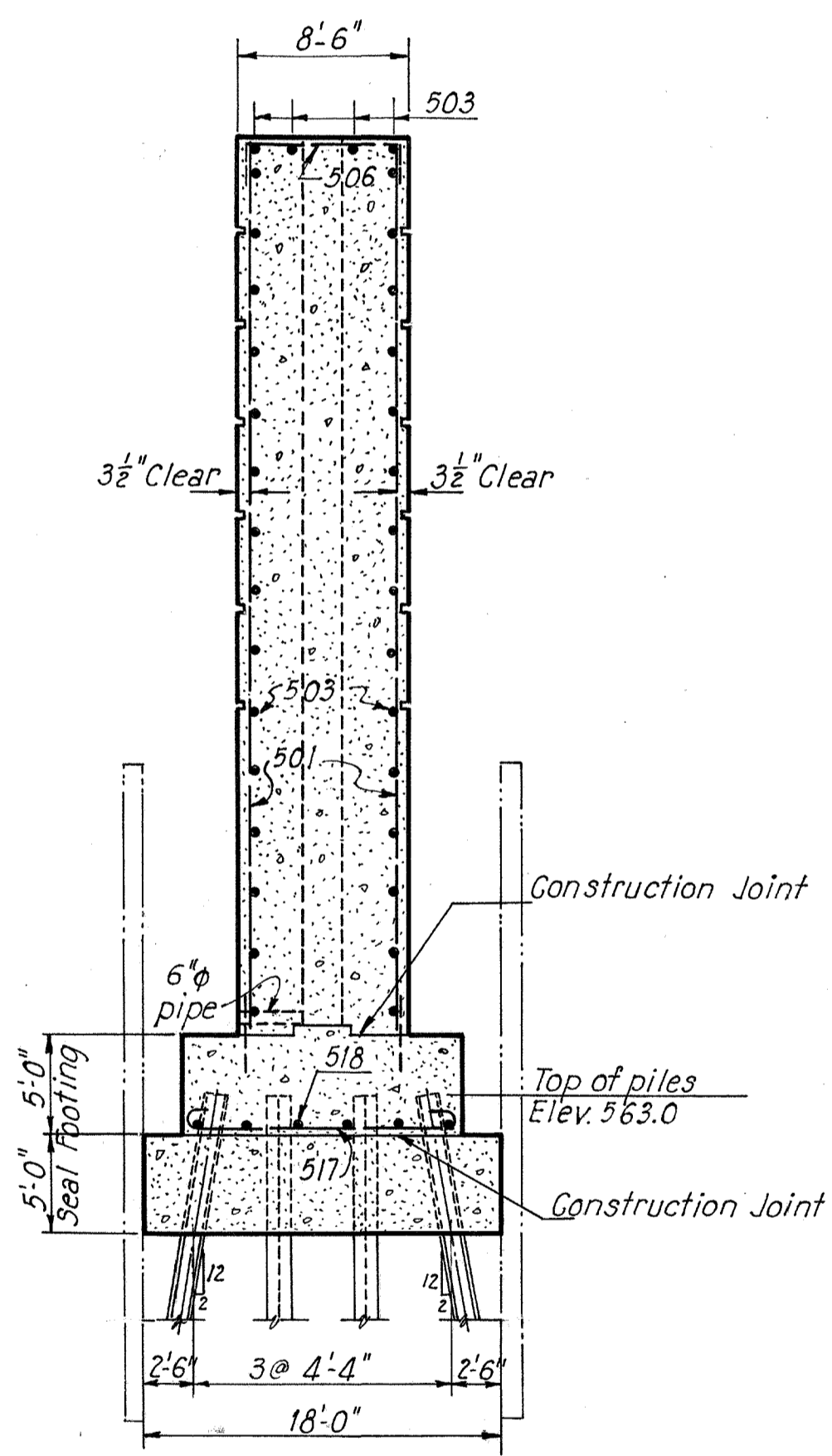
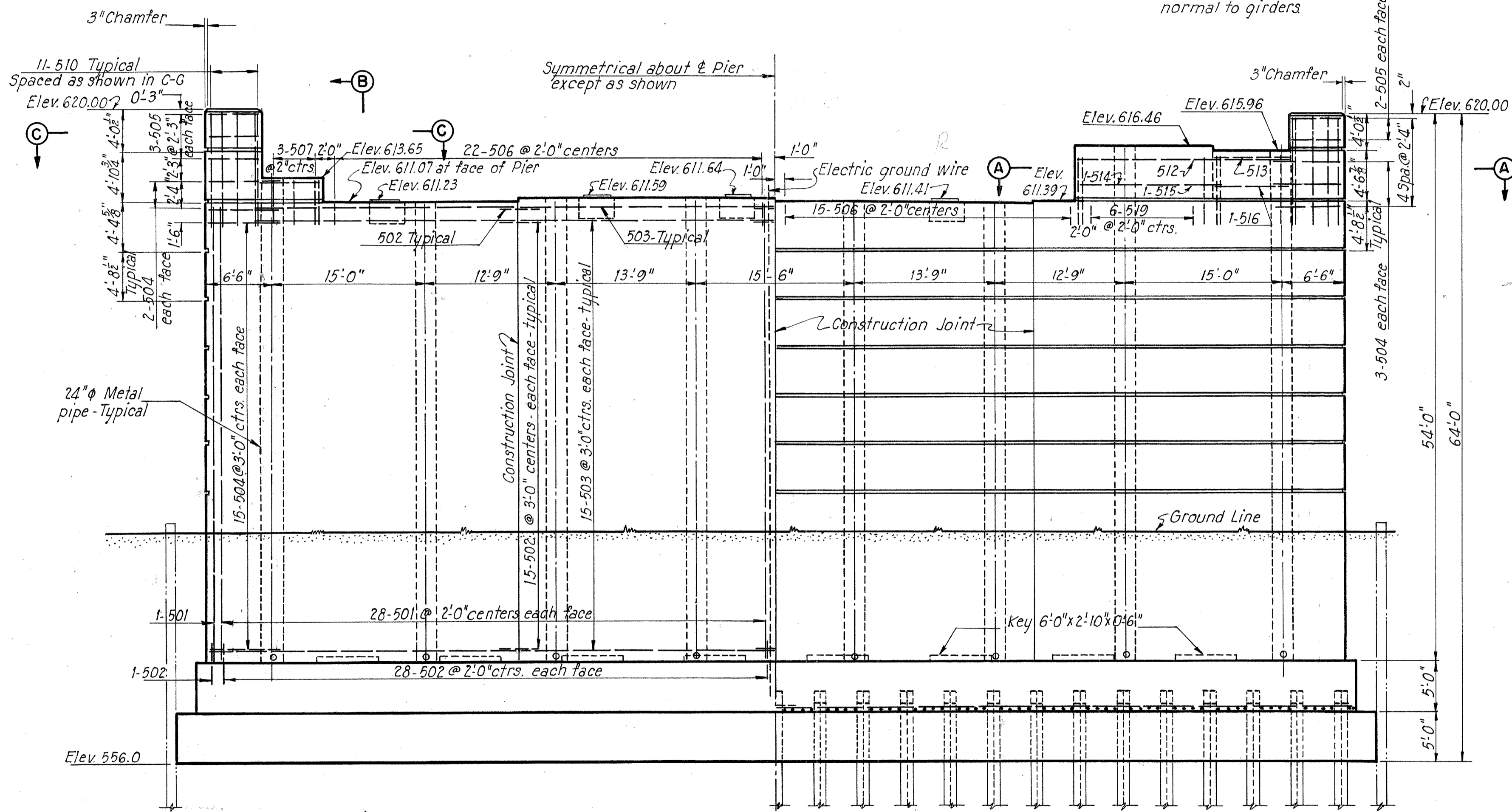
REINFORCING STEEL SCHEDULE																				
Mark	Number	Length	Type	Dimensions		Weight	Mark	Number	Length	Type	Dimensions		Weight	Mark	Number	Length	Type	Dimensions		Weight
				A	B						A	B						A	B	
301	4	33'-0"	Str.			50	645	1 Ser. of 9	12'-6" to 19'-0"	119	8'-3" to 14'-6"	210	6004	39	13'-6"	109	3'-8"	3'-0"	190	
302	4	47'-6"	Str.			70	646	1 Ser. of 7	34'-3" to 39'-0"	119	30'-0" to 34'-9"	380	6005	56	33'-0"	Str.			270	
303	4	33'-6"	Str.			50	647	4	43'-9"	119	39'-6"	260	6006	8	3'-3"	Str.			40	
304	4	48'-6"	Str.			70	648	28	6'-0"	Str.		250	6007	14	14'-0"	Str.			290	
305	162	6'-6"	Str.			400	649	5	46'-9"	119	42'-6"	350	6008	6	12'-3"	Str.			110	
401	156	4'-4"	128			450	650	1 Ser. of 9	28'-3" to 35'-3"	119	23'-0" to 30'-0"	430	6009	12	16'-3"	Str.			290	
402	136	5'-0"	109	0'-6 1/2"	2'-1 1/2"	450	651	1 Ser. of 9	18'-0" to 25'-0"	Str.		290	6010	27	9'-10"	100	8'-0"	0'-11"	400	
403	162	7'-4"	127			790	652	1 Ser. of 9	27'-9" to 34'-9"	Str.		420	6011	2	6'-8"	101	5'-9"	0'-11"	20	
404	78	16'-2"	109	2'-1 1/2"	5'-7 1/2"	840	653	35	2'-6"	Str.		130								
405	216	10'-0"	109	2'-1 1/2"	2'-7 1/2"	1440	654	1 Ser. of 9	21'-0" to 24'-9"	119		310								
406	108	7'-0"	109	1'-7 1/2"	1'-7 1/2"	510	655	1 Ser. of 9	26'-9" to 32'-3"	Str.		400								
407	112	9'-0"	109	2'-1 1/2"	2'-1 1/2"	670	656	1 Ser. of 9	27'-3" to 32'-9"	119		410								
408	104	9'-4"	109	1'-1 1/2"	2'-3 1/2"	650	657	1 Ser. of 9	18'-6" to 25'-6"	119	15'-3" to 21'-3"	300								
409	96	13'-9"	111			880	658	18	12'-4"	100	10'-6"	0'-11"	330							
410	84	3'-10"	105			220	659	2 Ser. of 21	12'-8" to 19'-8"	110	2'-1 1/2"	5'-0" to 8'-6"	1020							
601	6	3'-0"	Str.			280	660	1 Ser. of 9	12'-9" to 18'-6"	Str.		210								
602	16	46'-6"	Str.			1120	661	1 Ser. of 9	13'-6" to 19'-0"	119	9'-3" to 15'-0"	220								
603	6	20'-0"	Str.			180	662	1 Ser. of 5	7'-6" to 11'-0"	Str.		70	701	58	44'-3"	Str.			524	
604	3 Ser. of 23	13'-2" to 19'-8"	110	2'-1 1/2"	5'-3" to 8'-6"	1700	663	1 Ser. of 5	8'-0" to 11'-9"	119	3'-9" to 7'-6"	70	702	28	44'-9"	Str.			250	
605	6	30'-6"	Str.			270	664	1 Ser. of 4	10'-0" to 11'-3"	Str.		60	703	2 Ser. of 13	45'-3" to 45'-9"	Str.			240	
606	6	28'-9"	Str.			260	665	1 Ser. of 4	10'-9" to 12'-0"	119	6'-6" to 7'-9"	70	704	2 Ser. of 15	46'-0" to 46'-6"	Str.			280	
607	6	21'-6"	Str.			190	666	1 Ser. of 4	18'-0" to 19'-0"	Str.		110	705	2 Ser. of 14	45'-0" to 47'-0"	Str.			260	
608	4	47'-6"	Str.			290	667	1 Ser. of 4	18'-6" to 19'-6"	119	14'-3" to 15'-3"	110	706	2 Ser. of 15	48'-0" to 50'-9"	Str.			300	
609	2	5'-11"	101	5'-0"	0'-11"	20	668	1 Ser. of 4	23'-6" to 24'-6"	Str.		140	707	2 Ser. of 14	50'-9" to 54'-0"	Str.			290	
610	2	24'-0"	Str.			70	669	1 Ser. of 4	24'-0" to 25'-0"	120	21'-3" to 22'-3"	150	708	2 Ser. of 13	54'-3" to 57'-0"	Str.			290	
611	2 Ser. of 10	7'-0" to 34'-0"	Str.			620	670	1 Ser. of 4	32'-9" to 33'-6"	Str.		190	709	4 Ser. of 15	30'-3" to 32'-3"	Str.			380	
612	24	7'-3"	Str.			260	671	1 Ser. of 4	33'-3" to 34'-0"	119	29'-0" to 29'-6"	200								
613	1 Ser. of 9	11'-9" to 18'-0"	Str.			200	672	1 Ser. of 4	34'-6" to 35'-6"	Str.		210	801	89	30'-6"	Str.			720	
614	1 Ser. of 4	7'-9" to 10'-0"	Str.			50	673	1 Ser. of 4	35'-0" to 36'-0"	119	30'-9" to 31'-9"	210	802	82	31'-11"	124			690	
615	1 Ser. of 7	33'-6" to 38'-0"	Str.			380	674	1 Ser. of 4	25'-3" to 26'-3"	Str.		150	803	95	46'-6"	Str.			1170	
616	1 Ser. of 4	8'-3" to 10'-3"	119	4'-0" to 6'-0"		60	675	1 Ser. of 4	25'-3" to 26'-3"	120	22'-6" to 23'-6"	160	804	88	48'-3"	125			1130	
617	8	42'-6"	Str.			510	676	1 Ser. of 4	19'-0" to 20'-0"	Str.		120	805	19	11'-6"	Str.			500	
618	6	39'-3"	Str.			350	677	1 Ser. of 4	19'-6" to 20'-6"	119	15'-3" to 16'-3"	120	806	2	14'-6"	Str.			80	
619	2	33'-3"	Str.			120	678	1 Ser. of 4	11'-0" to 12'-0"	Str.		70	807	2	35'-6"	Str.			190	
620	16	34'-3"	Str.			800	679	1 Ser. of 4	11'-6" to 12'-6"	119		70	808	1	8'-0"	Str.			20	
621	36	13'-10"	100	12'-0"	0'-11"	750	680	6	4'-3"	Str.		40	809	2	20'-0"	Str.			110	
622	28	37'-6"	Str.			1580	681	6	51'-6"	Str.		460	810	1 Ser. of 8	15'-2" to 17'-4"	100	12'-0" to 14'-4"	1'-6"	350	
623	2 Ser. of 9	10'-6" to 35'-9"	Str.			620	682	8	6'-5"	121	1'-9"	80	811	2 Ser. of 10	5'-6" to 31'-0"	Str.			970	
624	16	9'-6"	Str.			230	683	24	34'-6"	Str.		1240	812	2 Ser. of 21	2'-6" to 43'-0"	Str.			2550	
625	236	4'-9"	104	2'-0"	2'-9"	1680	684	32	7'-11"	121	3'-3"	380	813	8	52'-0"	Str.			1110	
626	1 Ser. of 10	13'-6" to 15'-10"	100	11'-8" to 14'-0"	0'-11"	220	685	2	49'-3"	Str.		150	814	2	24'-6"	Str.			130	
627	22	33'-6"	Str.			1110	686	2	48'-3"	Str.		140	815	6	33'-0"	Str.			530	
628	6	34'-9"	Str.			310	687	4	32'-6"	Str.		200	816	6	47'-6"	Str.			760	
629	98	49'-0"	Str.			7200	688	2	58'-3"	Str.		170	817	6	33'-6"	Str.			540	
630	26	48'-0"	Str.			1870	689	144	3'-6"	Str.		760	818	6	48'-6"	Str.			760	
631	16	5'-3"	Str.			130	690	26	13'-2"	109	3'-8"	2'-8"	510	819	87	8'-9"	126		2030	
632	112	36'-0"	Str.			6050	691	10	36'-6"	Str.		550	820	8	49'-3"	Str.			1050	
633	32	38'-6"	Str.			1850	692	6	21'-3"	Str.		190	821	8	48'-3"	Str.			1030	
634	2 Ser. of 7	13'-0" to 30'-3"	Str.			460	693	2	54'-6"	Str.		160	822	16	33'-0"	Str.			1410	
635	2 Ser. of 10	6'-0" to 36'-0"	Str.			630	694	4	7'-0"	108	2'-9"	4'-3"	40	823	8	58'-3"	Str.		1240	
636	8	52'-0"	Str.			630	695	4	9'-6"	108	5'-3"	4'-3"	60	824	8	48'-0"	Str.		1020	
637	8	3'-9"	Str.			50	696	19	8'-6"	Str.		240	825	8	54'-6"	Str.			1170	
638	1 Ser. of 9	19'-0" to 24'-0"	Str.			290	697	33	4'-6"	123		220	826	19	10'-6"	Str.			530	
639	1 Ser. of 7	35'-6" to 39'-9"	Str.			400	698	1 Ser. of 23	12'-2" to 18'-8"	110	1'-1 1/2"	5'-3" to 8'-6"	530	827	24	11'-0"	Str.		700	
640	1 Ser. of 7	36'-0" to 40'-6"	119	31'-9" to 36'-3"		400	699	152	3'-0"	Str.		680	828	93	33'-1"	100	30'-1"	1'-6"	820	
641	5	43'-6"	Str.			330	6000	60	7'-9"	122		700	829	99	48'-5"	100	45'-5"	1'-6"	12,800	
642	6	41'-6"	Str.			370	6001	19	10'-6"	Str.		300								
643	4	44'-0"	Str.			260	6002	24	11'-0"	Str.		400								
644	14	7'-9"	119	3'-6"		160	6003	25	11'-6"	Str.		430								

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	A UI-1052(3)	POST WAR

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



REINFORCING STEEL SCHEDULE						
Mark	No.	Length	Type	Dimensions		Weight
				A	B	
501	114	44'-9"	Str.			5310
502	222	4'-0"	Str.			930
503	136	25'-0"	Str.			3550
504	70	10'-1"	119			740
505	10	12'-6"	120			130
506	37	11'-10"	105	7'-10"	2'-0"	460
507	3	16'-6"	105	7'-10"	4'-4"	50
508	7	15'-8"	105	3'-0"	6'-4"	110
509	4	20'-6"	105	7'-10"	6'-4"	90
510	22	11'-0"	Str.			250
511	6	10'-1"	104	5'-9"	4'-4"	60
512	3	27'-1"	104	20'-9"	6'-4"	80
513	3	13'-7"	104	7'-3"	6'-4"	40
514	1	20'-9"	Str.			20
515	1	17'-3"	104	14'-3"	3'-0"	20
516	1	12'-11"	104	7'-3"	5'-8"	10
517	108	14'-9"	100	13'-1"	10"	1660
518	12	56'-3"	Str.			700
519	6	7'-9"	104	5'-9"	2'-0"	50
			Total			14,260

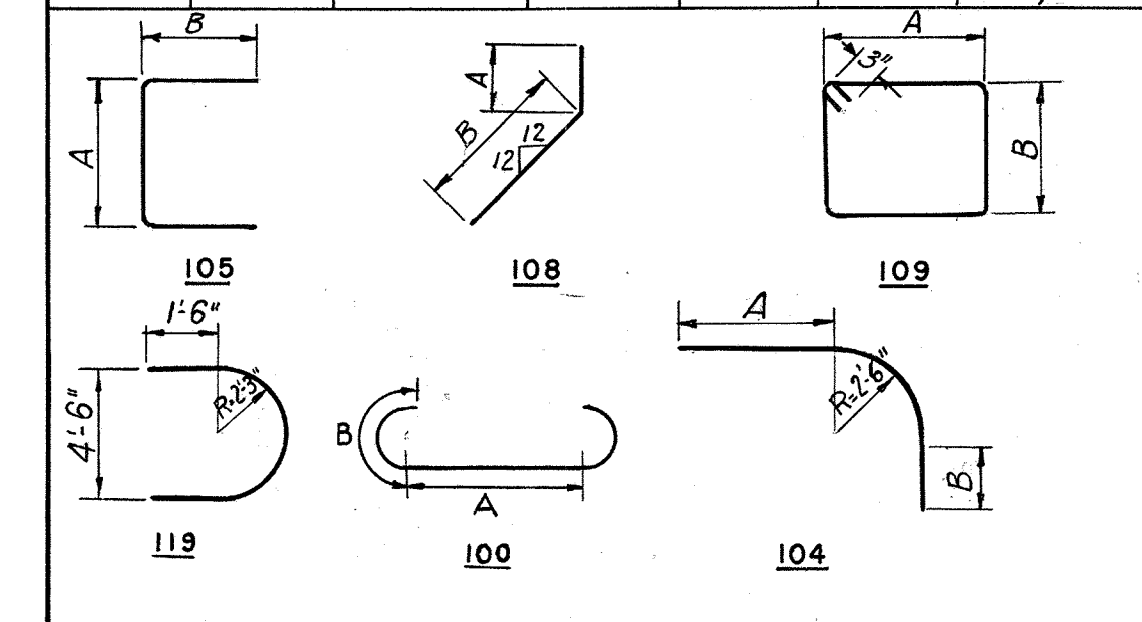
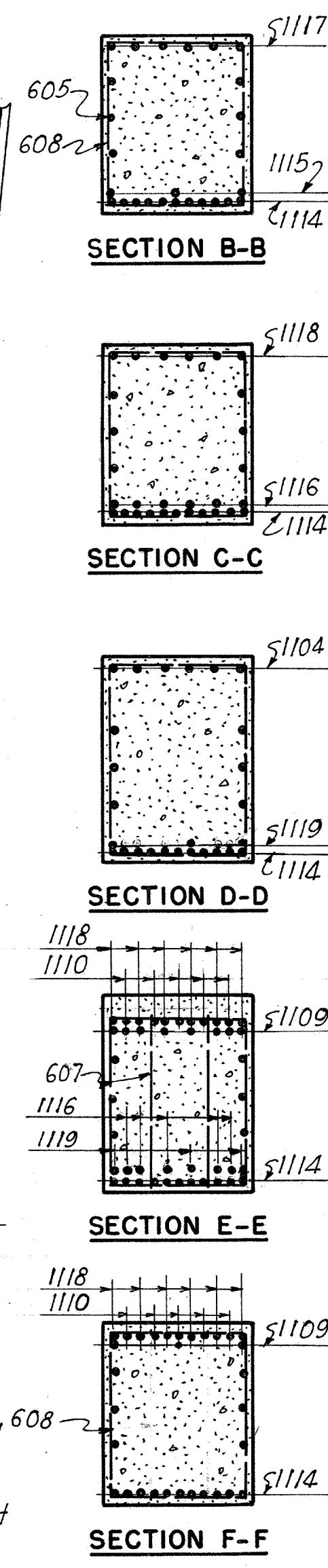
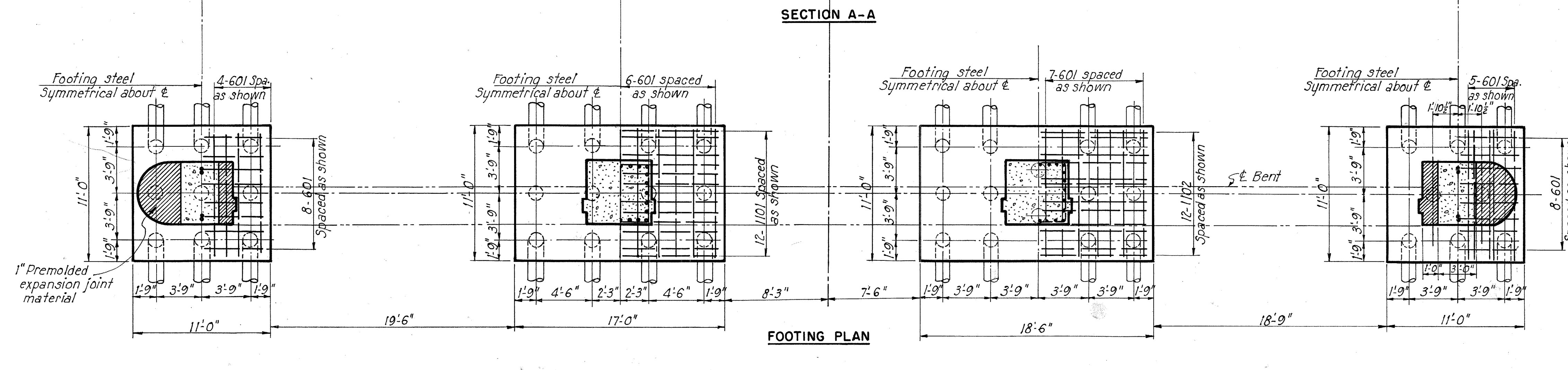
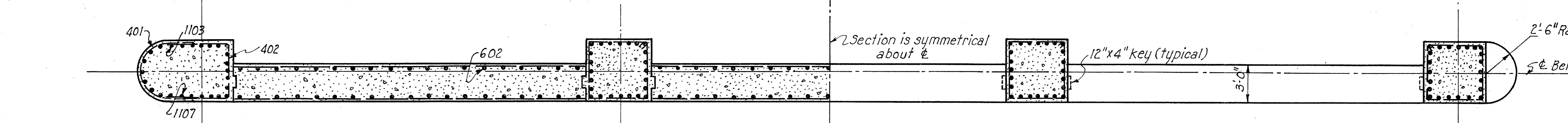
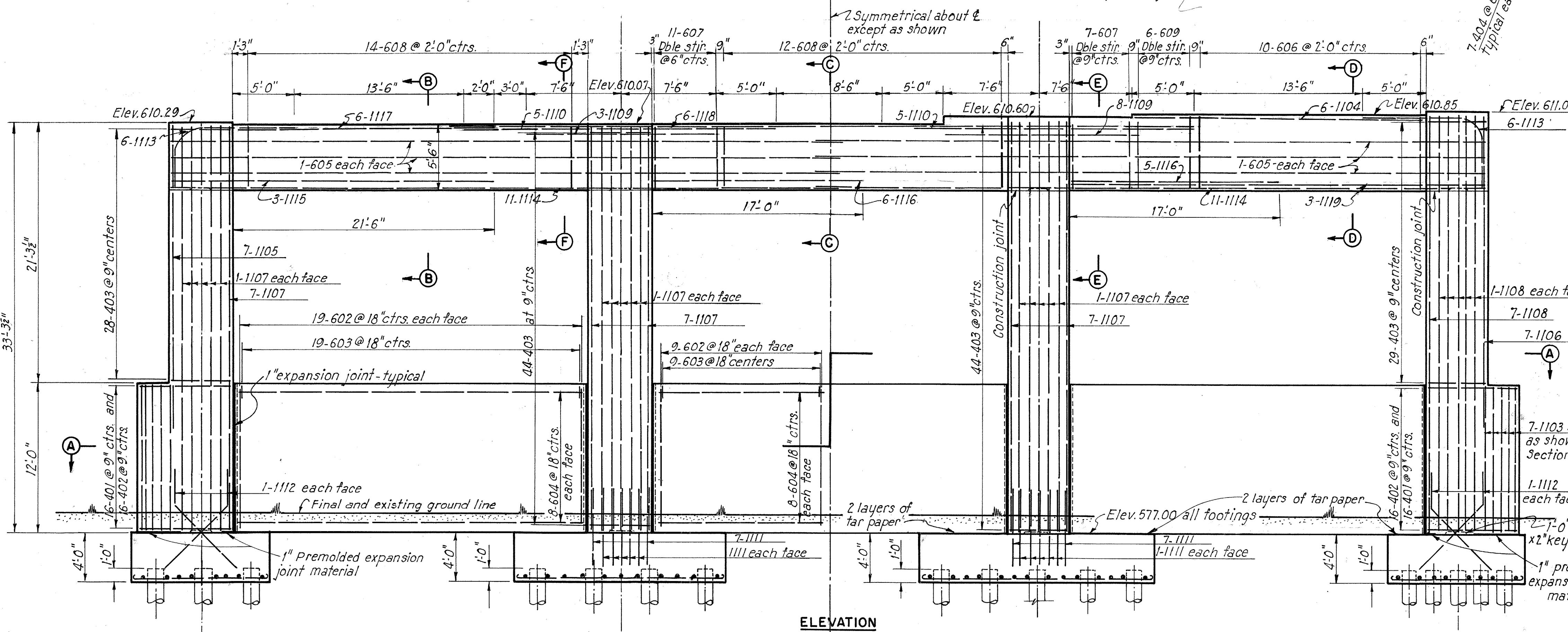
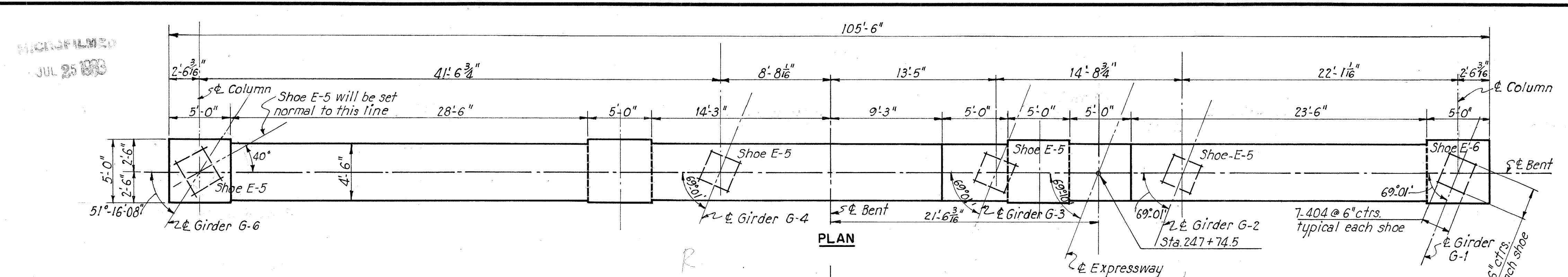


Notes:
For pile splice and tip reinforcement, see Sheet 32.
For rustication details, see Sheet 32.
Provide 24" ventilation cells formed with metal pipe. Pipes shall be flush with top of pier, and shall be filled with concrete three months (±) after pier wall concrete has been placed. Embecco concrete, or equal, shall be used for top three feet. Provisions shall be made to keep cells free of water and simultaneously provide ventilation.
All piles to be 14 BP117.
Top of pier shall be finished to a true plane surface at the elevations given except for areas adjacent to screed frames which shall be finished to slope 1/4" per ft. each way from tie pier.
Ventilation pipes are included with concrete for payment.

TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
BR. NO. LU 120 - 35
PIER 6
TOLEDO LUCAS COUNTY, OH
SCALE 3/8" = 1'-0"
MADE M.K.A. DATE 6.22.52
TRCD. R.R. DATE 8.6.52
CKD. J.R.S. DATE 8.12.52
HOWARD, NEEDLES, TAMMEN & BERGER
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
810 SHEET 2.42

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

REINFORCING STEEL SCHEDULE						
Mark	No.	Length	Type	Dimensions		Weight
				A	B	
401	32	10'-1"	119			220
402	32	14'-0"	105	4'-7 1/2"	4'-8"	300
403	145	19'-0"	109	4'-7 1/2"	4'-7 1/2"	1810
404	70	5'-6"	105	3'-6"	1'-0"	260
601	59	11'-10"	100	10'-0"	0'-11"	1050
602	114	11'-6"	Str.			1970
603	57	4'-6"	105	2'-6"	1'-0"	390
604	48	28'-0"	Str.			2020
605	12	54'-0"	Str.			970
606	10	20'-5"	109	4'-1 1/2"	5'-10"	310
607	36	16'-0"	109	3'-0"	5'-1 1/2"	910
608	26	19'-0"	109	4'-7 1/2"	5'-1 1/2"	740
609	12	18'-2"	109	3'-0"	5'-10"	330
1101	12	19'-6"	100	15'-8"	1'-11"	1250
1102	12	21'-0"	100	17'-2"	1'-11"	1340
1103	18	11'-9"	Str.			1120
1104	6	23'-0"	Str.			730
1105	7	24'-6"	Str.			910
1106	7	25'-3"	Str.			940
1107	65	32'-9"	Str.			11310
1108	17	33'-9"	Str.			3050
1109	11	15'-0"	Str.			880
1110	10	25'-0"	Str.			1330
1111	48	7'-0"	Str.			1790
1112	8	10'-0"	108	3'-0"	7'-0"	430
1113	12	12'-6"	104	6'-0"	2'-6"	800
1114	22	54'-3"	Str.			6340
1115	3	26'-3"	Str.			420
1116	11	17'-0"	Str.			990
1117	6	20'-9"	Str.			660
1118	6	59'-0"	Str.			1880
1119	3	33'-3"	Str.			530
Total						48,010



All battered piles battered 2 in 12.
All piles to be 16" concrete piles.
For expansion joint detail, see Sheet 32.

PART 2
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
BR. NO. LU 120-35
BENT 7

TOLEDO LUCAS COUNTY, OHIO

SCALE 3/16" = 1'-0"
MADE L.D. DATE 6-19-52
TRCD. P.R. DATE 7-24-52
CRD. J.P.S. DATE 7-25-52

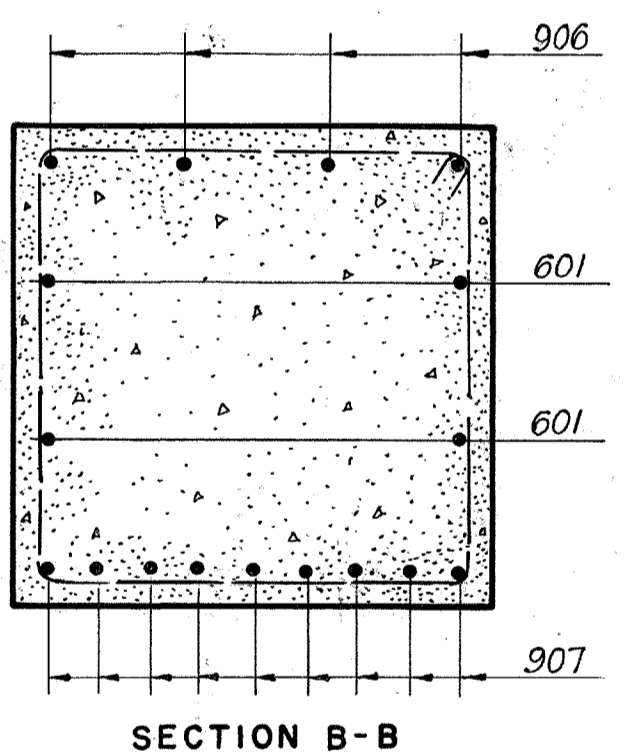
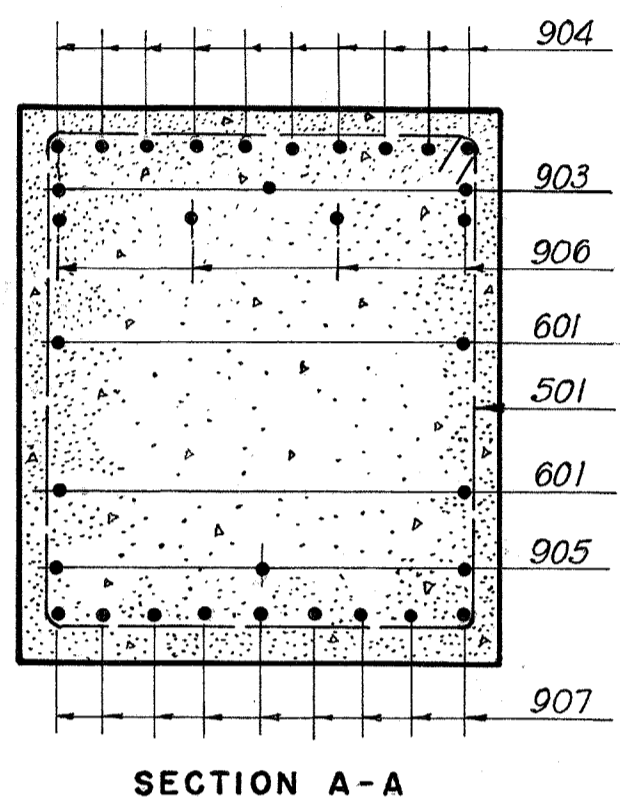
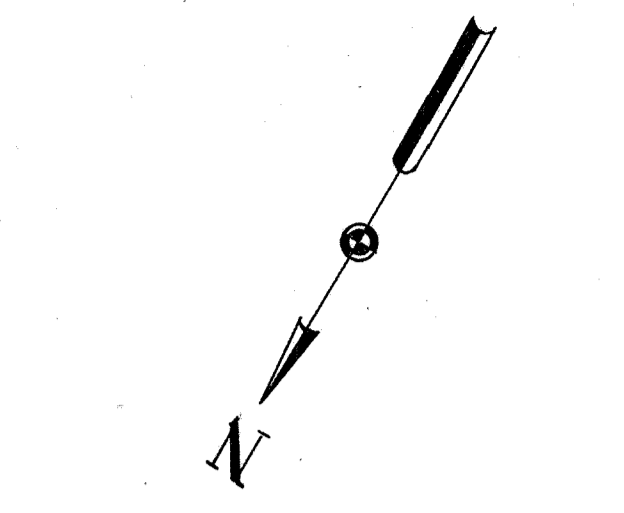
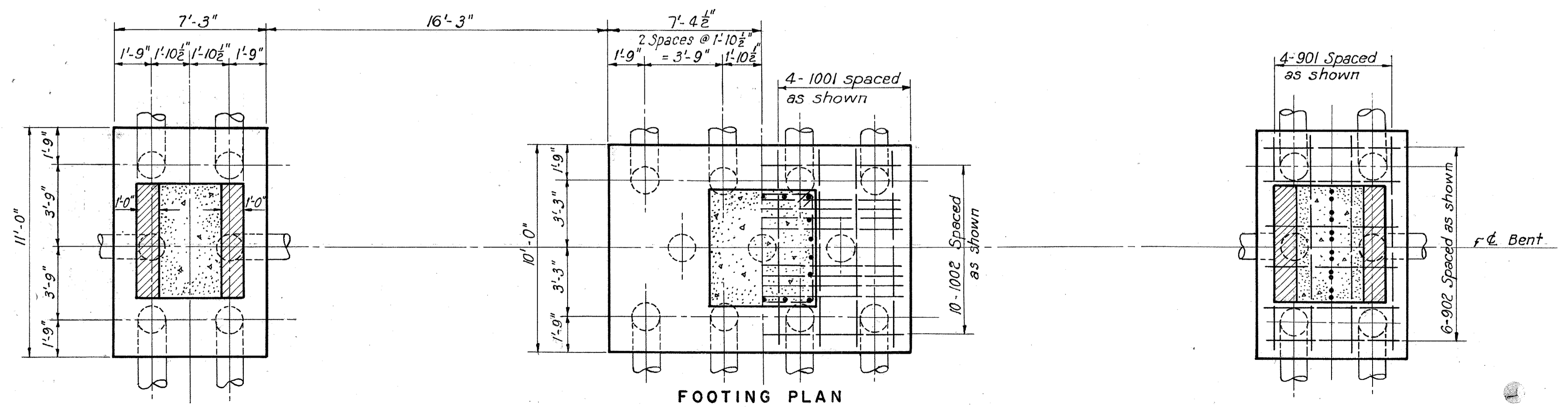
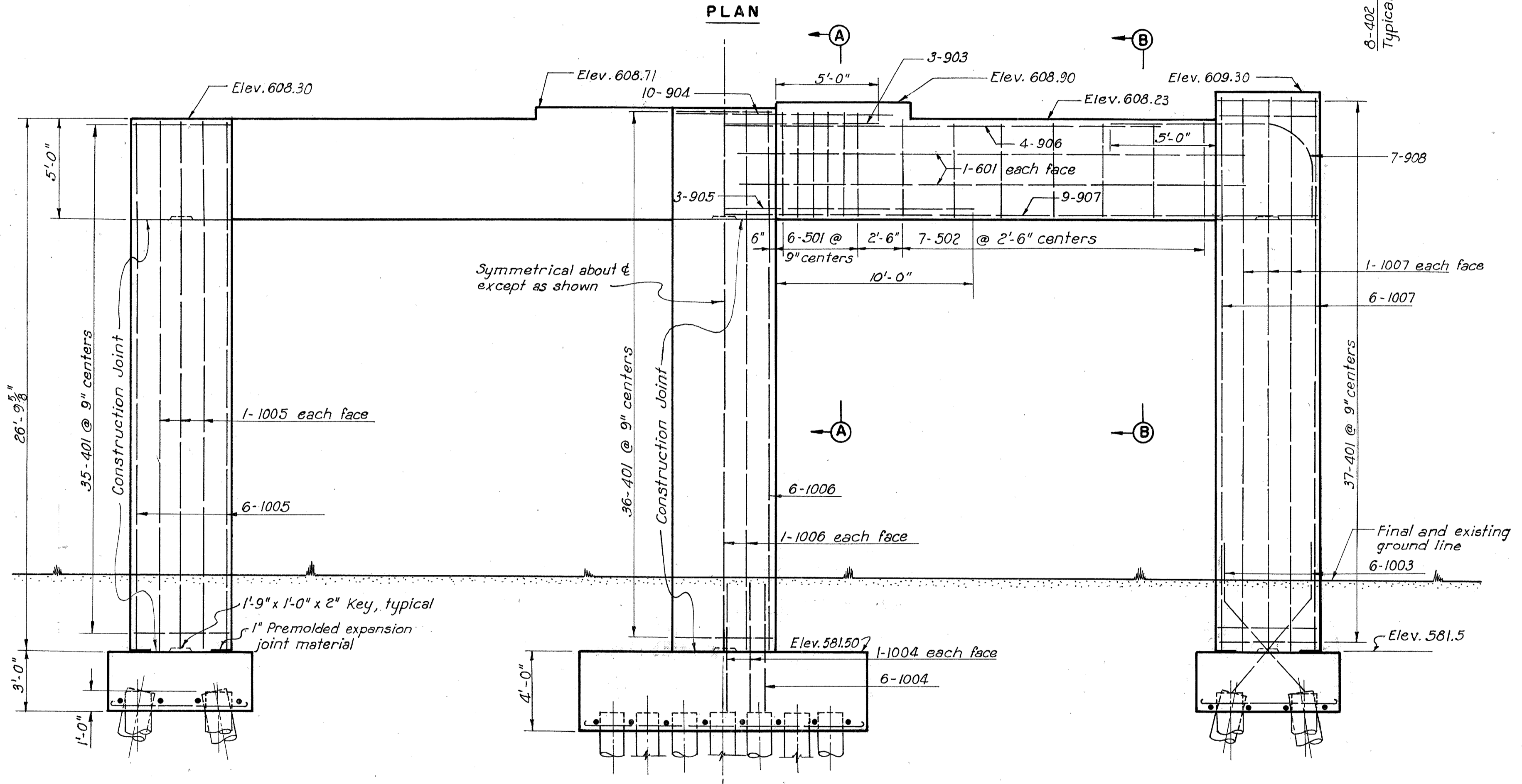
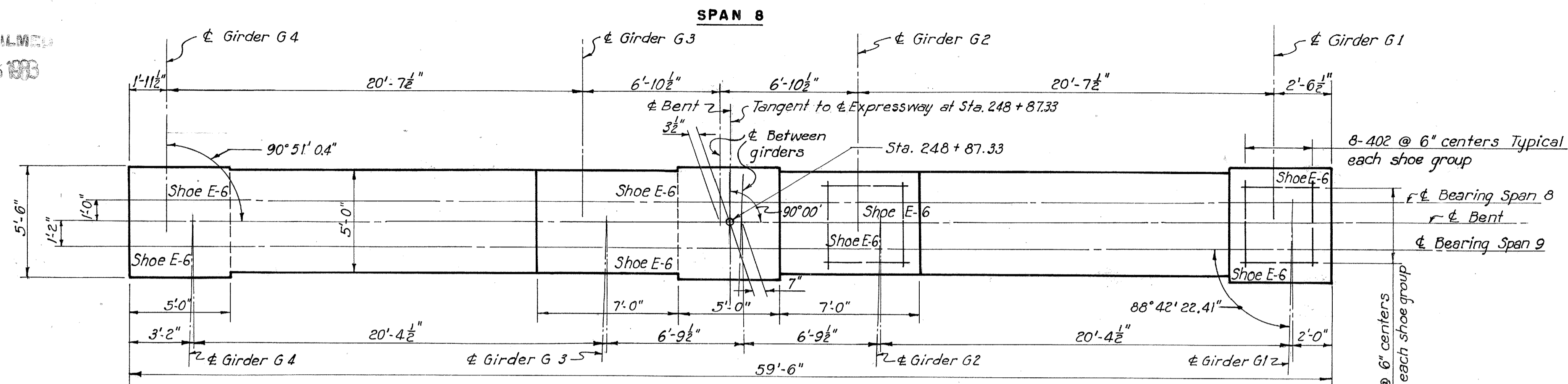
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

810 SHEET- 2.43

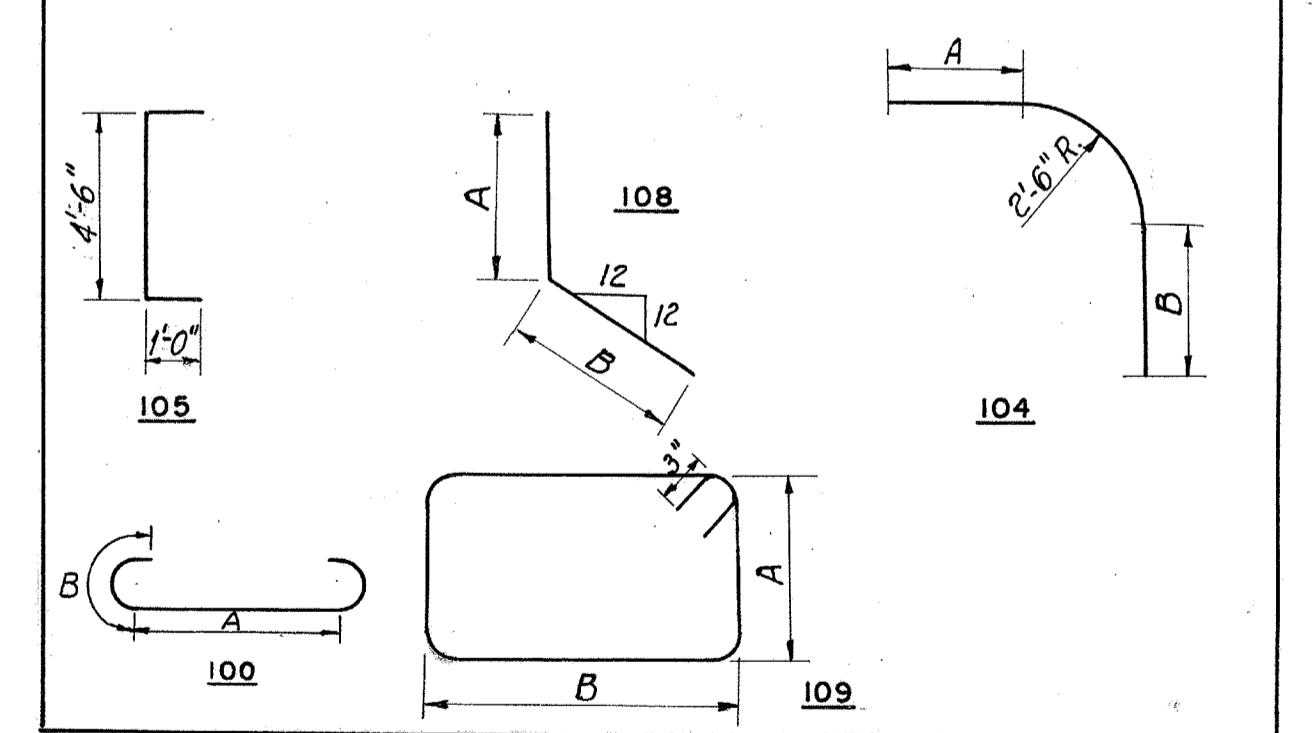
REPRODUCED
JUL 25 1953

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	A-11-1052(3)	POST WAR

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



REINFORCING		STEEL		SCHEDULE		Weight
Mark	No.	Length	Type	Dimension A	Dimension B	
401	108	20'-0"	109	4'-7 1/2"	5'-1 1/2"	1,440
402	64	6'-6"	105			280
501	12	19'-9"	109	4'-7 1/2"	5'-0"	250
502	14	19'-0"	109	4'-7 1/2"	4'-7 1/2"	280
601	8	26'-0"	Str.			310
901	8	12'-8"	100	9'-8"	1'-6"	340
902	12	8'-11"	100	5'-11"	1'-6"	360
903	3	15'-0"	Str.			150
904	10	18'-6"	Str.			630
905	3	25'-0"	Str.			260
906	4	46'-0"	Str.			630
907	9	59'-0"	Str.			1,810
908	14	13'-3"	104	7'-3"	2'-1"	630
1001	8	12'-4"	100	8'-8"	1'-9"	420
1002	10	16'-11"	100	13'-5"	1'-9"	730
1003	24	9'-0"	108	3'-6"	5'-6"	930
1004	18	6'-0"	Str.			460
1005	18	26'-6"	Str.			2,050
1006	18	27'-0"	Str.			2,090
1007	18	27'-6"	Str.			2,130
Total						16,180



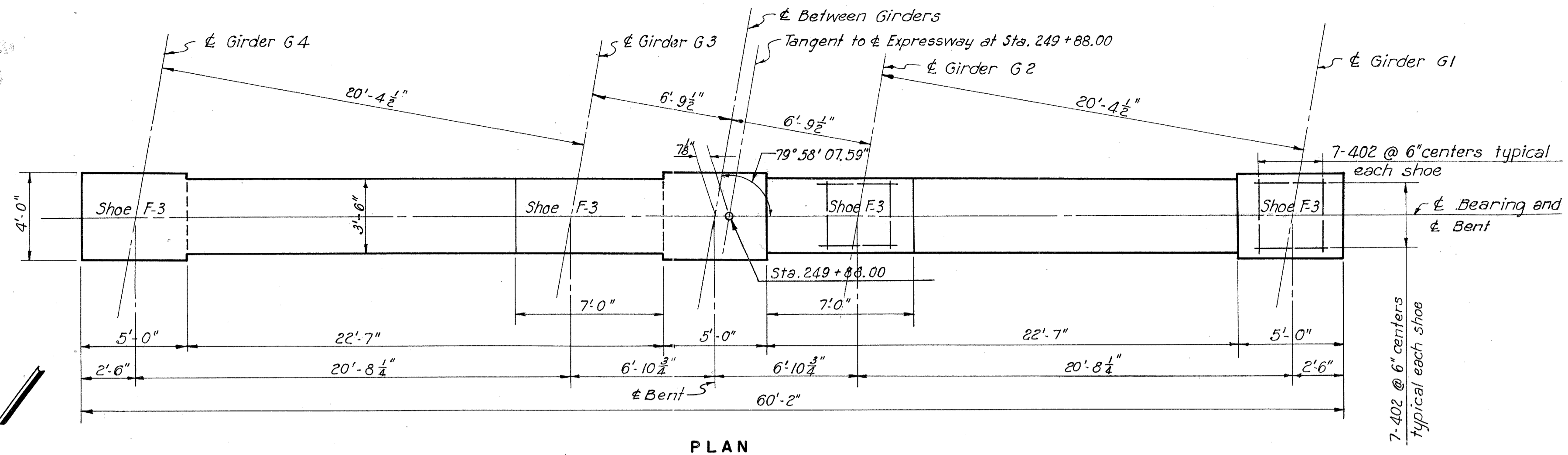
All battered piles battered 2" in 12"
All piles to be 16" concrete piles.

PART 2
TOLEDO EXPRESSWAY SYSTEM

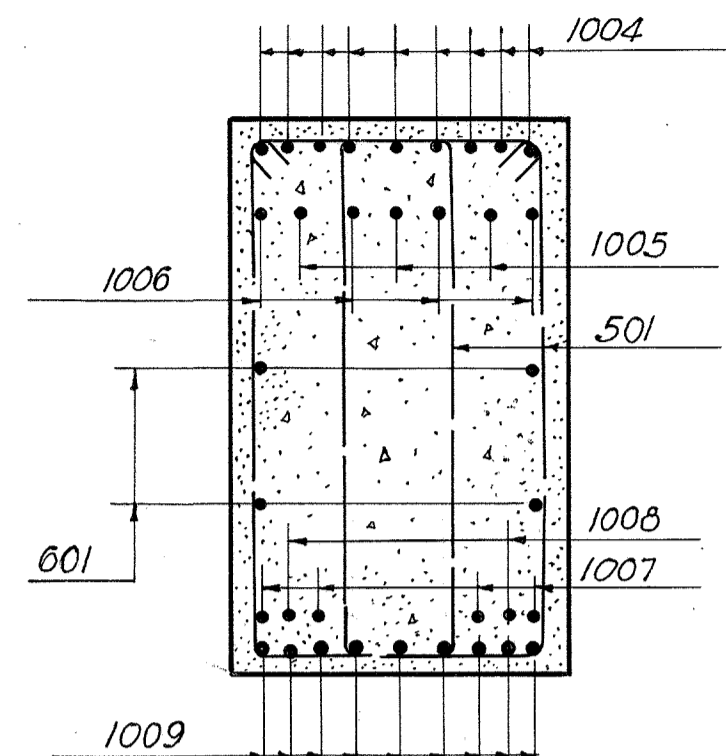
MAUMEE RIVER BRIDGE
BR. NO. LU 120-35
BENT 8

TOLEDO LUCAS COUNTY, OHIO
SCALE 3/8" = 1'-0"
MADE L.L.D. DATE 6-11-52
TRCD A.H. DATE 6-23-52
CKD J.P.S. DATE 7-17-52
HOWARD, NEEDLES, TAMMEN & BERGENDT
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
810 SHEET-2.44

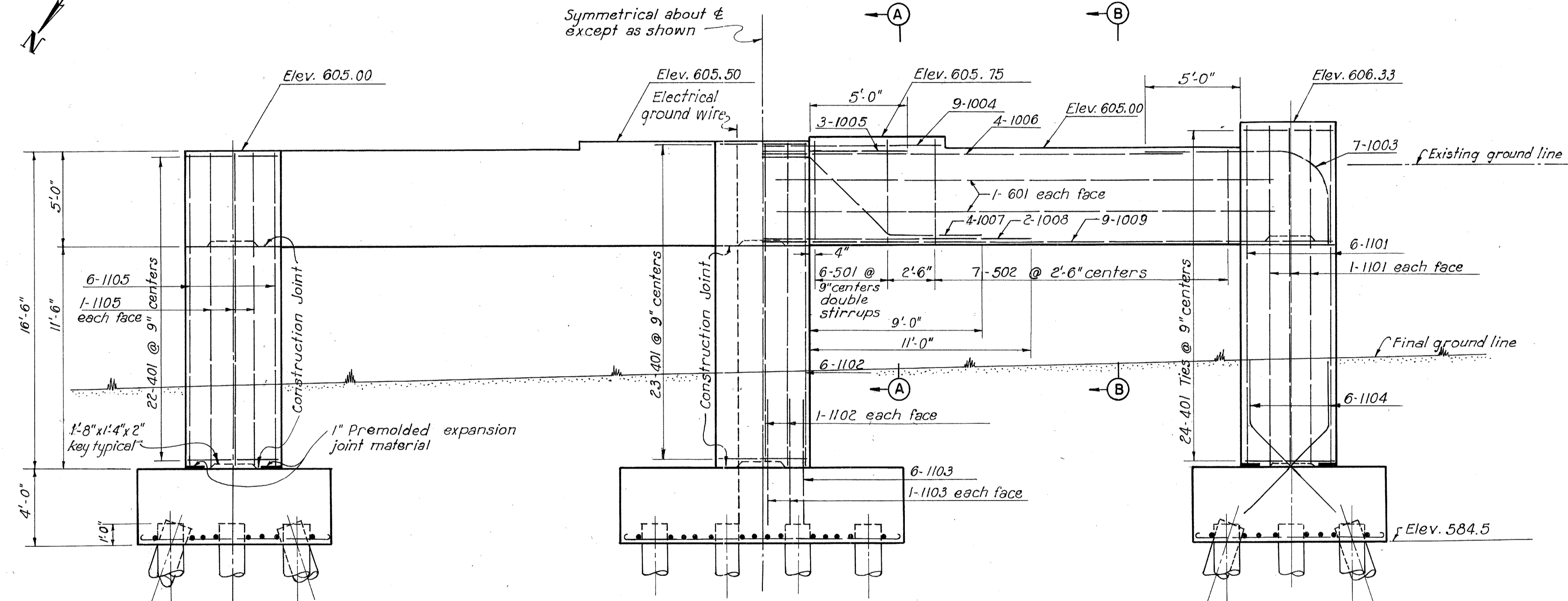
REVISIONS
JUL 25 1952



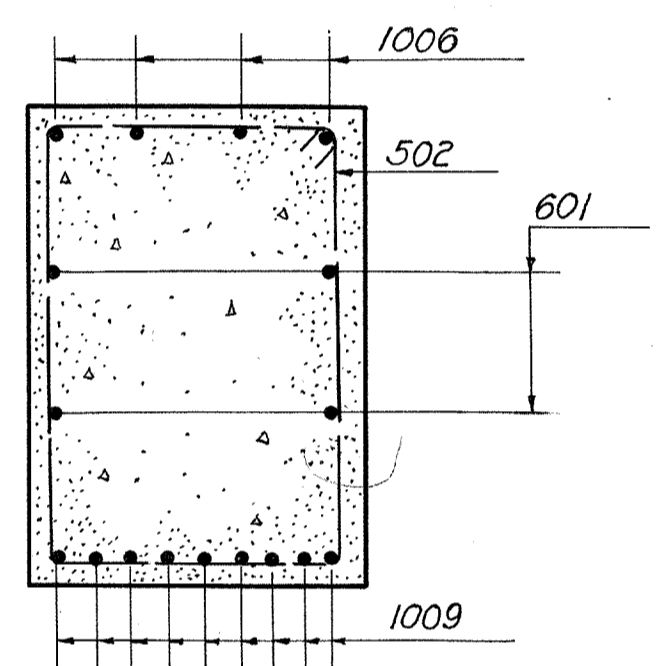
PLAN



SECTION A-A

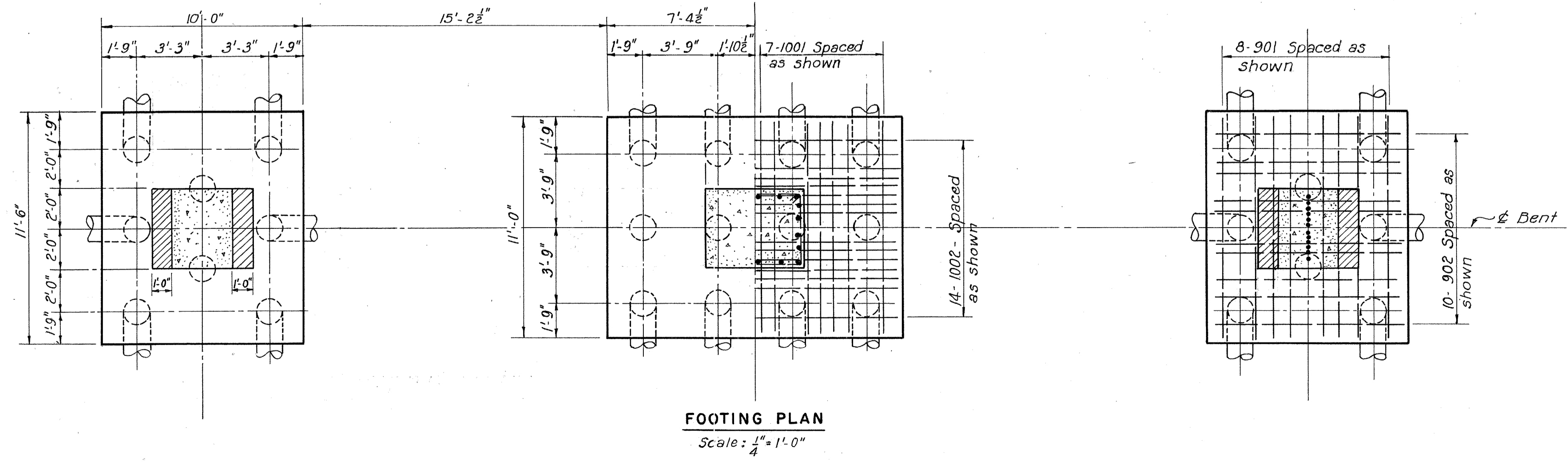
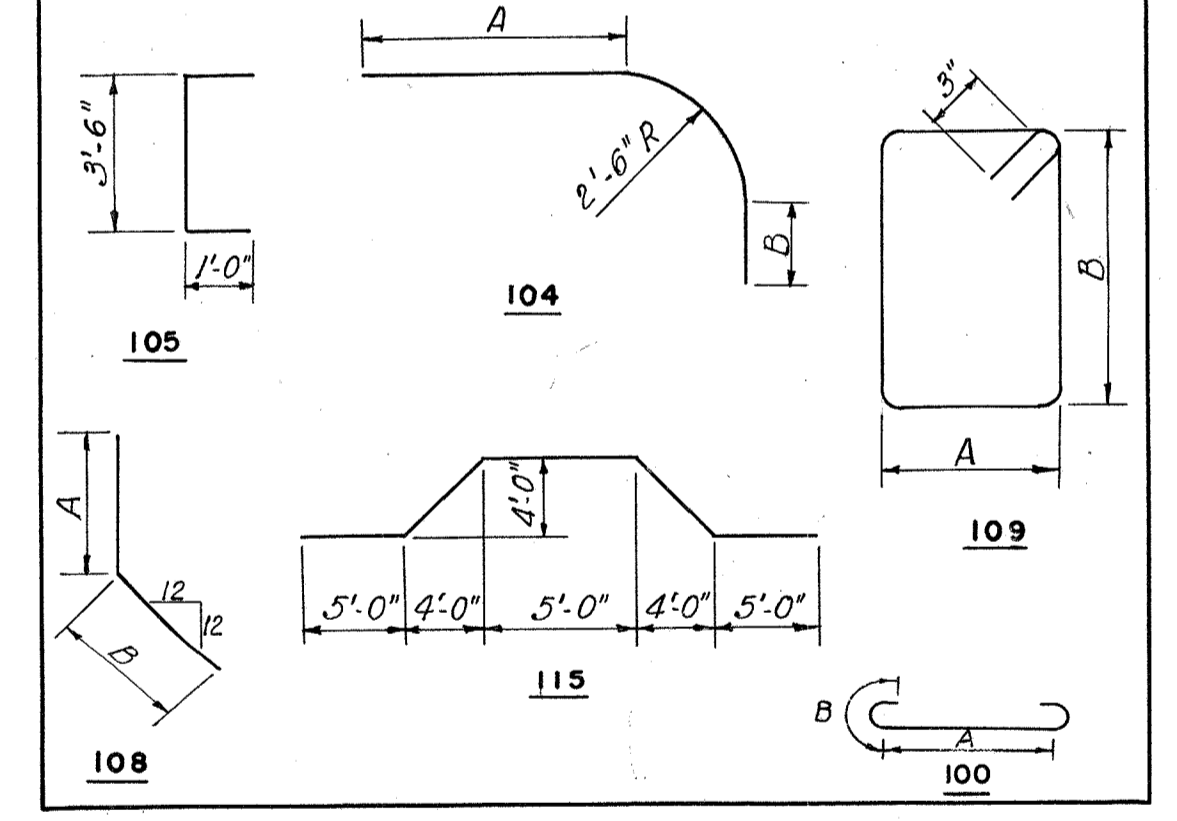


ELEVATION



SECTION B-B

Mark	No.	Length	Type	Dimension		Weight
				A	B	
401	69	17'-0"	109	3'-7 1/2"	4'-7 1/2"	780
402	56	5'-6"	105			210
501	24	15'-1"	109	2'-2"	5'-1 1/2"	380
502	14	16'-0"	109	3'-1 1/2"	4'-7 1/2"	230
601	8	26'-3"	Str.			320
901	16	13'-2"	100	10'-2"	1'-6"	720
902	20	11'-8"	100	8'-8"	1'-6"	790
1001	14	13'-0"	100	9'-6"	1'-9"	790
1002	14	16'-9"	100	13'-3"	1'-9"	1010
1003	14	13'-3"	104	7'-3"	2'-1"	800
1004	9	18'-6"	Str.			720
1005	3	15'-0"	Str.			190
1006	4	46'-6"	Str.			800
1007	4	26'-4"	115			450
1008	2	27'-0"	Str.			230
1009	9	59'-9"	Str.			2320
1101	18	17'-6"	Str.			1670
1102	18	16'-9"	Str.			1600
1103	18	6'-6"	Str.			620
1104	24	10'-0"	108	3'-6"	6'-6"	1280
1105	18	16'-3"	Str.			1350
Total						17,460



FOOTING PLAN

Scale: 1/4" = 1'-0"

All battered piles battered 2" in 12".
All piles to be 16" concrete piles.

PART 2

TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
BR. NO. LU 120-35
BENT 9

TOLEDO LUCAS COUNTY, OHIO

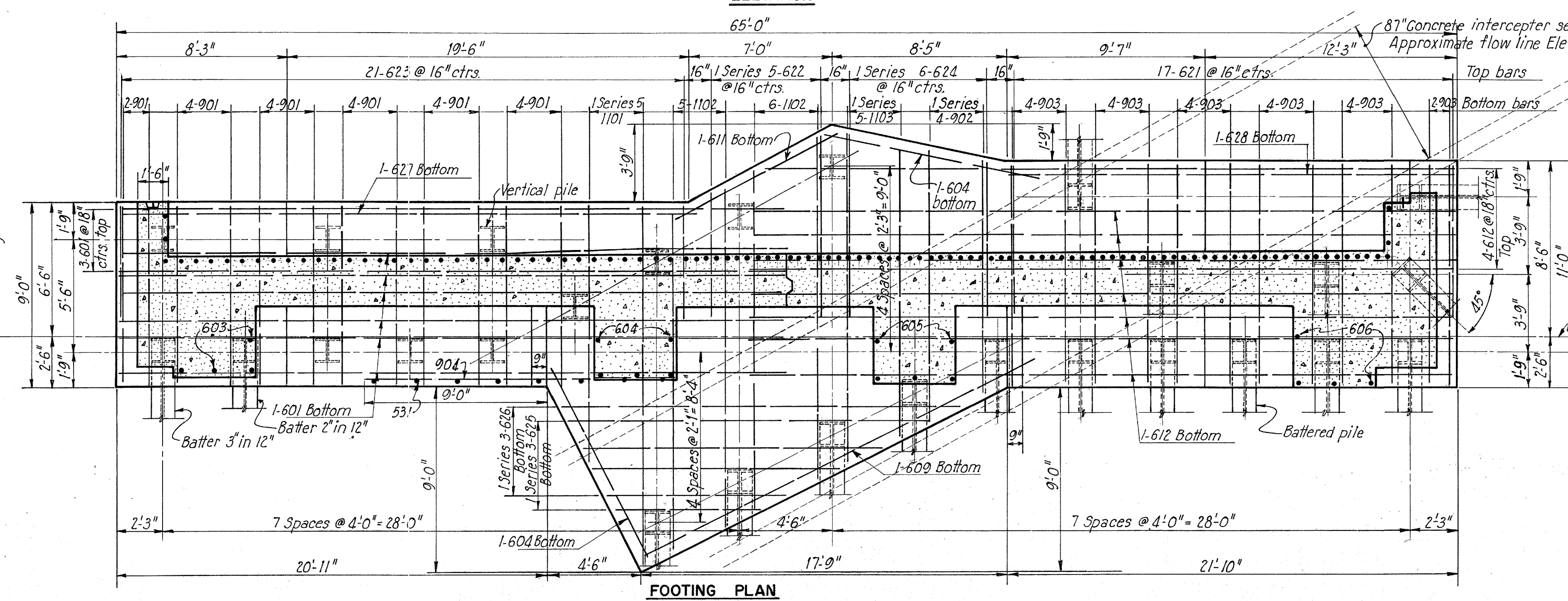
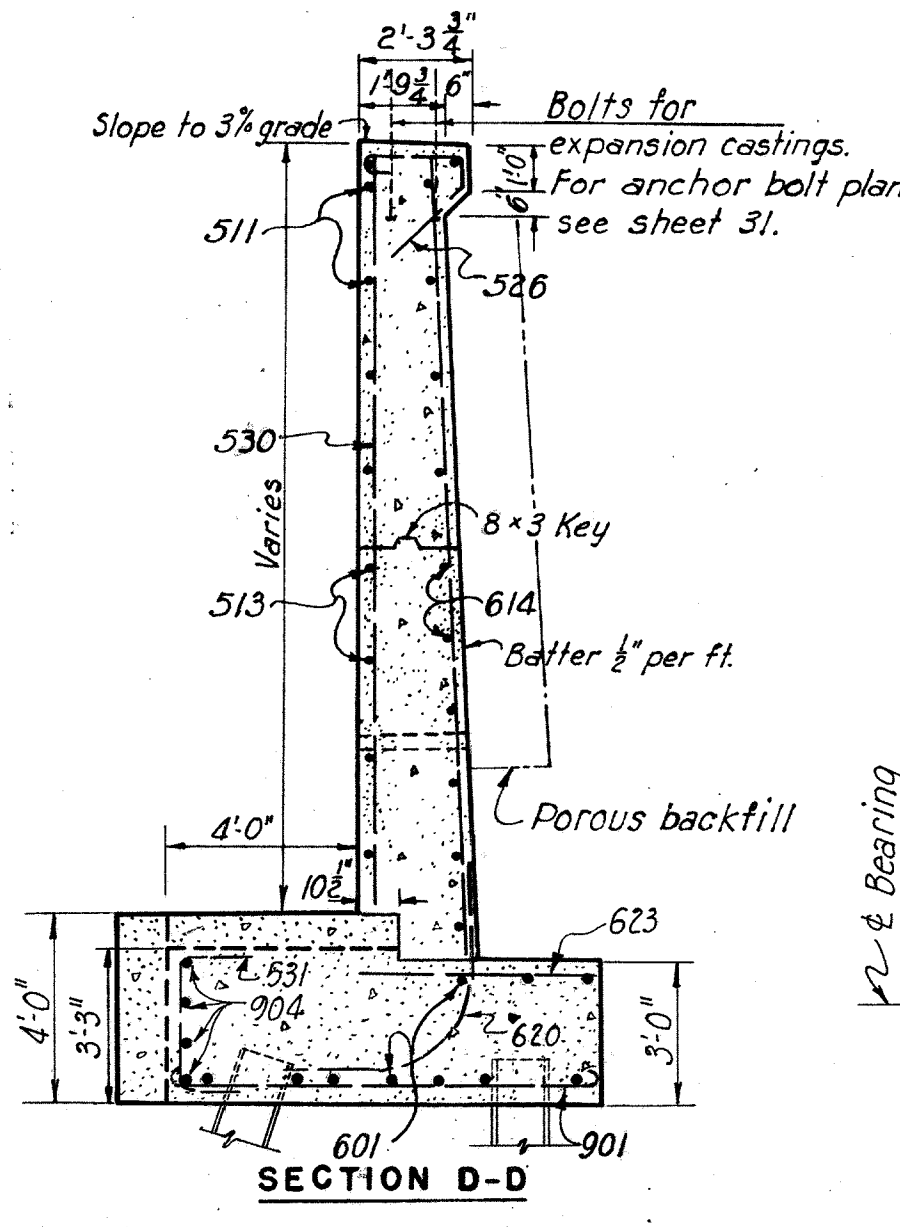
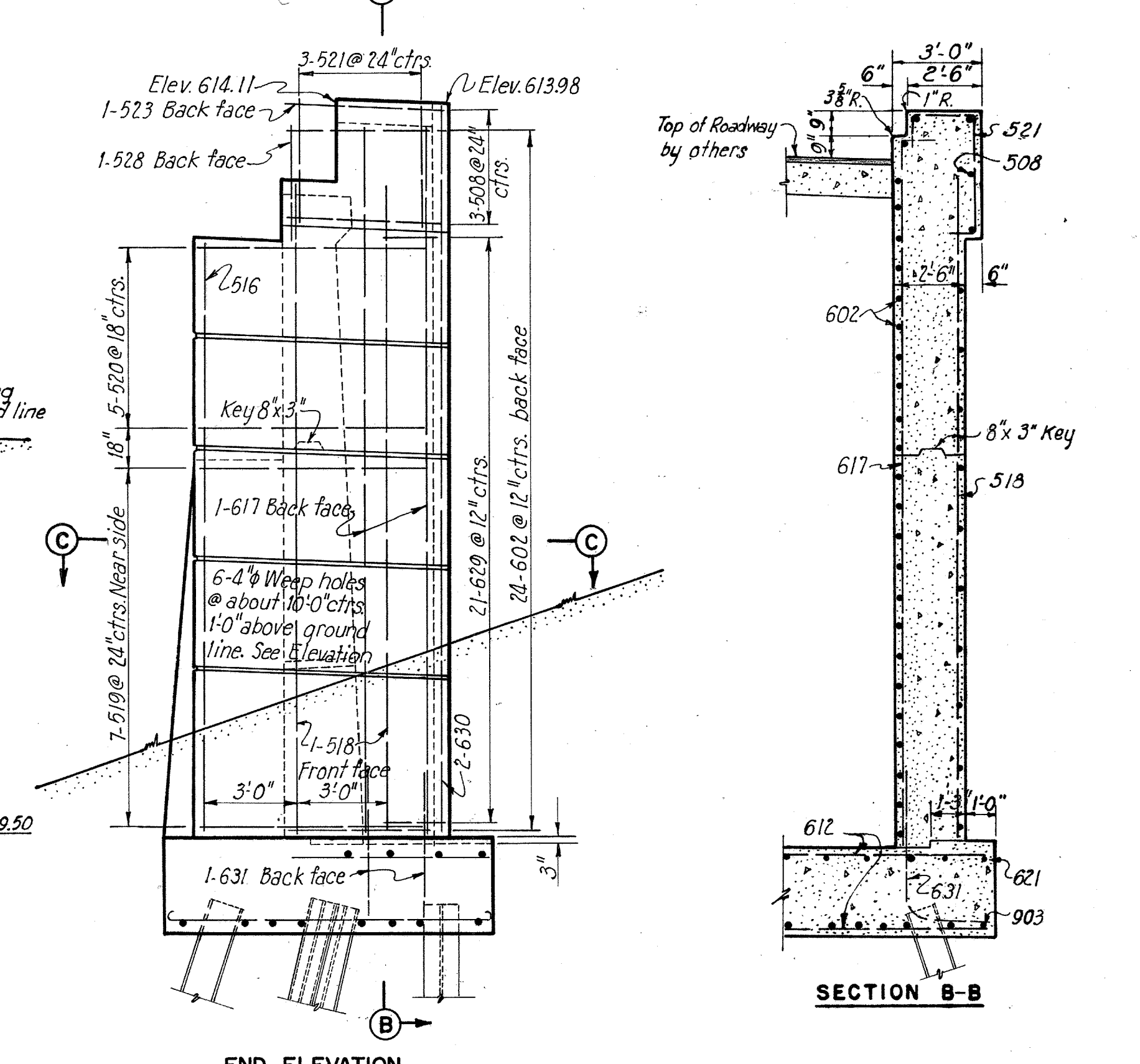
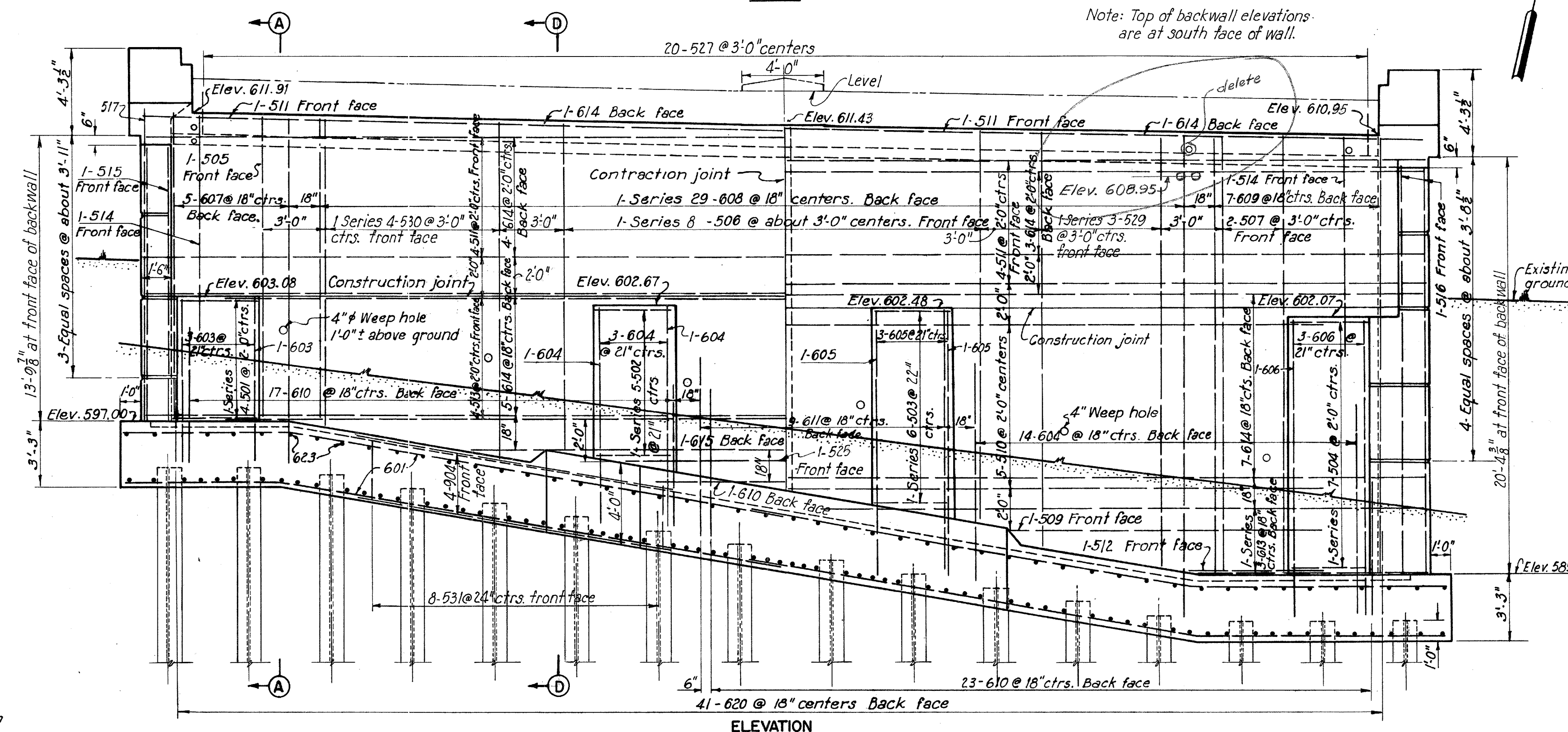
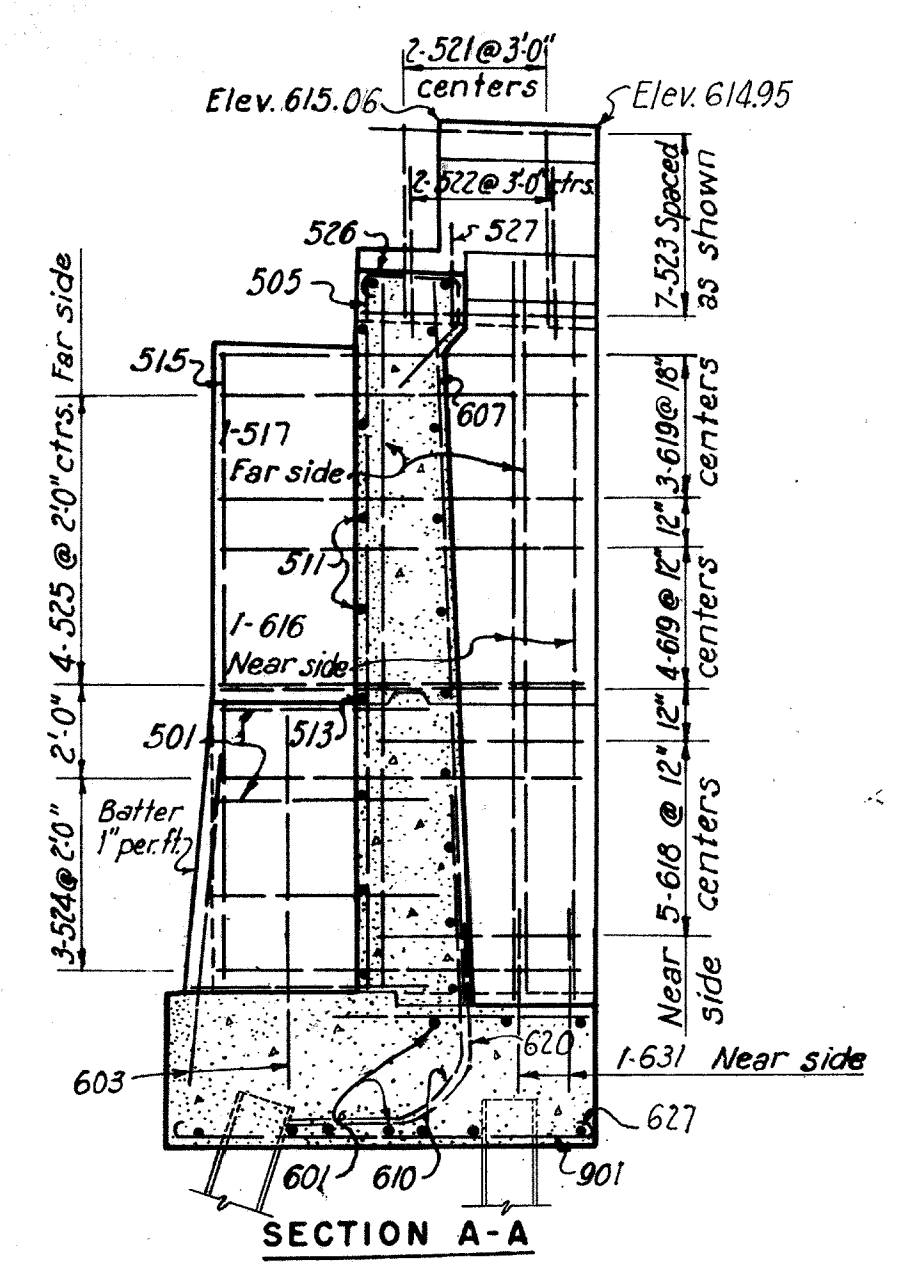
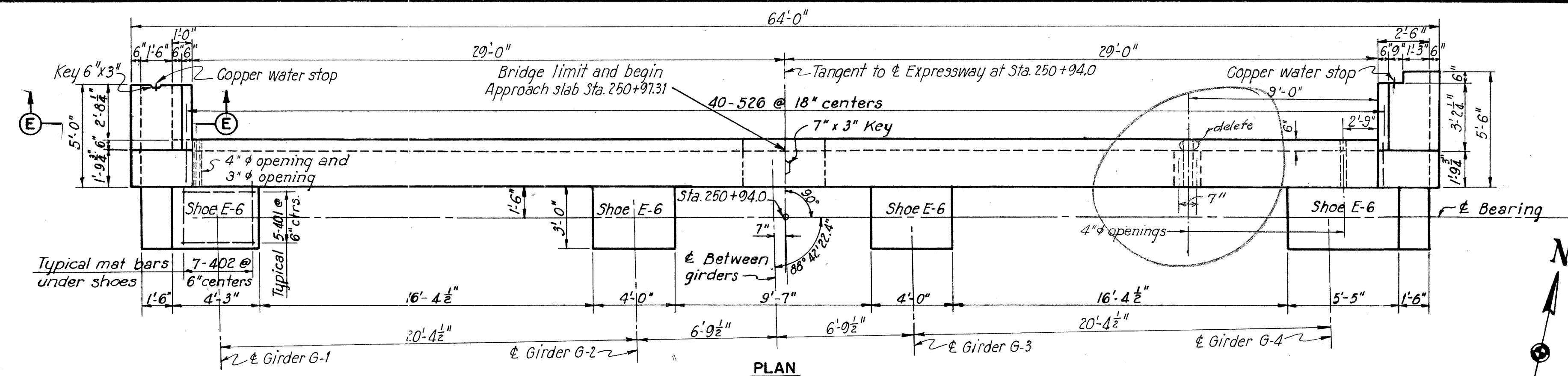
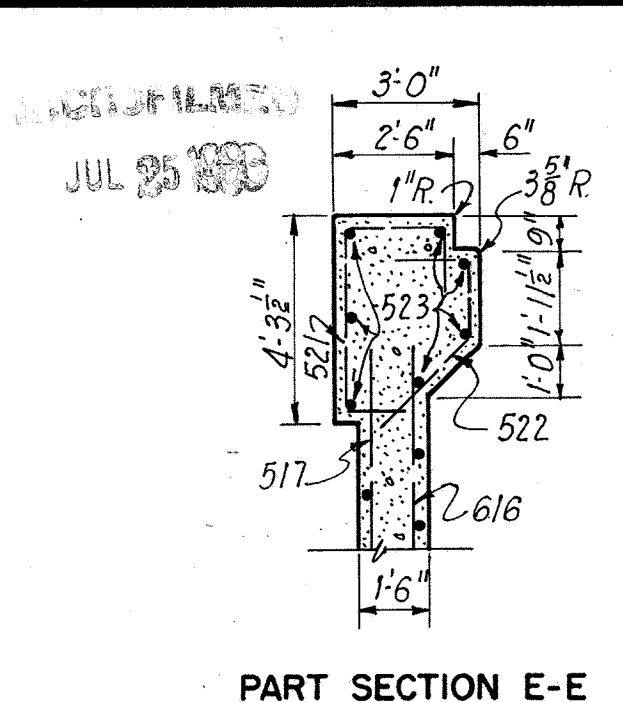
SCALE: 1/4" = 1'-0"
MADE J.H.G. DATE 5-2-52
TRCD. A.H. DATE 5-20-52
CKD J.P.S. DATE 7-12-52

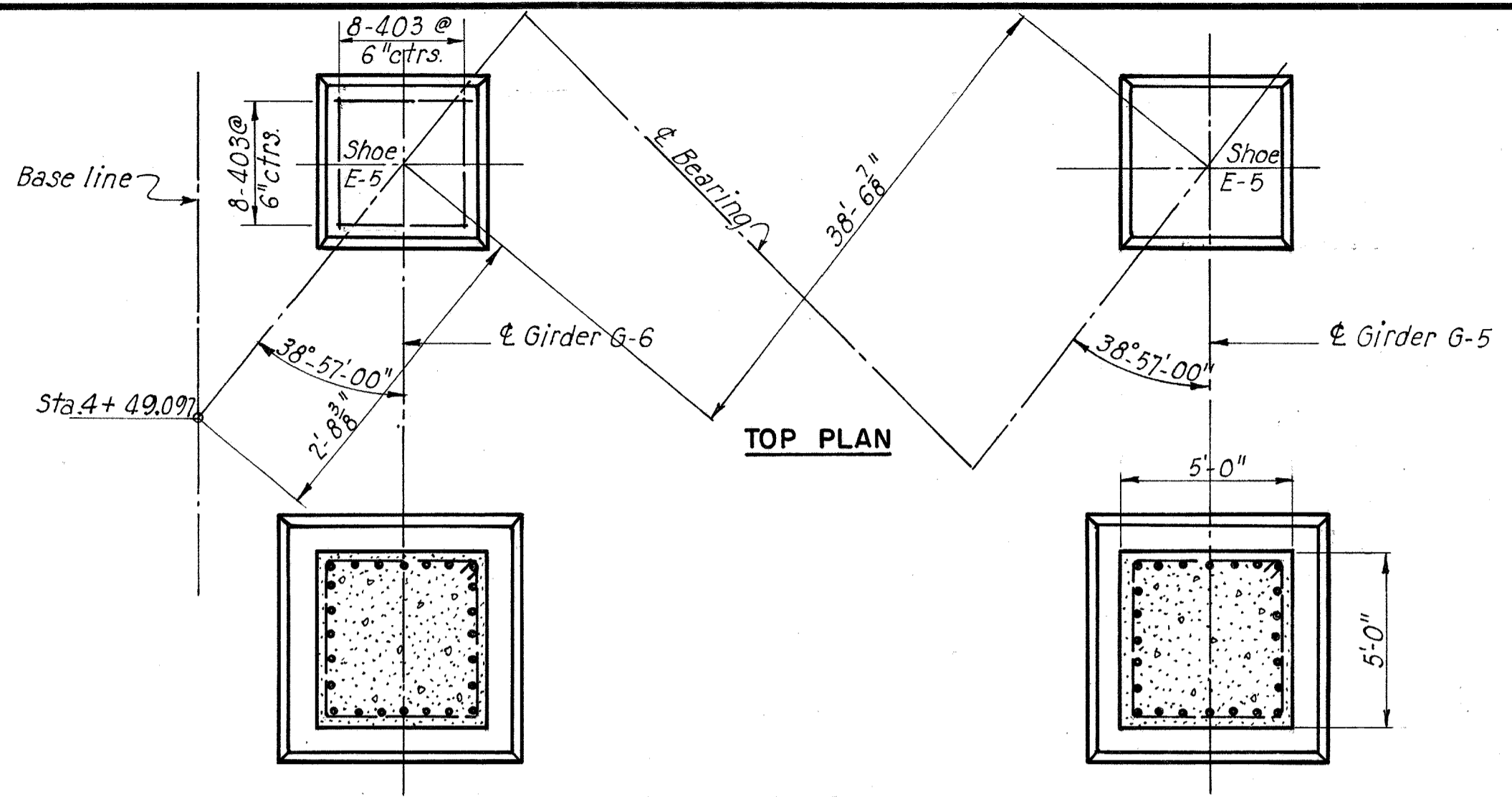
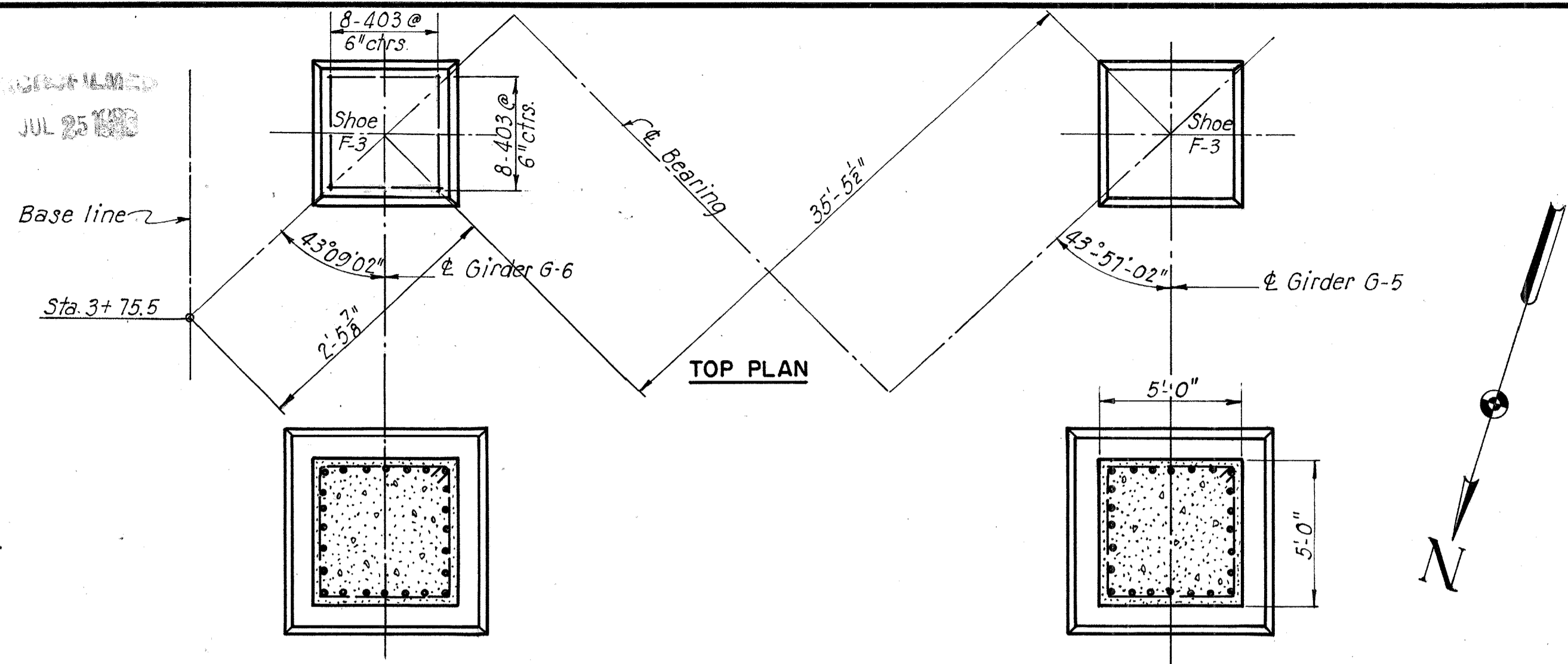
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KANSAS CITY NEW YORK

810 SHEET-2.45

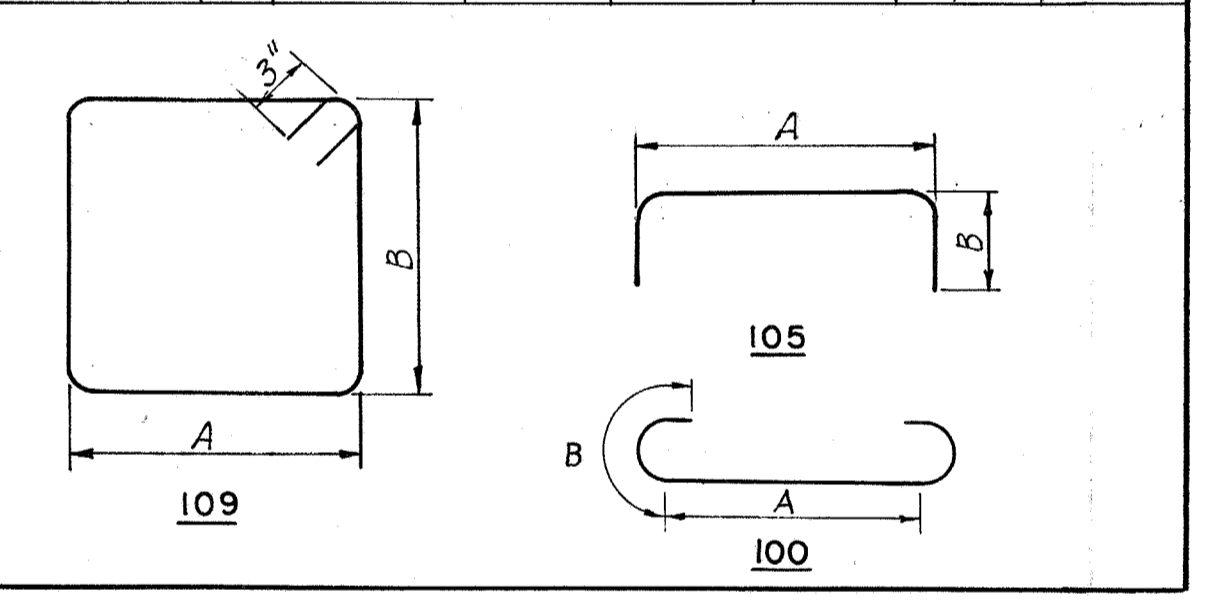
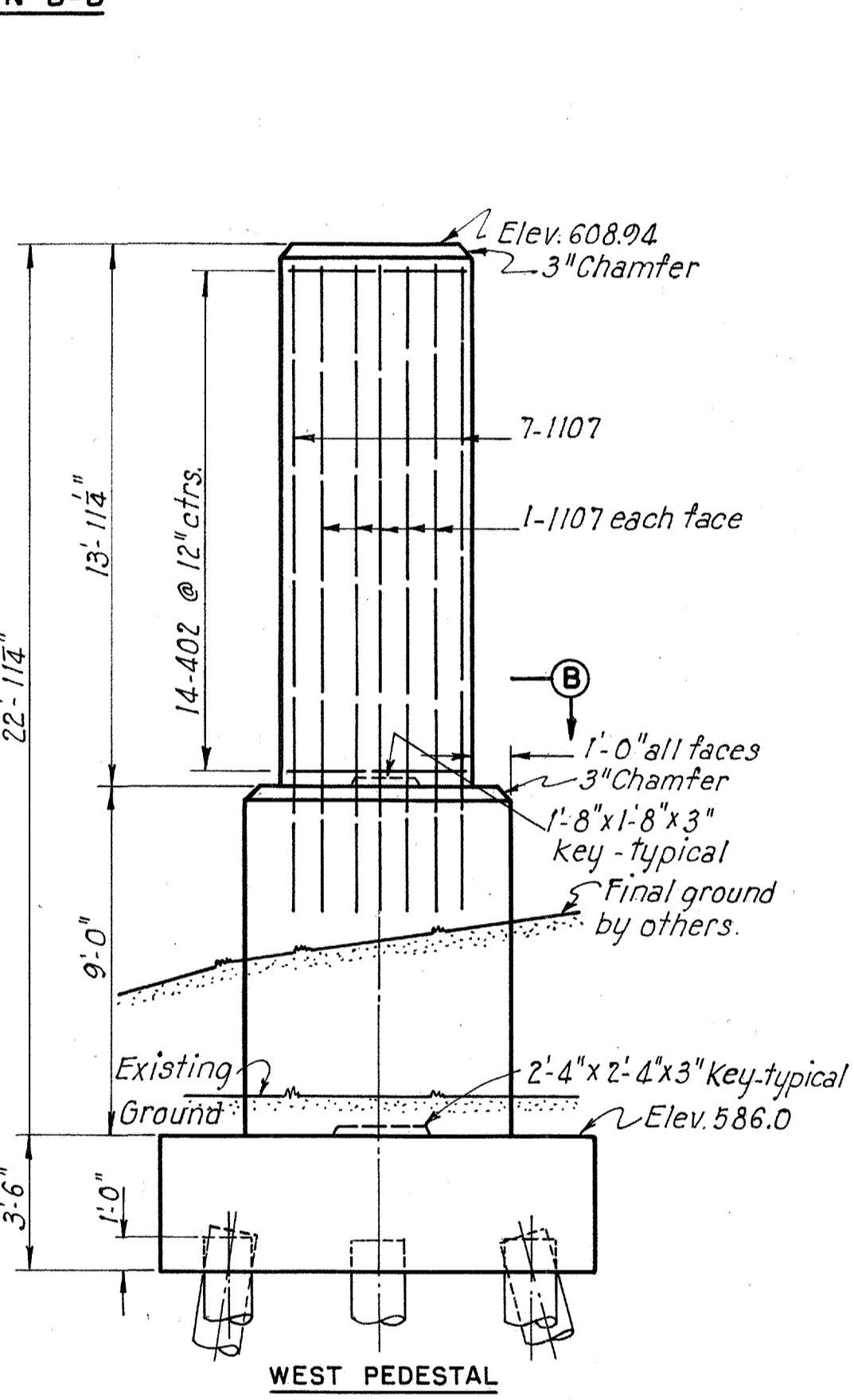
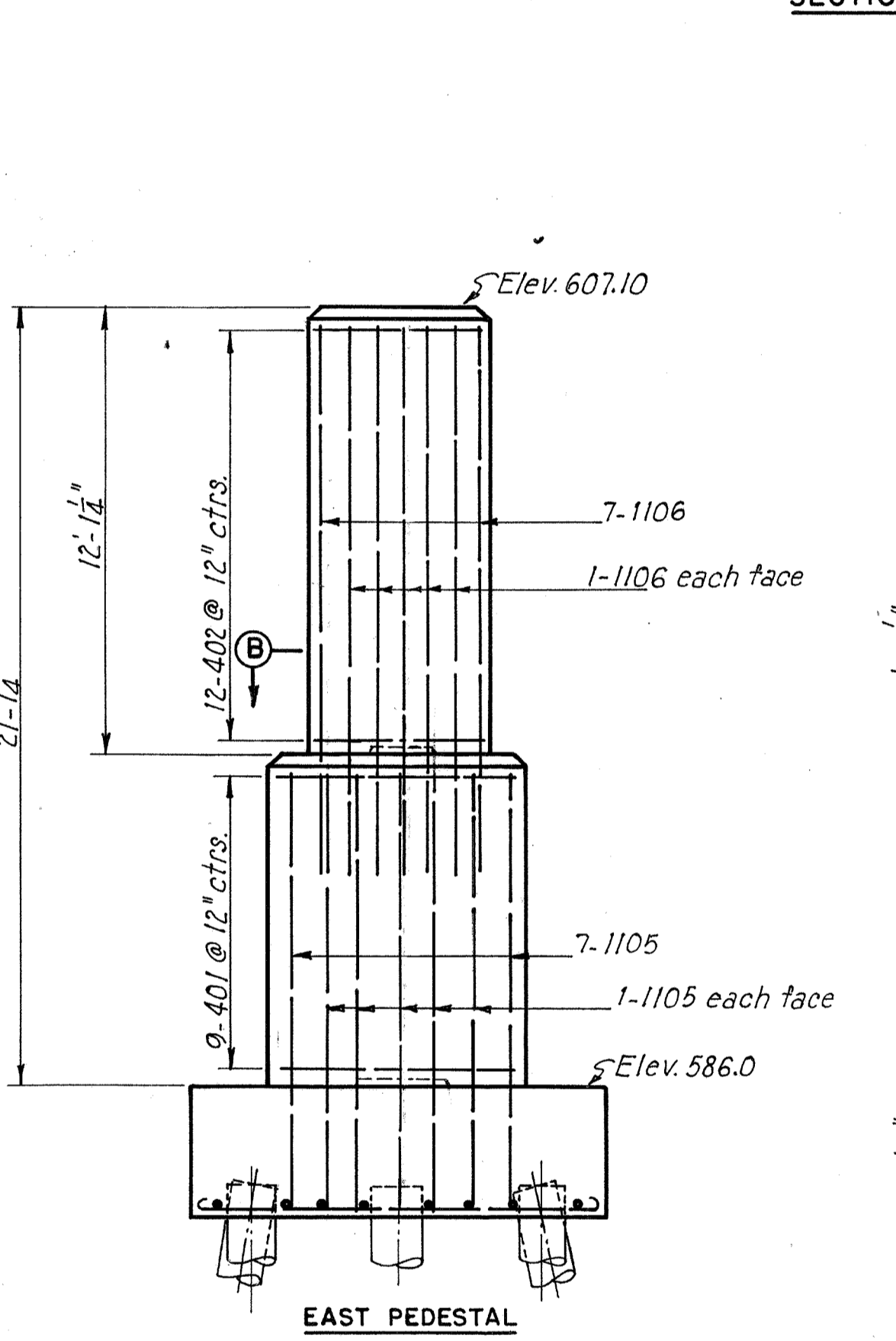
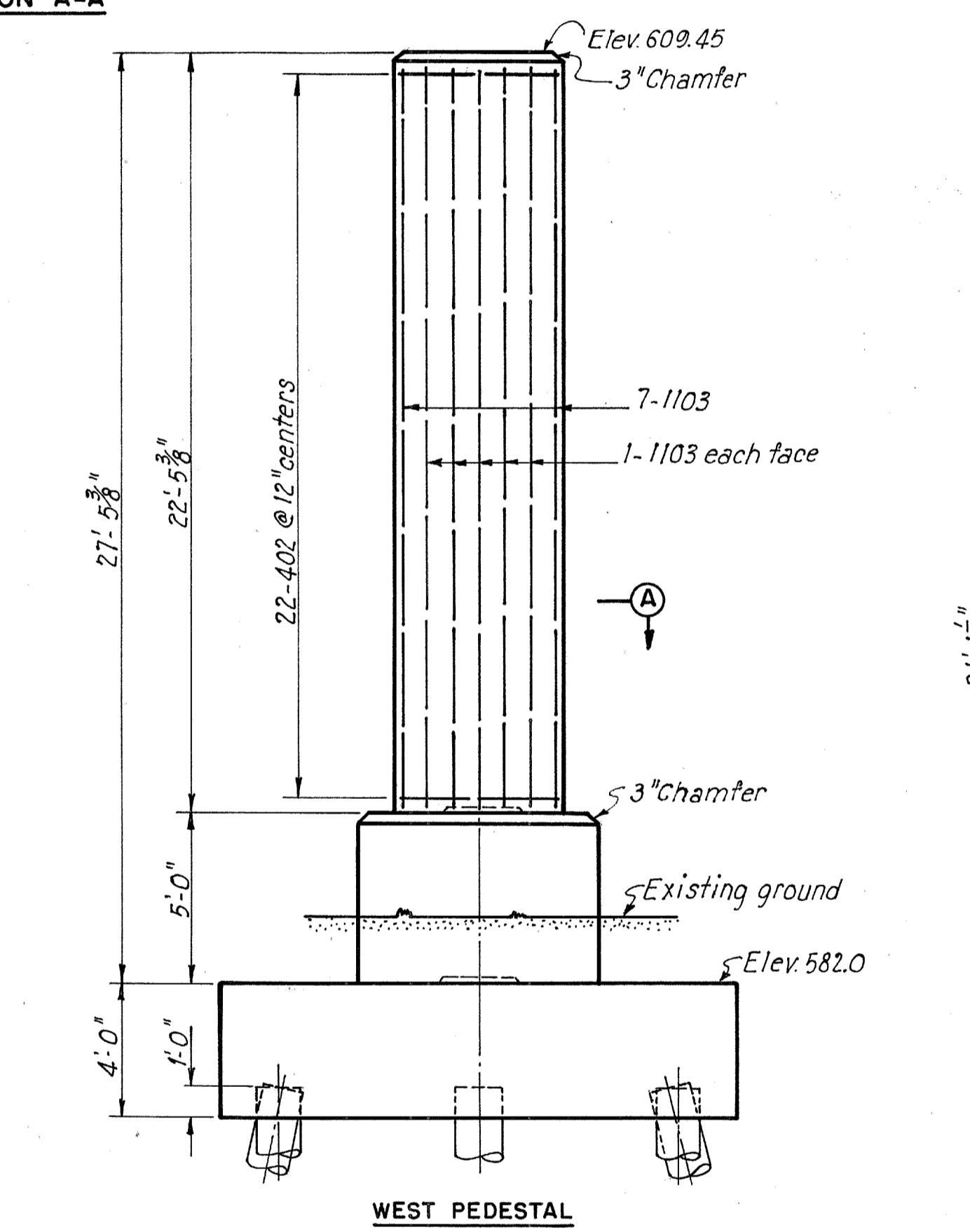
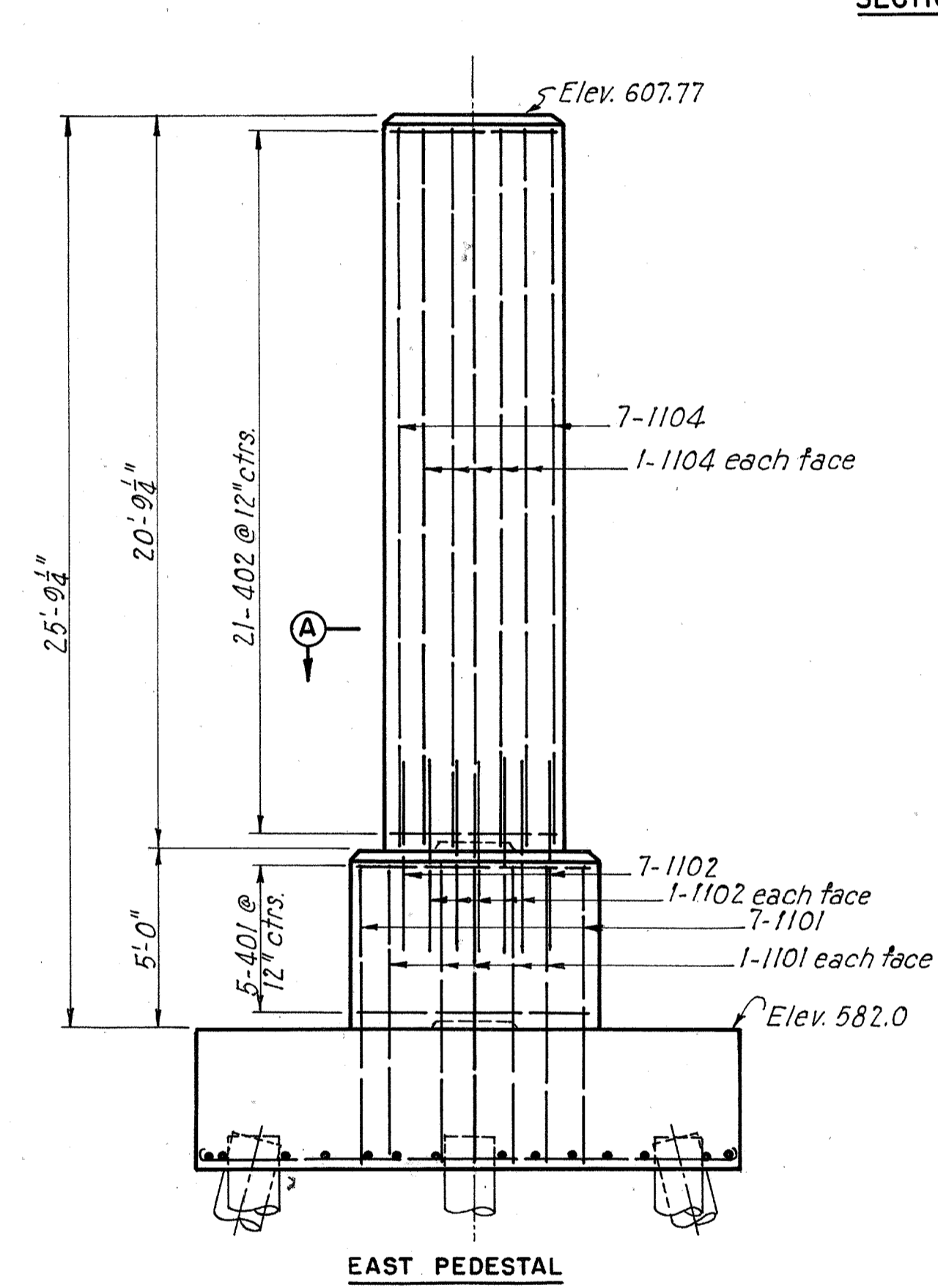
6.13

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

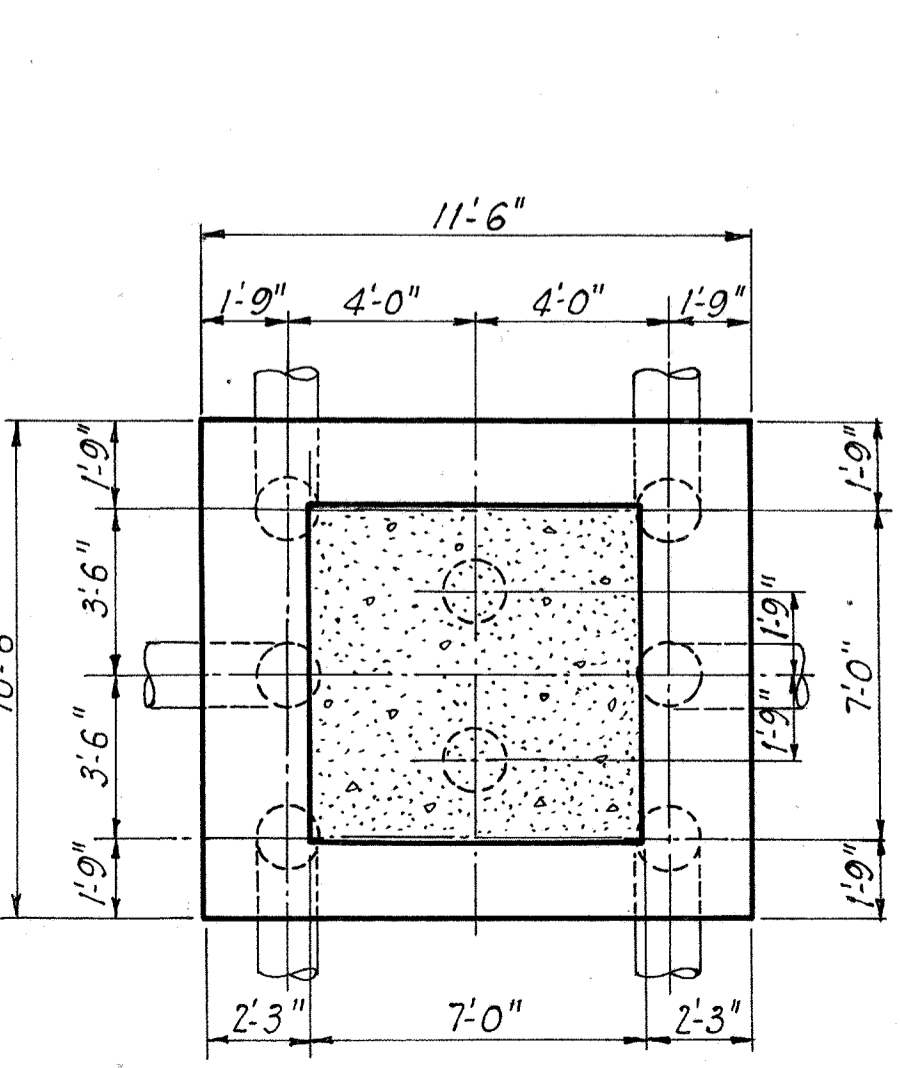
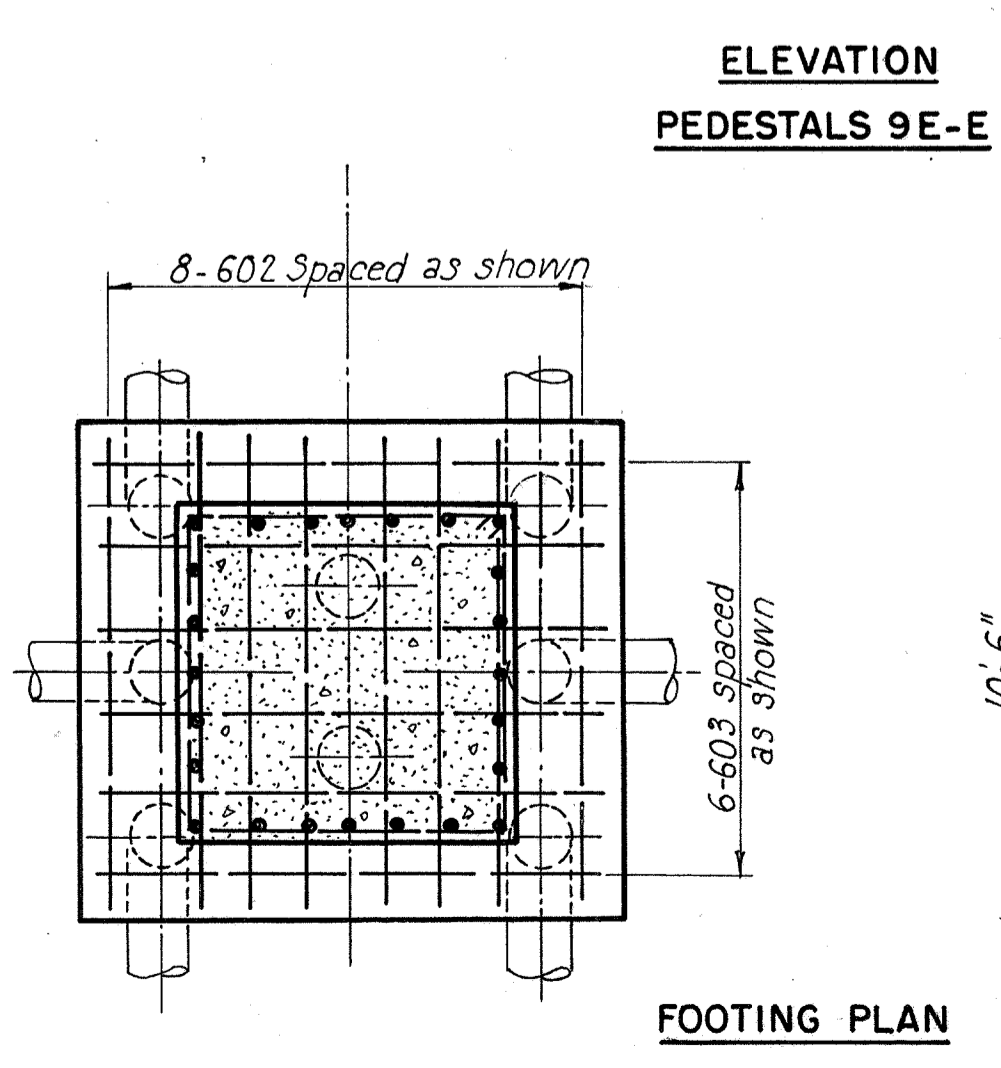
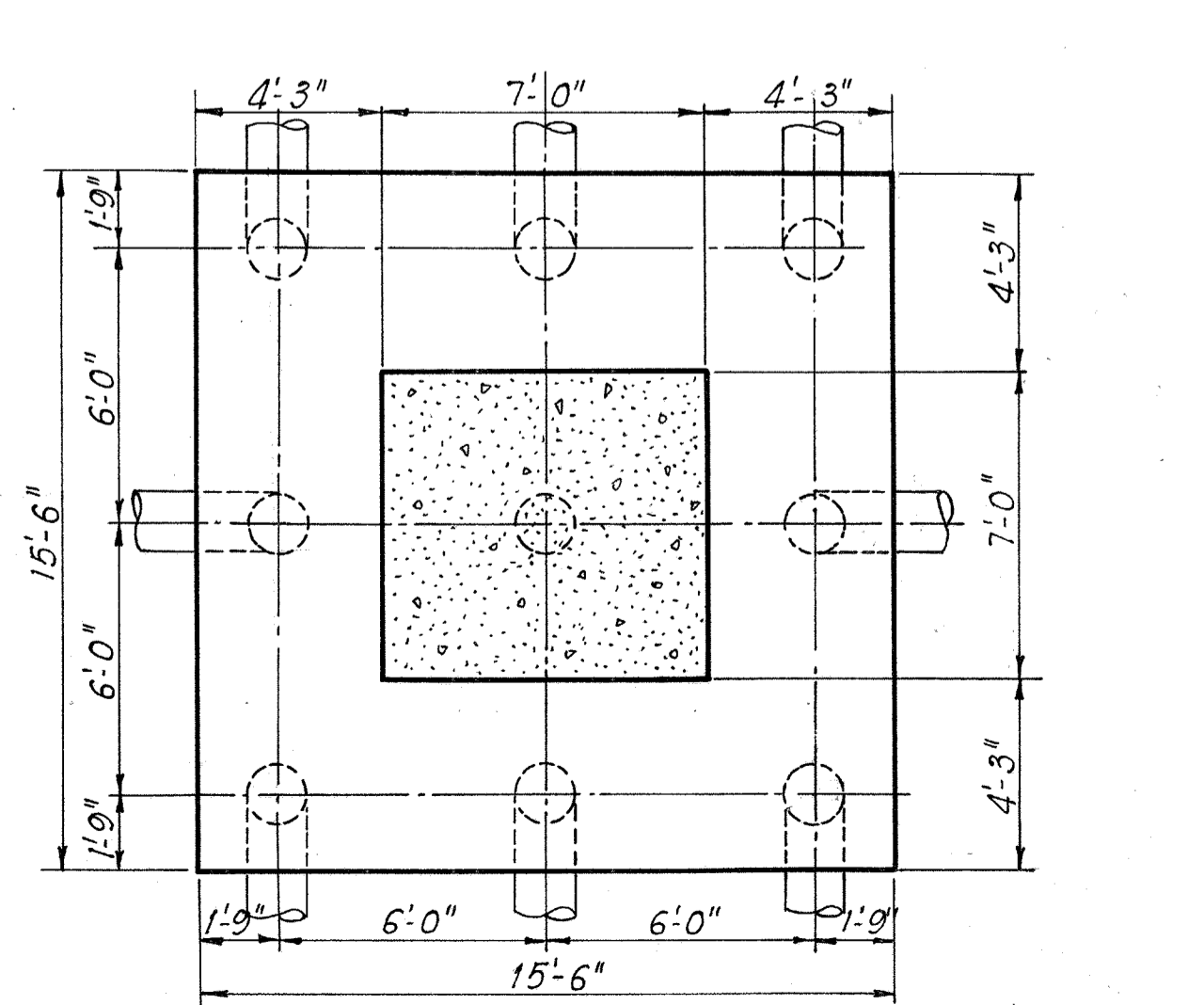
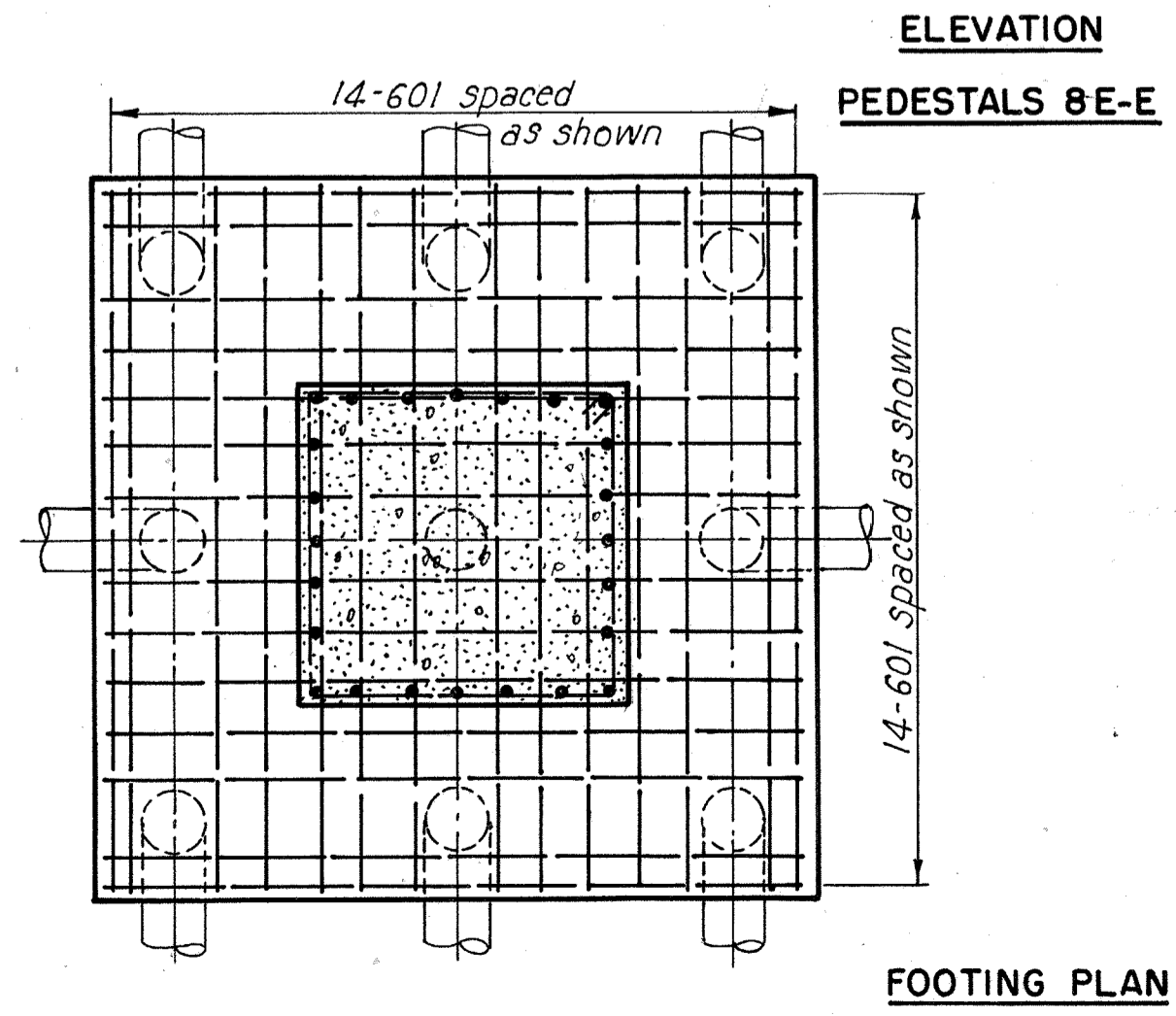




Mark	No.	Length	Type	Dimension		Weight		
				A	B	8E-E	9E-E	
401	10	18	27'-0"	109	6'-8"	6'-8"	180	320
402	43	26	19'-0"	109	4'-8"	4'-8"	550	330
403	32	32	6'-2"	105	4'-2"	1'-0"	130	130
601	56		16'-4"	100	14'-6"	0'-11"	1380	
602	16		11'-4"	100	9'-6"	0'-11"		270
603	12		12'-4"	100	10'-6"	0'-11"		220
1101	48		8'-6"	Str.				2170
1102	48		4'-8"	Str.				1190
1103	24		2'-9"	Str.				2770
1104	24		20'-3"	Str.				2580
1105	48		12'-0"	Str.				3060
1106	24		15'-3"	Str.				1940
1107	24		17'-3"	Str.				2200
				Totals	10,950	8,470		

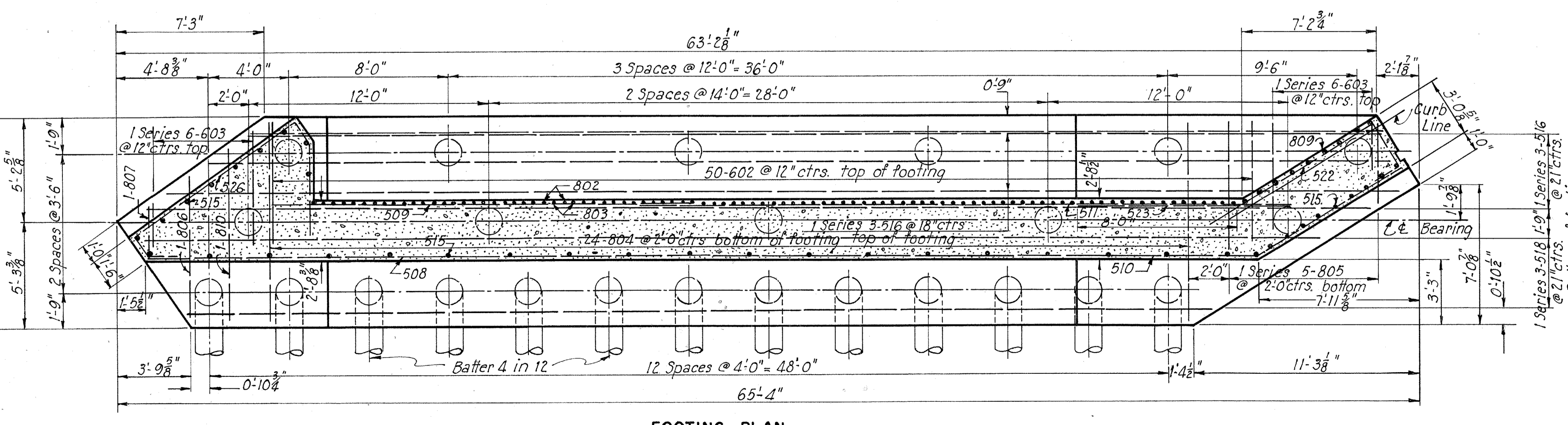
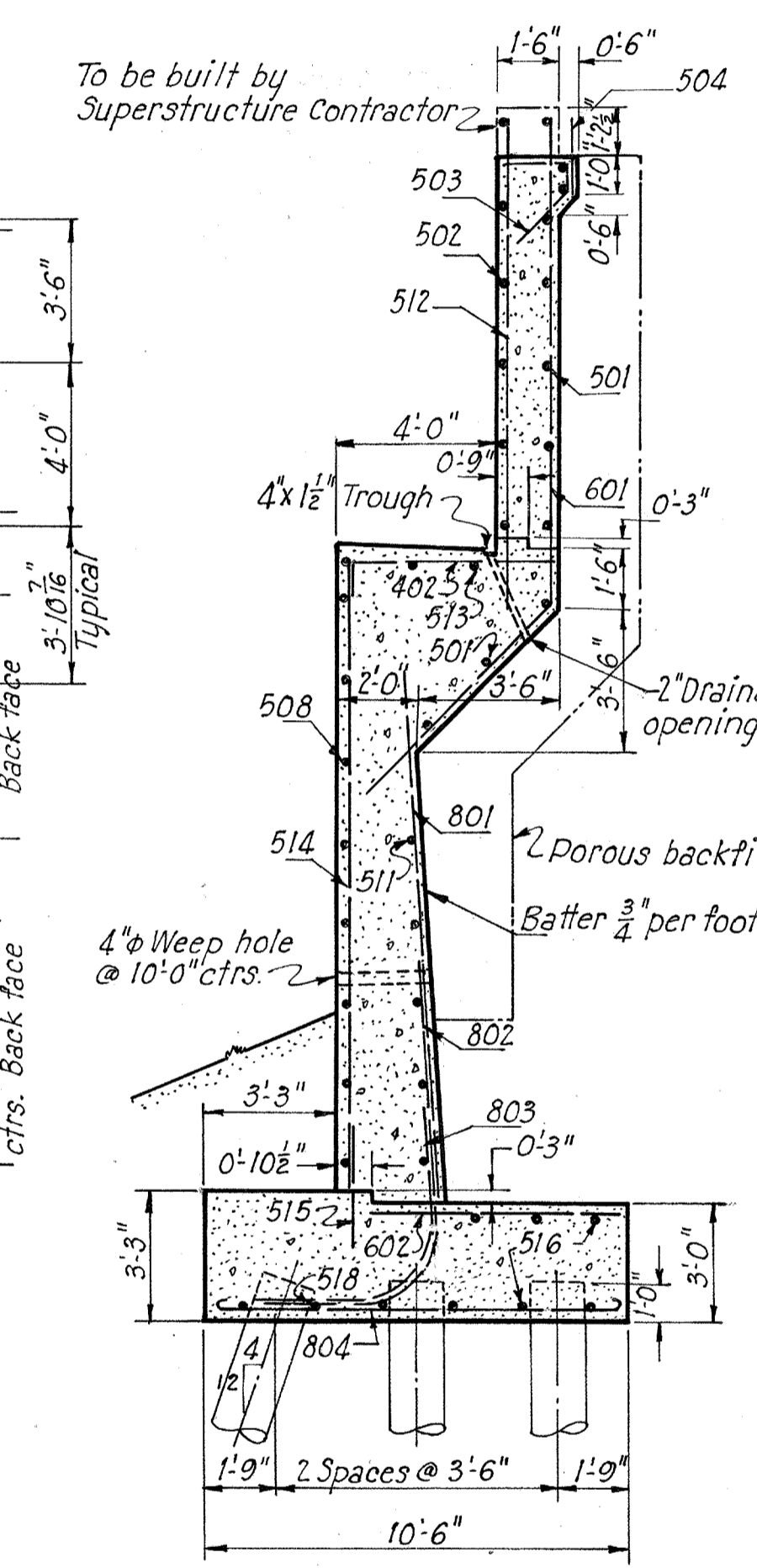
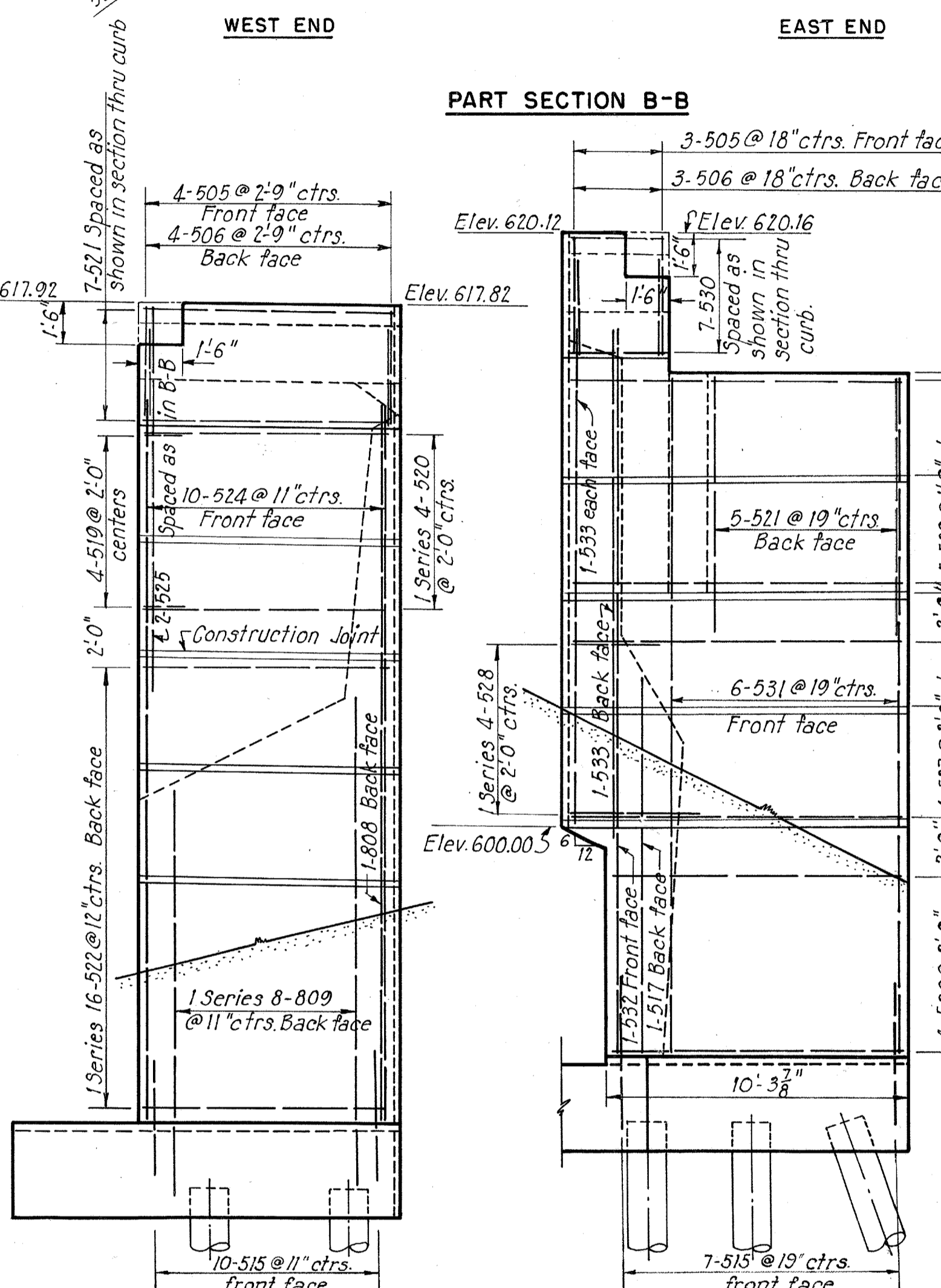
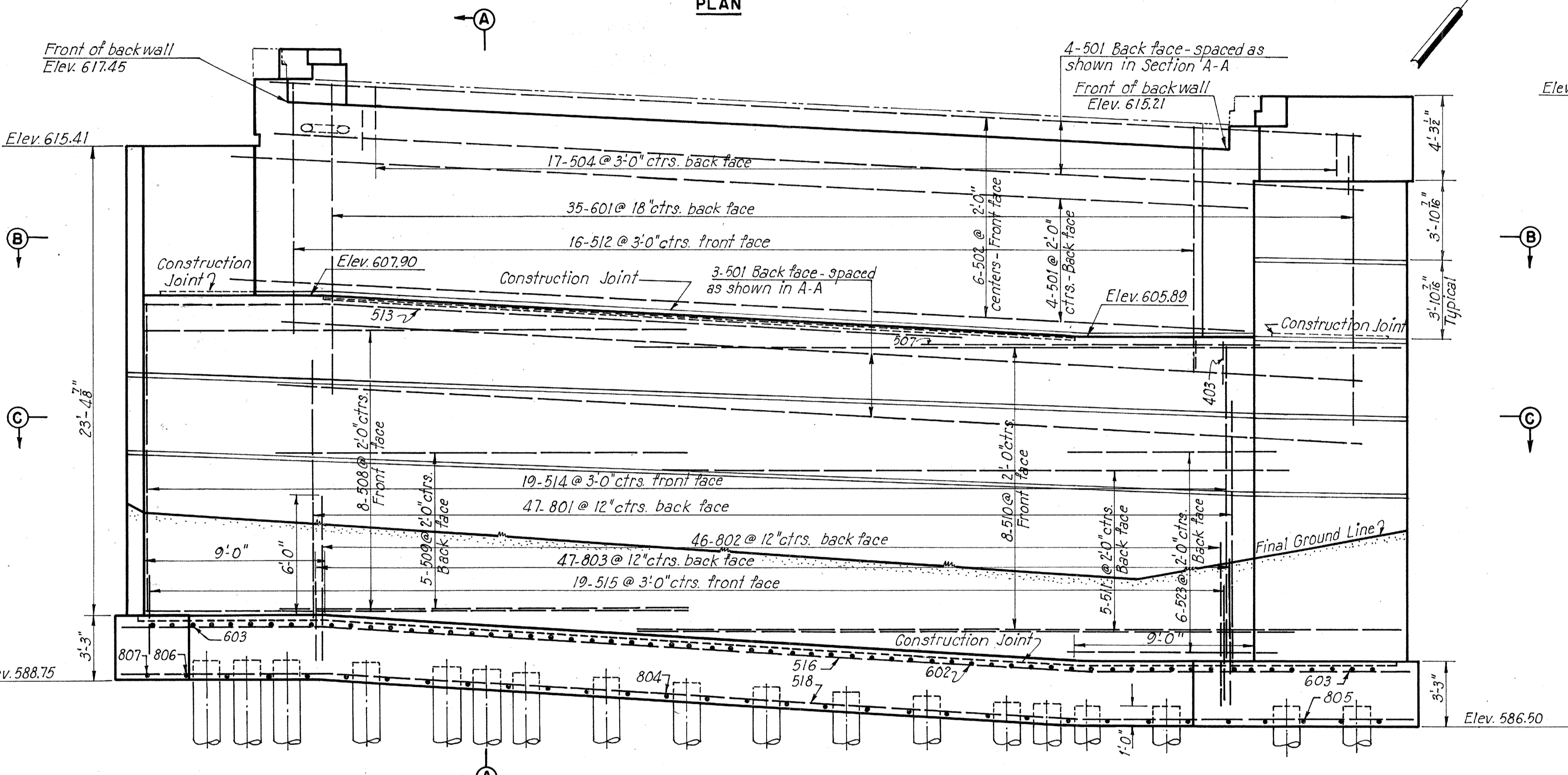
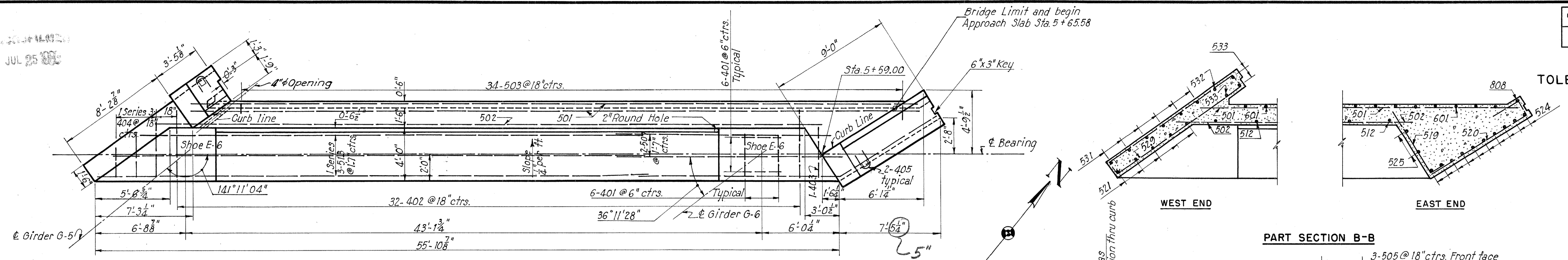


Notes:
All outside piles to be battered 2" in 12".
East and West Pedestals are similar except as shown.
All piles to be 16" concrete piles.

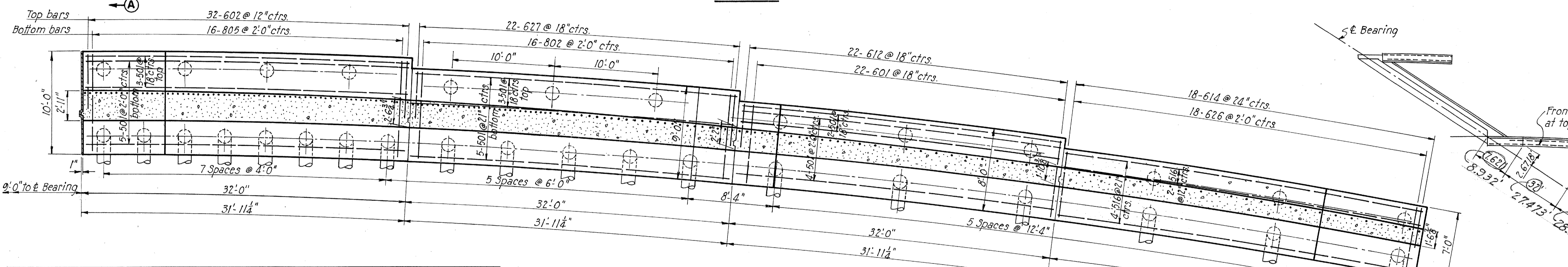
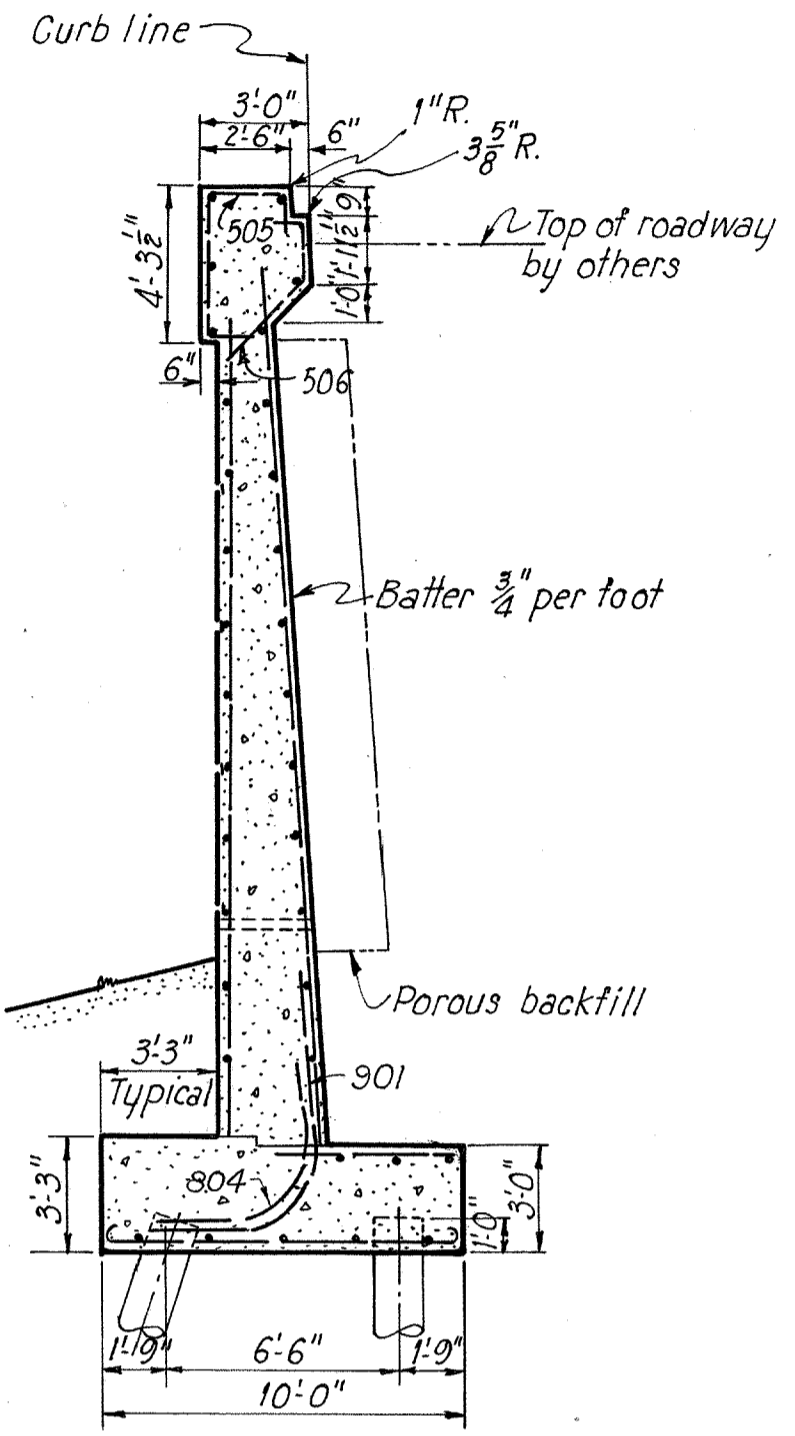
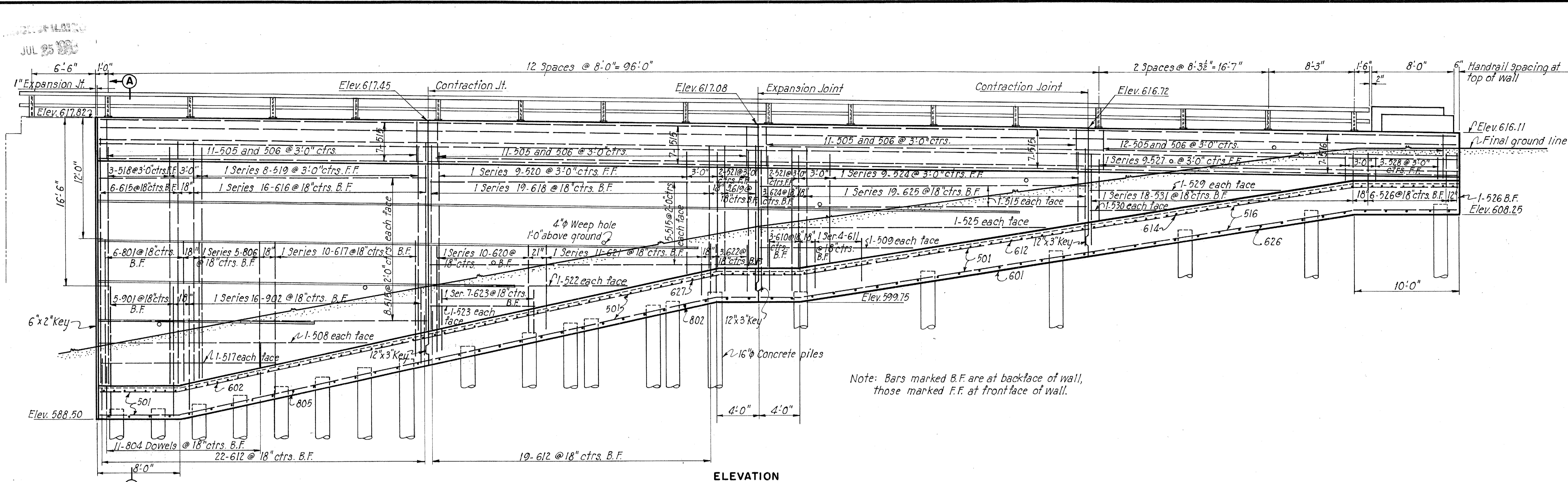


FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	UI-1052(3)	POST WAR

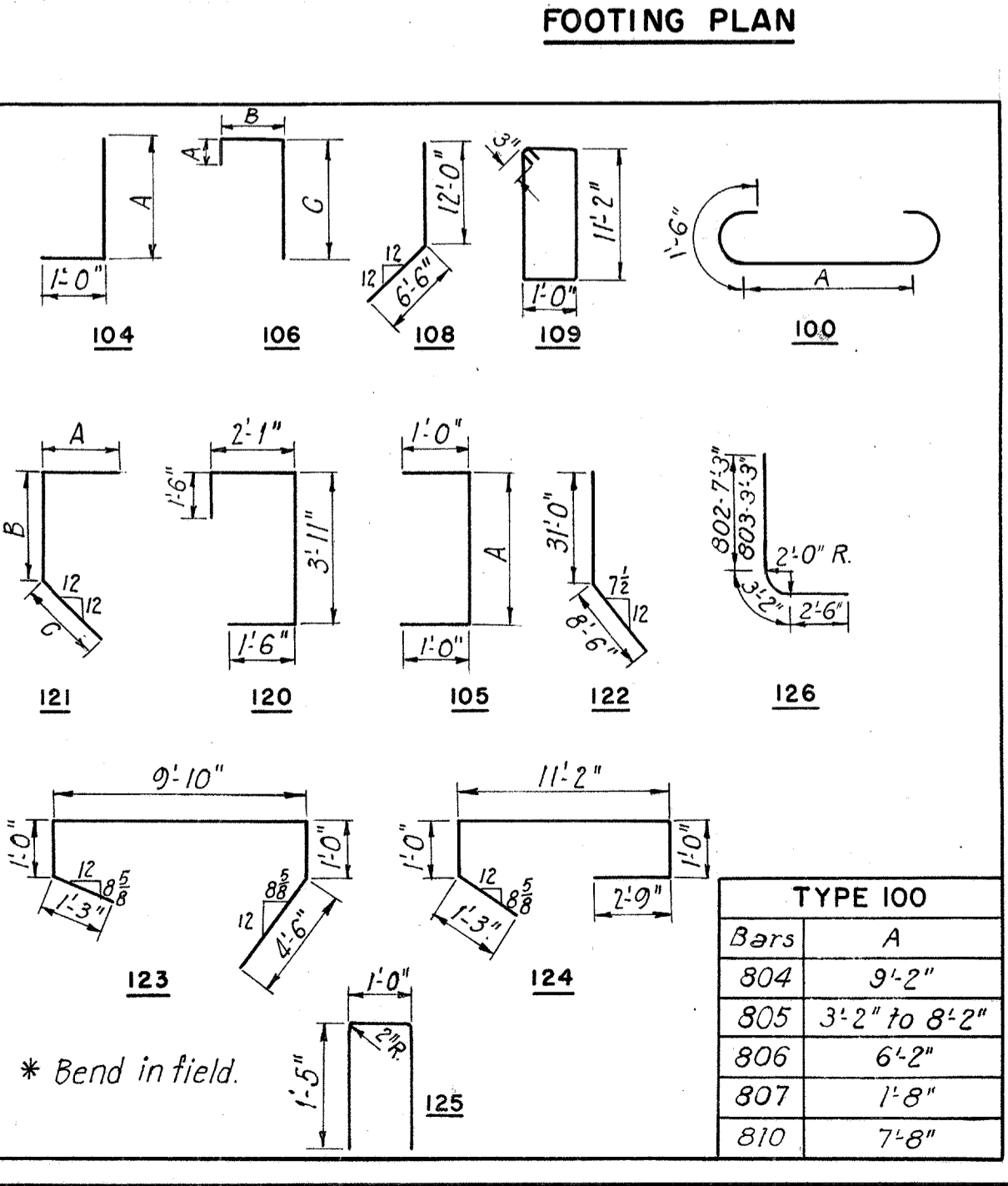
LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



REINFORCING STEEL SCHEDULE - RAMP E-E ABUTMENT												
Mark	No.	Length	Type	Dimensions			Weight	Mark	No.	Length	Type	Weight
				A	B	C						
401	24	5'-6"	105	3'-6"			90	523	6	10'-6"	Str.	70
402	32	5'-7"	104	4'-7"			120	524	10	25'-0"	Str.	260
403	1	4'-6"	104	3'-6"			10	525	2	13'-0"	Str.	30
404	1 Series of 3	3'-0" to 5'-0"	104	2'-0" to 4'-0"			10	526	4	17'-7"	123	70
405	4	3'-10"	125				10	527	4	17'-2"	124	70
501	11	54'-0"	Str.				620	528	1 Series of 4	3'-0" to 6'-3"	Str.	20
502	6	50'-0"	Str.				310	529	5	24'-10"	109	130
503	34	3'-10 1/2"	121	1'-6"	0'-7 1/2"	1'-9"	140	530	7	3'-0"	Str.	20
504	17	2'-0"	Str.				40	531	6	23'-0"	Str.	140
505	7	9'-0"	120				70	532	1	24'-9"	Str.	30
506	7	5'-8"	121	1'-6"	1'-8"	2'-6"	40	533	3	17'-3"	Str.	50
507	2	16'-9"	Str.				30					
508	8	27'-0"	Str.				220	601	35	18'-6"	108	970
509	5	21'-0"	Str.				110	602	50	6'-0"	Str.	450
510	8	39'-6"	122				330	603	2 Series of 6	2'-0" to 5'-6"	Str.	70
511	5	32'-6"	Str.				170	801	4-7	13'-0"	Str.	1630
512	16	12'-3"	Str.				200	802	4-6	12'-11"	126	1590
513	1 Series of 3	38'-0" to 41'-0"	Str.*				120	803	4-7	8'-11"	126	1120
514	19	15'-6"	Str.				310	804	24	12'-2"	100	780
515	36	4'-0"	Str.				150	805	1 Series of 5	6'-2" to 10'-2"	100	120
516	2 Series of 3	56'-9" to 60'-0"	Str.*				370	806	1	9'-2"	100	20
517	1	12'-9"	Str.				10	807	1	4'-8"	100	10
518	1 Series of 3	51'-6" to 58'-9"	Str.*				170	808	1	25'-0"	Str.	70
519	4	6'-6"	104	5'-6"			30	809	1 Series of 8	13'-6" to 16'-6"	Str.	320
520	1 Series of 4	11'-4 1/2" to 11'-9"	106	2'-0"	11 1/2" to 1'-4 1/2"	8'-5"	50	810	1	10'-8"	100	30
521	12	8'-6"	Str.				110					
522	1 Series of 16	11'-8" to 12'-7 1/2"	106	1'-3"	1'-5" to 2'-4 1/2"	9'-0"	200					
								Total			12, 110	



Note:
All battered piles battered 4" in 12".
Piles to be 16" concrete piles.
Handrail to be furnished by others. For handrail post holes, see Sheet 32. See Sheet 32 for terminal post, expansion joint and contraction joint details. For reinforcing steel schedule, see Sheet 22.

LAYOUT DIMENSIONS FOR WING WALLS

TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
BR. NO. LU 120 - 35
RAMP E-E ABUTMENT
EAST WINGWALL
TOLEDO LUCAS COUNTY, OHIO

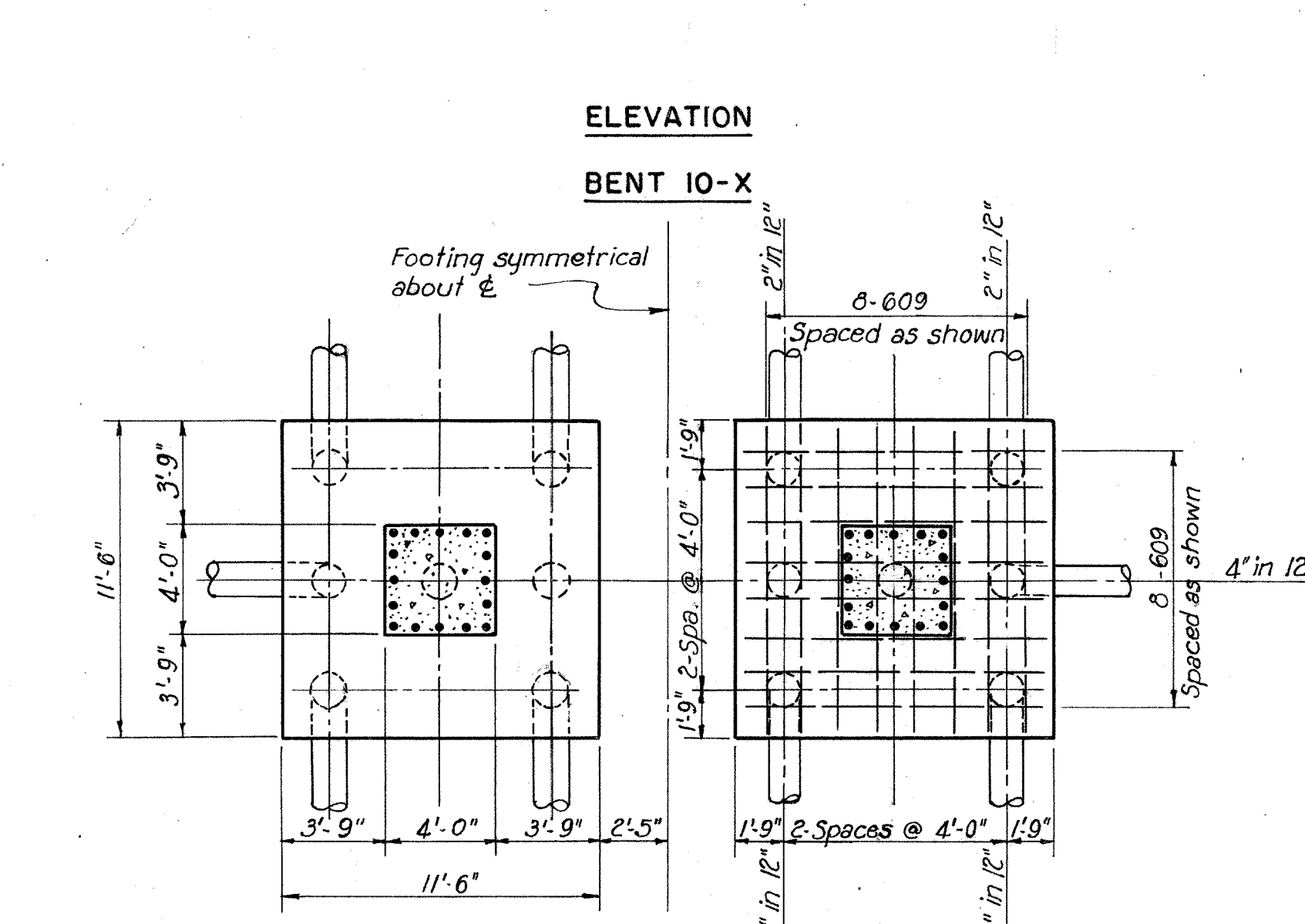
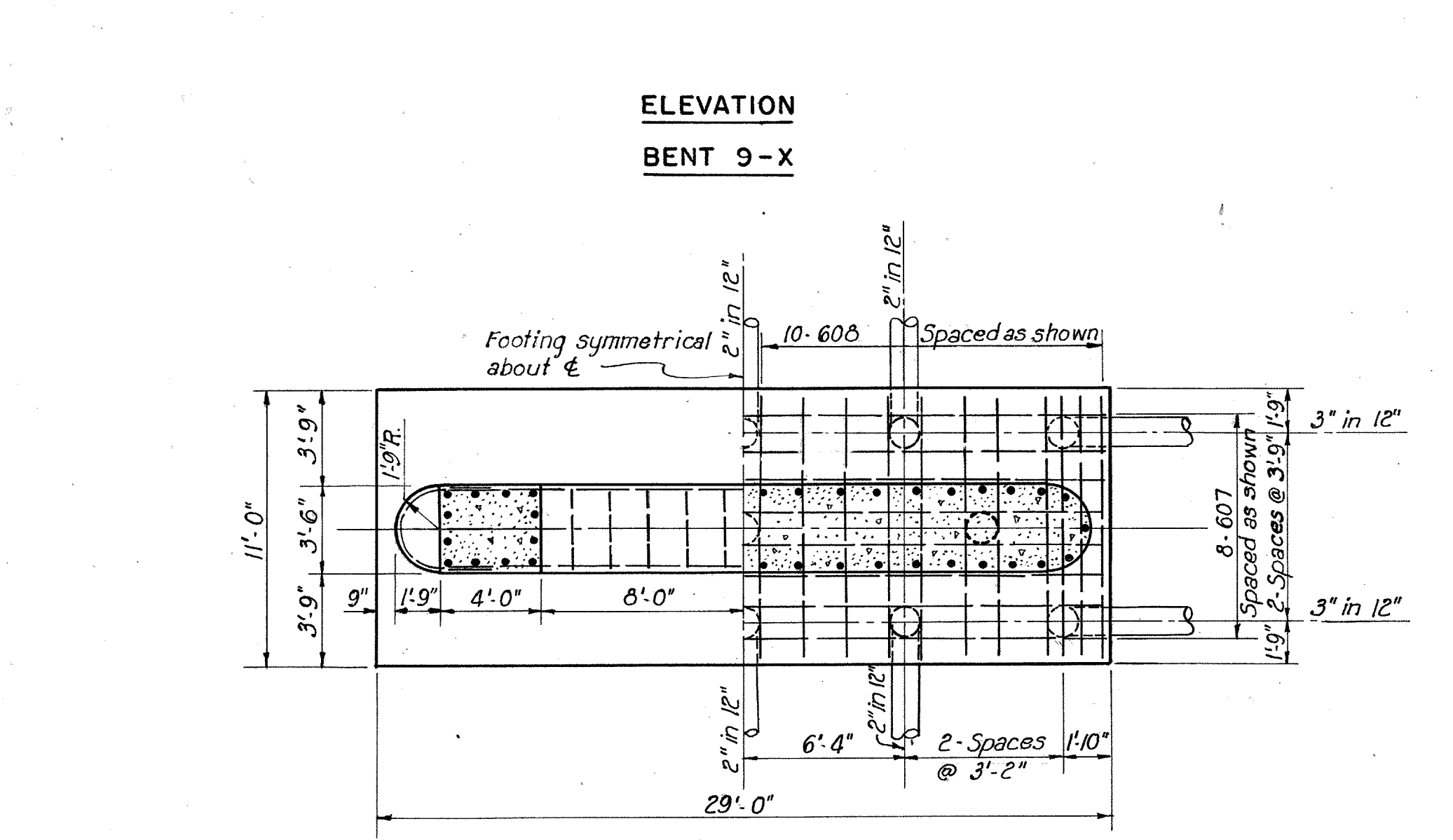
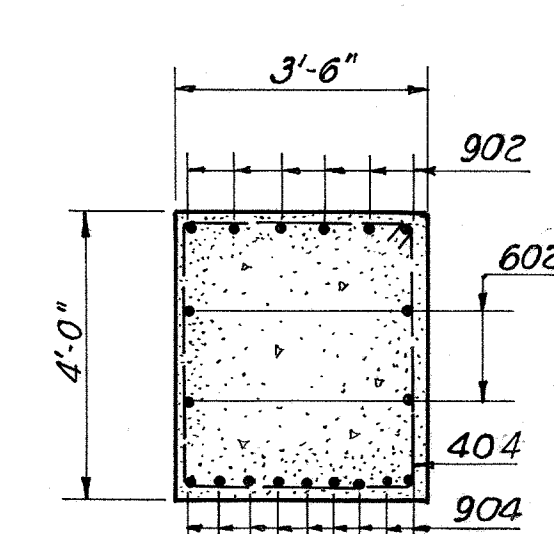
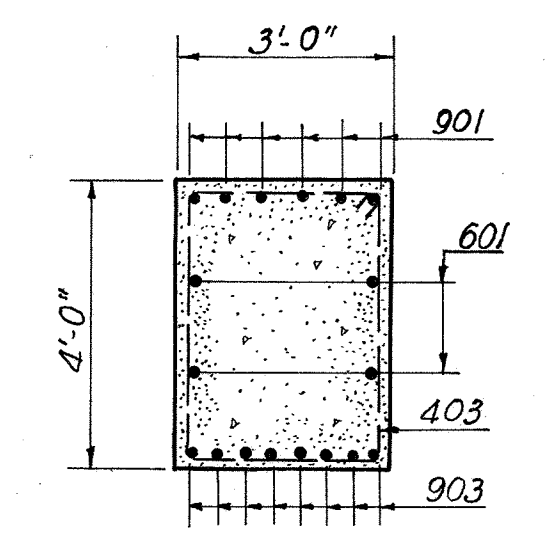
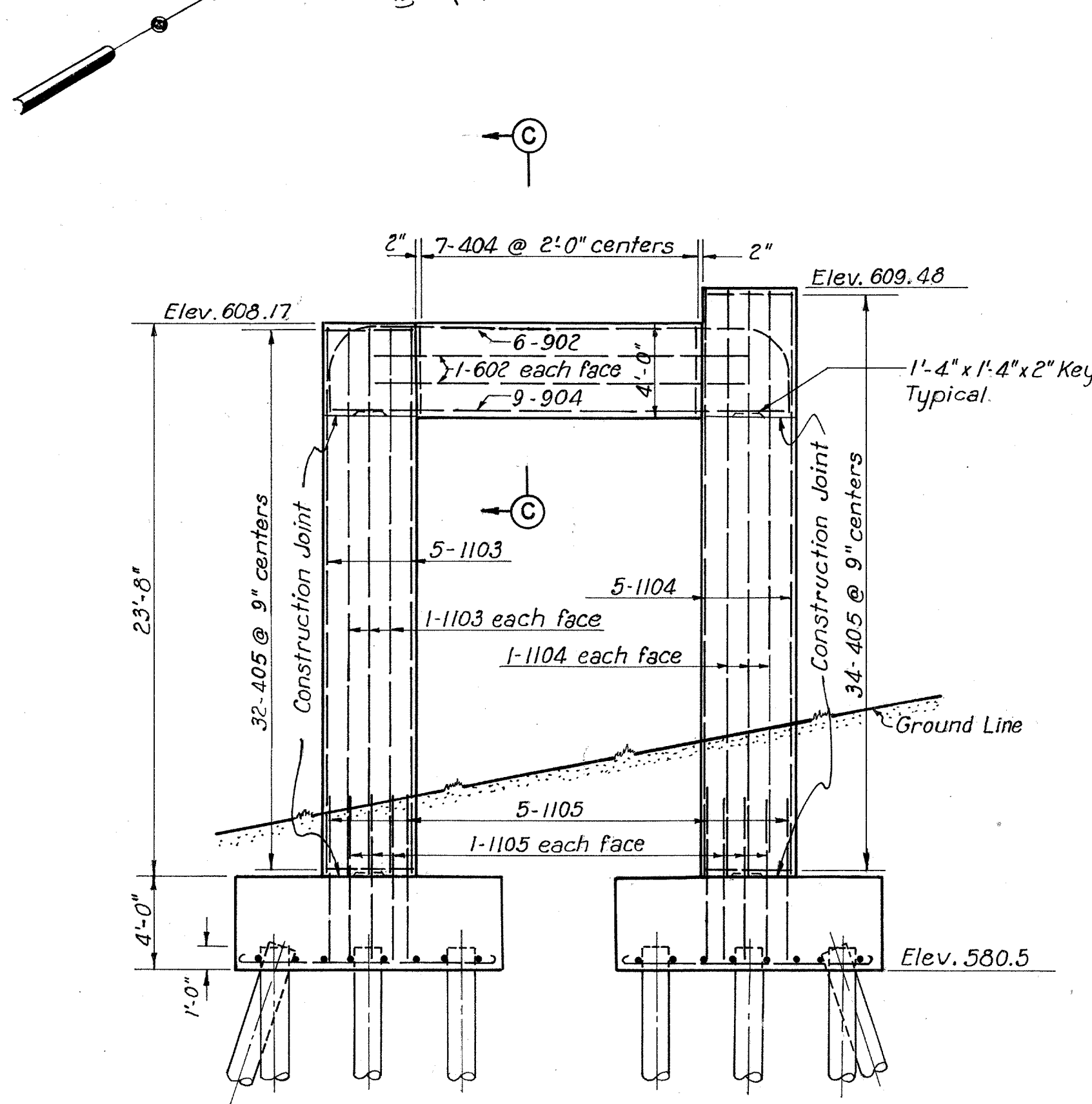
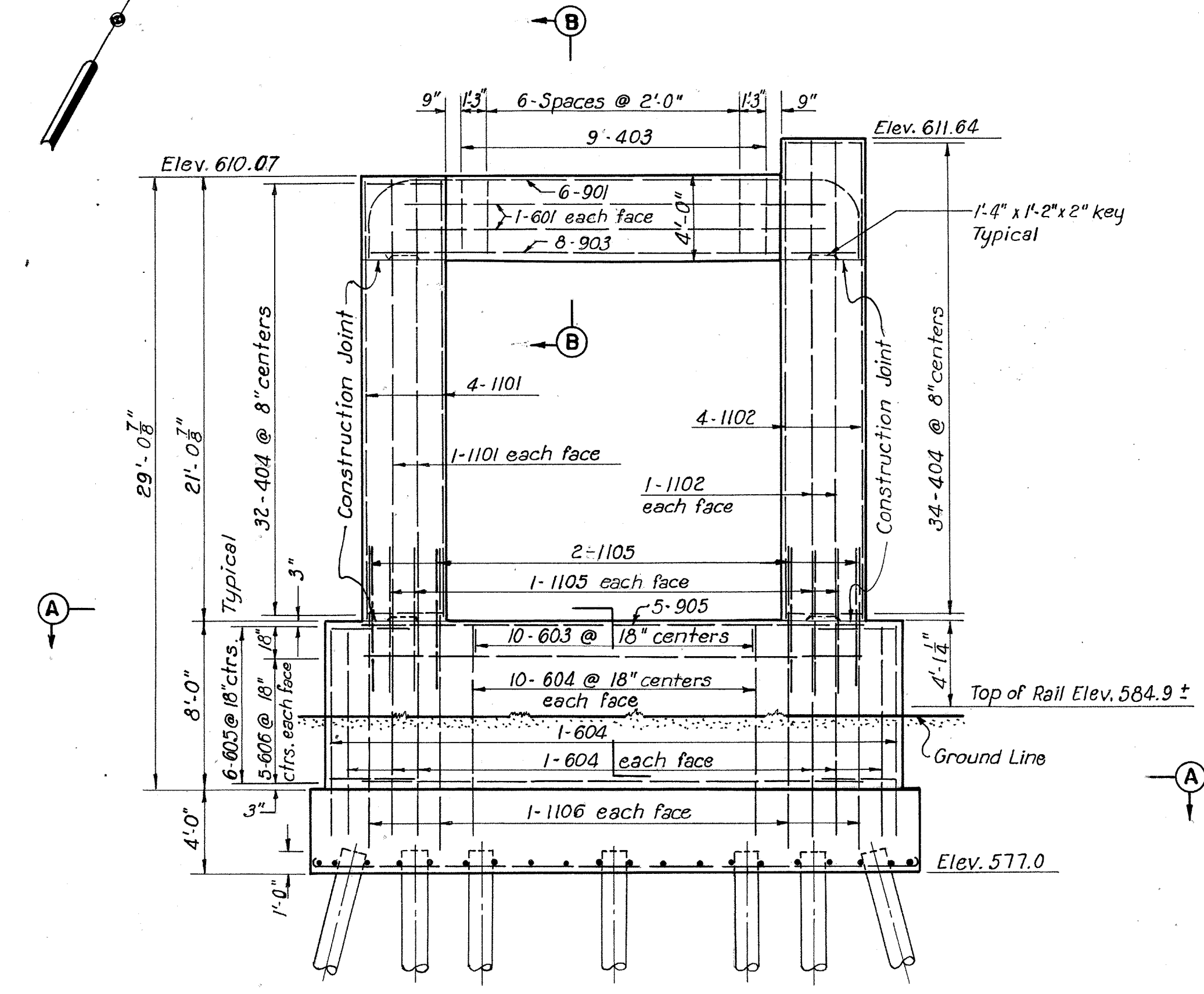
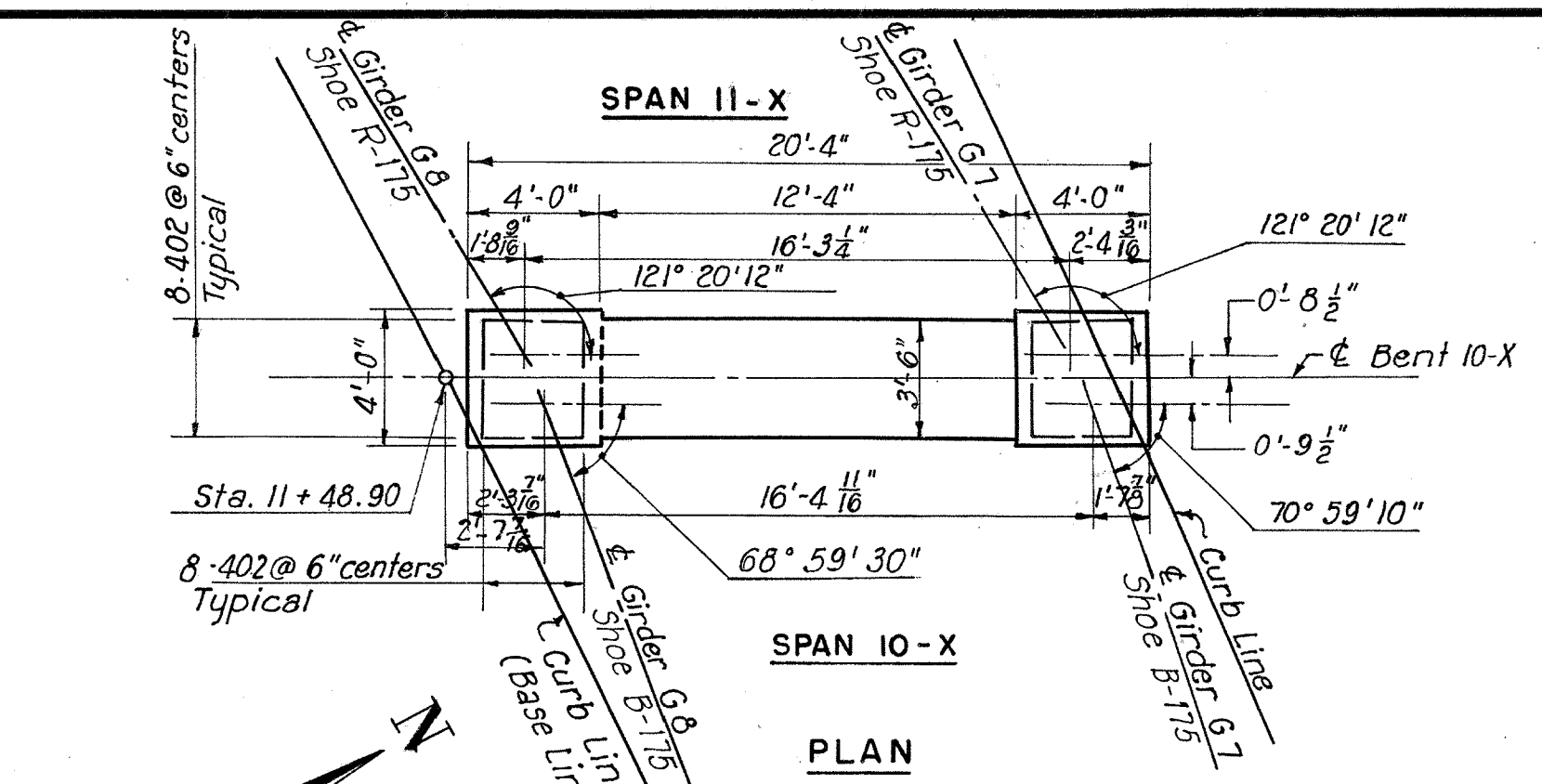
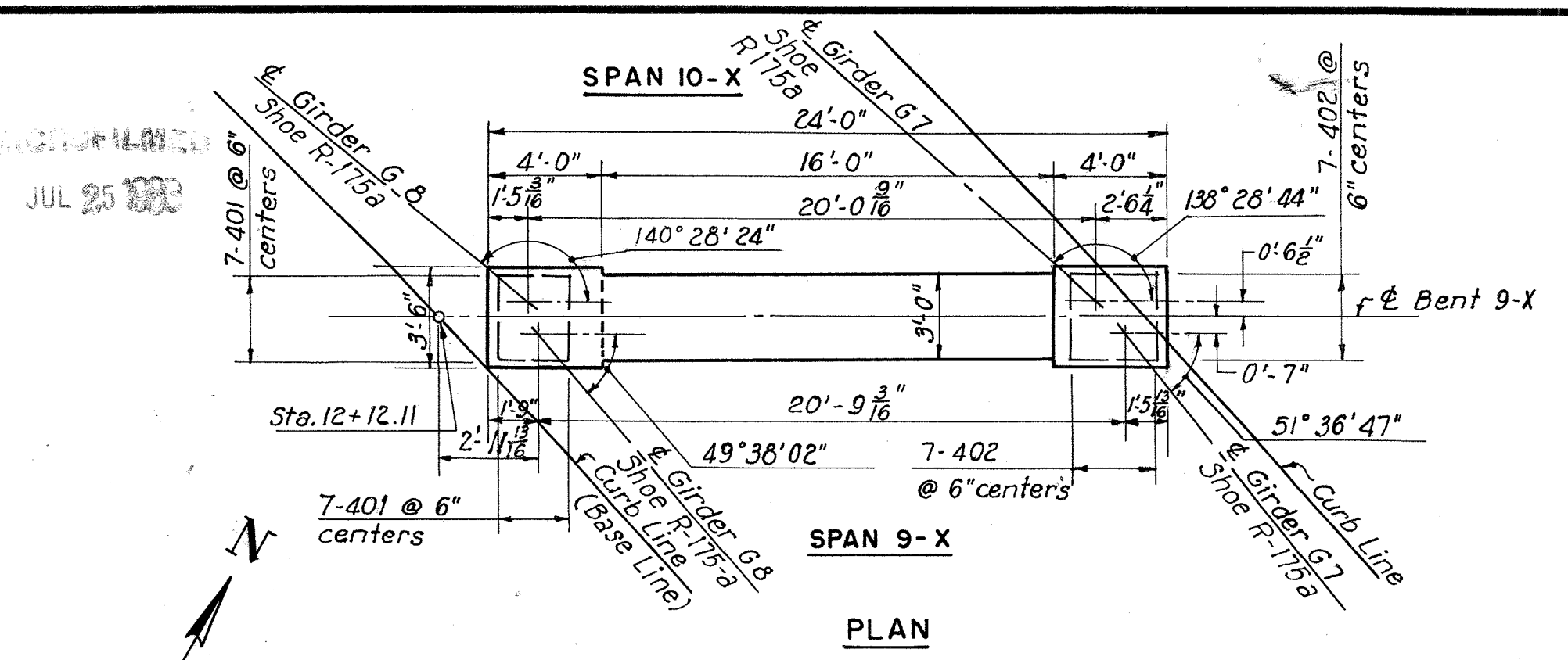
SCALE 3/16" = 1'-0"
MADE G.D. DATE 7-21-52
TRCD R.R. DATE 8-11-52
CND J.P.S. DATE 8-15-52

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CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET 2.51

Revised 6-17-53

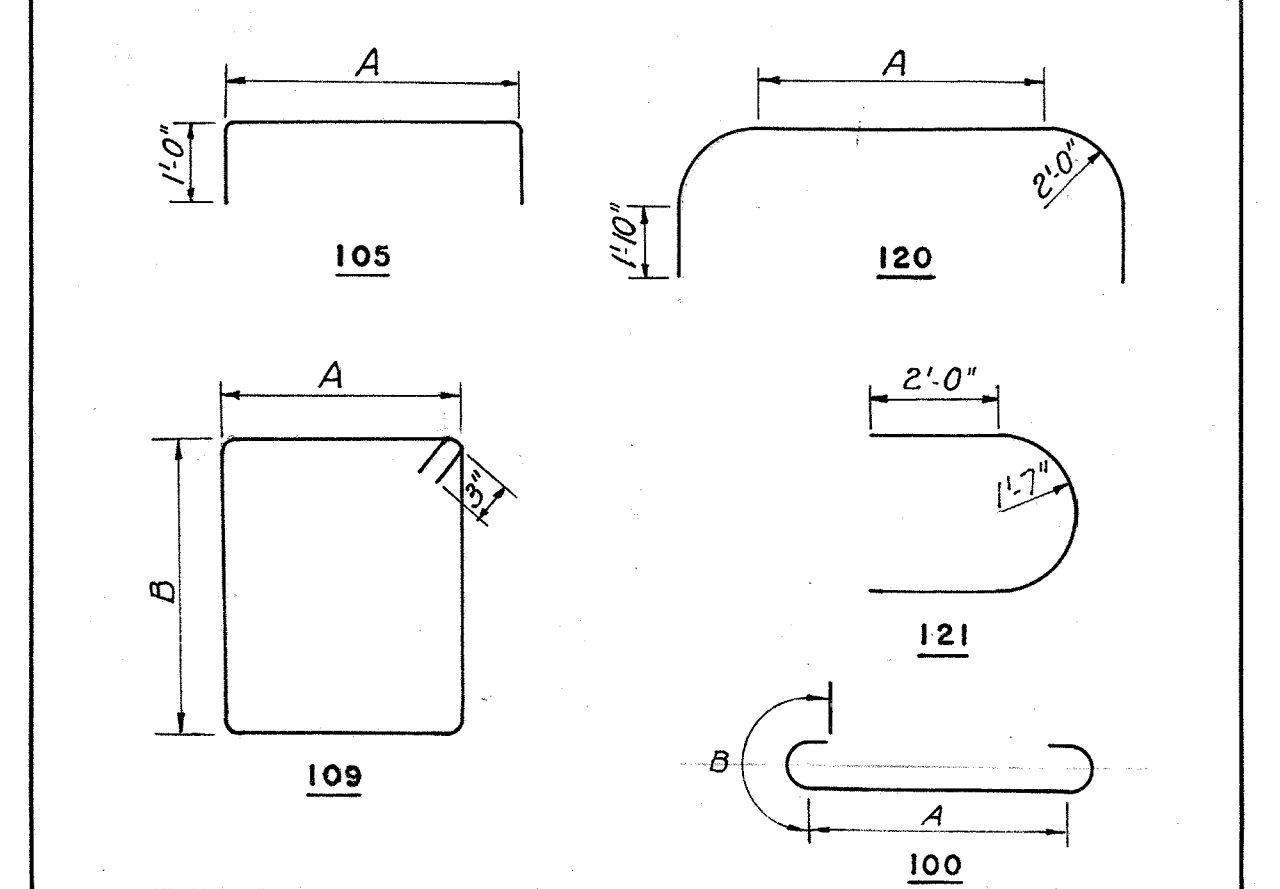
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	0-1052(3)	POST WAR

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



Scale: $\frac{3}{16}$ " = 1'-0"

Mark	REINFORCING		Type	STEEL		SCHEDULE		Weight	
	No.	Length		Dimensions	Weight				
				A	B	9X	10X		
401	28	5'-0"	105	3'-0"				90	
402	32	5'-6"	105	3'-6"				120	
403	9	13'-0"	109	2'-7 1/2"	3'-7 1/2"			80	
404	66	7	109	3'-1 1/2"	3'-7 1/2"			620	70
405	66	15'-0"	109	3'-7 1/2"	3'-7 1/2"			660	
601	4	20'-0"	Str.					120	
602	4	16'-3"	Str.					100	
603	10	5'-2"	105	3'-1 1/2"				80	
604	34	10'-0"	Str.					510	
605	12	9'-0"	121					160	
606	10	24'-0"	Str.					360	
607	8	29'-10"	100	28'-0"	0'-11"			360	
608	20	11'-10"	100	10'-0"	0'-11"			360	
609	32	12'-4"	100	10'-6"	0'-11"			530	
901	6	29'-6"	120	19'-7"				600	
902	6	25'-10"	120	15'-11"				530	
903	8	23'-6"	Str.					640	
904	9	19'-9"	Str.					610	
905	5	24'-0"	Str.					410	
1101	12	20'-9"	Str.					1320	
1102	12	22'-3"	Str.					1420	
1103	16	23'-3"	Str.					1980	
1104	16	23'-6"	Str.					2080	
1105	16	32	7'-6"	Str.				640	1280
1106	8	15'-0"	Str.					640	
Total								8,410	6,020



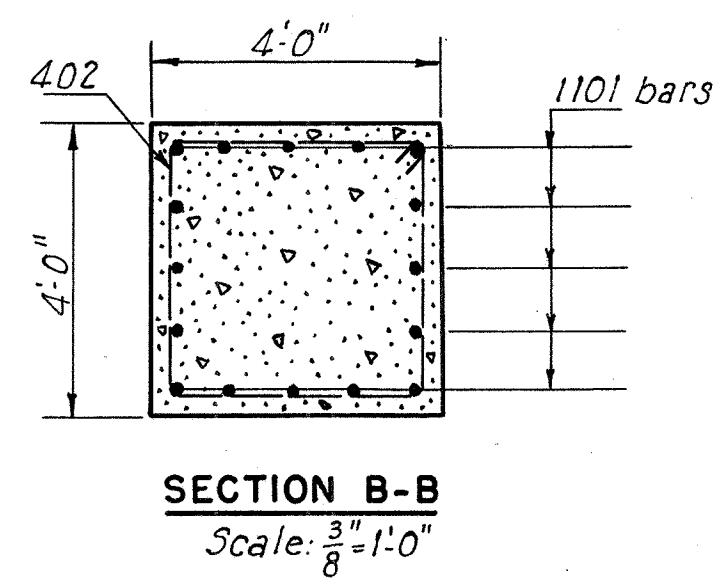
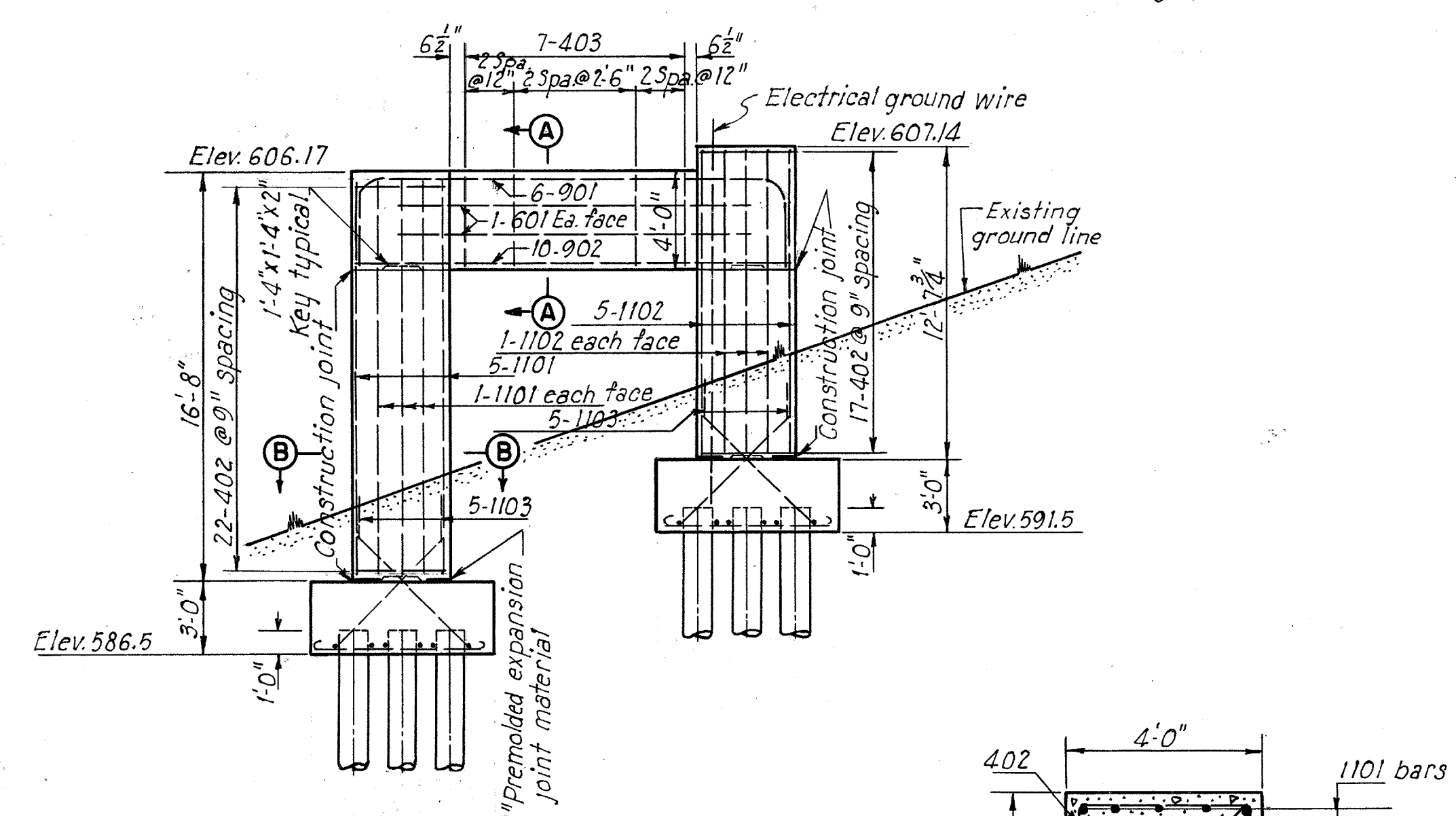
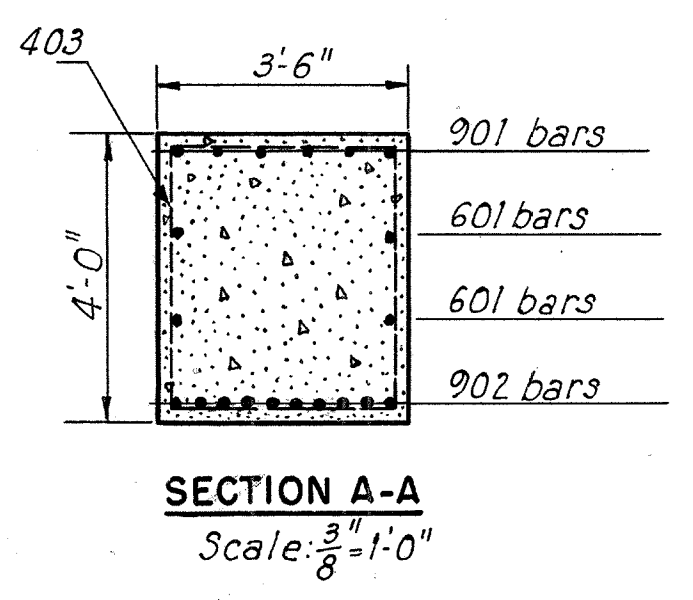
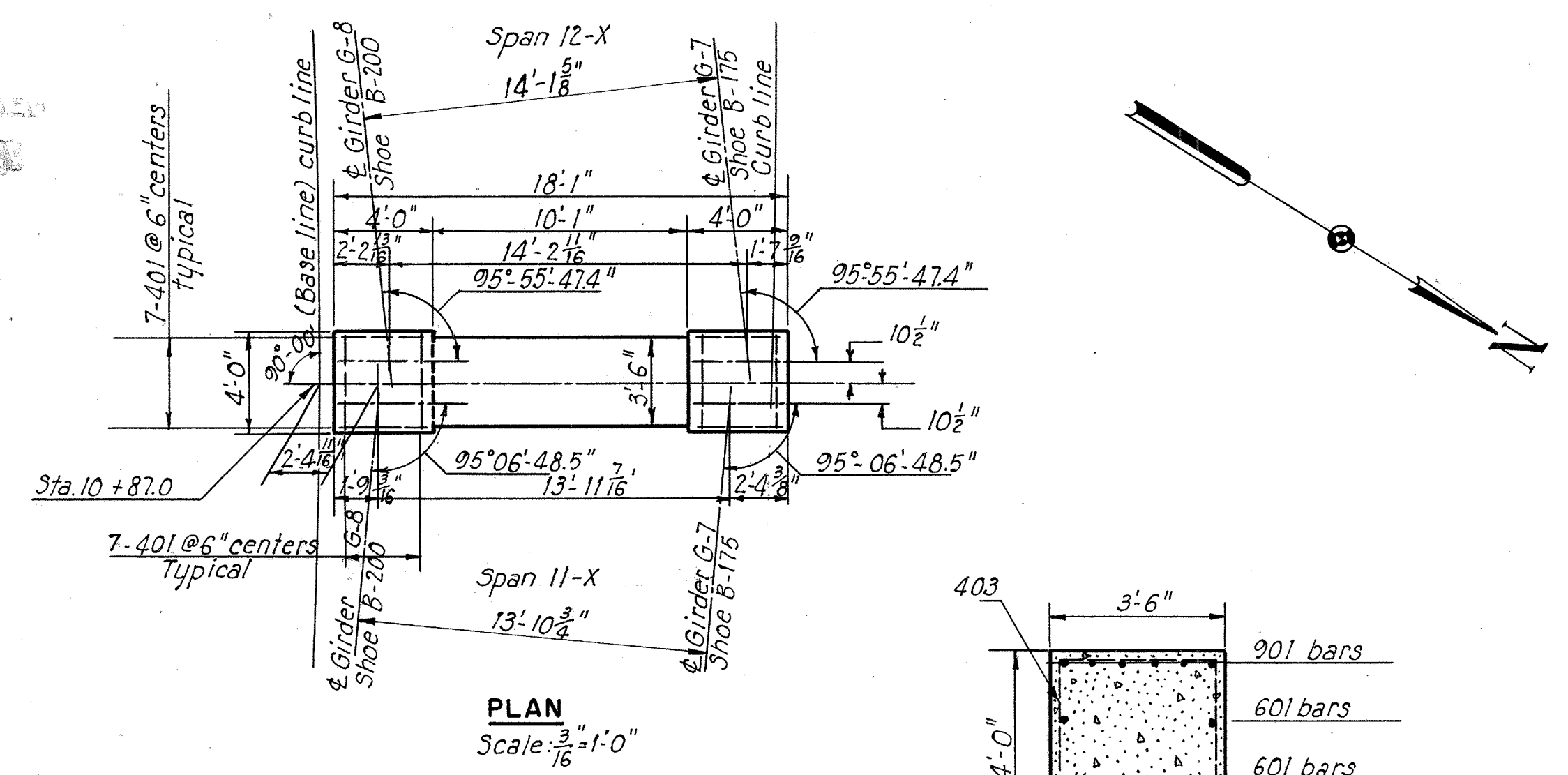
Note: All piles to be 14" cast-in-place concrete.

TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
BR. NO. LU 120-35
BENTS 9-X AND 10-X

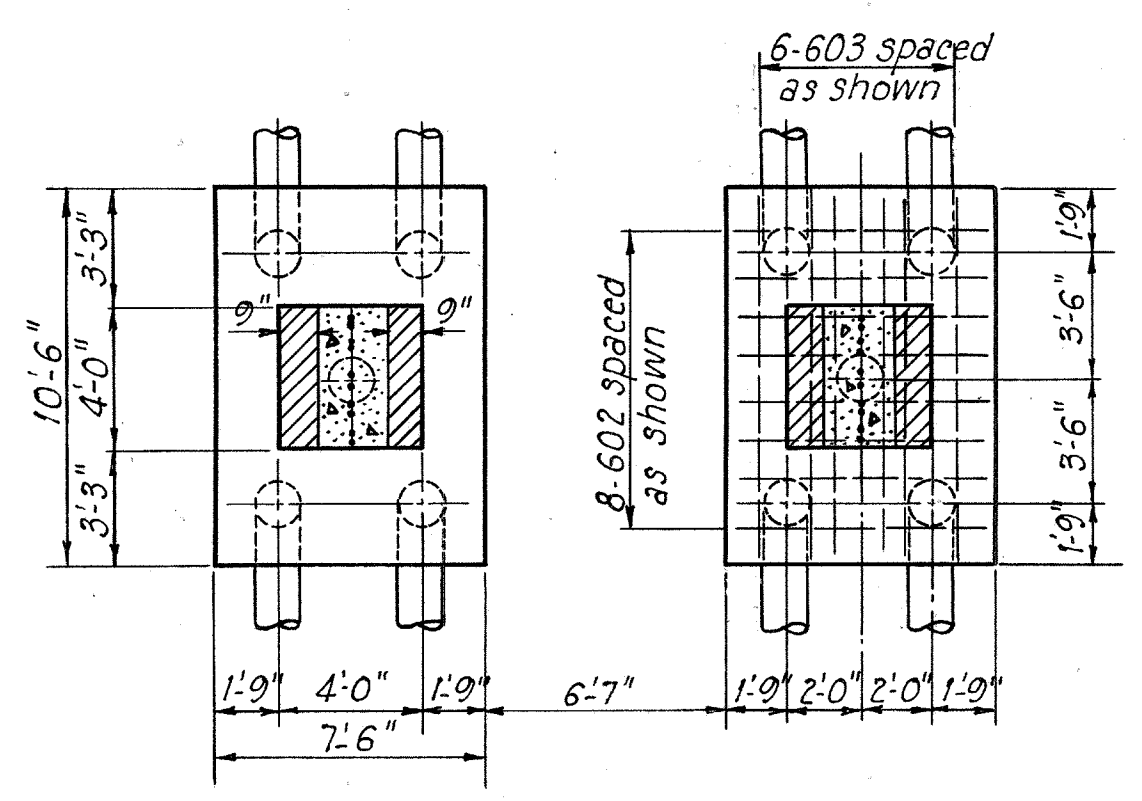
TOLEDO, OHIO
LUCAS COUNTY, OHIO

SCALE: $\frac{3}{8}$ " = 1'-0"
MADE M.K.A. DATE 6-3-52
TRCD. A.H. DATE 6-16-52
CKD. J.P.S. DATE 7-21-52

HOWARD, NEEDLES, TAMMEN & BERGENDO
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810 SHEET - 2.54

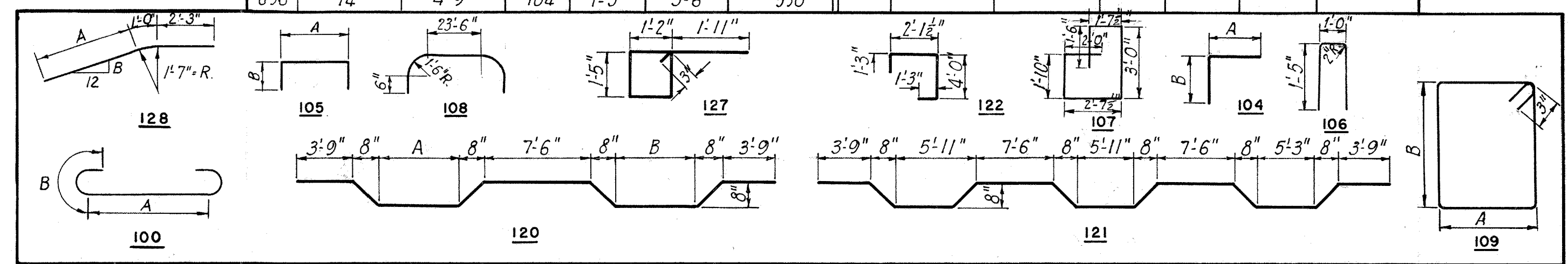


Note:
All battered piles battered 2" in 12"
All piles to be 14" concrete piles.



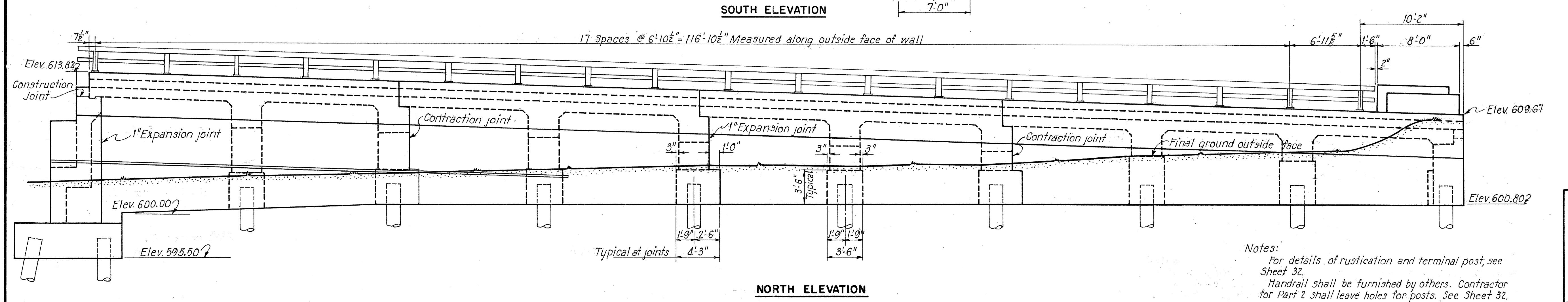
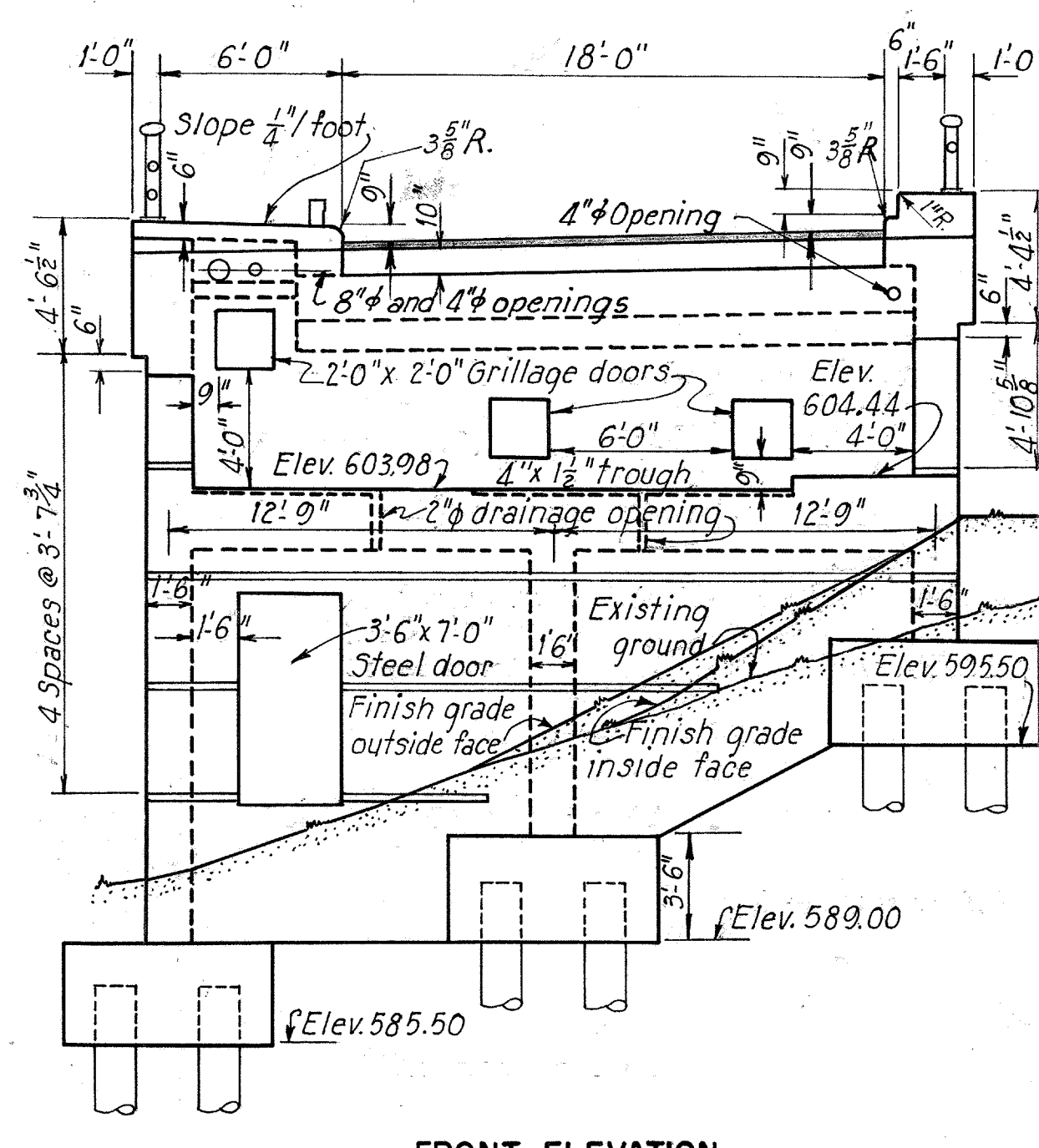
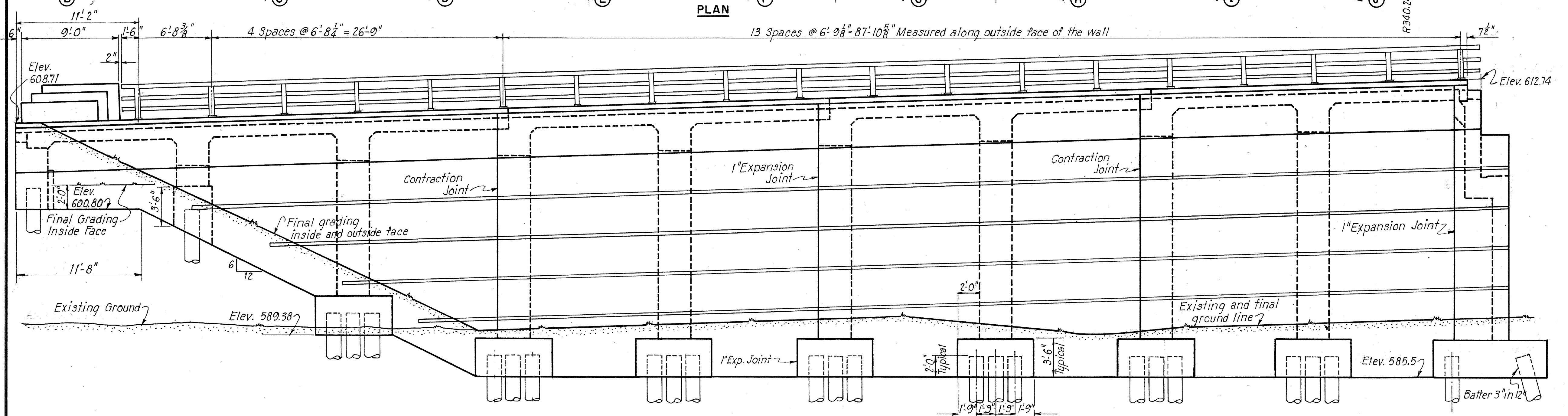
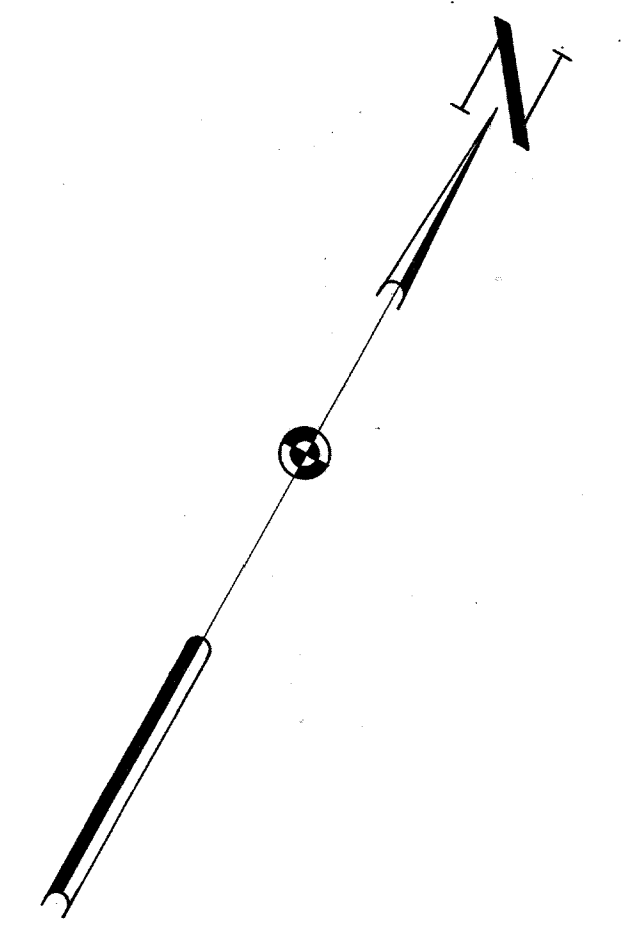
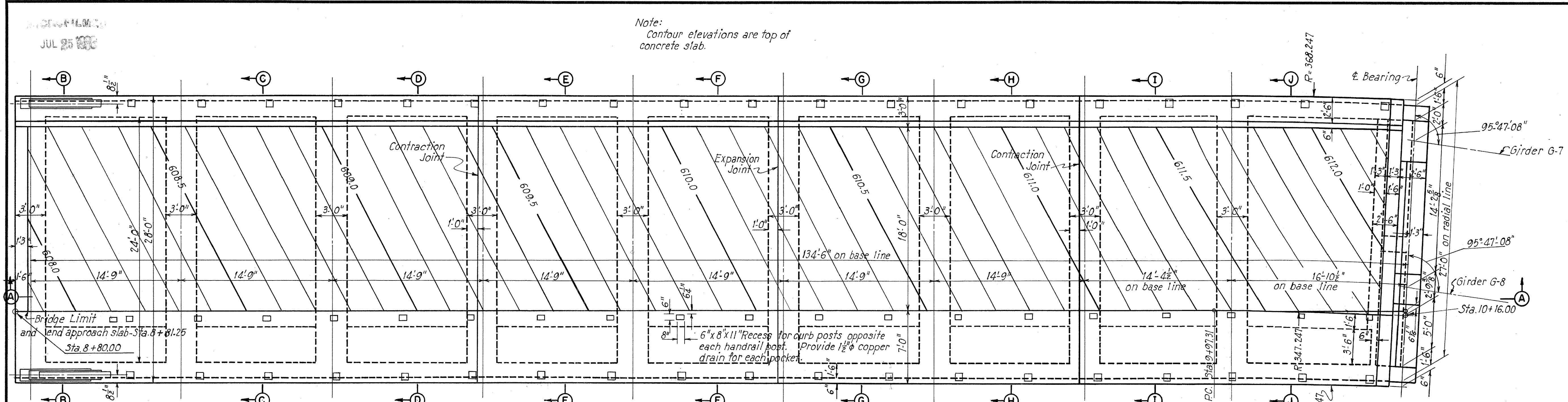
RAMP X ABUTMENT													
REINFORCING STEEL SCHEDULE													
Mark	No.	Length	Type	Dimension		Weight	Mark	No.	Length	Type	Dimension		Weight
				A	B						A	B	
301	4	28'-9"	Str.			40	657	8	5'-9"	Str.			70
302	8	29'-0"	Str.			90	658	53	26'-6"	Str.			2110
303	4	44'-9"	Str.			70	659	6	11'-0"	Str.			100
304	133	6'-6"	Str.			330	660	4	5'-0"	Str.			30
408	78	8'-7"	109	1'-7 1/2"	2'-5"	450	661	28	6'-7"	100	4'-3"	0'-11"	260
401	133	7'-4"	127			650	662	9	2'-6"	Str.			30
402	84	11'-9"	109	2'-7 1/2"	3'-0"	660	663	2	20'-0"	Str.			60
403	28	13'-0"	109	3'-1 1/2"	3'-1 1/2"	240	664	3	14'-6"	Str.			70
404	141	11'-0"	109	2'-7 1/2"	2'-7 1/2"	1040	665	4	15'-6"	Str.			90
405	42	12'-7"	107			350	666	8	13'-0"	Str.			160
406	114	3'-10"	106			290	667	4	18'-6"	Str.			110
407	4	12'-0"	109	3'-1 1/2"	2'-7 1/2"	30	668	15	11'-4"	100	3'-6"	0'-11"	260
601	91	2'-6"	104	1'-3"	1'-3"	340	669	54	28'-6"	Str.			2310
602	91	8'-8"	122			1190	670	2	3'-6"	Str.			10
603	5	28'-9"	Str.			220	671	4	16'-0"	Str.			100
604	108	29'-0"	Str.			4700	672	2	34'-0"	Str.			100
605	27	44'-9"	Str.			1810	673	40	4'-0"	Str.			240
606	6	23'-9"	Str.			210	674	2	30'-6"	Str.			90
607	6	23'-3"	Str.			210	675	14	7'-6"	Str.			160
608	14	22'-9"	Str.			480	676	11	12'-0"	104	3'-6"	8'-6"	200
609	6	22'-6"	Str.			200	677	2	9'-0"	104	3'-6"	5'-6"	30
610	9	22'-0"	Str.			300	678	3	6'-0"	104	3'-6"	2'-6"	30
611	10	21'-6"	Str.			320	679	2	6'-6"	104	3'-6"	3'-0"	20
612	10	17'-6"	Str.			260	680	4	14'-6"	104	3'-6"	11'-0"	90
613	2 Series of 3	6'-9" to 8'-3"	Str.			70	681	4	18'-0"	104	3'-6"	14'-6"	110
614	1	14'-9"	Str.			20	682	2	11'-0"	104	3'-6"	7'-6"	30
615	6	25'-9"	Str.			230	683	1 Series of 3	12'-9" to 14'-3"	104	3'-6"	9'-3" to 10'-9"	60
616	8	25'-3"	Str.			330	684	1 Series of 3	9'-0" to 10'-6"	Str.			40
617	10	21'-9"	Str.			300	685	2 Series of 5	17'-6" to 30'-0"	Str.			360
618	6	24'-9"	Str.			220	686	1	2'-9"	Str.			10
619	8	24'-6"	Str.			290	687	2	11'-9"	Str.			40
620	2	20'-9"	Str.			60	688	1	12'-6"	104	3'-6"	9'-0"	20
621	12	24'-0"	Str.			430	689	4	4'-9"	Str.			260
622	16	23'-6"	Str.			560	690	1 Series of 3	3'-0" to 4'-6"	Str.			20
623	4	19'-3"	Str.			120	691	15	6'-6"	Str.			150
624	1 Series of 6	18'-6" to 22'-6"	Str.			180	692	2	10'-0"	Str.			30
625	1 Series of 6	10'-6" to 14'-9"	Str.			110	693	39	3'-0"	Str.			180
626	21	7'-9"	Str.			240	694	24	30'-0"	Str.			1080
627	2	20'-6"	Str.			60	695	4	27'-0"	Str.			160
628	2	19'-6"	Str.			60							
629	6	23'-0"	Str.			210							
630	2	18'-9"	Str.			60	409	12	3'-0"	109	1'-7 1/2"	2'-7 1/2"	70
631	10	22'-3"	Str.			340							
632	16	4'-0"	105	2'-0"	1'-0"	100							
633	1 Series of 6	16'-9" to 21'-0"	Str.			170	701	164	22'-0"	Str.			7360
634	1 Series of 6	7'-9" to 13'-0"	Str.			90	702	26	29'-6"	108			1560
635	27	6'-0"	Str.			240							
636	13	9'-0"	Str.			180							
637	7	8'-3"	Str.			90	801	30	28'-9"	Str.			2300
638	9	7'-0"	Str.			90	802	14	30'-0"	120	5'-9"	5'-3"	1120
639	56	7'-10"	100	6'-0"	0'-11"	660	803	60	29'-0"	Str.			4650
640	3	10'-0"	109	1'-1 1/2"	3'-7 1/2"	50	804	28	30'-4"	120	6'-3"	5'-3"	2260
641	2	15'-3"	Str.			50	805	30	44'-9"	Str.			3590
642	1 Series of 6	11'-3" to 11'-9"	Str.			100	806	14	45'-5"	121			1700
643	1 Series of 8	10'-3" to 11'-0"	Str.			130	807	28	5'-0"	104	2'-6"	2'-6"	370
644	10	6'-3"	Str.			90							
645	7	9'-9"	Str.			100							
646	18	9'-6"	Str.			260							
647	20	12'-0"	109	1'-1 1/2"	4'-7 1/2"	360	901	6	30'-0"	Str.			610
648	21	8'-6"	Str.			270	902	12	29'-0"	Str.			1180
649	2	4'-6"	Str.			10	903	6	44'-9"	Str.			910
650	14	8'-0"	Str.			170	904	64	27'-0"	Str.			5870
651	15	7'-3"	Str.			160							
652	1 Series of 6	9'-6" to 10'-0"	Str.			90	1101	48	31'-3"	128	28'-0"	9 7/8"	7970
653	1 Series of 8	8'-6" to 9'-3"	Str.			110	1102	8	29'-3"	128	26'-0"	6 3/8"	1240
654	1	3'-9"	Str.			10							
655	8	6'-9"	Str.			80							
656	74	4'-9"	104	1'-3"	3'-6"	930							
Total													74620

BENT 11-X						
REINFORCING STEEL SCHEDULE						
Mark	No.	Length	Type	Dimension		Weight
				A	B	
401	28	5'-6"	105			100
402	39	15'-0"	109	3'-7 1/2"	3'-7 1/2"	390
403	7	14'-0"	109	3'-1 1/2"	3'-7 1/2"	660
601	4	14'-0"	Str.			80
602	16	8'-4"	100	6'-6"	0'-11"	200
603	12	11'-4"	100	9'-6"	0'-11"	200
901	6	23'-7"	120	13'-8"		480
902	10	17'-6"	Str.			600
1101	16	16'-3"	Str.			1380
1102	16	12'-3"	Str.			1040
1103	20	8'-6"	108	3'-6"	5'-0"	900
Total						6030



LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

Note:
Contour elevations are top of concrete slab.



Notes:
For details of rustication and terminal post, see Sheet 32.
Handrail shall be furnished by others. Contractor for Part 2 shall leave holes for posts. See Sheet 32.

PART 2
TOLEDO EXPRESSWAY SYSTEM

MAUMEE RIVER BRIDGE
BR. NO. LU 120 - 35

RAMP X ABUTMENT

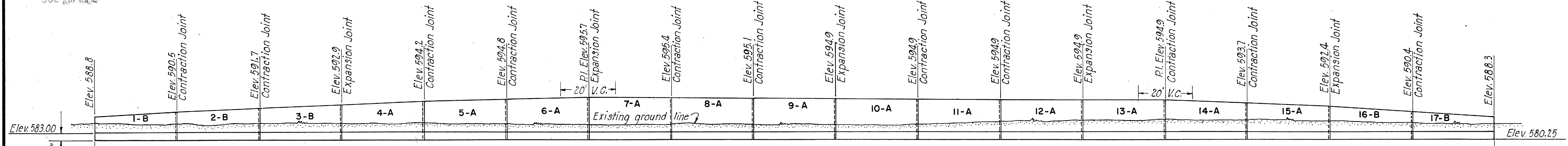
TOLEDO LUCAS COUNTY, OHIO

SCALE: 3/16" = 1'-0"
MADE R.A.C. DATE 2-28-52
TRCD R.R. DATE 8-15-52
CKD J.P.S. DATE 8-18-52

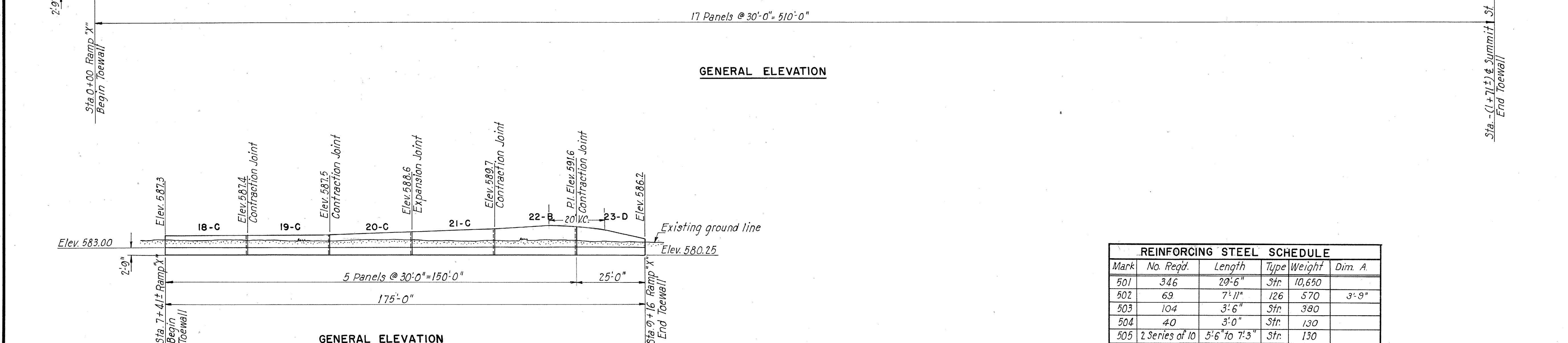
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CONSULTING ENGINEERS
KANSAS CITY NEW YORK
810 SHEET 2.56

627

MICROFILMED
 JUL 26 1983



GENERAL ELEVATION



GENERAL ELEVATION

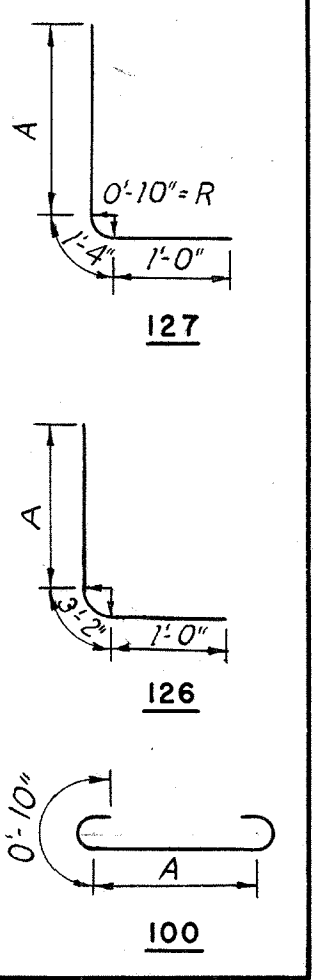
REINFORCING STEEL SCHEDULE

Mark	No. Req'd	Length	Type	Weight	Dim. A
501	346	29'-6"	Str.	10,650	
502	69	7'-11"	126	570	3'-9"
503	104	3'-6"	Str.	380	
504	40	3'-0"	Str.	130	
505	2 Series of 10	5'-6" to 7'-3"	Str.	130	
506	4	17'-3"	Str.	70	
507	2 Series of 10	7'-3" to 8'-6"	Str.	160	
508	4	8'-0"	Str.	30	
509	382	4'-0"	Str.	1,600	
510	2 Series of 10	8'-6" to 9'-9"	Str.	190	
511	9	9'-6"	126	90	5'-3"
512	2	5'-0"	Str.	10	
513	2 Series of 10	9'-9" to 11'-0"	Str.	220	
514	2	27'-0"	Str.	60	
515	20	11'-0"	Str.	230	
516	2	4'-6"	Str.	10	
517	2 Series of 10	11'-6" to 12'-6"	Str.	250	
518	2	23'-0"	Str.	50	
519	20	12'-3"	Str.	260	
520	54	9'-5"	126	530	5'-3"
521	9	8'-5"	126	80	4'-3"
522	27	9'-11"	126	280	5'-9"
523	124	11'-9"	Str.	1,520	
524	2 Series of 10	10'-6" to 11'-9"	Str.	230	
525	2 Series of 10	9'-3" to 10'-6"	Str.	210	
526	2 Series of 10	7'-3" to 9'-3"	Str.	170	
527	2	21'-0"	Str.	40	
528	2 Series of 10	5'-0" to 7'-3"	Str.	130	
529	2	20'-0"	Str.	40	
530	1 Series of 9	7'-0" to 11'-6"	127	90	4'-8" to 5'-2"
531	1 Series of 10	8'-3" to 9'-6"	127	90	5'-11" to 7'-2"
532	1 Series of 10	4'-3" to 5'-3"	Str.	50	
533	1 Series of 10	9'-3" to 10'-6"	127	100	6'-11" to 8'-2"
534	1 Series of 10	5'-3" to 6'-6"	Str.	60	
535	2	13'-0"	Str.	30	
536	2 Series of 10	6'-6" to 8'-0"	Str.	150	
537	9	24'-6"	Str.	230	
538	1 Series of 9	3'-0" to 7'-6"	Str.	50	
539	264	7'-9"	100	2140	6'-1"
540	96	6'-9"	100	680	5'-1"
541	48	5'-9"	100	290	4'-1"
542	189	6'-0"	126	1180	1'-10"
543	8	5'-4"	127	40	3'-0"
544	49	7'-2"	126	370	3'-0"
545	29	6'-11"	126	210	2'-9"
546	129	7'-5"	126	1000	3'-3"
547	20	7'-9"	127	160	5'-5"
Total:				25,240	

REINFORCING STEEL LOCATION

Location Mark	Mark	Req'd No.	Mark	Req'd No.	Mark	Req'd No.	Mark	Req'd No.	Mark	Req'd No.	Mark	Req'd No.	Mark	Req'd No.	Mark	Req'd No.	Mark	Req'd No.	Mark	Req'd No.	Location Mark			
	1-B		2-B		3-B		4-A		5-A		6-A		7-A		8-A		9-A		10-A		11-A			
A	501	3	501	3	501	3	501	4	501	4	501	4	501	4	501	4	501	4				A		
B	501	2	501	2	501	2	501	2	501	2	501	2	501	2	501	2	501	2				B		
C	540	14	540	14	540	14	539	22	539	22	539	22	539	22	539	22	539	22				C		
D	503	15	503	15	503	15	509	30	509	30	509	30	509	30	509	30	509	30				D		
E	542	10	542	10	542	10	542	10	542	10	542	10	542	10	542	10	542	10	Same	Same		E		
F			544	9	546	9	544	20	545	20	502	20	502	20	502	20	546	20	as 9-A	as 9-A		F		
G	505	2 Series of 10	507	2 Series of 10	510	2 Series of 10	521	9	511	9	522	9	522	9	522	9	520	9				G		
H	501	6	501	8	501	10	513	2 Series of 10	515	20	517	2 Series of 10	519	20	523	20	523	20				H		
K	506	2	508	2			501	10	501	12	501	12	501	12	501	12	501	12				K		
L			509	2	512	2	514	2			518	2	501	2	501	2	501	2				L		
A					501	4	501	4	501	3	501	3	501	3	501	3	501	3	501	3	501	3	A	
B					501	2	501	2	501	2	501	2	501	2	501	2	501	2	501	2	501	2	B	
C					539	22	539	22	540	14	540	14	541	12	541	12	541	12	540	14	540	14	C	
D					509	30	509	30	503	15	504	10	504	10	504	10	504	10	503	15	503	15	D	
E	Same		Same		542	10	542	10	542	10	542	10	547	10	547	10	531	1 Series of 10	533	1 Series of 10	542	10	E	
F	as 9-A		as 9-A		546	20	544	20	545	9			509	10	509	10	532	1 Series of 10	534	1 Series of 10	542	9	F	
G					520	9	502	9	526	2 Series of 10	528	2 Series of 10	501	4	501	4	501	4	501	6	536	2 Series of 10	G	
H					524	2 Series of 10	525	2 Series of 10	501	8	501	6	501	2	501	2	501	2	535	2	501	8	H	
K					501	12	501	10	527	2	529	2									523	2	K	
L							523	2	516	2												503	2	L

Notes:
 For toewall location, see Sheet 36.
 For typical panel details, see Sheet 30.
 Elevations shown are at top of wall.



PART 2

TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
 BR. NO. LU 120-35
RAMP "X" TOEWALL

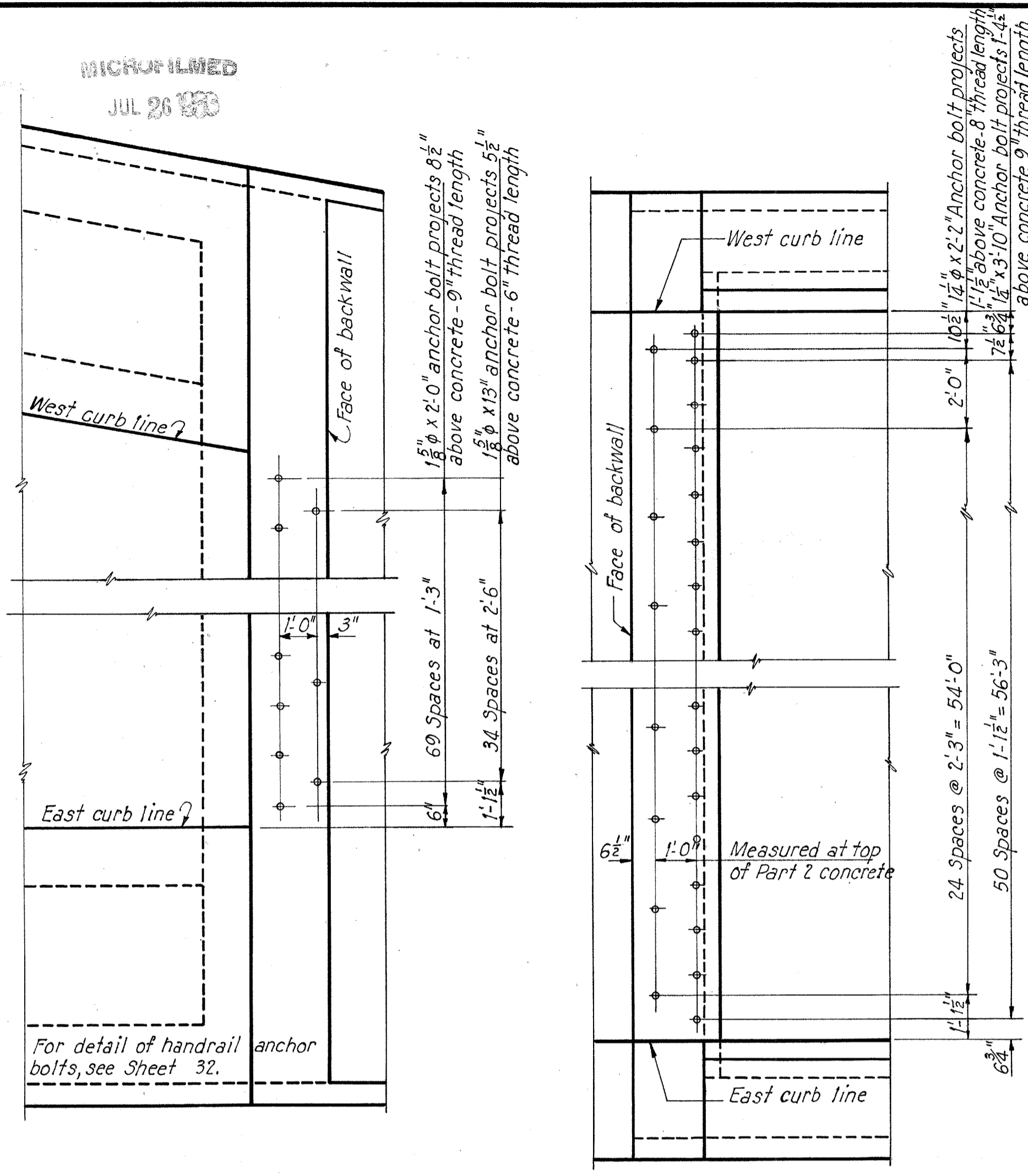
TOLEDO LUCAS COUNTY, OHIO

SCALE 1" = 20'-0"
 MADE M.K.A. DATE 8-11-52
 TRCD R.R. DATE 8-26-52
 CKD J.D.P. DATE 8-22-52

HOWARD, NEEDLES, TAMMEN & BERGENDORF
 CONSULTING ENGINEERS
 KANSAS CITY NEW YORK

810 SHEET - 2.59

625

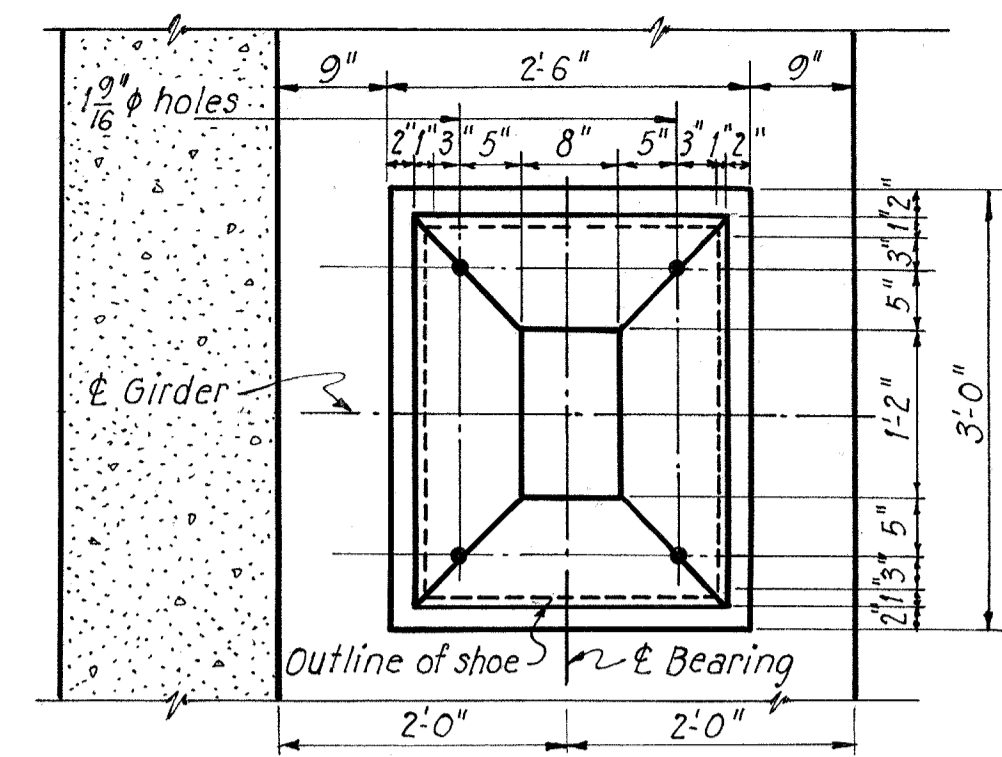


SOUTH ABUTMENT

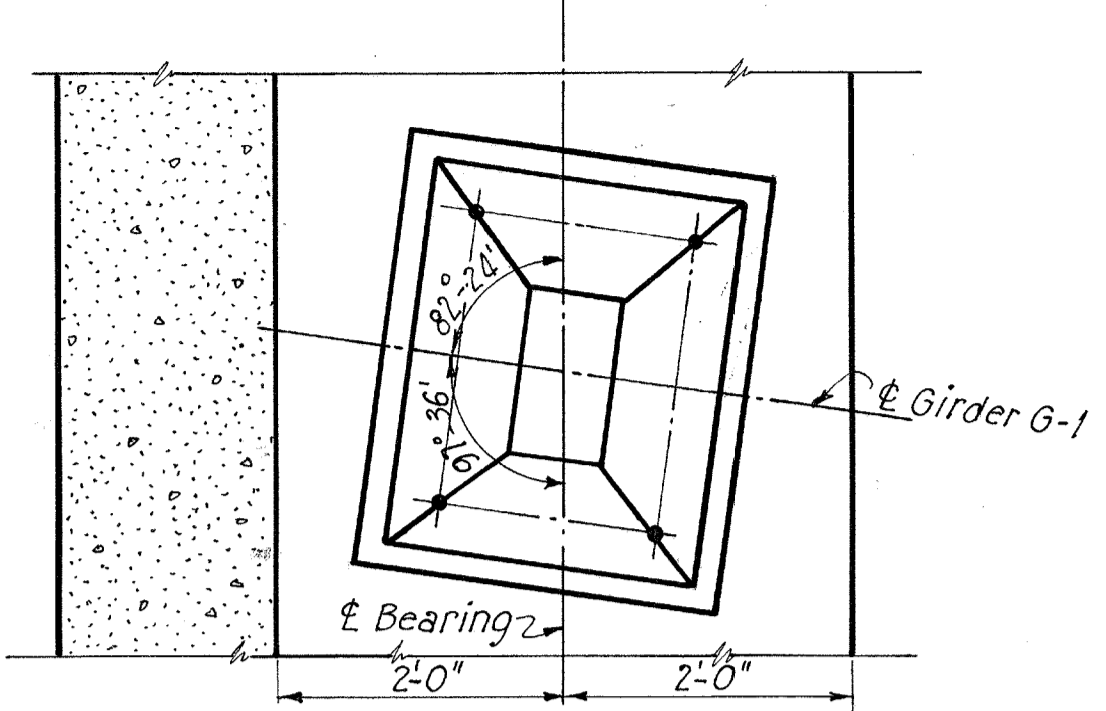
NORTH ABUTMENT

ANCHOR BOLT PLAN FOR ROADWAY EXPANSION CASTINGS
Scale: 3/8" = 1'-0"

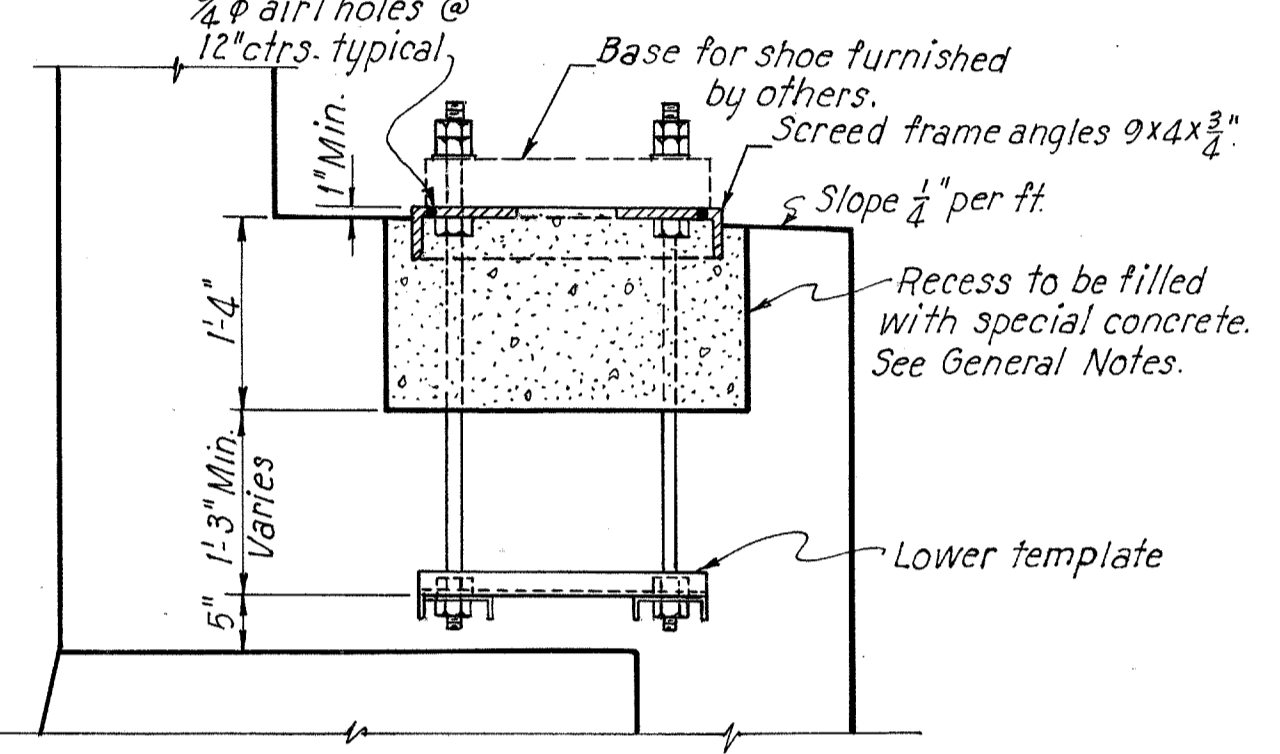
Notes: Each anchor bolt to be provided with 2 nuts and 2 washers. Anchor bolts to be placed normal to top of roadway.



PLAN AT GIRDERS G-2, G-3, G-4 AND G-5



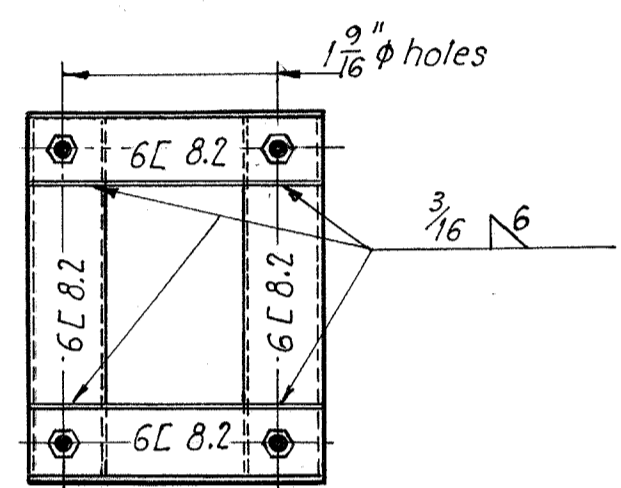
PLAN AT GIRDER G-1



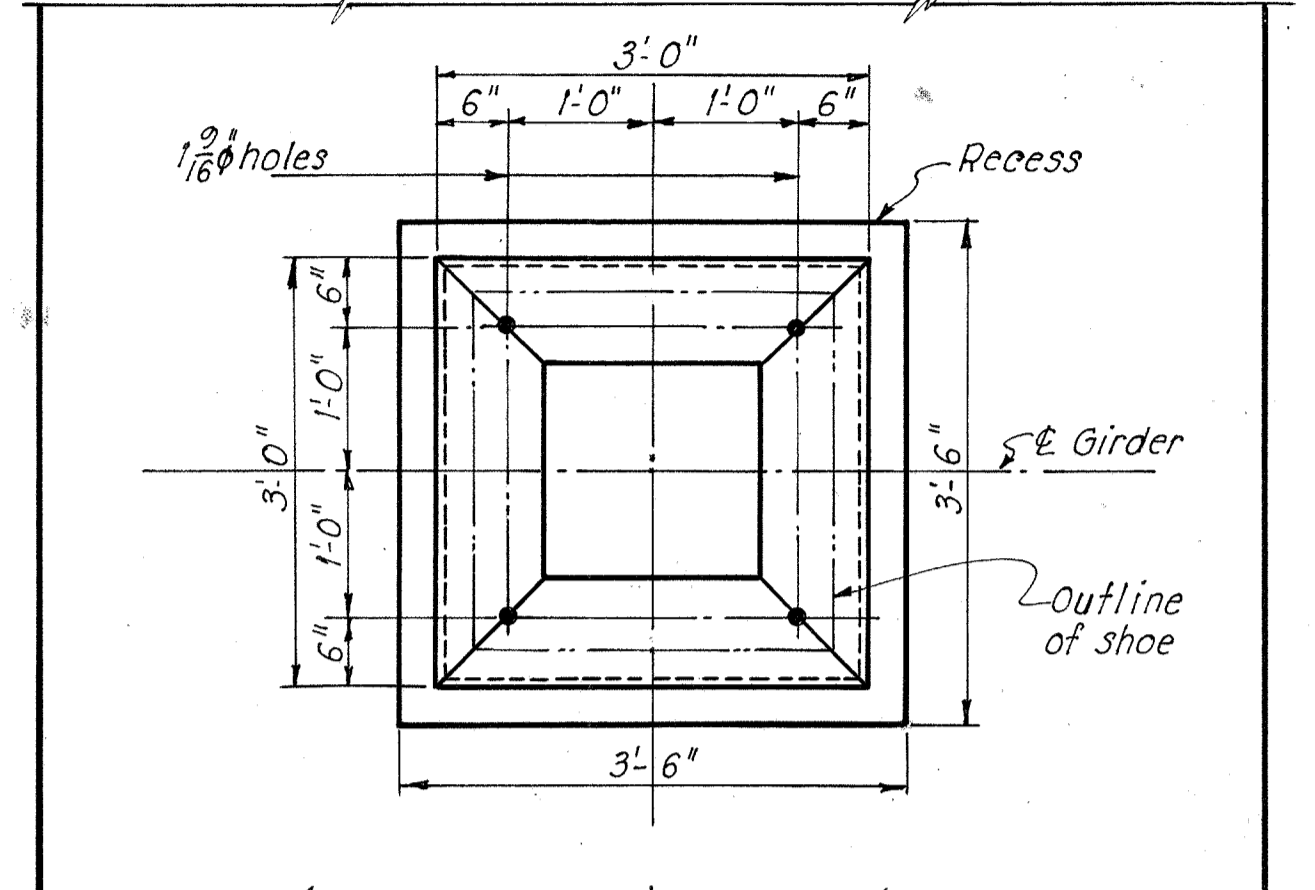
SECTION

TEMPLATE-SCREED FRAMES FOR SOUTH ABUTMENT
Scale: 3/4" = 1'-0"

Note: Miter corners of template screed frame and weld with double bevel weld 3/4" thick. Grind weld flush with back of angles.
Anchor bolts 1 1/2" shall have 5 hex nuts and 1-3 1/2" x 1/4" Washer each. Bolts shall project a minimum of 8" above the screed frame. Thread bolts 1'-9" at the top and 6" at the bottom. 20 bolts are required for the abutment and 16 for Pier 6.

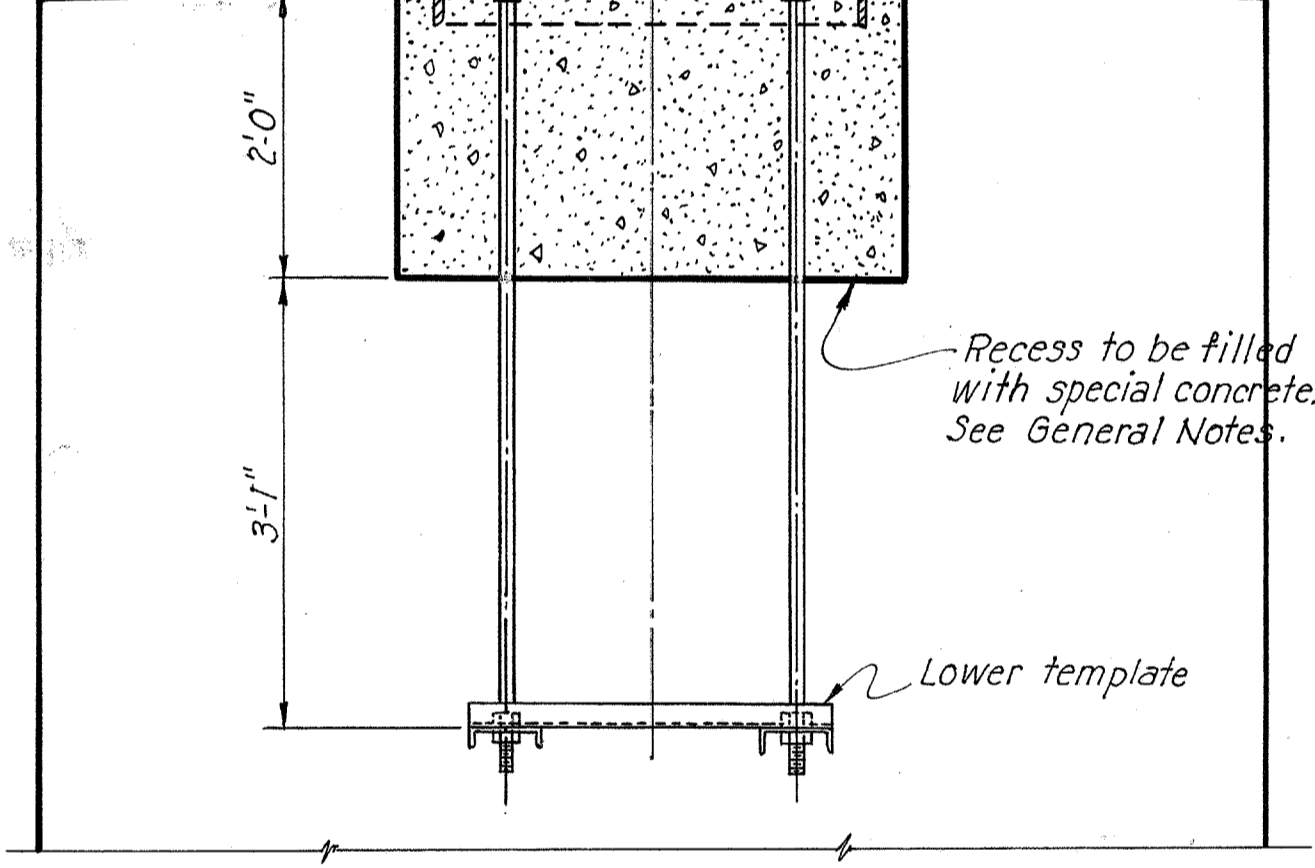


LOWER TEMPLATE FOR ANCHOR BOLTS



PLAN

3/4" Air holes @ 12" ctrs. typical
Slope 1/4" per ft. each way from Pier
1" Min.
3"
Base for shoe furnished by others.
Screed frame angle 9"x4"x 3/4"

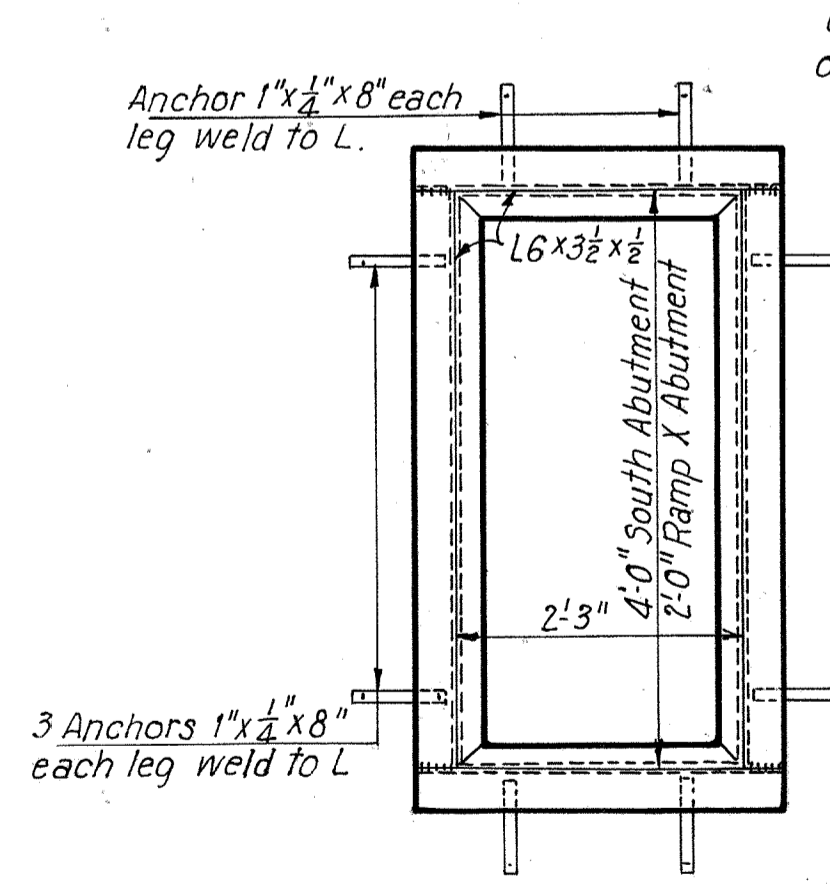


SECTION

Girders G-1, G-2, G-3 and G-4

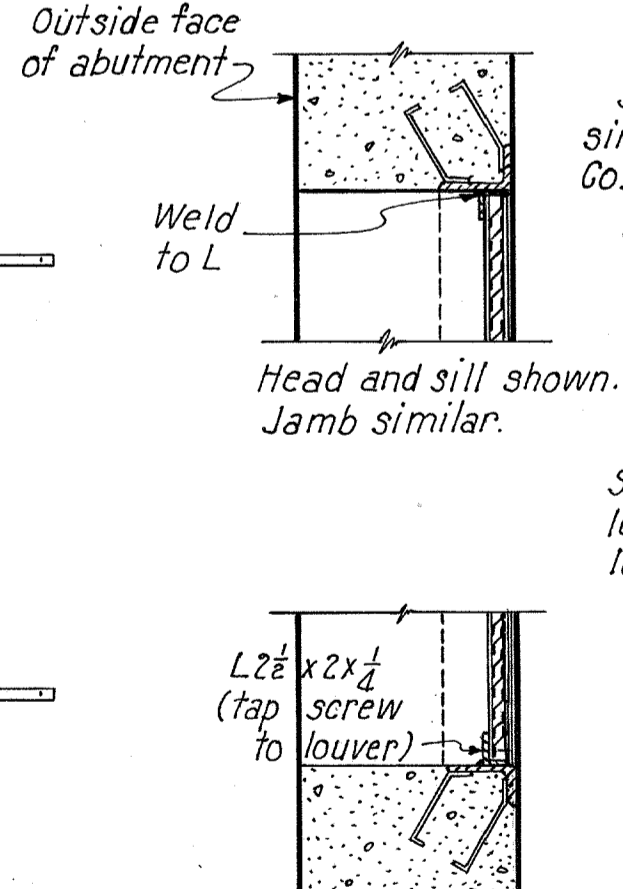
TEMPLATE SCREED FRAMES FOR PIER 6
Scale: 3/4" = 1'-0"

Note: Screed frame recesses shall be covered to exclude water until filled with special concrete.



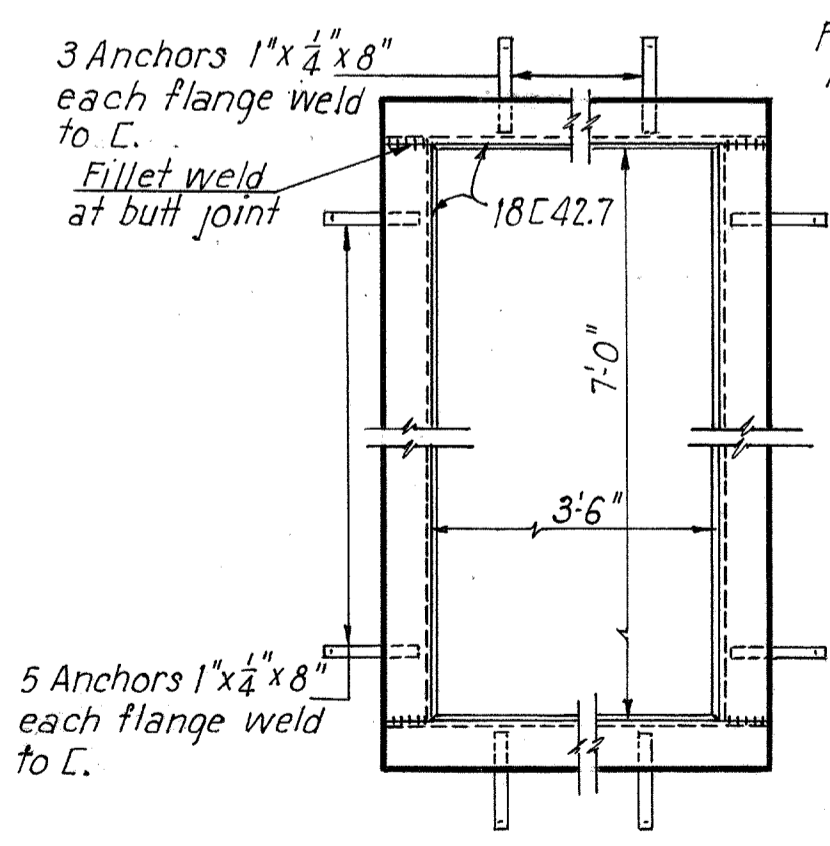
ELEVATION OF FRAME FOR VENTS IN BACKWALL

4 Required for the South Abutment
3 Required for the Ramp X Abutment



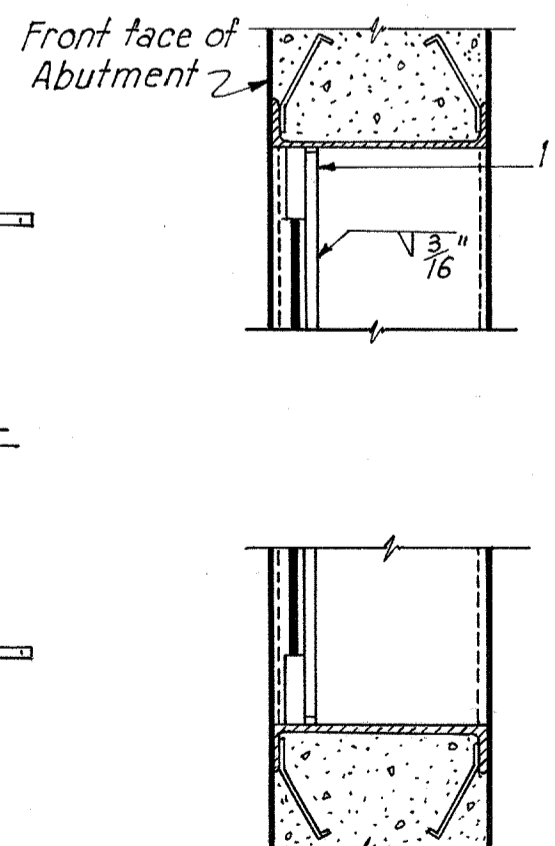
VERTICAL SECTION THRU VENTS IN BACKWALL

ABUTMENT DOOR AND VENT DETAILS
Scale: 3/4" = 1'-0"



ELEVATION OF FRAME FOR STEEL DOOR

2 Required



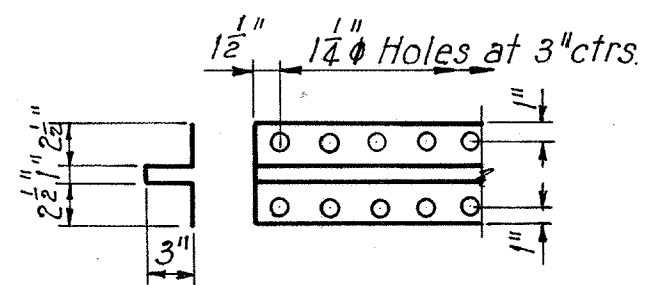
VERTICAL SECTION THRU DOOR

Industrial steel door similar to Door 1S by Richmond Fireproof Door Co., Northwest Fourth St., Richmond, Indiana. Provide 1 1/2" pair of extra heavy hinges and a suitable lock.

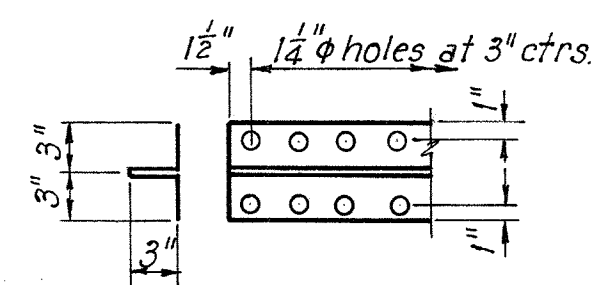
MICROFILMED
JUL 26 1962

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	01-1052(3)	POST WAR

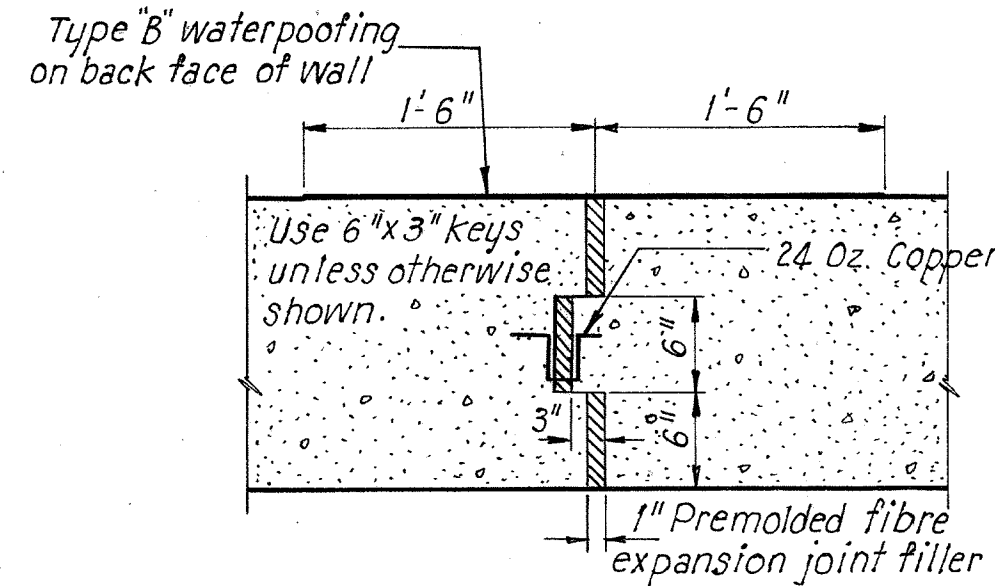
LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



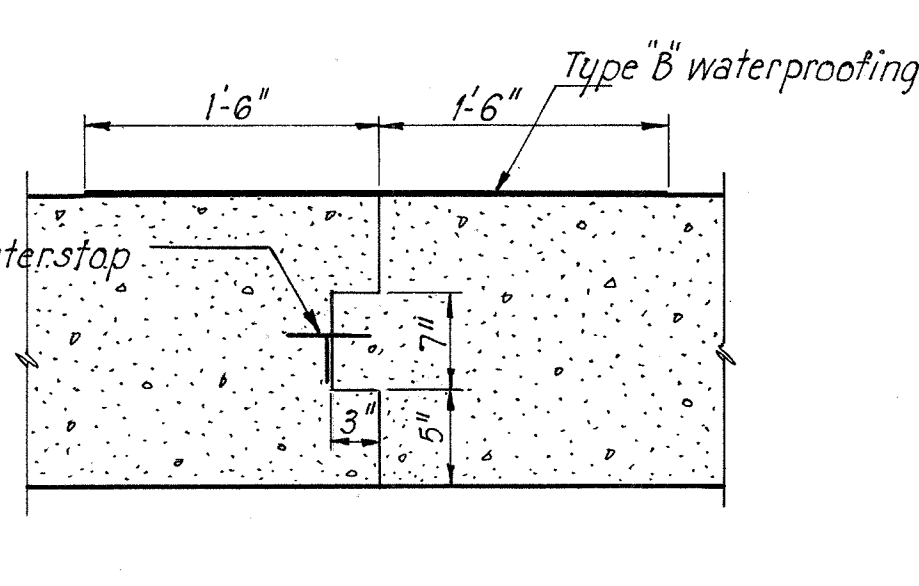
EXPANSION JOINT WATERSTOP
Scale: 1" = 1'-0"



CONTRACTION JOINT WATERSTOP
Scale: 1" = 1'-0"

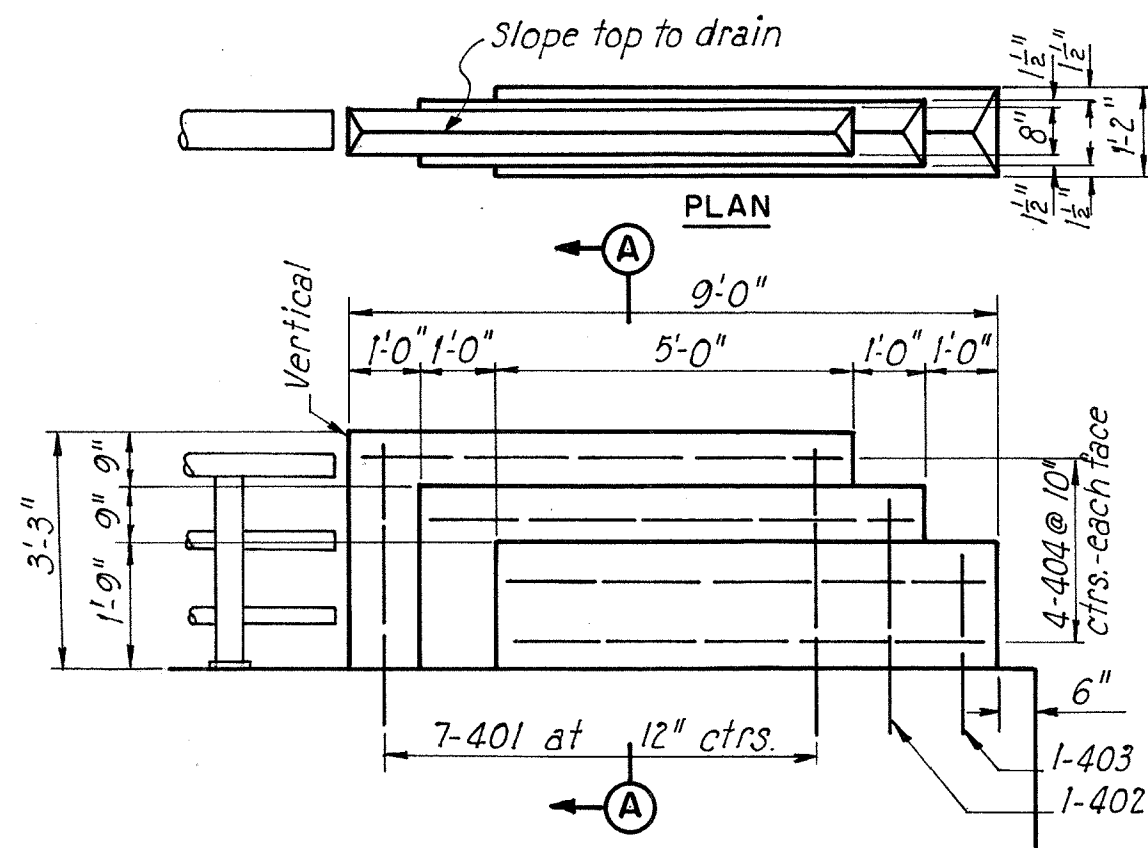


EXPANSION JOINT
Scale: 1" = 1'-0"



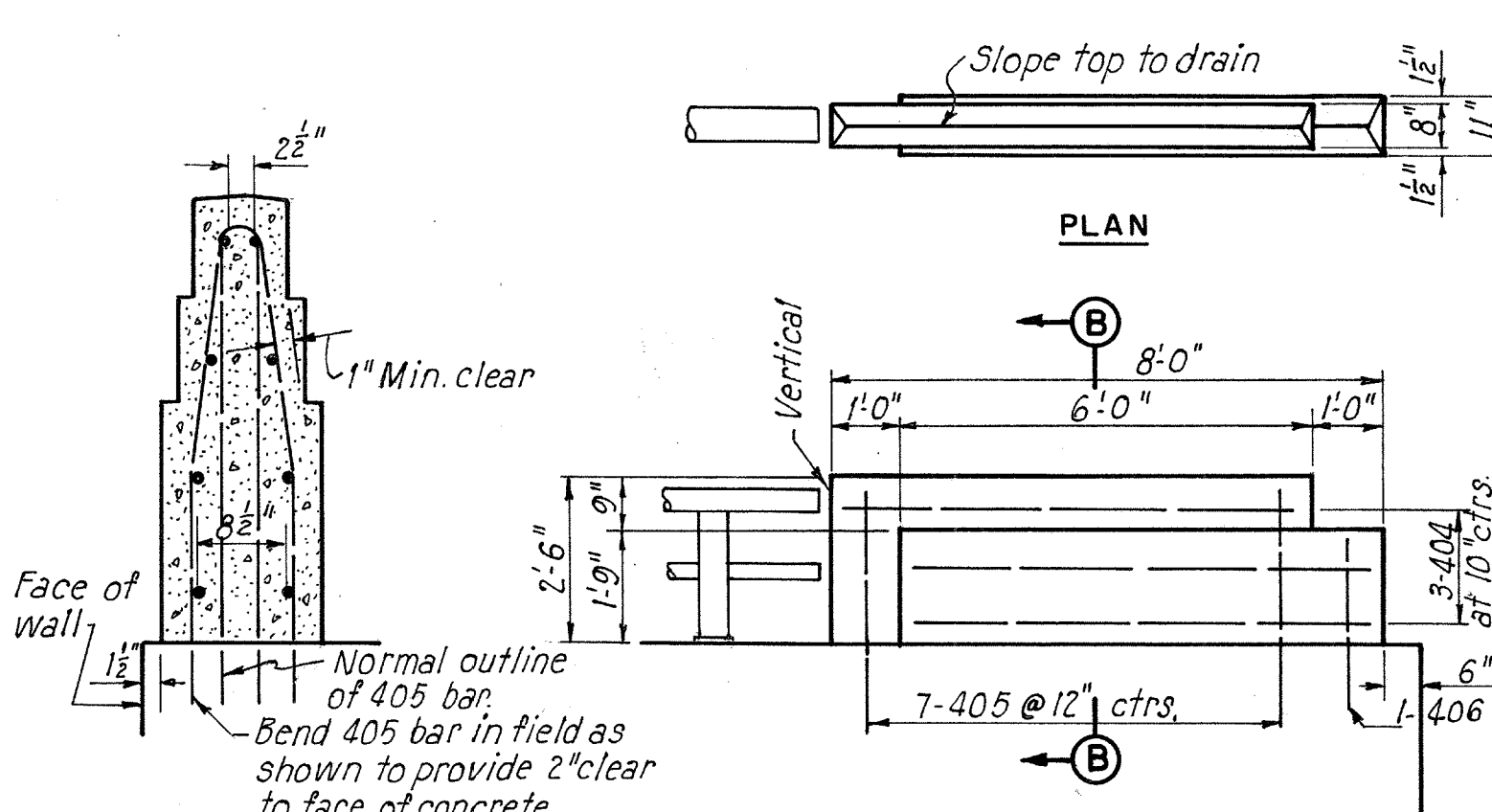
CONTRACTION JOINT
Scale: 1" = 1'-0"

Note: Use waterstop and waterproofing only where wall is above ground outside and below ground inside of wall.



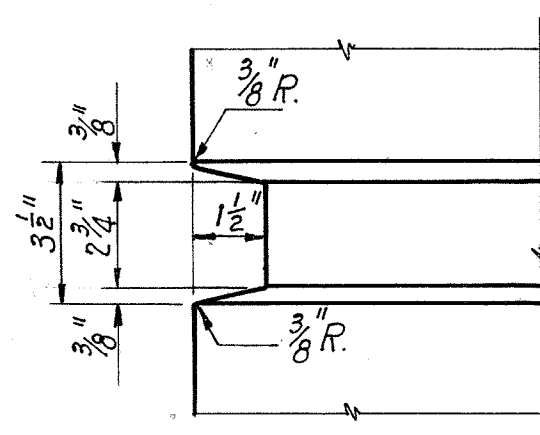
TERMINAL POSTS FOR SIDEWALK HANDRAIL
Scale: 3/8" = 1'-0"

3 Required

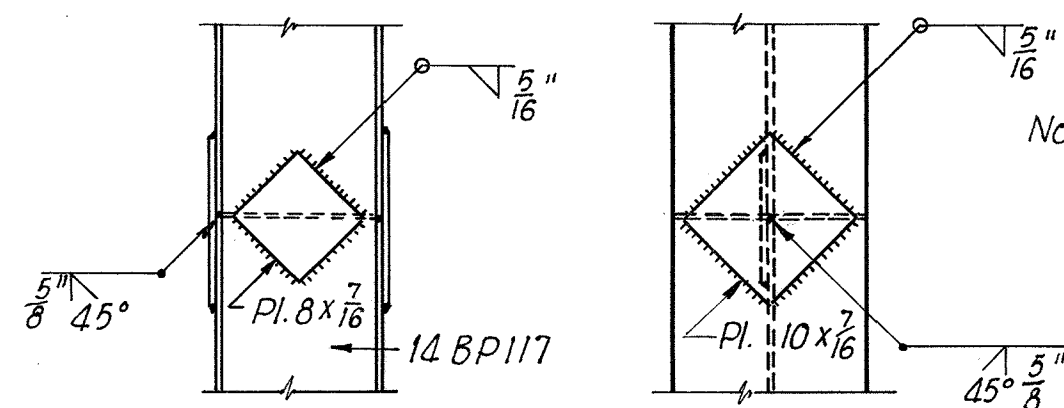


TERMINAL POSTS FOR SAFETY WALK HANDRAIL
Scale: 3/8" = 1'-0"

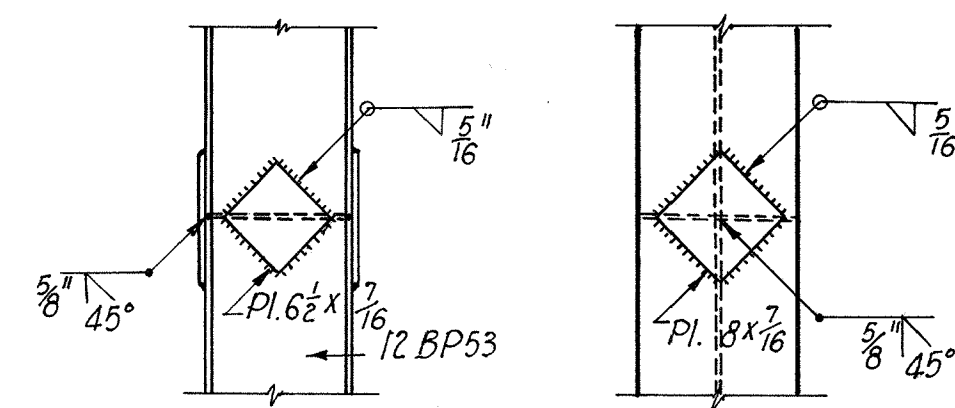
5 Required



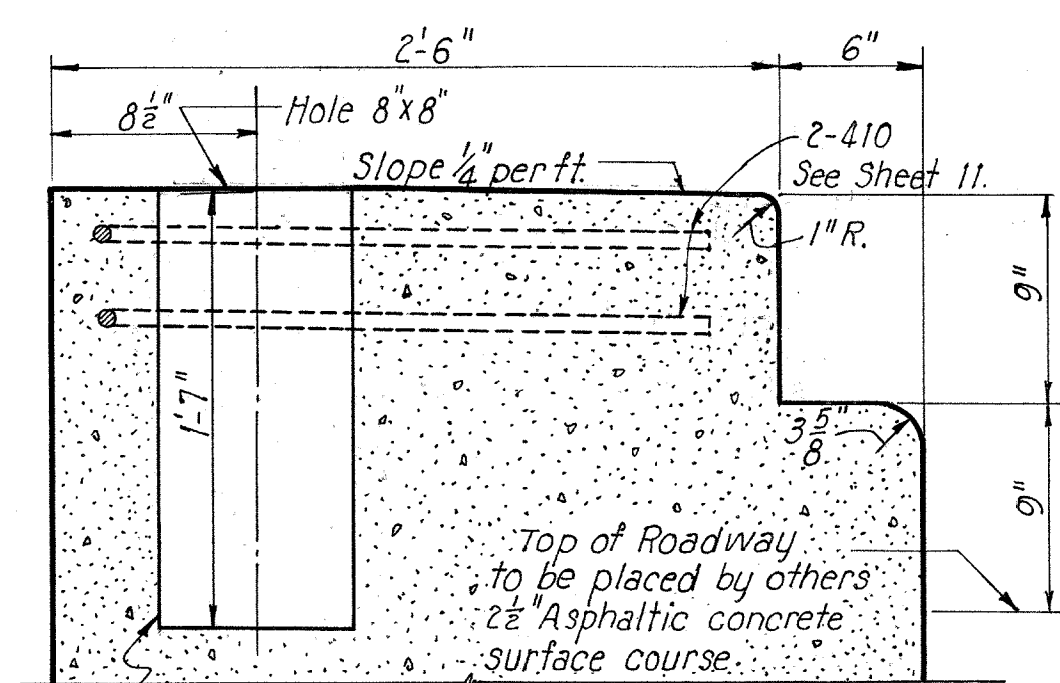
RUSTICATION DETAIL
Scale: 3" = 1'-0"



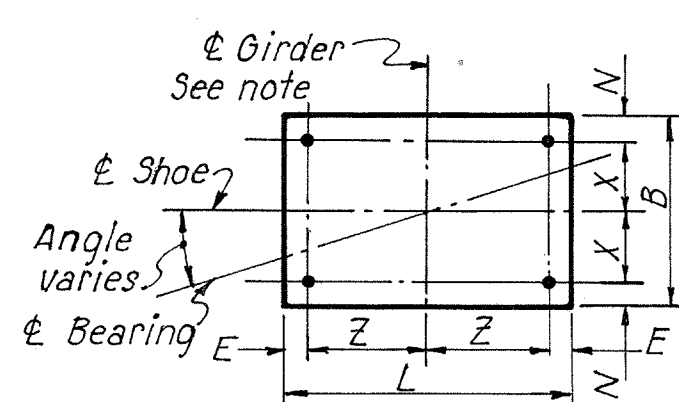
14" BEARING PILE DETAILS
Scale: 3/4" = 1'-0"



12" BEARING PILE DETAILS
Scale: 3/4" = 1'-0"



TYPICAL SECTION THRU WINGWALL CURBS
Scale: 1 1/2" = 1'-0"

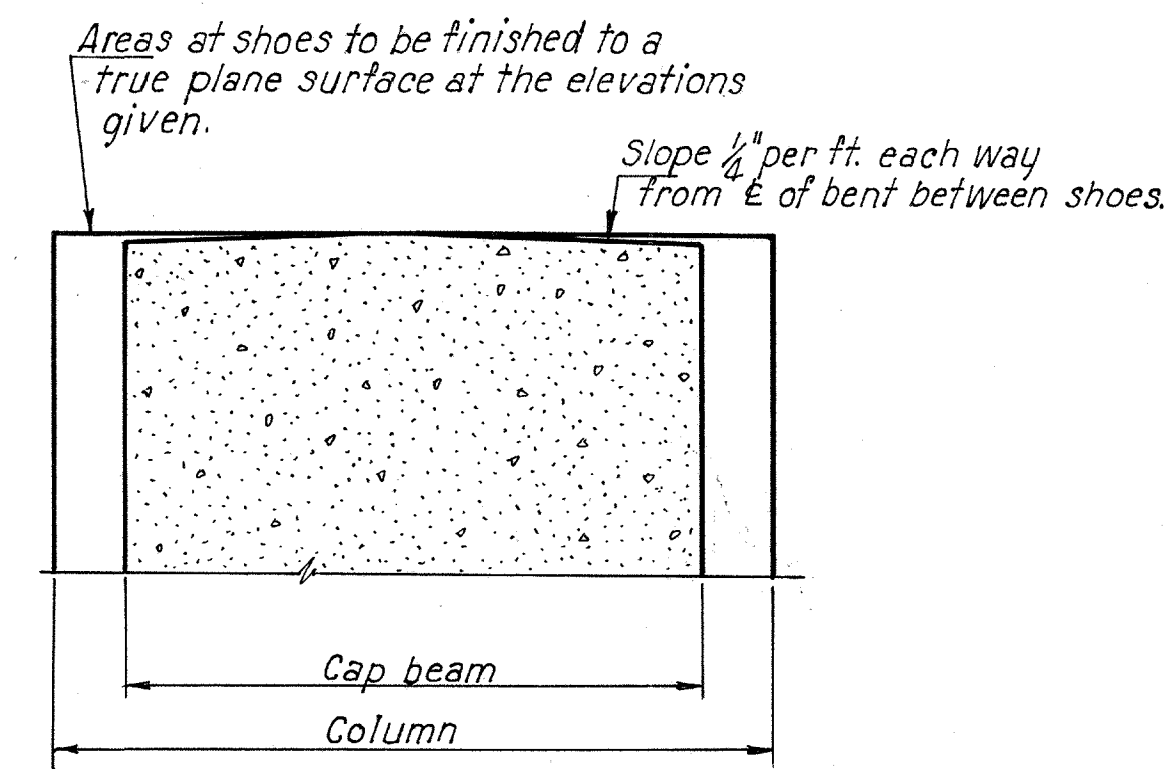


Shoe No.	E	Z	L	N	X	B
R-175a	1 1/2"	9/2"	1'-9"	1 1/2"	3 3/4"	10"
R-175	2"	9"	1'-10"	2"	6"	11.4"
R-200	2"	9"	1'-10"	2"	6"	11.4"
B-175	2"	9"	1'-10"	2"	6"	11.4"
B-200	2"	9"	1'-10"	2"	6"	11.4"
E-5	3"	1'-5"	3'-4"	3"	7"	11.8"
E-6	3"	8 1/2"	1'-11"	2 1/2"	7 1/2"	11.8"
F-3	3"	1'-0"	2'-6"	3"	9"	2'-0"

ANCHOR BOLT SPACING FOR SHOES
Note: Anchor bolts will be furnished and placed by others. Contractor for Part 2 shall place reinforcement to clean bolts.

Size	Number	Length	Type	Weight-Lbs.
3	2	7'-0"	Str.	10
4	2	8'-0"	Str.	10
5	4	8'-0"	Str.	30
6	8	9'-0"	Str.	110
7	2	10'-0"	Str.	40
8	8	10'-0"	Str.	210
9	2	10'-0"	Str.	70
10	2	10'-0"	Str.	90
11	8	11'-0"	Str.	470
Total				1,040

Mark	Number	Length	Type	Dimensions	Weight Lbs.
				A B	
401	21	9'-0"	104	4'-3"	130
402	3	7'-5"	105	6'-3"	10
403	3	5'-10"	105	9'-2"	10
404	54	6'-8"	Str.		240
405	35	6'-6"	104	3'-0"	150
406	5	5'-7"	105	6'-2"	20
Total					560



TYPICAL SECTION AT BENT CAP BEAM
Scale: 3/4" = 1'-0"

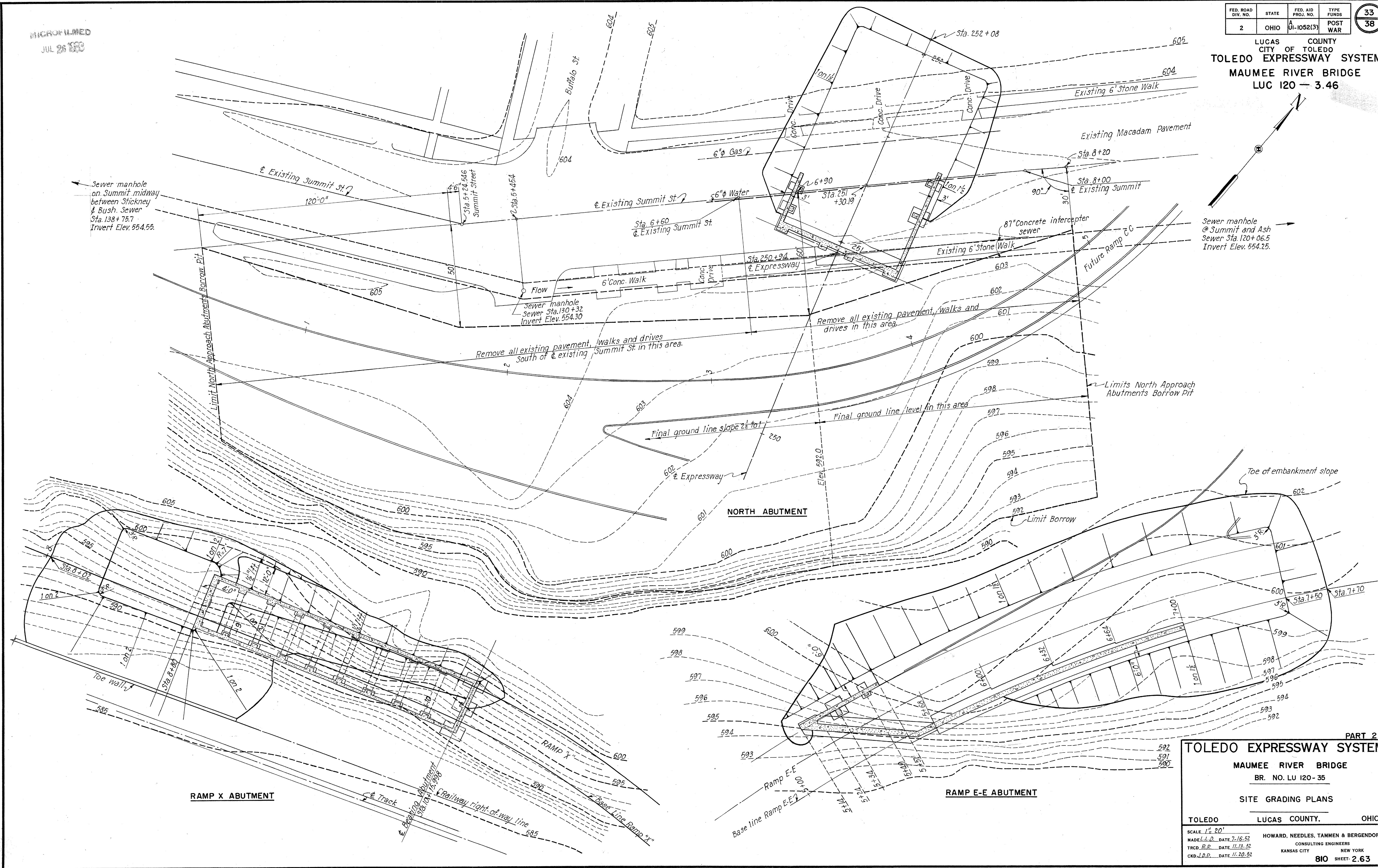
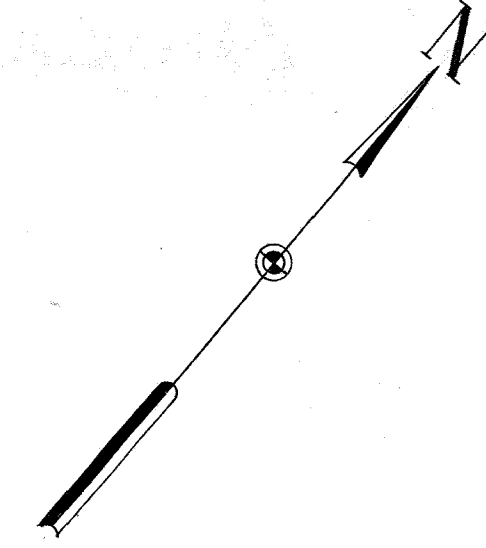
PART 2
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
BR. NO. LU 120 35
MISCELLANEOUS DETAILS

TOLEDO LUCAS COUNTY, OHIO
SCALE: 3/4", 1", 1 1/2", 3/4" = 1'-0"
MADE B.C.W. DATE: 6-12-52
TRCD R.B. DATE: 8-9-52
CKD R.A.C. DATE: 8-16-52
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
810 SHEET 2.62

MICROFILMED
JUL 26 1983

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	33
2	OHIO	A 01-1052(3)	POST WAR	38

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



PART 2

TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
BR. NO. LU 120 - 35

SITE GRADING PLANS

TOLEDO LUCAS COUNTY, OHIO

SCALE: 1" = 20'
MADE L.D. DATE 7-16-52 HOWARD, NEEDLES, TAMMEN & BERGENOFF
TRCD. R.R. DATE 11-13-52 CONSULTING ENGINEERS
CKD. J.D.P. DATE 11-20-52 KANSAS CITY NEW YORK

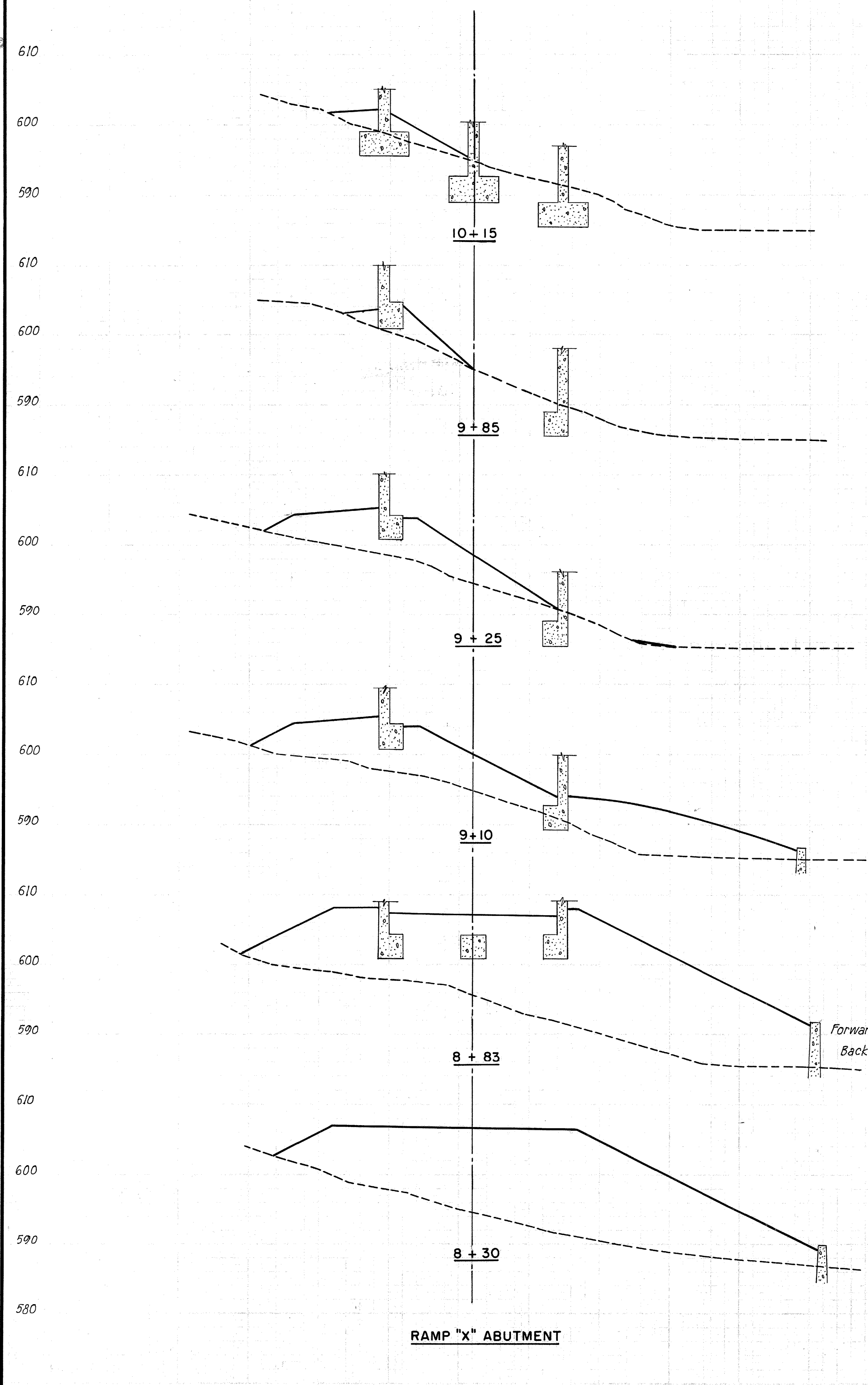
810 SHEET 2.63

MICROFILMED
JUL 26 1983

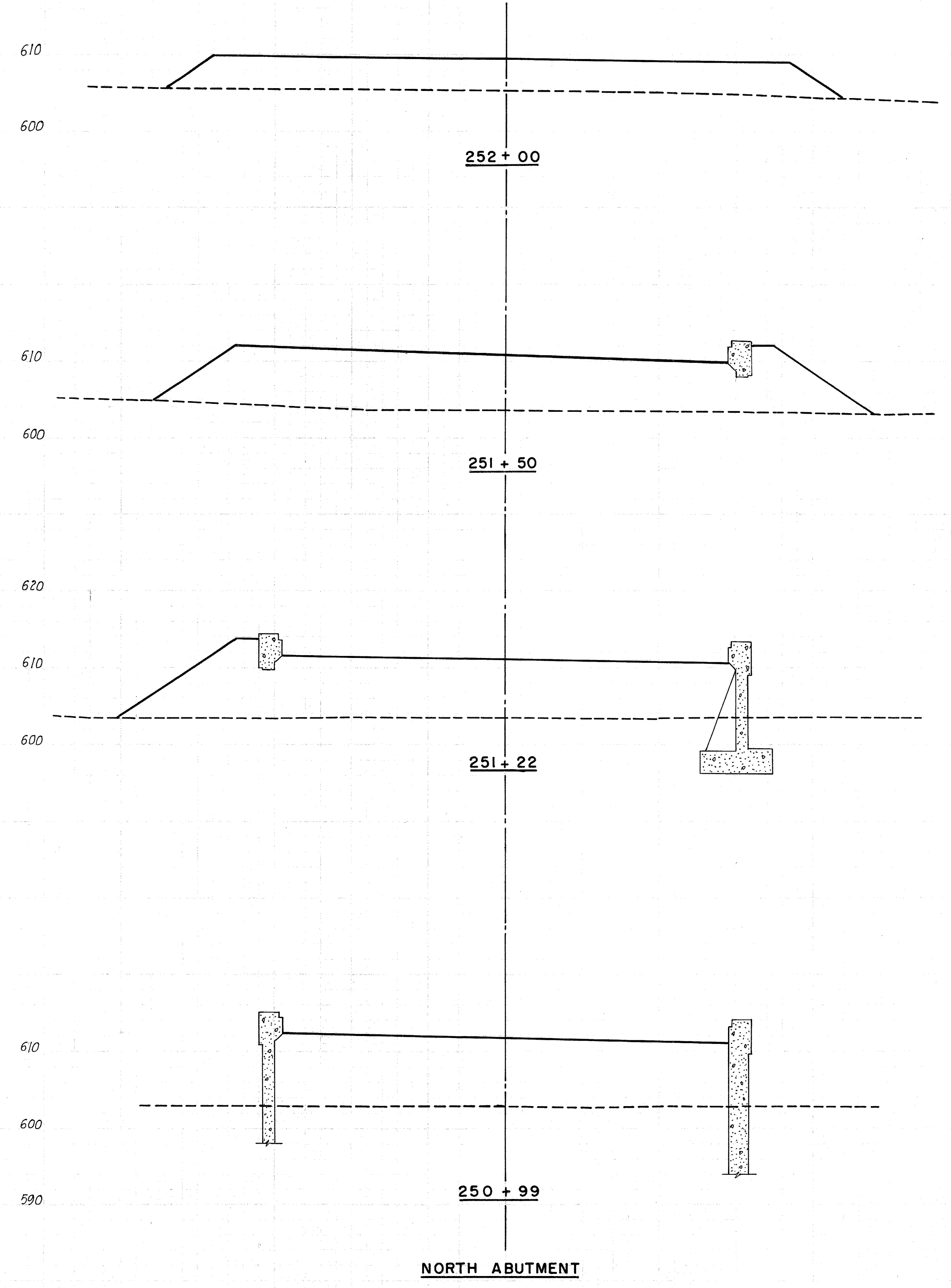
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	A-UI-1052(3)	POST WAR

34
38

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



End Area		Volume	
Cut	Fill	Cut	Fill
0	33		
		0	37
0	34		
		0	208
0	153		
		0	149
0	384		
		0	706
0	886		
0	906		
		0	1533
0	750		



End Area		Volume	
Cut	Fill	Cut	Fill
0	350		
		0	891
0	612		
		0	622
0	588		
		0	471
0	517		

PART 2

TOLEDO EXPRESSWAY SYSTEM

MAUMEE RIVER BRIDGE
BR. NO. LU 120-35

SITE GRADING CROSS SECTIONS

TOLEDO LUCAS COUNTY OHIO

SCALE 1" = 10'
MADE I.L.D. DATE 7-24-52
TRCD P.R. DATE 11-21-52
CRD J.D.P. DATE 11-21-52

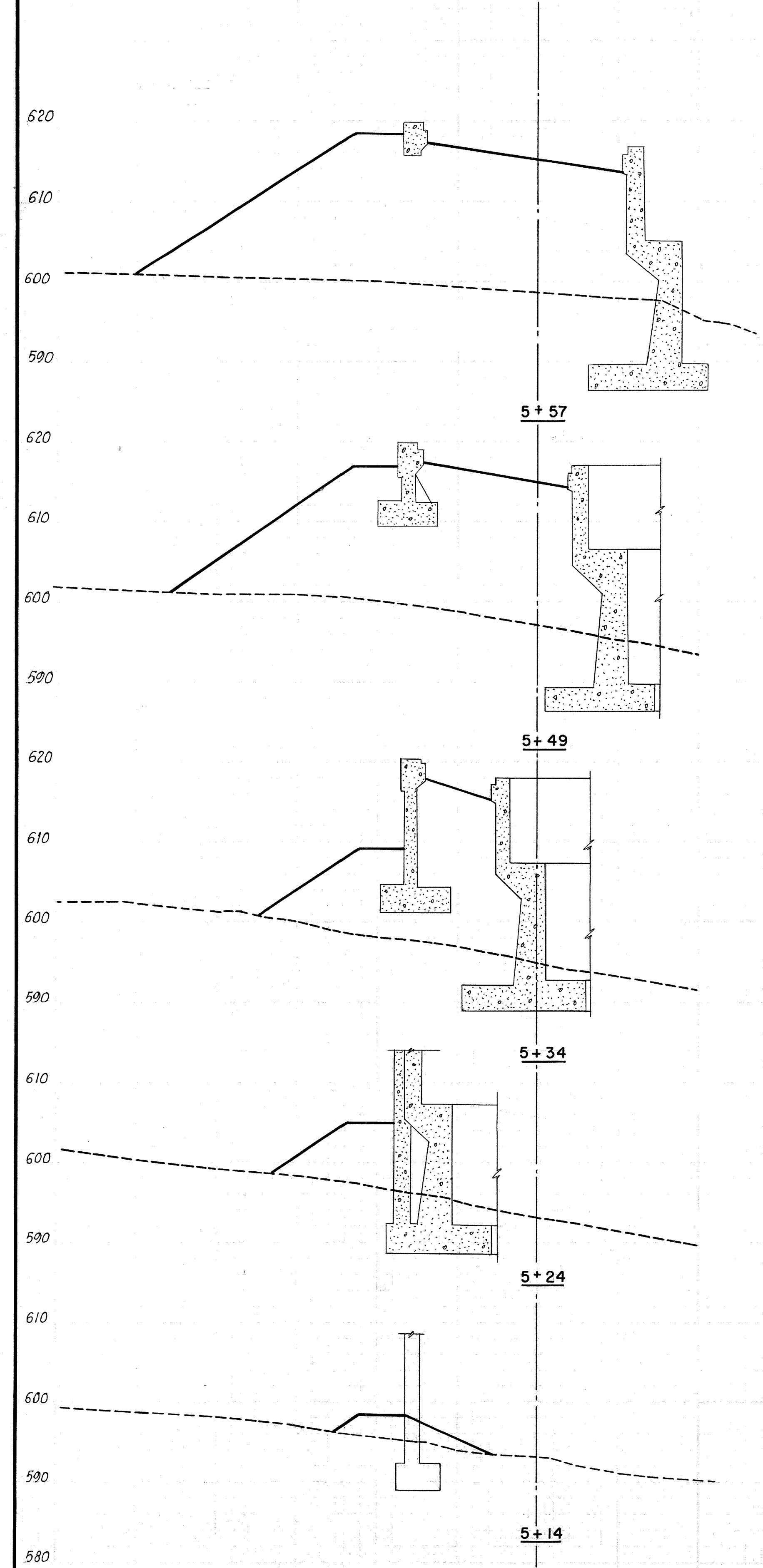
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

810 SHEET 2.64

MICROFILMED
JUL 26 1963

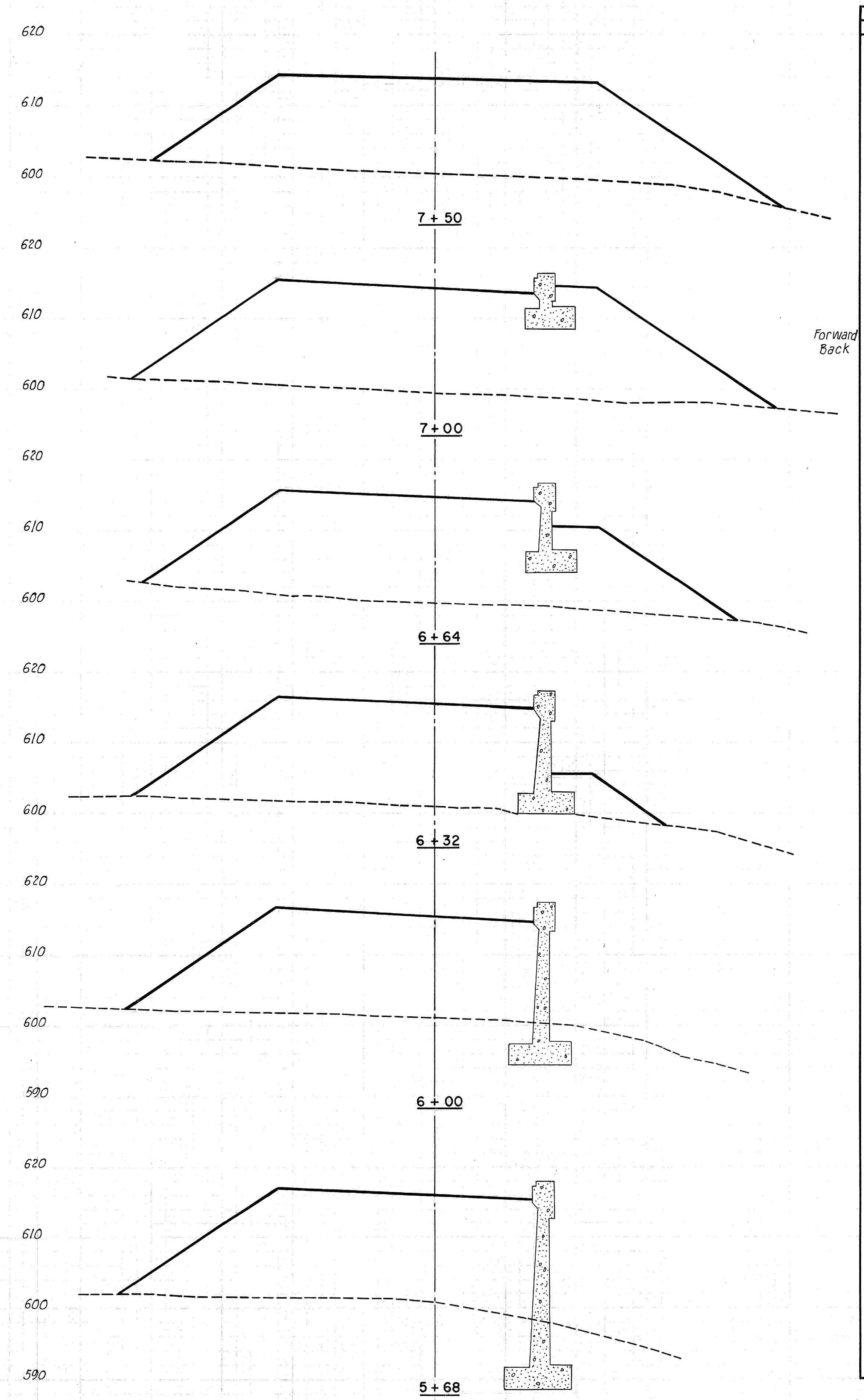
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	35 38
2	OHIO	01-1052(3)	POST WAR	

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



End Area		Volume	
Cut	Fill	Cut	Fill
0	840	0	324
0	226	0	226
0	682	0	226
0	287	0	287
0	350	0	84
0	84	0	84
0	95	0	24
0	24	0	24
0	34	0	34

RAMP E-E ABUTMENT



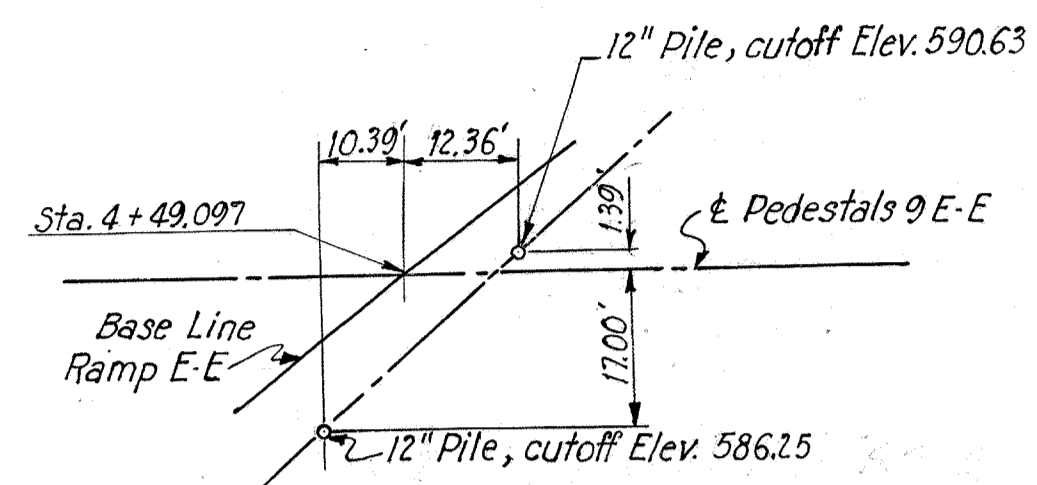
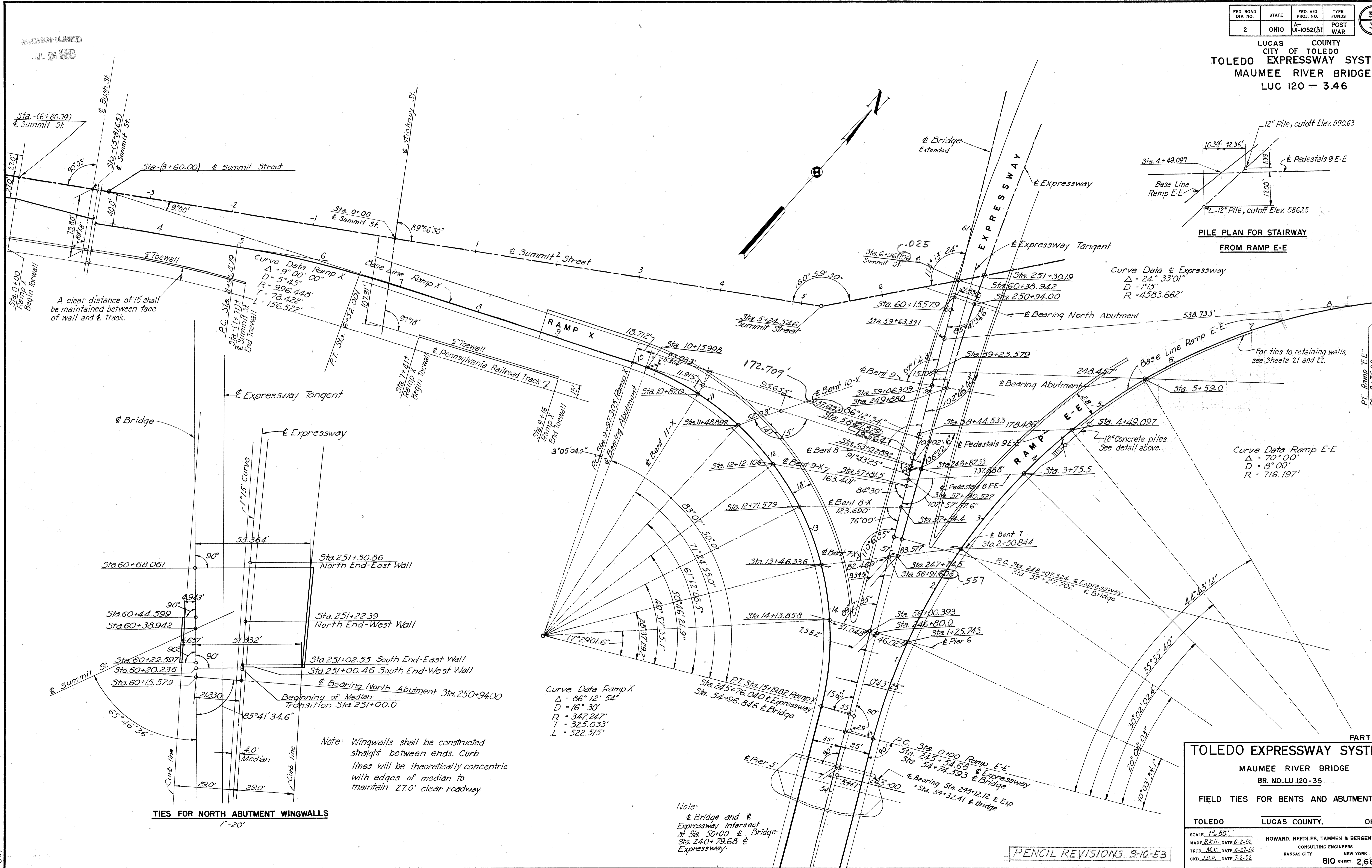
End Area		Volume	
Cut	Fill	Cut	Fill
0	886	0	1783
0	1040	0	1012
0	1261	0	879
0	962	0	744
0	857	0	703
0	860	0	749

Item	Ramp X	Ramp E	Worth Abut.	Totals
Embankment Gross	2635	6670	1985	11,290
Plus Fill Slope	220	325	50	595
Less Concrete in Emb'kt.	30	15	5	50
Less Porous Backfill	10	130	60	200
Net Embankment	2815	6850	1970	11,635
Plus 20% Shrinkage	565	1370	390	2325
Total Borrow	3380	8220	2360	13,960
Less Structural Excavation	140	130	165	435
Total	3,240	8,090	2,195	13,525

PART 2
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
BR. NO. LU 120-35
SITE GRADING CROSS SECTIONS
TOLEDO LUCAS COUNTY OHIO
SCALE 1" = 10'
MADE L.L.D./DATE 11-18-52 HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS
TRCD. R.R. DATE 11-21-52 KANSAS CITY NEW YORK
CND-L.D.P. DATE 11-21-52 810 SHEET 2.65

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	A-1052(3)	POST WAR

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



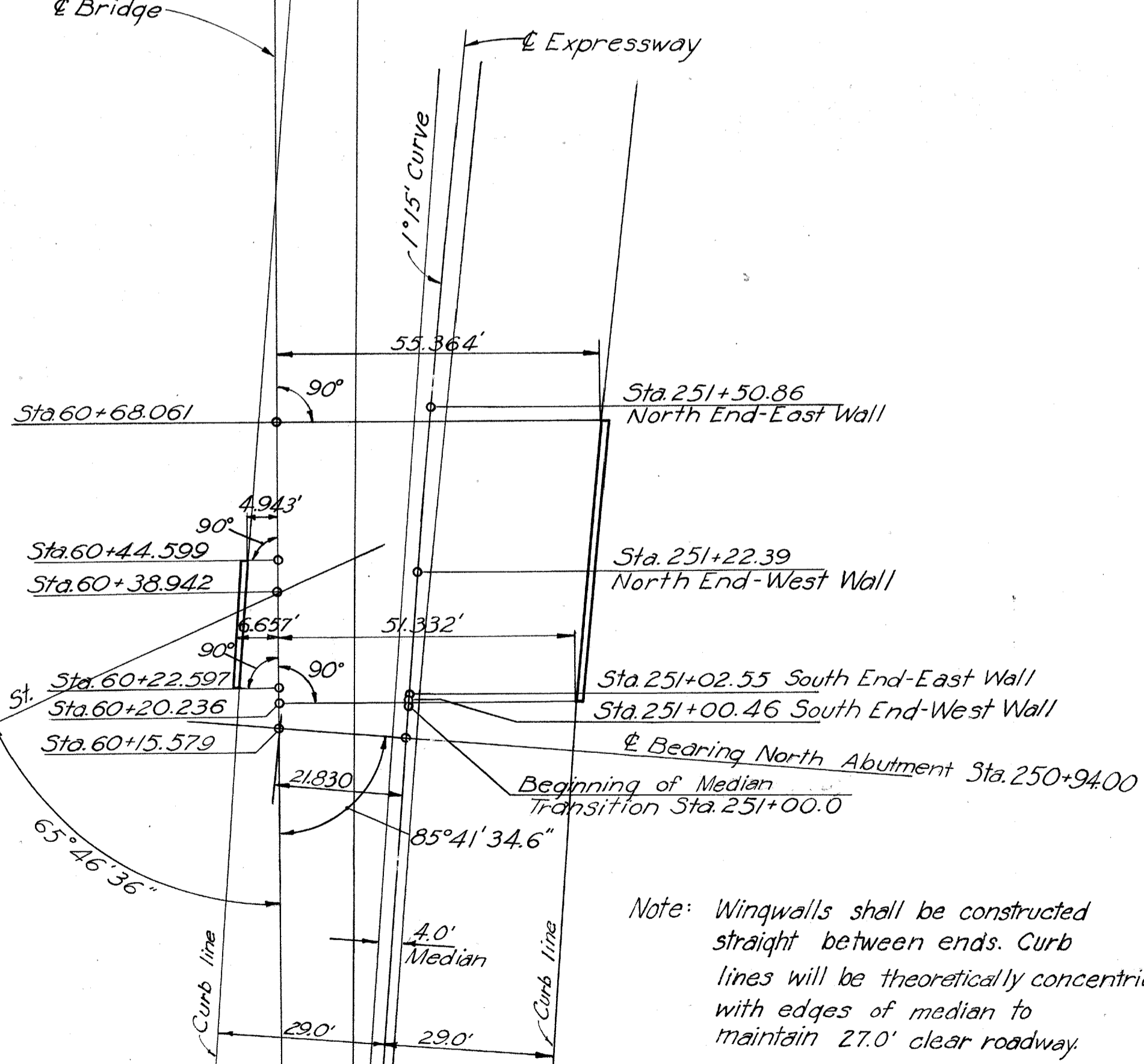
PILE PLAN FOR STAIRWAY FROM RAMP E-E

Curve Data Expressway
 $\Delta = 24^\circ 33' 01''$
 $D = 1' 15''$
 $R = 4583.662'$

Curve Data Ramp E-E
 $\Delta = 70^\circ 00''$
 $D = 8' 00''$
 $R = 716.197'$

A clear distance of 15 shall be maintained between face of wall and track.

For ties to retaining walls, see Sheets 21 and 22.



TIES FOR NORTH ABUTMENT WINGWALLS
1"=20'

Curve Data Ramp X
 $\Delta = 86^\circ 12' 54''$
 $D = 16' 30''$
 $R = 347.247'$
 $T = 325.033'$
 $L = 522.515'$

Note:
 Bridge and Expressway intersect at Sta. 50+00 & Bridge Sta. 240+79.68 & Expressway.

PENCIL REVISIONS 9-10-53

TOLEDO EXPRESSWAY SYSTEM

MAUMEE RIVER BRIDGE
BR. NO. LU 120-35

FIELD TIES FOR BENTS AND ABUTMENTS

TOLEDO LUCAS COUNTY, OHIO

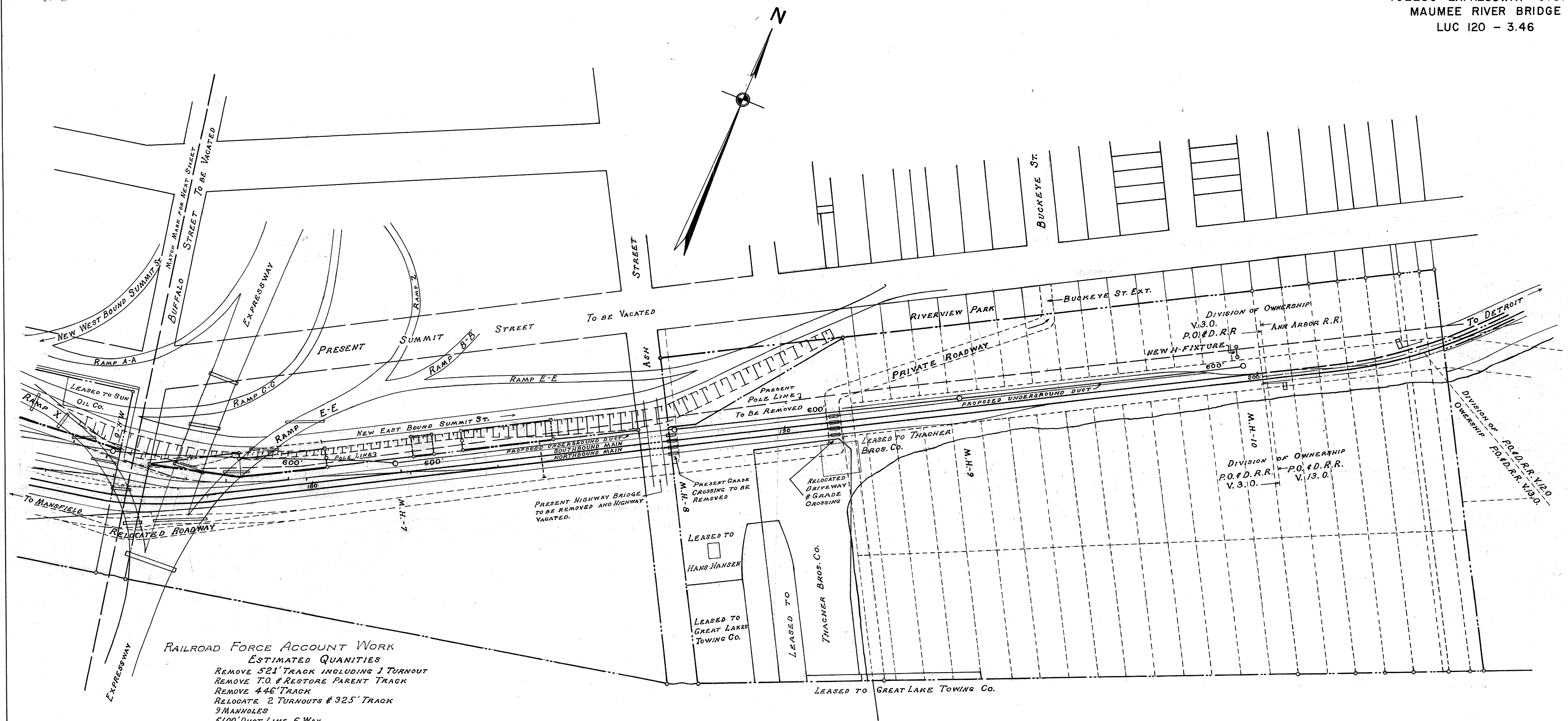
SCALE: 1"=80'
 MADE B.K.H. DATE: 6-2-52
 TRCD. M.K. DATE: 6-27-52
 CKD J.D.P. DATE: 7-2-52
 HOWARD, NEEDLES, TAMMEN & BERGEN
 CONSULTING ENGINEERS
 KANSAS CITY NEW YORK
 810 SHEET 2-66

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MICROFILMED
JUL 26 1983

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	37
2	OHIO	A UI-1052(3)	POST WAR	38

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



RAILROAD FORCE ACCOUNT WORK
ESTIMATED QUANTITIES
 REMOVE 521' TRACK INCLUDING 1 TURNOUT
 REMOVE T.O. & RESTORE PARENT TRACK
 REMOVE 446' TRACK
 RELOCATE 2 TURNOUTS & 325' TRACK
 9 MANHOLES
 5100' DUCT LINE 6 WAY
 100' CONDUIT 3" GALV.
 5200' CABLE 14 Pr. 7 Qd. LEAD SHEATH
 5200' CABLE 19 COND. #14 LEAD SHEATH
 5200' CABLE 2 COND. #6 LEAD SHEATH
 500' CABLE 19 COND. #14 U.G.
 500' CABLE 2 COND. #6 U.G.
 500' CABLE 2 Qd. U.G.
 REMOVE 49 SPANS OF EXISTING AERIAL POLE LINE
 MISCELLANEOUS FITTINGS

All labor and furnishing of materials in connection with the force account work as shown on Sheets No. 37 & 38 and as called for in the estimate will be performed by the Pennsylvania Railroad.

RAILROAD FORCE ACCOUNT WORK
 Engineering & Inspection Lump Sum
 Communication & Signal Lines Changes Lump Sum
 Maintaining & Protecting Railroad Traffic Lump Sum
 Trackwork Lump Sum
 Paving Private Road Crossing North of Ash Street Lump Sum

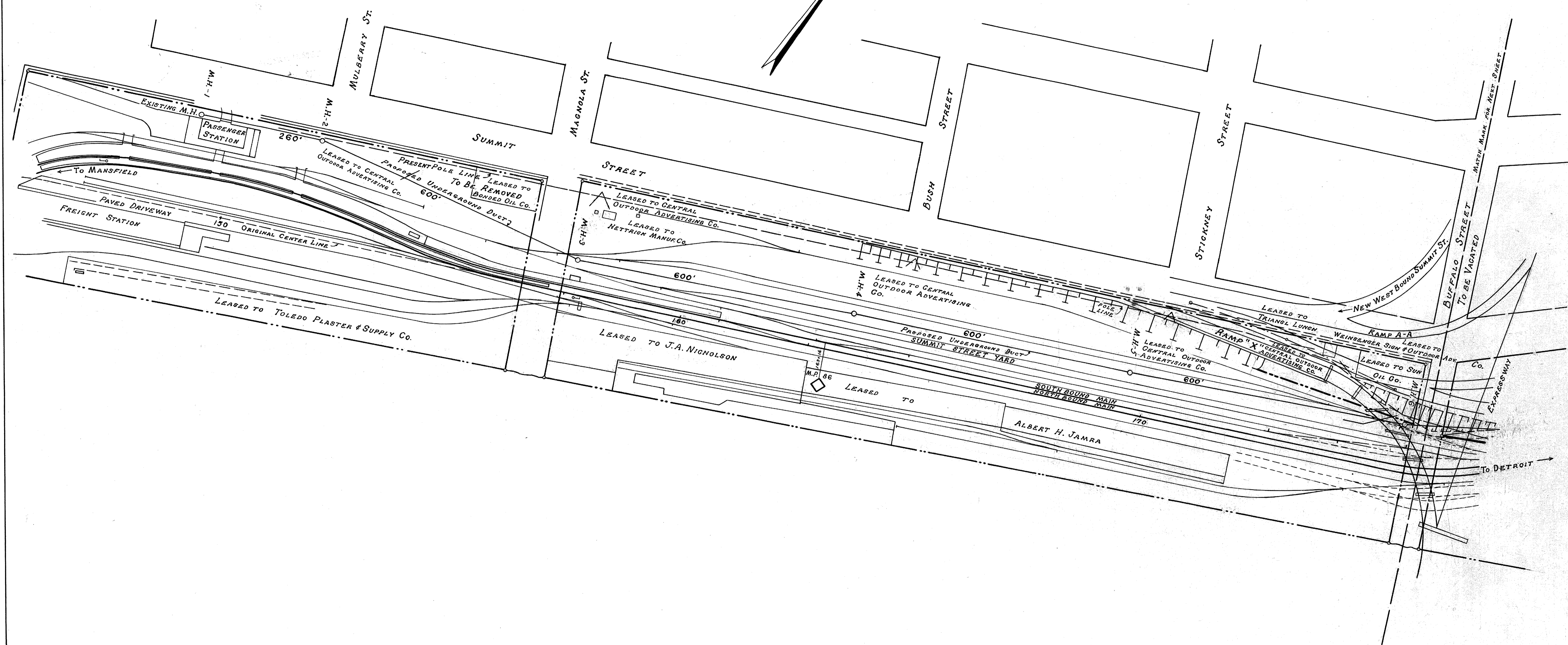
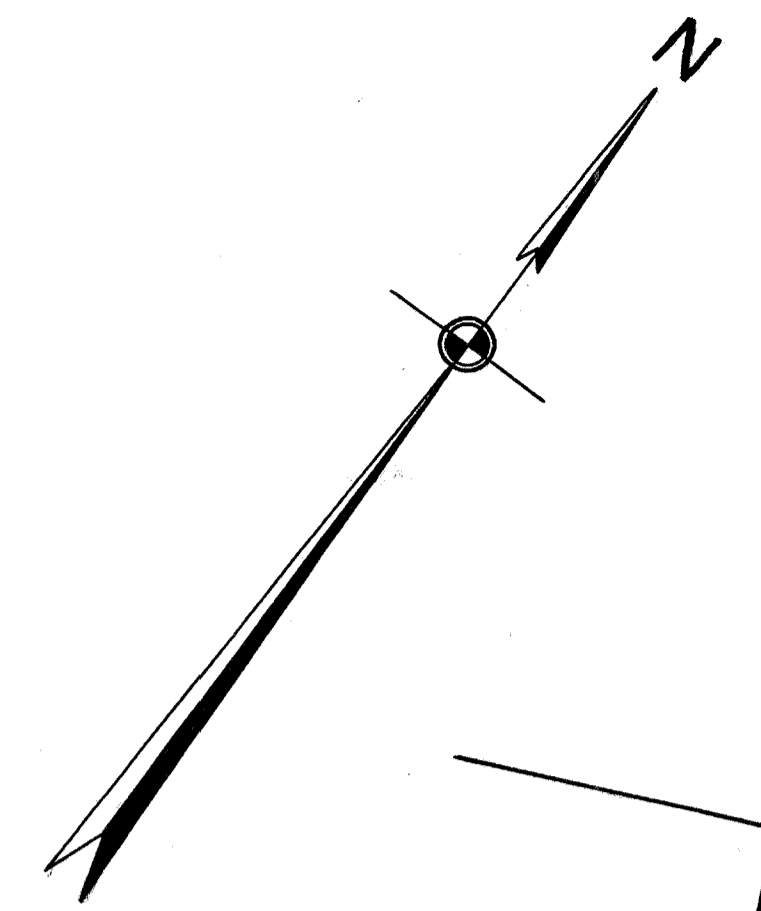
THE PENNSYLVANIA RAILROAD
 CENTRAL REGION EASTERN DIVISION
 TOLEDO, OHIO
 CHANGES IN TRACK, WIRE LINES AND PRIVATE ROADWAY
 TO FACILITATE CONSTRUCTION OF TOLEDO EXPRESSWAY
 SCALE 1"=100' AUGUST 25, 1952
 OFFICE OF CHIEF ENGINEER CENTRAL REGION
 PITTSBURGH, PA.
 No. 25456 SHEET-37

X-12-8

MICROFILMED
JUL 26 1980

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	38
2	OHIO	A-01-1052(3)	POST WAR	38

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



THE PENNSYLVANIA RAILROAD
CENTRAL REGION EASTERN DIVISION
TOLEDO, OHIO
CHANGE IN TRACK, WIRE LINES AND PRIVATE ROADWAY
TO FACILITATE CONSTRUCTION OF TOLEDO EXPRESSWAY
SCALE 1"=100' AUGUST 25, 1952
OFFICE OF CHIEF ENGINEER CENTRAL REGION
PITTSBURGH, PA.
No. 25456 SHEET 38

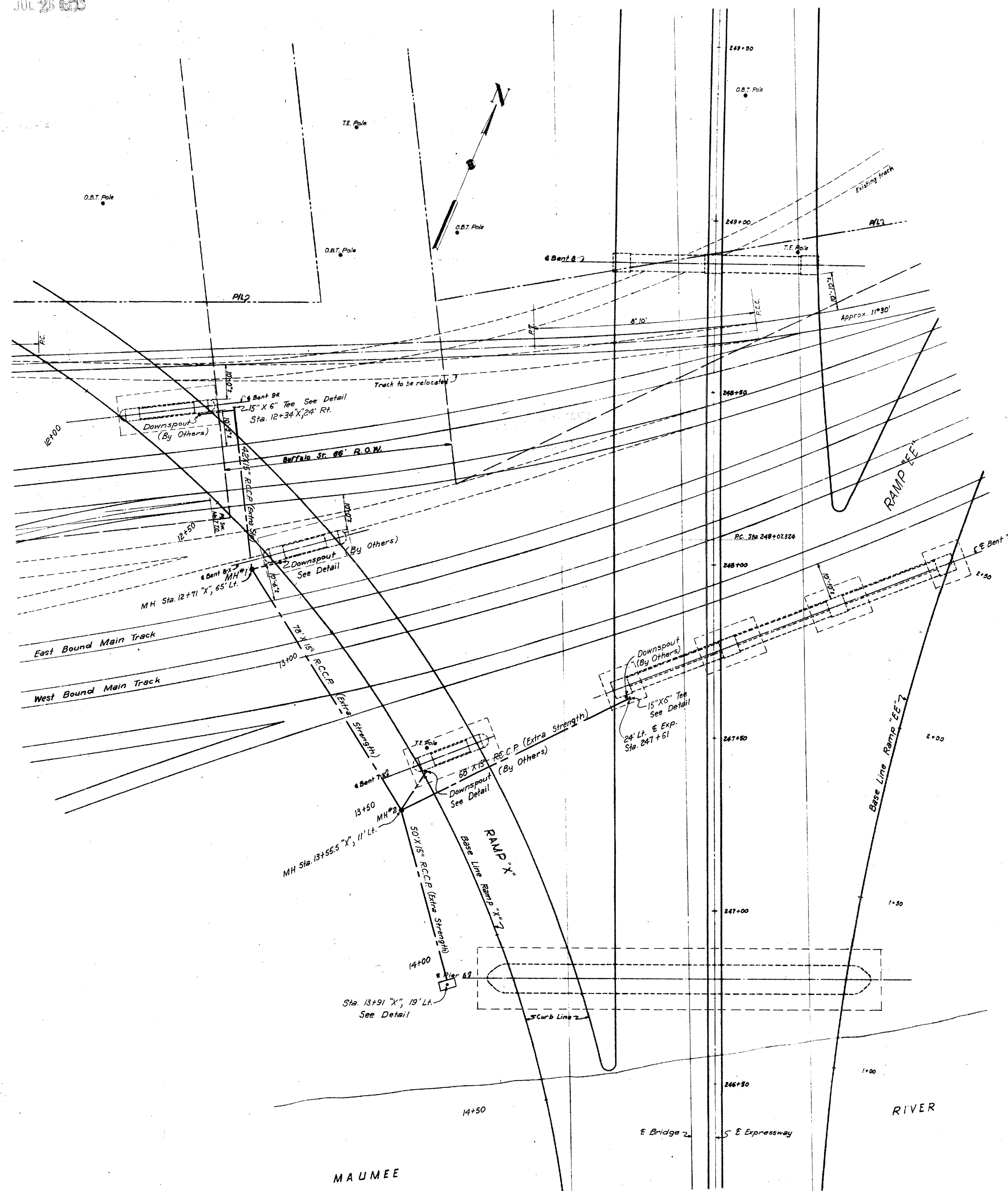
X-12-8

MICROFILMED
JUL 20 1969

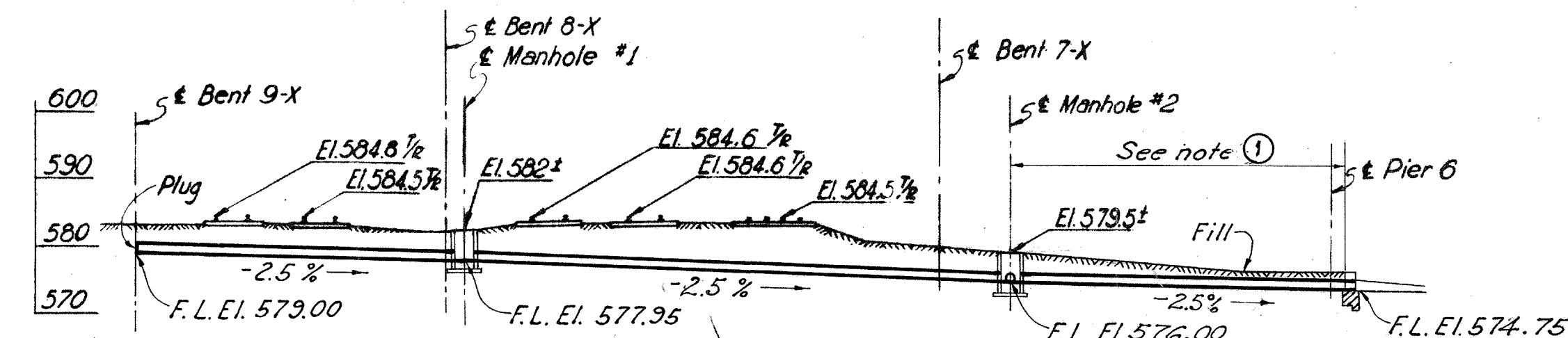
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	38A
2	OHIO		POST WAR	38

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
EXPRESSWAY-PART

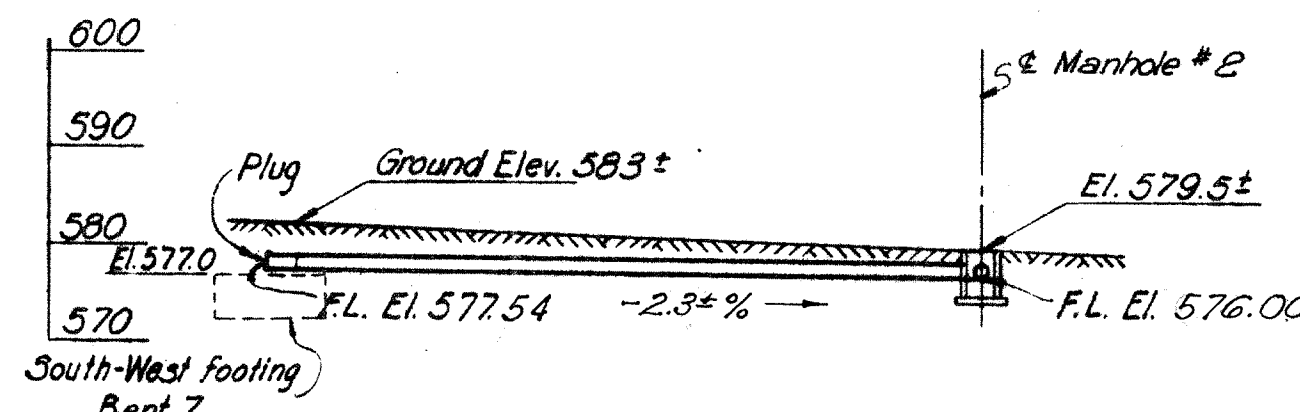
MAUMEE RIVER BRIDGE
SEWER DETAILS



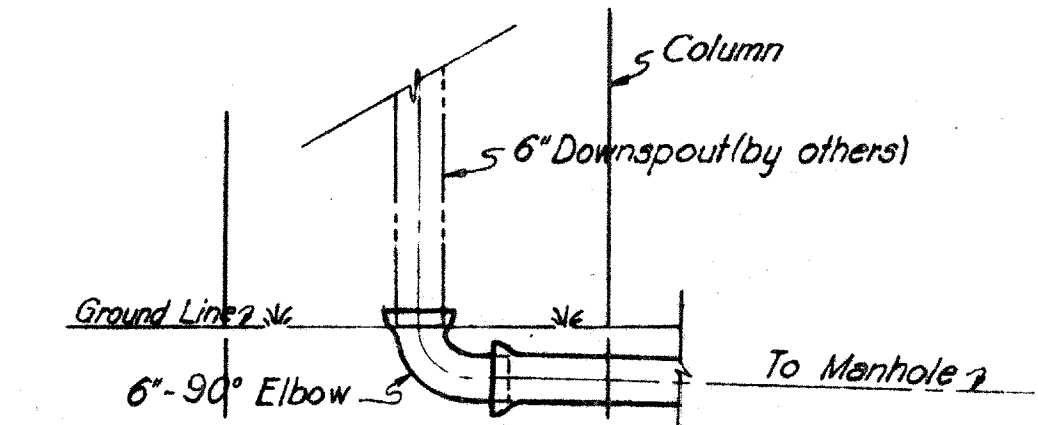
PLAN
Scale: 1"=20'



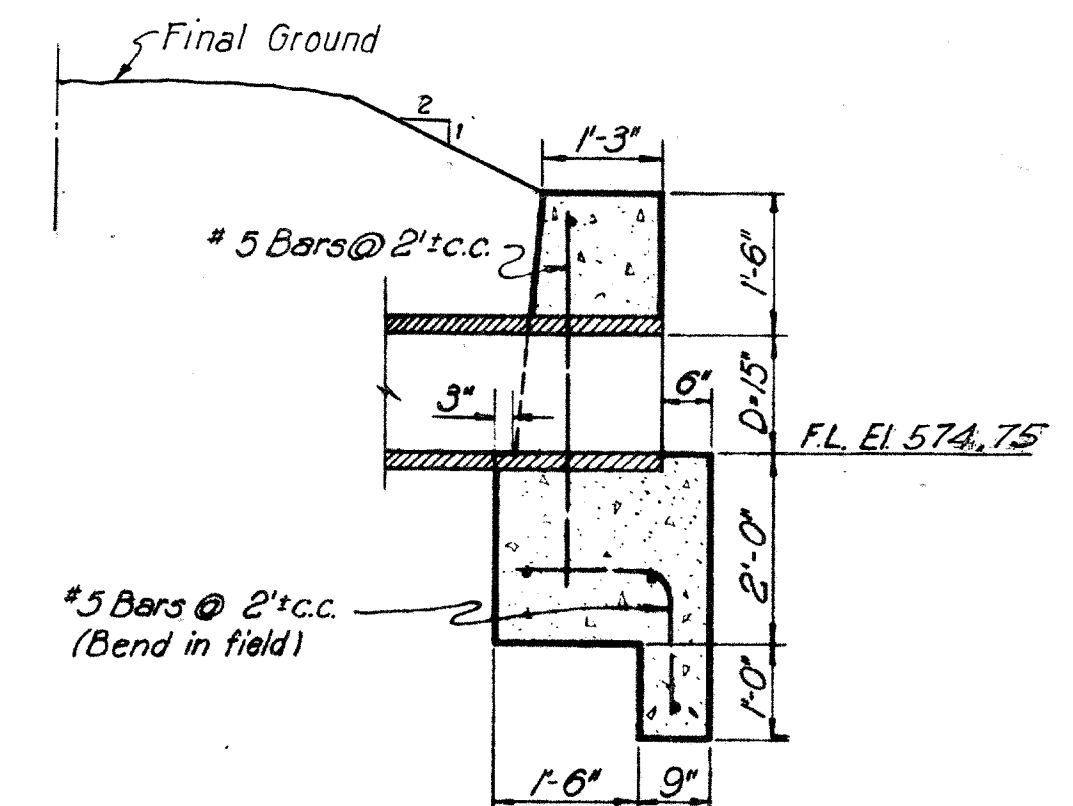
Note ①
A minimum cover of 3' shall be provided over top of pipe through the area noted. Minor site grading necessary to secure this minimum cover shall be performed as directed by the engineer.



PROFILES
Scale: 1"=20'



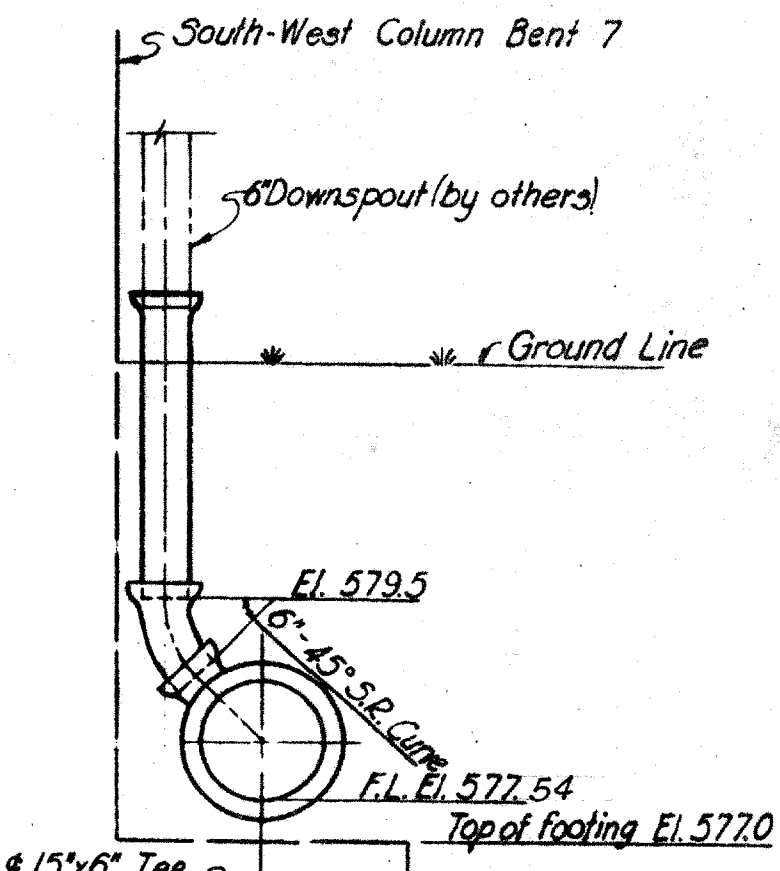
DETAIL OF PIPE SPECIALS
BENTS 7-X & 8-X
Scale: 3/4"=1'-0"



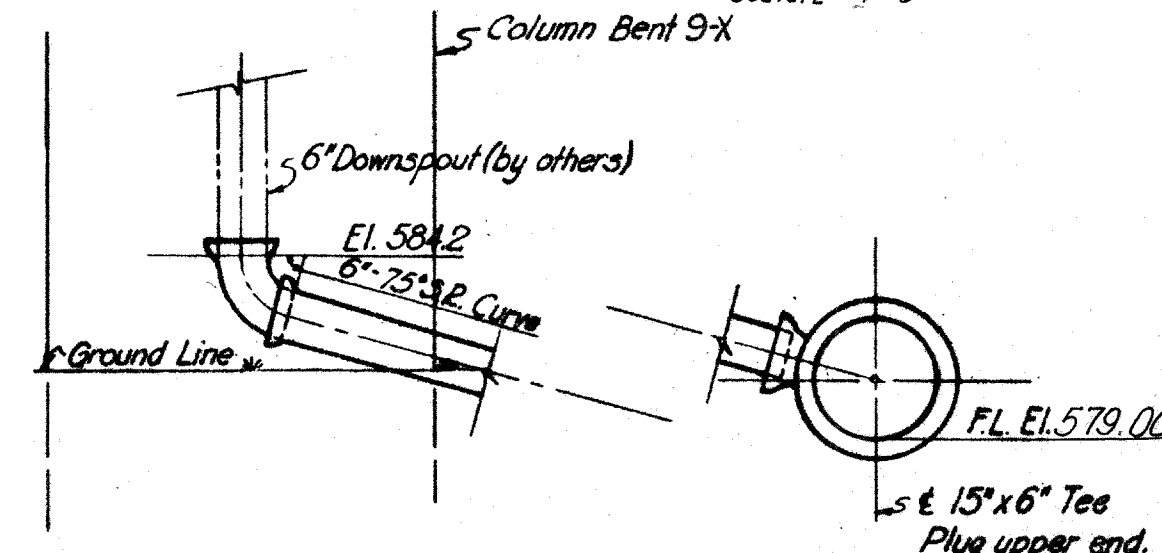
HEADWALL DETAILS
Scale: 3/4"=1'-0"

QUANTITIES			
Item No	Description	Unit	Total Quantity
DRAINAGE			
1-2	15" Extra Strength Reinforced Concrete Culvert Pipe, Sec. M-6.6(c) for Storm Sewers	Lin. ft.	238
1-2	6" Pipe for Storm Sewers	Lin. ft.	33
1-3	15" x 6" Tee	Each	2
1-5	6" 45° Short Radius Curve	Each	1
1-5	6" 75° Short Radius Curve	Each	1
1-5	6" 90° Short Radius Elbow	Each	2
E-2	Excavation for Structures	Cu. Yds.	2
3-1	Concrete for Structures	Cu. Yds.	1.6
3-4	Reinforcing Steel	Lbs.	31
1-8	Standard No. 1 or No. 1-A Manholes	Each	2

Payment for all the necessary equipment, labor, tools, material and incidentals necessary to complete the construction to the satisfaction of the Engineer, shall be considered included in the prices agreed upon for those items noted in the tabulation of quantities above. This includes cost of any site grading necessary for proper pipe cover.



DETAIL OF PIPE SPECIALS
BENT 7
Scale: 3/4"=1'-0"



DETAIL OF PIPE SPECIALS
BENT 9-X
Scale: 3/4"=1'-0"

Notes:
All Concrete shall be class "C".
The locations and elevations of any item may be adjusted, at the direction of the Engineer, to meet existing conditions.

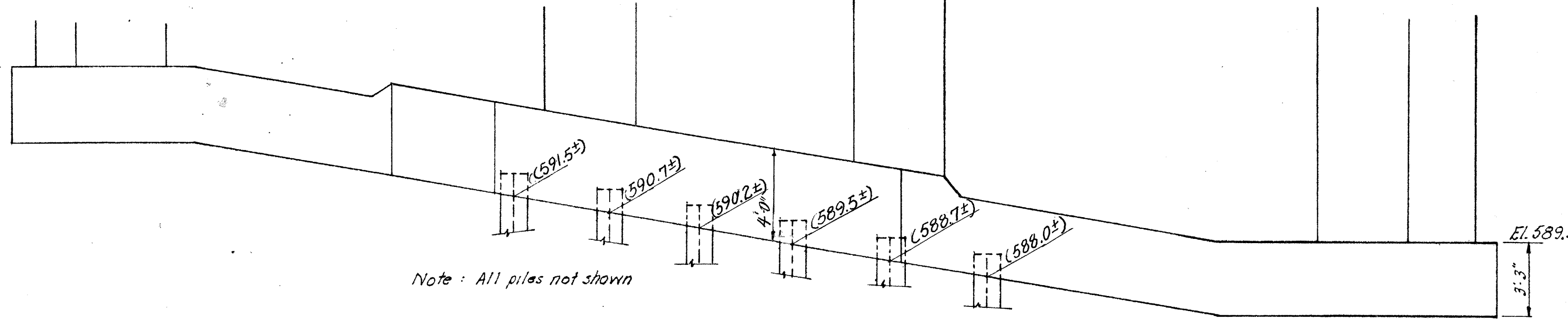
Revised to conform to PRR suggestion, 8-26-54 C.D.B.
Revised to provide additional pipe cover... D.J.W. 8-6-54

SCALE: As Shown
MADE: CAH DATE: 6-30-54
TRCD: FJB DATE: 7-6-54
CKD: RES DATE: 7-7-54
HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
810 SHEET.

Extra Work Contract

MICROFILMED
JUL 26 1980

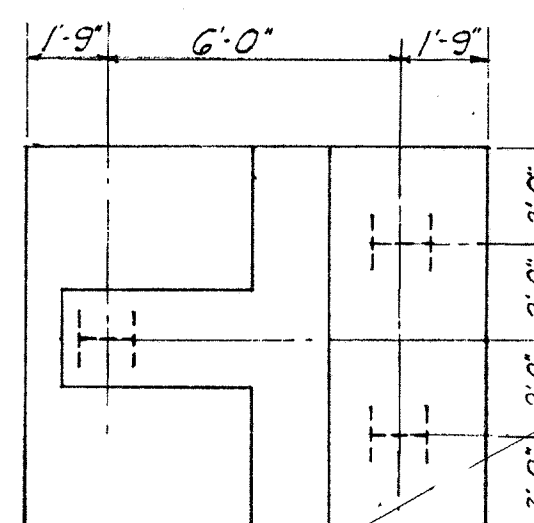
El. 597.0



Note: All piles not shown

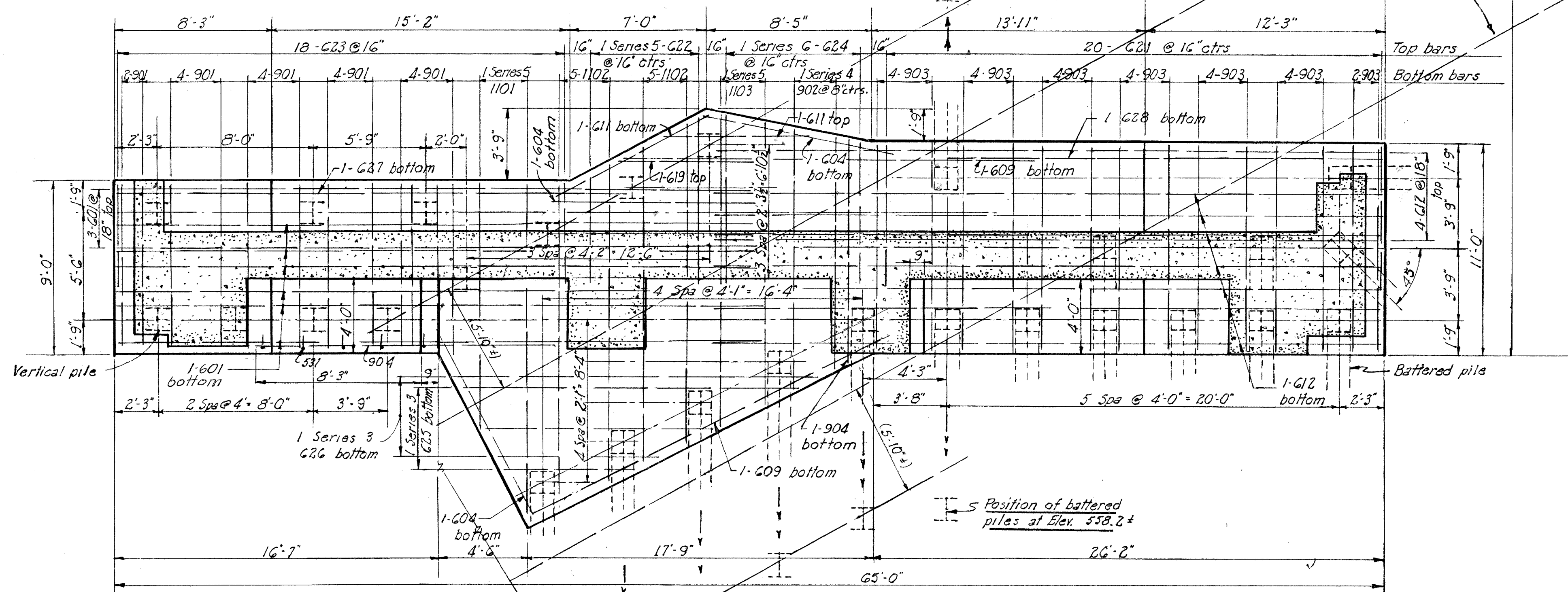
ELEVATION
1/4" = 1'-0"

Footing for counterfort C-EI as detailed on Sh. 2.47 except no piles are battered.



Elev. 596.25 bottom footing

Corrected location of 87" sewer as reported in Mr. Hawley's letter of 3-16-54



PLAN
1/4" = 1'-0"
27 Piles

REVISIONS FOR NORTH ABUTMENT REINFORCING STEEL SCHEDULE									
Mark	No.	Length	Type	Dimensions			Change in Wt.	Remarks	
				A	B	C			
604	22*	10'-6"	Str.				+20	1 Additional bar required	
609	9*	21'-3"	Str.				+30	1 " " "	
611	11*	8'-6"	Str.				+10	1 " " "	
619	8*	7'-6"	Str.				+10	1 " " "	
621	20*	7'-0"	Str.				+30	3 " " "	
623	18*	5'-3"	Str.				-20	3 Less bars required	
627	1	26'-0"	109	18'-0"	8'-0"	2"	0	Reduce dimension "A" 2'-0"	
901	18*	10'-8"	100	7'-8"	1'-6"		-150	4 Less bars required	
903	26*	12'-8"	100	9'-8"	1'-6"		+170	4 Additional bars required	
904*	1	13'-3"	100	10'-3"	1'-6"		+50	1 Additional bar	
1102	10*	19'-0"	100	15'-2"	1'-11"		-100	1 Less bar required	
Total change in weight							+50		

* Indicates change from schedule for North Abutment on drawing 2.48. Bars not shown above will be unchanged.

All battered piles shall be battered 4" in 12".
All piles to be 14 BP 73.
See Sheets 2.46 & 2.47 for all other details of abutment and wing wall.

Note: This drawing constitutes a revision of drawing 2.46 due to the actual location of the 87" sewer being different than assumed at the time of design.

Work drawings 2.46 and 2.46A together. The revised schedule of bars assumes that bars have already been fabricated in accordance with schedule on drawing 2.48. The revised footing will change the Estimated Quantities as follows:
E2 Structure Excavation +3 Cu. Yds.
S1 Class "C" Concrete (Abutments) +1 Cu. Yd.
S4 Reinforcing Steel +50 Lbs.

PART 2

TOLEDO EXPRESSWAY SYSTEM

MAUMEE RIVER BRIDGE
BR. NO. LU 120-35
NORTH ABUTMENT
REVISED FOOTING

TOLEDO LUCAS COUNTY, OHIO

SCALE 1/4" = 1'-0" HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE H.W. DATE 3-19-54 CONSULTING ENGINEERS
TRCD DATE KANSAS CITY CLEVELAND NEW YORK
CHD JT DATE 3-23-54 810 SHEET 2.46A