

DESIGN DESIGNATION

CURRENT A.D.T. (1982) = 27,475
DESIGN YEAR A.D.T. (2002) = 32,970
DHV = 5,000
D = 50%
T = 3%
Y = 40 M.P.H.

MICROFILMED
NOV 27 1984

MICROFILMED
JAN 2 1991

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
TRU-193-1.37
80-4.03
LIBERTY TOWNSHIP
TRUMBULL COUNTY

OHIO	1
FHWA REGION 5	57
TRU-193-1.37	
TRU-80-4.03	
FEDERAL PROJECT	

HES-2A43 (4)
IR-80-5 (36) 223

CONVENTIONAL SIGNS

County Line	-----	Limited Access (only)	-----	LA
Township Line	-----	Right of Way (only)	-----	RW
Section Line	-----	Limited Access & Right of Way	-----	LA & RW
Corporation Line	----- or -----	Existing Right of Way	-----	
Fence Line (existing)	-x-x- (proposed) -x-x-	Property Line	----- (in existing fence) -x-x-	
Center Line	352 353	Railroad	----- or -----	
Trees, Stumps	⊙, ⊙ (to be removed) ⊗, ⊗	Guardrail (existing)	----- (proposed) -----	
Utility Poles: Telephone	⊕, Power			
	⊕, Light			

INDEX OF SHEETS

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LINE DATA

HES-2A43 ()		
S.R. 193		
BEGIN WORK	STA. 65+05	
END WORK	STA. 103+90	3885.00 L.F.
LIBERTY JONES ROAD		
BEGIN WORK	STA. 12+30	
SUSPEND WORK	STA. 19+70	740.00 L.F.
RESUME WORK	STA. 20+28	
END WORK	STA. 23+90	362.00 L.F.
TOTAL WORK HES-2A43 ()		4987.00 L.F. OR 0.944 MILES

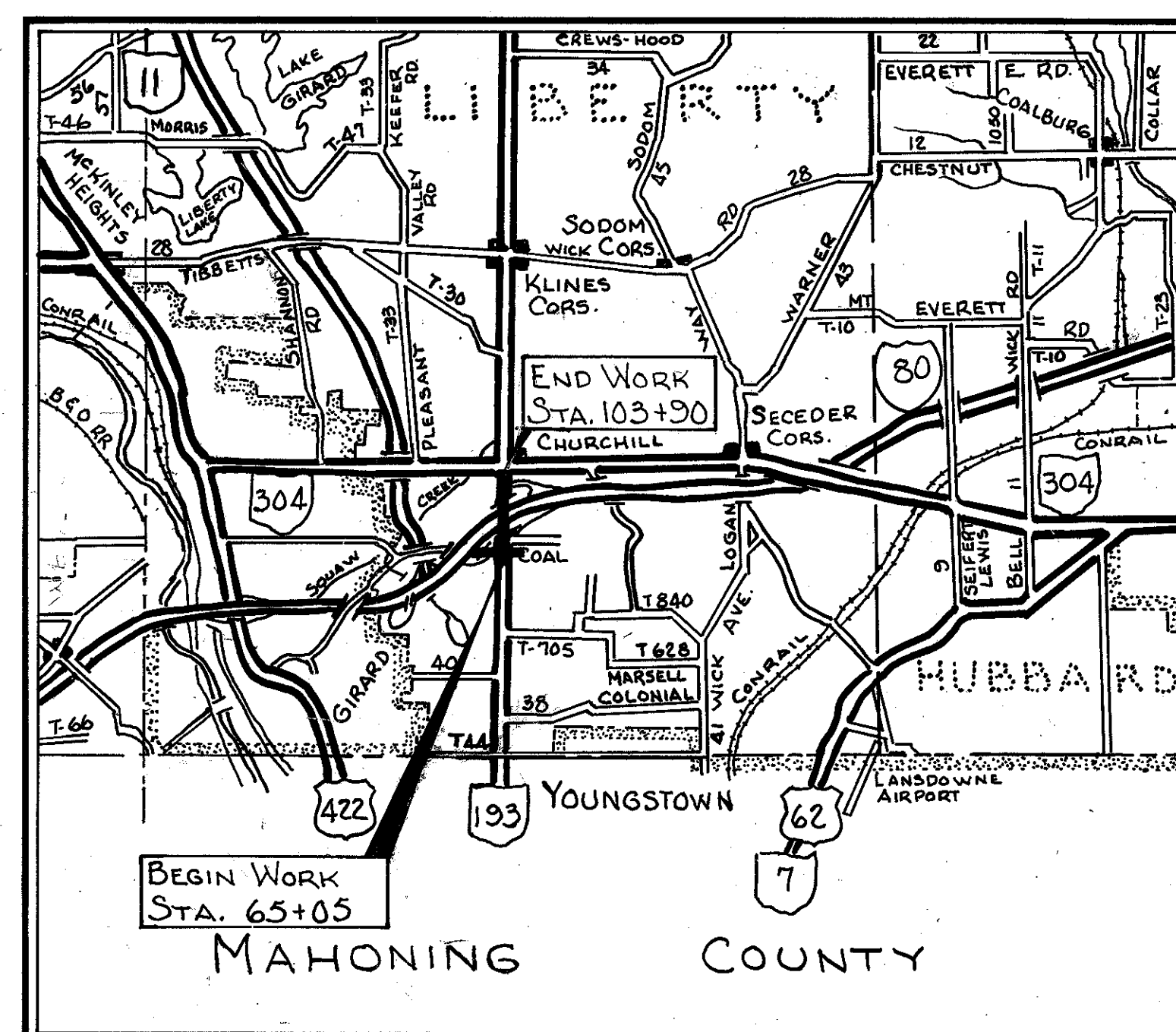
IR-80-5 ()		
"RAMP J"		
BEGIN WORK	STA. 213+65	
END WORK	STA. 216+52	287.00 L.F.
TOTAL WORK IR-80-5 ()		287.00 L.F. OR 0.054 Mi.
TOTAL LENGTH OF WORK		5274.00 L.F. OR 0.998 Mi.
Plan Prepared By:		

OHIO DEPARTMENT
OF TRANSPORTATION
DISTRICT 4

Project: **TRU-193-1.37**

Date of Letting: 19 , Contract No.

LD0300 Rev. 11-1-78



LOCATION MAP

SCALE IN MILES

Portion to be improved: -----
State & Federal Routes: -----
Other Roads: -----

SCALES

Plan: -----
Profile: ----- Horizontal ----- Vertical -----
Cross Section: Horizontal ----- Vertical -----

SUPPLEMENTAL SPECIFICATIONS	
803	5-21-83
847	10-17-83
861	9-5-83
947	10-17-83
961	9-9-83

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS							
BP-5	7-16-81	MC-4	7-26-76	HL-1	9-6-73	TC-9.10	4-24-80
BP-6	6-1-65	MC-6	1-30-84	HL-2	7-27-73	TC-12.30	6-10-81
BP-7	12-6-76	MC-11	8-1-78	HL-10	6-1-79	TC-17.10	3-1-79
BP-12	7-7-81	MH-1	6-12-75	HL-11	6-1-79	TC-21.20	5-31-79
CB-2-2AGB	5-1-79			HL-12	4-6-73	TC-22.10	3-1-79
CB-3	5-1-79			HL-9	3-22-77	TC-22.20	3-1-79
F-1	5-1-76	GR-1	2-5-82			TC-31.21	3-6-79
HW-4B	4-1-80	GR-2B	2-5-82			TC-32.10	3-8-79
		GR-4	2-5-82			TC-32.11	3-21-79
						TC-35.10	10-5-77
						TC-41.20	3-26-79
						TC-42.20	3-26-79
						TC-51.10	3-30-79

1983 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, 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 on the plans and estimates.

Approved: Francis V. Fincher
Date 12-13-83 District Deputy Director of Transportation

Approved: _____
Date _____ Engineer, Bureau of Bridges and Structural Design

Approved: James R. Longmeyer
Date 8-22-84 Chief Engineer, Operations

Approved: Warren J. Smith
Date 9-10-84 Director, Department of Transportation

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

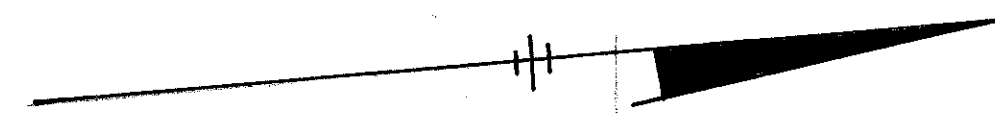
APPROVED:

DIVISION ADMINISTRATOR

DATE

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NOV 28 1984

0 5 10 20 30 40 50
SCALE IN FEET



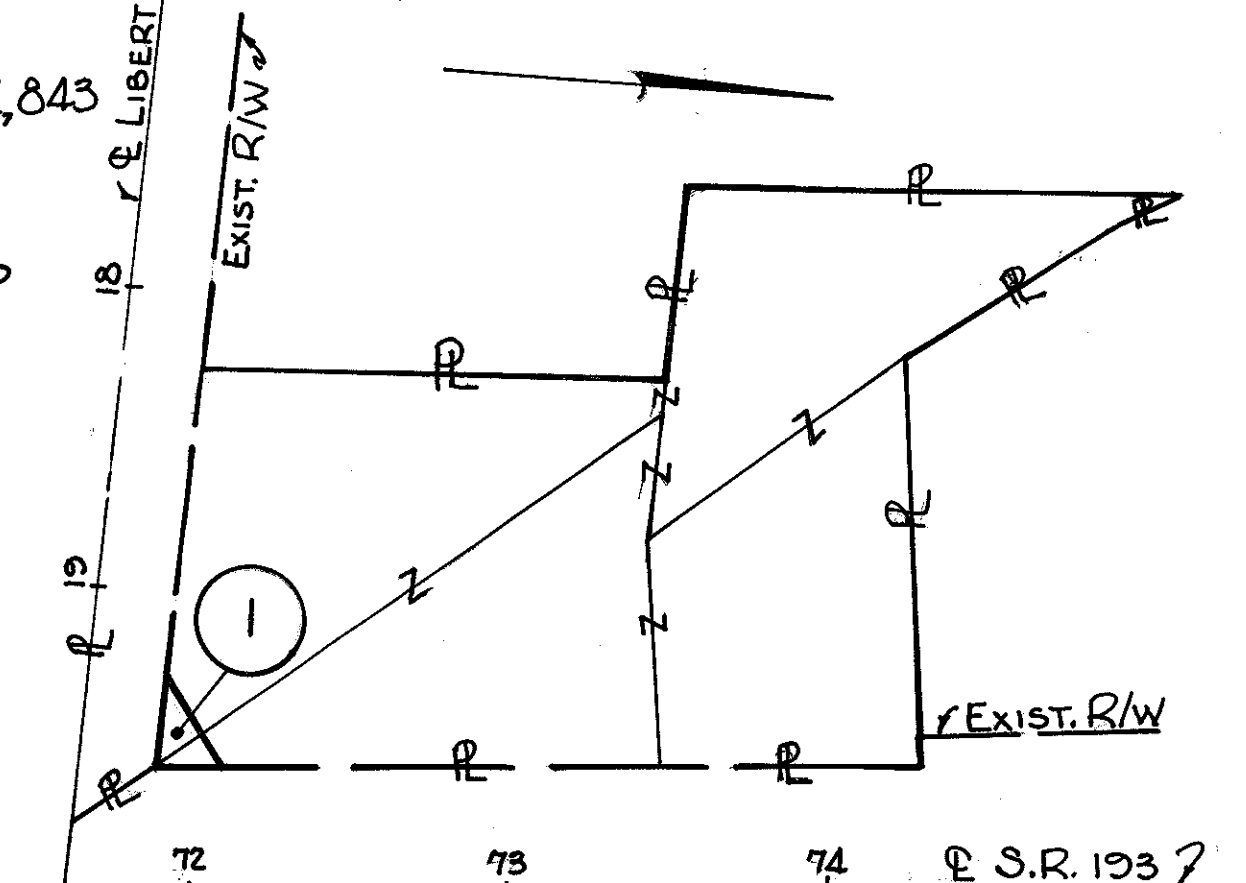
LIBERTY TOWNSHIP
R-2W T-3N
SECTION 8
TRUMBULL COUNTY

VOLUME 1019 PAGES 839,840,841,842,843

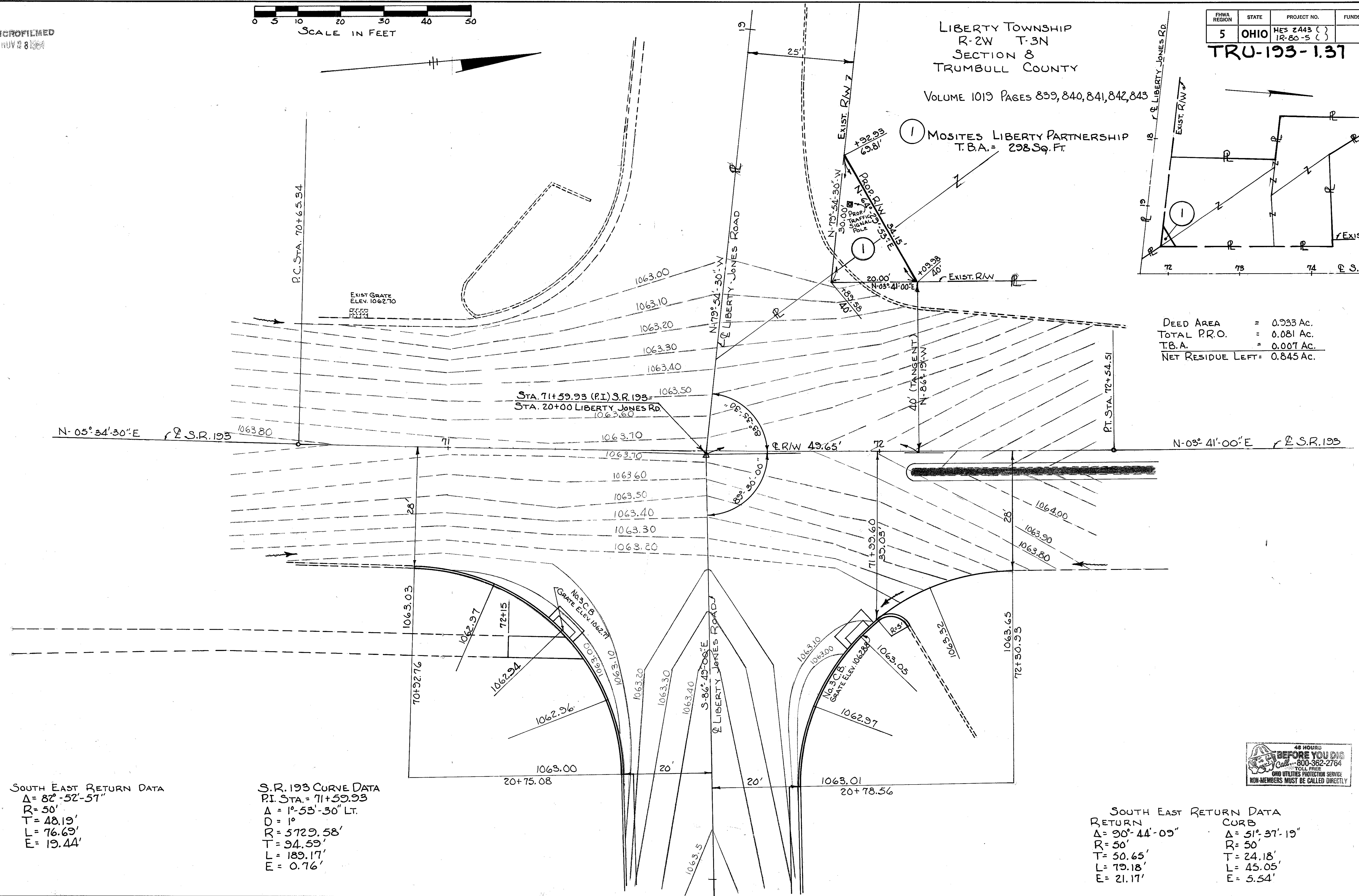
FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO	HES 2443 () 1R-80-5 ()	

TRU-193-1.31

30
57



DEED AREA = 0.933 Ac.
TOTAL P.R.O. = 0.081 Ac.
T.B.A. = 0.007 Ac.
NET RESIDUE LEFT = 0.845 Ac.



SOUTH EAST RETURN DATA
 $\Delta = 82^\circ-52'-57''$
 $R = 50'$
 $T = 48.19'$
 $L = 76.63'$
 $E = 19.44'$

S.R. 193 CURVE DATA
P.I. STA. = 71+59.93
 $\Delta = 1^\circ-53'-30''$ LT.
 $D = 1^\circ$
 $R = 5729.58'$
 $T = 94.59'$
 $L = 189.17'$
 $E = 0.76'$

SOUTH EAST RETURN DATA
RETURN
 $\Delta = 90^\circ-44'-09''$
 $R = 50'$
 $T = 50.65'$
 $L = 79.18'$
 $E = 21.17'$
CURB
 $\Delta = 51^\circ-37'-19''$
 $R = 50'$
 $T = 24.18'$
 $L = 45.05'$
 $E = 5.54'$



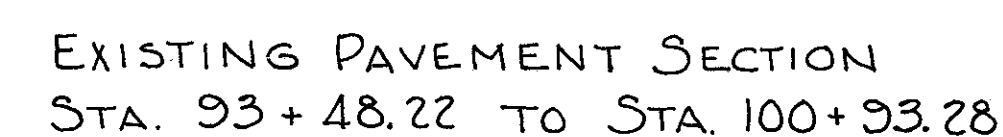
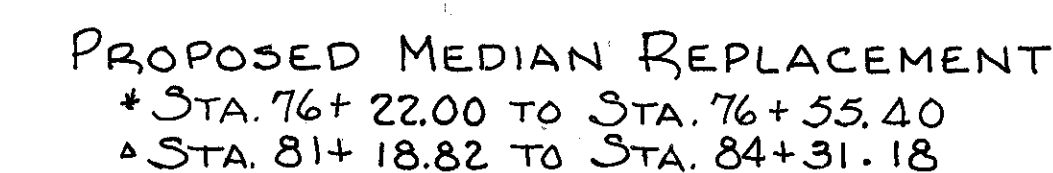
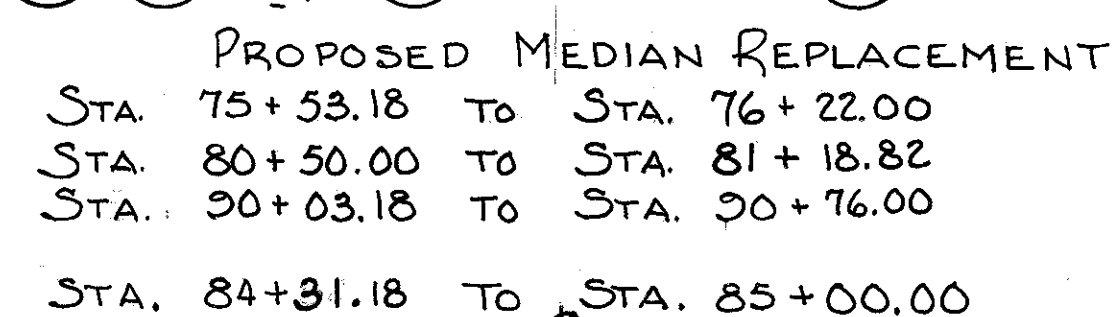
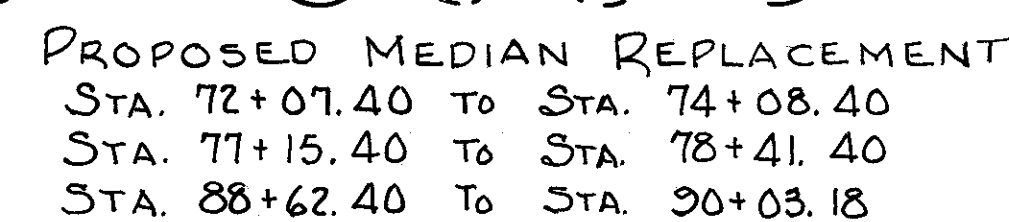
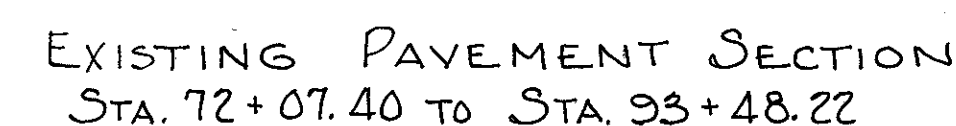
INTERSECTION DETAILS

MICROFILMED
NOV 27 1964

	2
	57

0 1 2 3 4 5 10

SCALE IN FEET



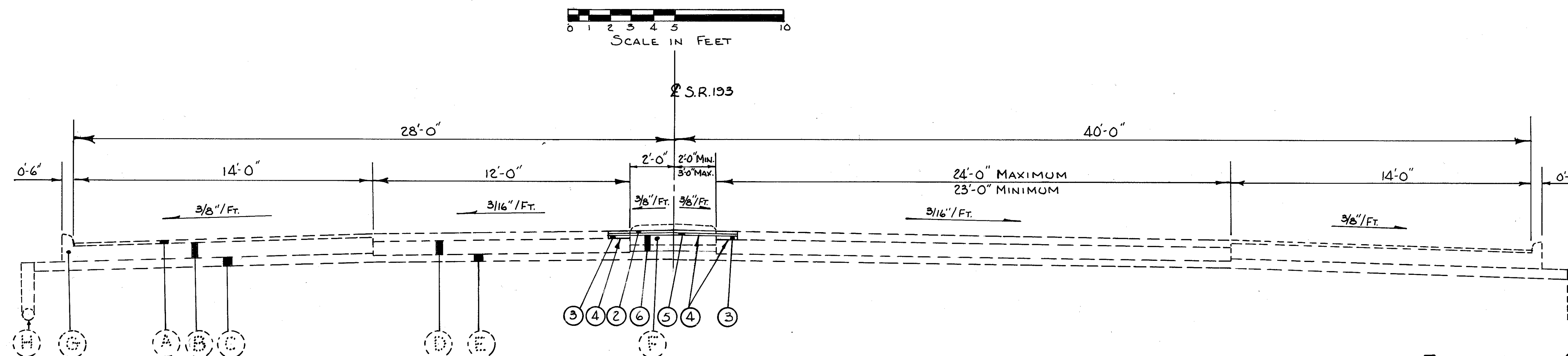
EARTH MEDIAN REPLACEMENT
STA. 96+44.02 TO STA. 100+93.28

- 1 612 CONCRETE MEDIAN, MODIFIED AS PER PLAN
- 2 404 1/4" ASPHALT CONCRETE, AC-20
- 3 402 VARIABLE DEPTH ASPHALT CONCRETE AC-20
- 4 407 TACK COAT APPLIED AT THE RATE OF 0.10 GAL PER SQ. YD. WITH COVER AGGREGATE
- 5 402 1/4" ASPHALT CONCRETE AC-20
- 6 305 9" PORTLAND CEMENT CONCRETE BASE
- 7 EXISTING GRANULATED SLAG BASE REGRADED WITH ADDITIONAL QUANTITIES OF 310 SUBBASE PROVIDED ON LINE SHEETS TO BRING THE BASE TO GRADE.

* NOTE:
PROPOSED MEDIAN HEIGHT AT
THE EDGE OF PAVEMENT SHALL
BE 6" AS PER STD. DRWG. MC-6.
THE THICKNESS OF THE CONCRETE
MEDIAN WILL VARY TO MEET
THE EXISTING BASE COURSE. (C)
THE COST OF THE EXTRA
VARIABLE DEPTH 1'-0" WIDE
STRIP OF CONCRETE ON EACH
SIDE OF THE MEDIAN SHALL
BE PAID FOR UNDER ITEM
612 CONCRETE MEDIAN,
MODIFIED, AS PER PLAN.

TYPICAL SECTIONS

TYPICAL SECTIONS

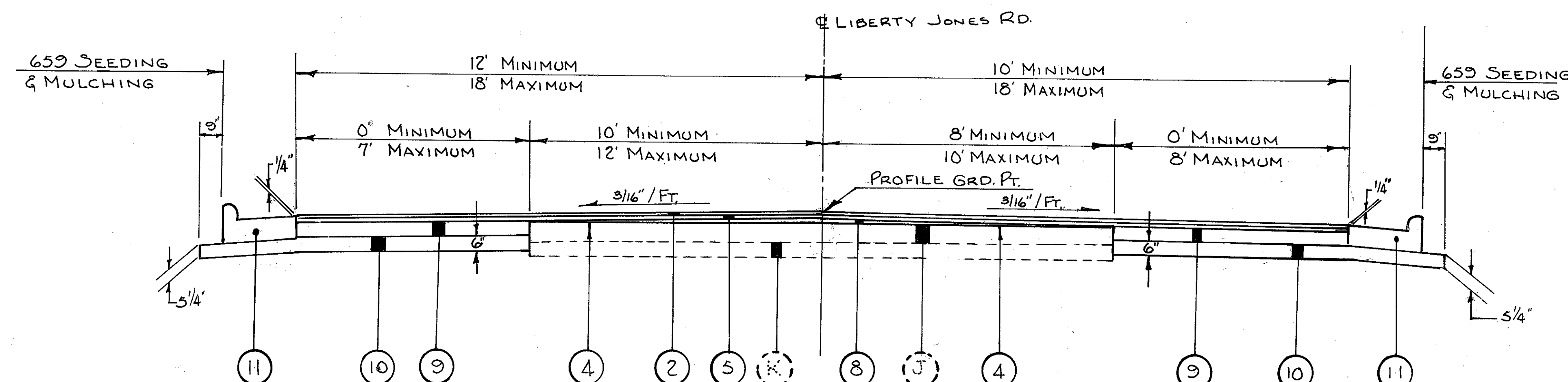


MEDIAN REPLACEMENT
STA. 100+93.28 TO STA. 102+54
STA. 102+72 TO STA. 103+76

EXISTING PAVEMENT SECTION
STA. 100+93.28 TO STA. 103+76

EXISTING PAVEMENT LEGEND

- (J) GRANULATED SLAG
- (K) SUBBASE
- (L) 9" CONCRETE
- (M) TRAFFIC COMPACTED SHOULDER
- (N) 6" BITUMINOUS AGGREGATE BASE
- (O) COMBINATION CURB AND GUTTER



STA. 20+27 TO STA. 22+00 FULL WIDTH 36' PAVEMENT
STA. 22+00 TO STA. 23+60 PAVEMENT WIDENING TRANSITION
STA. 23+60 TO STA. 23+85 FEATHER

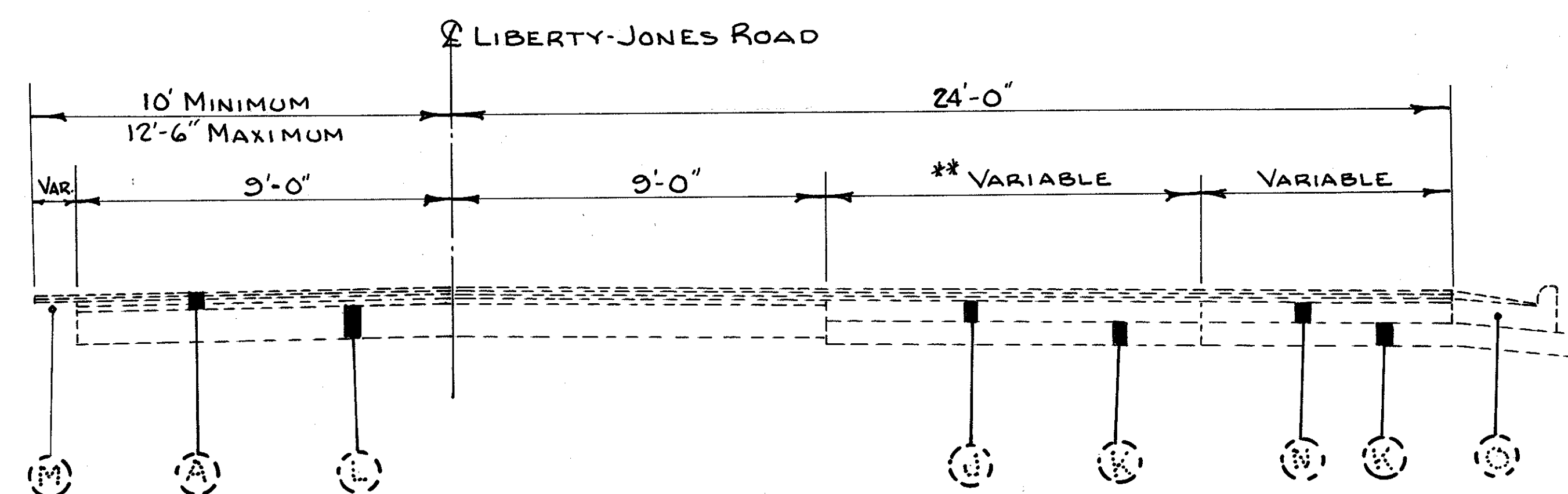
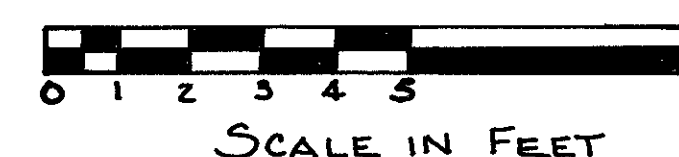
LIBERTY JONES ROAD EAST

PROPOSED PAVEMENT LEGEND

- (8) 403 0" MINIMUM ASPHALT CONCRETE AC-20 PRELEVELING COURSE
- (9) 301 6" BITUMINOUS AGGREGATE BASE: AC-20 RT-11 OR RT-12
- (10) 310 6" SUBBASE (5 1/4" UNDER CURB)
- (11) 609 COMBINATION CURB & GUTTER, STANDARD TYPE 2
- (12) 404 2" ASPHALT CONCRETE AC-20
- (13) 304 6" AGGREGATE BASE
- (14) 408 BITUMINOUS PRIME COAT APPLIED AT THE RATE OF 0.40 GAL PER SQ. YD.

TYPICAL SECTIONS

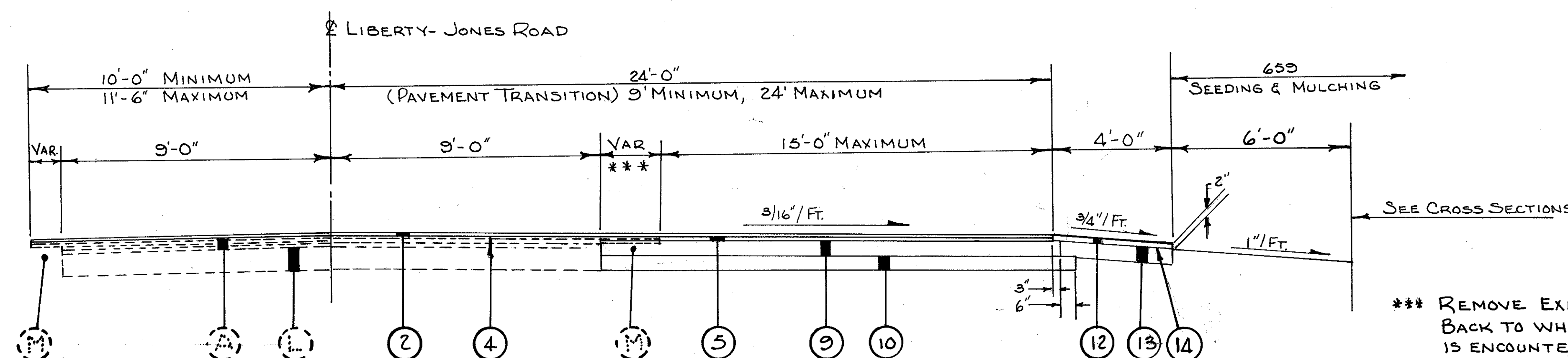
TRU-193-1.37



STA. 15+21.20 TO STA. 16+46.36 ** WIDTHS VARY TO TRAFFIC ISLAND OF RAMP J"

STA 16+46.36 TO STA. 19+73 No WORK

NOTE: WHERE SHOWN ON THE PLAN THE EXISTING TRAFFIC ISLAND ON RAMP J SHALL BE REPLACED WITH PAVEMENT CONSISTING OF ②, ③, ⑨ AND ⑩.



STA. 12+85 TO STA. 13+00
STA. 13+00 TO STA. 14+00
STA. 14+00 TO STA. 15+21.20

FEATHER
PAVEMENT TRANSITION RT.
FULL 24' WIDTH PAVEMENT RT.

*** REMOVE EXISTING PAVEMENT BACK TO WHERE A FIRM BASE IS ENCOUNTERED, AT THE DIRECTION OF THE ENGINEER. SEE PLAN TRU-80-3.15.

LIBERTY JONES RD. WEST

GENERAL NOTES

TRU-193- 1.37

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 300 SQ. FT. OF FLOOR SPACE. PAYMENT SHALL BE THE LUMP SUM PRICE BID FOR ITEM 619 FIELD OFFICE.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SEC. 153.64 ORC.



UTILITY OWNERSHIP

THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT.

ELECTRIC	OHIO EDISON COMPANY 76 SOUTH MAIN STREET AKRON, OHIO 44308	216-384-5234
	OHIO EDISON COMPANY 730 SOUTH AVENUE YOUNGSTOWN, OHIO 44502 TRANSMISSION & DISTRIBUTION	216-747-2011
TELEPHONE	OHIO BELL TELEPHONE COMPANY 2405 MARKET STREET P.O. Box 1587 YOUNGSTOWN, OHIO 44507	216-744-6450
GAS	EAST OHIO GAS COMPANY 1165 WEST RAYEN YOUNGSTOWN, OHIO 44502	216-742-8131
CABLE TELEVISION	MAHONING VALLEY CABLEVISION 5030 YOUNGSTOWN-WARREN RD. NILES, OHIO 44446	216-545-9606
WATER LINES	CITY OF GIRARD 100 WEST MAIN STREET GIRARD, OHIO 44420 216-345-1934	CITY OF YOUNGSTOWN CITY HALL YOUNGSTOWN, OHIO 44503 216-746-1892 EXT. 320/204
	TRUMBULL COUNTY SANITARY ENGINEER 7500 ANDERSON AVENUE WARREN, OHIO 44484	216-856-5530
SANITARY SEWERS		

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR PLAN ITEMS SET UP TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

CURB AND CONCRETE MEDIAN HEIGHT TRANSITIONS

ALL PROPOSED CURB SHALL BE TAPERED FROM A HEIGHT OF 6" TO A HEIGHT OF 2" OR TO EXISTING CURB HEIGHT IN 10 FEET.

ALL PROPOSED CONCRETE MEDIAN, MODIFIED, AS PER PLAN ON S.R. 193 SHALL BE TAPERED, BOTH FROM THE BEGINNING AND ENDING POINT, FROM A HEIGHT OF 2" TO THE TYPICAL HEIGHT IN 10 FEET.

CONNECTION TO EXISTING PIPE

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER, AN EXISTING SEWER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE PROPOSED CONDUIT. PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE PRICE BID FOR THE PERTINENT 603 CONDUIT ITEMS.

407 TACK COAT

THE TACK COAT AND COVER AGGREGATE OPERATION SHALL BE DETERMINED AS PER SEC. 407.05. PLAN QUANTITIES INDICATE AVERAGE APPLICATION RATES OF 0.1 GALLONS PER SQUARE YARD OF TACK COAT AND 7 POUNDS PER SQUARE YARD OF COVER AGGREGATE FOR ESTIMATING PURPOSES ONLY.

SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN TWO (2) FEET OUTSIDE THE WORK LIMITS AS SHOWN ON THE CROSS SECTIONS, OR TO THE RIGHT OF WAY LINE, IF SUCH LINE IS LESS THAN TWO (2) FEET FROM THE WORK LIMITS.

607 FENCE REBUILT, TYPE CL, AS PER PLAN

EXISTING FENCE SALVAGED FOR REUSE UNDER ITEM 202 SHALL BE REBUILT AT THE SPECIFIED LOCATIONS FOR NEW FENCE. THE REBUILT FENCE SHALL BE OF THE SAME TYPE AND SPACING OF MEMBERS FOR THE ORIGINAL FENCE. THE CONTRACTOR SHALL FURNISH ALL INCIDENTAL HARDWARE AS MAY BE NECESSARY TO COMPLETE THE FENCE IN ACCORDANCE WITH ITEM 607, FENCE, TYPE CL. ALL WORK AND INCIDENTALS REQUIRED TO COMPLETE THE FENCE SHALL BE PAID FOR UNDER ITEM 607 FENCE REBUILT, TYPE CL.

CONDUIT END TREATMENT

IMMEDIATELY AFTER PLACEMENT OF ANY CONDUITS, THE CONTRACTOR SHALL CONSTRUCT THE END TREATMENTS, REQUIRED BY THE PLANS, AT BOTH THE INLET AND OUTLET ENDS. THIS SHALL INCLUDE HEADWALLS, CONCRETE RIPRAP, ROCK CHANNEL PROTECTION SODDING, ETC.

PROFILE AND ALIGNMENT

THE PROPOSED RESURFACING COURSE SHALL FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. PREVIOUS CONSTRUCTION PLANS SHOWING THE ORIGINAL ALIGNMENT AND PROFILE GRADE ARE ON FILE FOR INSPECTION IF NECESSARY AT THE O.D.O.T. DISTRICT 4 OFFICE AS PROJECT NOS. TRU-80-3.15 AND TRU-193-0.00. THE PROPOSED ASPHALT OVERLAY ON LIBERTY-JONES ROAD (WEST) SHALL BE 1 1/4" AND ON LIBERTY-JONES ROAD (EAST) 2 1/2" + AS INDICATED ON THE TYPICAL SECTIONS AND PAVEMENT ELEVATION TABLE.

WATERING PERMANENT SEEDED AREAS

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR THE PERMANENT SEEDED AREAS, AS PER 659.09:

ITEM 659 WATER 5 M.GAL.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER, FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.

ITEM 207 STRAW OR HAY BALES 50 EACH

UTILITIES NOTIFICATION

AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN AN AREA WHICH MAY INVOLVE UNDERGROUND UTILITY FACILITIES, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE REGISTERED UTILITY PROTECTION SERVICE AND THE OWNERS OF EACH UNDERGROUND UTILITY FACILITY SHOWN IN THE PLANS.

THE OWNER OF THE UNDERGROUND UTILITY FACILITY SHALL, WITHIN FORTY-EIGHT HOURS, EXCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, AFTER NOTICE IS RECEIVED, STAKE, MARK OR OTHERWISE DESIGNATE THE LOCATION OF THE UNDERGROUND UTILITY FACILITIES IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY WERE INSTALLED. THE MARKING OR LOCATING SHALL BE COORDINATED TO STAY APPROXIMATELY TWO DAYS AHEAD OF THE PLANNED CONSTRUCTION.

MANHOLES, CATCH BASINS AND INLETS REMOVED OR ABANDONED

THE CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT-OF-WAY FOR SALVAGE BY STATE FORCES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 202 ITEM.

TRAFFIC MAINTENANCE NOTES

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO	HES 2A43 () H80-5 ()	

TRU-193-1.37

PLACEMENT OF ASPHALT CONCRETE

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT THAT ONE-WAY TRAFFIC WILL BE PERMITTED FOR MINIMUM PERIODS OF TIME CONSISTENT WITH THE REQUIREMENTS OF THE SPECIFICATIONS FOR PROTECTION OF COMPLETED ASPHALT CONCRETE COURSES.

ALTERNATE METHODS

IF THE CONTRACTOR SO ELECTS, HE MAY SUBMIT ALTERNATE METHODS FOR THE MAINTENANCE OF TRAFFIC, PROVIDED THE INTENT OF THE ABOVE PROVISIONS IS FOLLOWED AND NO ADDITIONAL INCONVENIENCE TO THE TRAVELING PUBLIC RESULTS THEREFROM. NO ALTERNATE PLAN SHALL BE PLACED INTO EFFECT UNTIL APPROVAL HAS BEEN GRANTED, IN WRITING, BY THE DIRECTOR.

ITEM 614 MAINTAINING TRAFFIC

THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF SPECIFICATION 614.

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BY THE USE OF THE EXISTING PAVEMENT, THE COMPLETED PAVEMENT OR TEMPORARY ROADWAYS SURFACED WITH 410 AGGREGATE AND STABILIZED WITH ITEM 616 CALCIUM CHLORIDE. IF TRAFFIC IS MAINTAINED ON ITEM 301, BITUMINOUS AGGREGATE BASE, ITEM 407 TACK COAT SHALL BE APPLIED BEFORE THE PLACING OF THE SURFACE COURSES, AT THE DIRECTION OF THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 404 BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	10 CY.
ITEM 407 TACK COAT	75 GAL.
ITEM 407 COVER AGGREGATE	3 TONS
ITEM 410 TRAFFIC COMPACTED SURFACE, TYPE A OR B	10 TONS
ITEM 410 TRAFFIC COMPACTED SURFACE, TYPE C	15 TONS
ITEM 614 MAINTAINING TRAFFIC	LUMP SUM
ITEM 616 WATER	50 M-GAL.
ITEM 616 CALCIUM CHLORIDE	5 TONS

TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ON ONLY ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS, CONES OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND THE EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.

614 MAINTAINING TRAFFIC

THE REMOVAL OF ALL GUARD RAIL SHALL AT ALL TIMES BE AS DIRECTED BY THE ENGINEER. NO GUARD RAIL SHALL BE REMOVED UNTIL SUFFICIENT REPLACEMENT MATERIAL IS READILY AVAILABLE TO MEET THE CONDITIONS HEREIN.

NO HAZARD SHALL BE LEFT WITHOUT PERMANENT GUARD RAIL EXCEPT FOR THE MINIMUM TIME NECESSARY FOR REMOVAL AND INSTALLATION WITHOUT INTERRUPTION FOR OTHER WORK. THE PERMANENT GUARD RAIL SHALL BE REPLACED AND THE CONCRETE WORK RELATED TO THE INSTALLATION SHALL HAVE COMMENCED WITHIN TEN (10) CALENDAR DAYS OF REMOVAL OF EXISTING GUARD RAIL.

THE OPEN AREA DUE TO GUARD RAIL REMOVAL SHALL BE ADEQUATELY MAINTAINED AND PROTECTED AT ALL TIMES WITH TEMPORARY DRUMS OR BARRICADES AND OTHER WARNING DEVICES SATISFACTORY TO THE ENGINEER.

THE EXPOSED END OF THE FINAL SECTION OF AN INCOMPLETE GUARD RAIL SHALL BE DROPPED TO THE GROUND UNTIL INSTALLATION IS COMPLETED.

FAILURE TO COMPLY WITH THE ABOVE REQUIREMENTS SHALL BE DEEMED SUFFICIENT CAUSE TO ORDER WORK SUSPENDED ON THIS PROJECT UNTIL SUCH TIME THAT THE ENGINEER OBTAINS COMPLIANCE WITH THOSE REQUIREMENTS.

DETAILS SHOWN ON SHEET NO. 6-B SHALL BE USED WHEN THERE IS A LANE RESTRICTION DUE TO WORK BEING PERFORMED IN THE MEDIAN AREA OF SR. 193. IN ALL OTHER SITUATIONS THE DETAILS AND GENERAL NOTES SHOWN ON SHEET NO. 6-C SHALL APPLY.

PAYMENT FOR THIS ITEM SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

TEMPORARY PAVEMENT MARKINGS NOTE B

FHWA	STATE	PROJECT	
5	OHIO	HES-2A43() 1-80-5()	

6A
57

TRU-193-1.37

GENERAL

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND WHEN NECESSARY, REMOVE TEMPORARY RETROREFLECTIVE PAVEMENT MARKINGS ON EXISTING, RECONSTRUCTED, RESURFACED OR TEMPORARY ROADS WITHIN THE WORK LIMITS, IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE MARKINGS SHALL BE MAINTAINED IN GOOD CONDITION DURING THE REQUIRED SERVICE PERIOD TO PROVIDE DAY AND NIGHT VISIBILITY. THE MARKINGS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER TO MAINTAIN REQUIRED VISIBILITY AND/OR REFLECTIVITY AT NO ADDITIONAL COST TO THE STATE.

MATERIALS

UNLESS OTHERWISE INDICATED ON THE PLANS, TEMPORARY PAVEMENT MARKINGS MAY BE OF PAINT, PAVEMENT MARKING TAPE OR REMOVABLE PAVEMENT MARKING TAPE (TYPE R TAPE).

A. PAINT

PAINT SHALL COMPLY WITH 708.14 AND SHALL BE APPLIED IN ACCORDANCE WITH 621 EXCEPT AS MODIFIED HEREIN.

B. PAVEMENT MARKING TAPE

FLEXIBLE RETROREFLECTIVE PREFORMED PRESSURE SENSITIVE TAPE SHALL HAVE STRAIGHT EDGES AND BE FREE OF CRACKS. THE TAPE SHALL CONSIST OF PIGMENT AND FILLERS WITH SUFFICIENT BINDER AND PLASTICIZER TO RETAIN GLASS BEADS HAVING A REFRACTIVE INDEX MEETING THE MINIMUM REFLECTIVE INTENSITY STANDARD STATED IN THE MANUFACTURERS INFORMATION. THE TAPE SHALL BE FLEXOLITE "WE" REFLECTIVE", 3M "SCOTCHLANE", OR AN APPROVED EQUAL.

THE GLASS BEADS SHALL BE DISTRIBUTED UNIFORMLY THROUGHOUT THE TAPE WITH SUFFICIENT SURFACE BEADS TO PROVIDE OPTIMUM REFLECTORIZATION AT ALL TIMES.

PAVEMENT MARKING TAPE SHALL COMPLY WITH THE COLOR REQUIREMENTS OF 708.14.

THE TAPE SHALL HAVE A PRECOATED ADHESIVE LAYER FOR PAVEMENT APPLICATION WITHOUT THE USE OF HEAT, SOLVENTS OR ADDITIONAL ADHESIVES. THE ADHESIVE SHALL BE SUFFICIENT TO RETAIN COMPLETE MARKINGS ON THE PAVEMENT SURFACE THROUGHOUT THE USEFUL LIFE OF THE MARKINGS.

IN ADDITION TO THE FOREGOING, ALL TEMPERATURE APPLICATION REQUIREMENTS AND OTHER APPLICABLE MANUFACTURERS MATERIAL AND APPLICATION INSTRUCTIONS SHALL BE FOLLOWED.

WHEN APPROVED BY THE ENGINEER THE CONTRACTOR MAY USE REMOVABLE PAVEMENT MARKING TAPE (TYPE R TAPE), IN LIEU OF THAT DESCRIBED ABOVE, TO FACILITATE REMOVAL OF MARKINGS.

C. REMOVABLE PAVEMENT MARKING TAPE (TYPE R TAPE)

THE MARKING MATERIAL SHALL BE A MIXTURE OF POLYMERIC MATERIALS, PIGMENTS, REINFORCING MEDIUM TO FACILITATE REMOVAL, GLASS BEADS THROUGHOUT THE PIGMENTED PORTION, AND A RETROREFLECTIVE LAYER OF GLASS BEADS BONDED TO THE TOP SURFACE.

THE TAPE SHALL BE PRECOATED WITH A PRESSURE SENSITIVE ADHESIVE CAPABLE OF TEMPORARILY BONDING TO ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE PAVEMENT AT AN AMBIENT TEMPERATURE OF NOT LESS THAN 50° F AND RISING, AT A PAVEMENT TEMPERATURE OF NOT LESS THAN 50° F NOR MORE THAN 150° F, WITHOUT THE USE OF HEAT, SOLVENTS, AND ADDITIONAL ADHESIVES OR ACTIVATORS.

MATERIALS SHALL CONFORM TO THE COLOR REQUIREMENTS OF 708.14.

THE TAPE SHALL BE REMOVABLE FROM ASPHALT AND PORTLAND CEMENT CONCRETE INTACT OR IN LARGE PIECES AT TEMPERATURES ABOVE 40° F WITHOUT USE OF HEAT, SOLVENTS, GRINDING, OR SANDBLASTING. REMOVAL SHALL NOT RESULT IN DAMAGE TO OR OBJECTIONABLE STAINING OF THE PAVEMENT.

GLASS BEADS SHALL BE PROVIDED IN A PROPER SIZE, QUANTITY AND DISTRIBUTION TO ASSURE OPTIMUM RETROREFLECTIVITY AS THE FILM WEARS. THE FOLLOWING INITIAL AVERAGE REFLECTANCE VALUES AT 85.0 ENTRANCE ANGLE AS MEASURED IN ACCORDANCE WITH THE TESTING PROCEDURES OF FEDERAL TEST METHOD 370 SHALL BE CERTIFIED:

	WHITE		YELLOW	
OBSERVATION ANGLE	0.2	0.5	0.2	0.5
SPECIFIC LUMINANCE	1770	1270	1310	810
(MCD/FT ²)/FC				

THE TAPE SHALL BE 3-M COMPANY'S "STAMARK, DETOUR GRADE (SERIES 57L0, 57H, 6270, 62H)" OR AN APPROVED EQUAL.

THE CONTRACTOR SHALL FURNISH TO THE ENGINEER CERTIFICATION THAT THE MATERIAL SUPPLIED MEETS THE PROPERTIES SPECIFIED HEREIN.

LAYOUT

THE TEMPORARY MARKINGS SHALL BE ACCURATELY LAID OUT IN CONFORMANCE WITH 621.051 AND SHALL BE LOCATED IN A TRUE LINE ON THE CENTER LINE, LANE LINE, EDGE LINE, OR CHANNELIZING LINE WHERE PERMANENT MARKINGS WOULD LIE UNLESS OTHERWISE SPECIFIED IN THE PLANS.

PLACEMENT

TEMPORARY MARKINGS SHALL BE PLACED IN ACCORDANCE WITH LAYOUTS ON SHEETS AND THE FOLLOWING REQUIREMENTS, UNLESS OTHERWISE SPECIFIED IN THE PLANS.

TEMPORARY MARKINGS SHALL BE COMPLETE AND IN PLACE ON ALL PAVEMENT PRIOR TO EXPOSING IT TO TRAFFIC. WHEN TEMPORARY MARKINGS ARE NO LONGER NEEDED, THEY SHALL BE REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH 621.134 AND NECESSARY PAVEMENT MARKINGS INSTALLED BEFORE THE FLOW OF TRAFFIC IS CHANGED TO THE NEXT PHASE OR RETURNED TO ITS NORMAL CHANNEL.

WHERE PERMANENT PAVEMENT MARKINGS ARE CALLED FOR IN THE PLANS, THE CONTRACTOR SHALL FURNISH AND PLACE THE PERMANENT MARKINGS WITHIN 30 CALENDAR DAYS FOLLOWING COMPLETION OF ALL SURFACE COURSES IN A SINGLE ROADWAY OR PRIOR TO THE END OF THE CONSTRUCTION SEASON, WHICHEVER COMES FIRST. PERMANENT MARKINGS SHALL NOT BE PLACED OVER ANY TAPE MARKINGS.

A. CLASS I MARKINGS

CLASS I MARKINGS SHALL BE AS DEFINED IN 621, EXCEPT AS FOLLOWS:

- 1) LANE LINES SHALL BE 4-INCHES IN WIDTH.
- 2) TRANSVERSE LINES SHALL BE 8-INCHES IN WIDTH.
- 3) STOP LINES SHALL BE 12-INCHES IN WIDTH.
- 4) CROSS WALK LINES SHALL BE 8-INCHES IN WIDTH.

GORE MARKINGS SHALL CONSIST OF TWO CHANNELIZING LINES PLACED AT THE THEORETICAL OR TEMPORARY GORE OF RAMPS AND DIVERGING OR CONVERGING ROADWAYS.

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 16 GALLONS PER MILE FOR SOLID 4-INCH LINES, 24 GALLONS PER MILE FOR SOLID 6-INCH LINES, 48 GALLONS PER MILE FOR SOLID 12-INCH LINES, AND 4 GALLONS PER MILE FOR 4-INCH DASHED LINES.

B. CLASS II MARKINGS

CENTER LINES SHALL CONSIST OF SINGLE, YELLOW 12-INCH BY 4-INCH DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

LANE LINES SHALL CONSIST OF WHITE 12-INCH BY 4-INCH DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

CHANNELIZING LINES SHALL CONSIST OF WHITE 12-INCH BY 4-INCH DASHES SPACED AT A MAXIMUM OF 20-FOOT INTERVALS.

GORE MARKINGS SHALL BE TWO CONTINUOUS WHITE 50-FOOT BY 4-INCH LINES PLACED AT THE THEORETICAL GORE OF AN EXIT RAMP OR DIVERGING ROADWAYS.

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 16 GALLONS PER MILE FOR GORE MARKINGS, 0.8 GALLONS PER MILE FOR CHANNELIZING LINE, AND 0.4 GALLONS PER MILE FOR LANE LINE AND CENTER LINE.

CONFLICTING MARKINGS

THE CONTRACTOR SHALL, PRIOR TO PLACING TEMPORARY MARKINGS, REMOVE ALL EXISTING CONFLICTING MARKINGS VISIBLE TO THE TRAVELING PUBLIC DURING DAYLIGHT OR NIGHTTIME HOURS IN ACCORDANCE WITH 621.134. THE COST FOR REMOVAL OF CONFLICTING MARKINGS SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS.

METHOD OF MEASUREMENT

TEMPORARY PAVEMENT MARKINGS WILL BE MEASURED COMPLETE IN PLACE, BY CLASS AND MATERIAL, IN THE UNITS DESIGNATED. DASHED LINE QUANTITIES WILL BE THE LENGTH OF THE COMPLETED STRIPE, INCLUDING GAPS, INTERSECTIONS, AND OTHER SECTIONS OF PAVEMENT NOT NORMALLY MARKED, IN ACCORDANCE WITH 621.15.

TEMPORARY PAVEMENT MARKINGS WILL INCLUDE THE LAYOUT, APPLICATION AND REMOVAL OF THE MARKINGS, WHEN REQUIRED.

BASIS OF PAYMENT

PAYMENT FOR ACCEPTED QUANTITIES COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL

COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND NECESSARY REMOVAL OF THE MARKINGS.

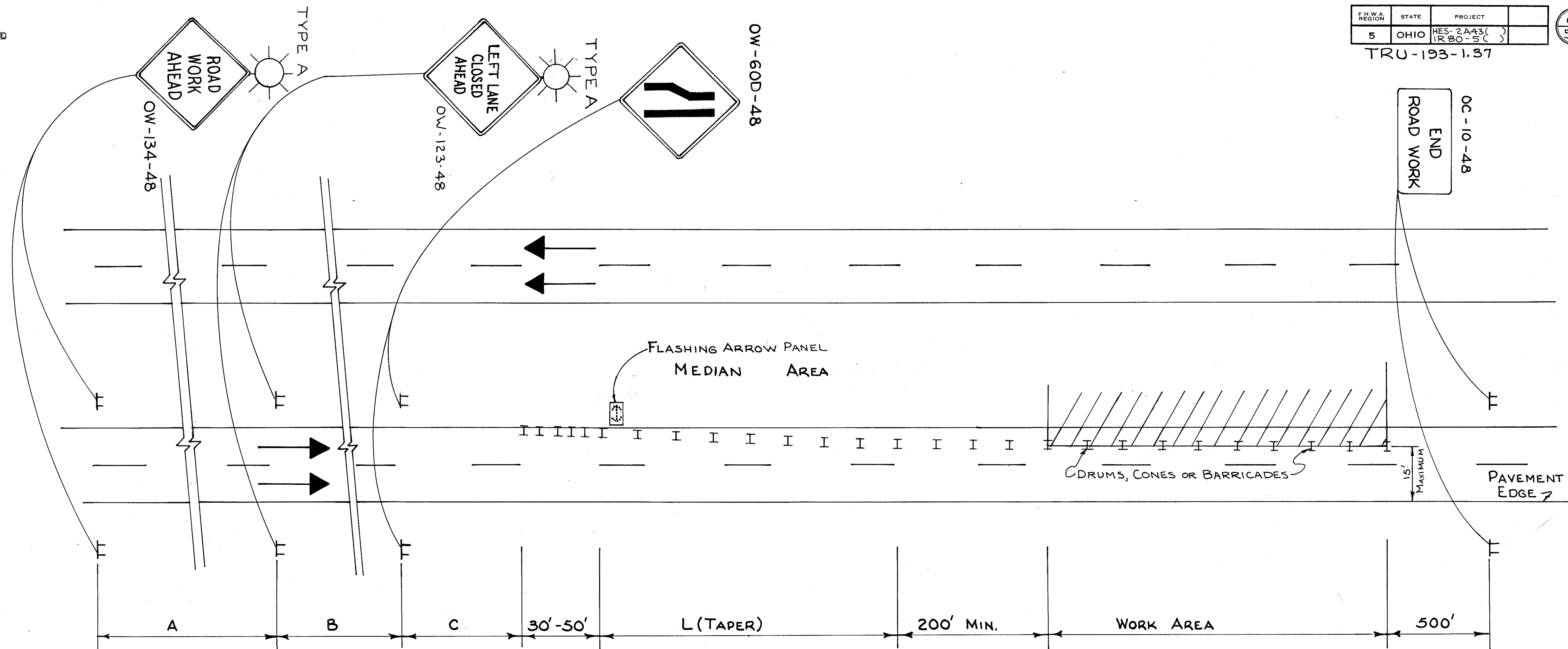
ITEM	UNIT	DESCRIPTION
614	MILES	TEMPORARY LANE LINES, CLASS _____ (PAINT, TAPE OR TYPE R TAPE)
614	0.64 MILES	TEMPORARY CENTER LINES, CLASS II (PAINT, TAPE OR TYPE R TAPE)
614	680 LIN. FT.	TEMPORARY CHANNELIZING LINES, CLASS II (PAINT, TAPE OR TYPE R TAPE)
614	MILES	TEMPORARY EDGE LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	LIN. FT.	TEMPORARY GORE MARKING, CLASS II, (PAINT, TAPE OR TYPE R TAPE)
614	160 LIN. FT.	TEMPORARY STOP LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	LIN. FT.	TEMPORARY CROSSWALK LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	EACH	TEMPORARY LANE ARROWS, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	EACH	TEMPORARY WORD "ONLY" ON PAVEMENT, 72-INCH, CLASS I, (PAINT OR TAPE)
614	LIN. FT.	TEMPORARY TRANSVERSE LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)

MICROFILMED
NOV 27 1984

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	HES-2A43(IR80-5C)	

TRU-193-1.37

6B
57



FOR GENERAL NOTES SEE SHEET NO. 6-C

THIS DETAILED APPLICATION FOR MAINTAINING
TRAFFIC SHALL BE APPLICABLE DURING THE
RECONSTRUCTION OF THE CONCRETE MEDIAN.

DISTANCE	A	B	C	L
URBAN	200	200	200	425

OHIO DEPARTMENT OF TRANSPORTATION	
CLOSING ONE LANE OF A FOUR LANE DIVIDED HIGHWAY	DATE

MICROFILMED
NOV 27 1984

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO	HE-5-2A43() 1R-80-5()	

TRU-193-1.37

6-C
57

OC-10-48

END
ROAD WORK

OW-60C-48

RIGHT LANE
CLOSED
AHEAD
OW-122-48

OPTIONAL
MPH
OW-143-24

TYPE A
ROAD
WORK
AHEAD
OW-134-48

MEDIAN AREA

Flashing Arrow Panel

Cones, Drums, or Barricades

Shoulder

Shoulder

A

B

C

30'-50'

L (Taper) (425')

200' min

Work Area

500'

GENERAL NOTES:

1. The taper length (L) shall be in accordance with Section 7F-17 of the OMUTCD. The location of the transition taper and location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment. In order to determine the minimum number of channelizing devices for the transition taper see Table 7-5 OMUTCD. For a 55 MPH prevailing speed and a 12 ft. lane, not less than thirteen (13) cones, drums or barricades shall be used to form the lane transition taper in advance of the work area. Not less than five (5) cones, drums or barricades shall be used to form the taper on the shoulder. Cones, drums or barricades shall be spaced approximately 50' to 60' center to center for the first 1000 feet of the work area and at a maximum of 100 to 120 feet for the balance of the work area. Cones may be substituted for barricades or drums for short term lane closures. Cones shall be reflectorized, delineated or internally illuminated for short term night lane closures.
2. The major standard level warning sign sizes may be used on divided streets or highways that are not classified as freeways or expressways.
3. When work is being performed in the lane adjacent to the median on a divided highway an OW-123-48 sign(s) shall be substituted for the OW-122-48 sign(s) and an OW-60D-48 sign(s) shall be substituted for the OW-60C sign(s).
4. The work vehicle shown at the beginning of the work area shall be in place and unoccupied whenever workers are in the work area. This work vehicle shall be removed from the pavement whenever workers are not in the work area. Other protective devices may be used in lieu of the work vehicle shown when approved by the Engineer. The vehicle shall be equipped with a 360° rotating or flashing amber beacon clearly visible a minimum of a 1/4 mile.
5. The flashing arrow panel shall meet requirements contained in Section 7G-8, OMUTCD.
6. Type C steady burning barricade warning lights shall be erected on drums or barricades for night lane closures. The maximum spacing shall be identical to the channelizing device spacing requirements described in Note 1.
7. Type A flashing barricade warning lights shown on the "Road Work Ahead" and the "Right Lane Closed Ahead" signs are required whenever a night lane closure is necessary.
8. Some work area locations may require more than just static or conventional signs to enhance communication with the driver. At these locations Portable Changeable Message Signs (PCMS) units are recommended. These devices should be located 2,000 - 4,000 ft. in advance of a lane closure or other point of required action. See Section 7G-8.1, OMUTCD for further guidance on use of PCMS units.

THIS DETAILED
APPLICATION FOR
MAINTAINING TRAFFIC
SHALL BE APPLICABLE
DURING THE INSTALLATION
OF SIGNING, STRAIN POLES
GUARDRAIL ETC.

MINIMUM DISTANCE	A	B	C
MAJOR STANDARD	200'	200'	200'
URBAN FREEWAY & EXPRESSWAY	500' TO 1000'	500' TO 1000'	500' TO 1000'
RURAL FREEWAY & EXPRESSWAY	2800'	1800'	1000'

OHIO DEPARTMENT OF TRANSPORTATION

CLOSING ONE LANE
OF A FOUR LANE
DIVIDED HIGHWAY

DATE
12/82

CALCULATIONS

CALC. BY W.D.P.
DATE 6/82
CK'D BY _____
DATE _____

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO	HES-2A43 IR-80-3 ()	

7
57

TRU-193-1.37

ITEM 404 ASPHALT CONCRETE AC-20

STA. 13+00 To STA. 14+00 100 L.F. x (21+34) ÷ 2 =	2,750.00 S.F.
STA. 14+00 To STA. 15+21.20 121.20 L.F. x 34 =	4,120.80 S.F.
STA. 20+50 To STA. 22+00 150 L.F. x 36 =	5,400.00 S.F.
STA. 22+00 To STA. 23+20 (LT.) 120 L.F. x (18+12) ÷ 2 =	1,800.00 S.F.
STA. 23+20 To STA. 23+60 (LT.) 40 L.F. x 12' =	480.00 S.F.
STA. 22+00 To STA. 23+60 (RT.) 160 L.F. x (18+10) ÷ 2 =	2,240.00 S.F.
STA. 20+50 To STA. 20+78.56 (LT.) 28.56 L.F. x 2 =	57.12 S.F.
STA. 20+50 To STA. 20+75.08 (RT.) 25.08 L.F. x 2 =	50.16 S.F.
STA. 20+50 To STA. 20+78.56 (LT.) AREA BY AREAGRAPH =	86.57 S.F.
STA. 20+50 To STA. 20+75.08 (RT.) AREA BY AREAGRAPH =	54.00 S.F.
TOTAL AREA =	17,038.65 S.F.
17,038.65 ÷ 9 x 1.25 ÷ 36 =	65.74 C.Y.

FEATHER AREAS:

STA. 12+85 To STA. 13+00 15 L.F. x 21 =	315.00 S.F.
STA. 13+51.20 To STA. 13+36.20 AREA BY AREAGRAPH =	807.29 S.F.
TOTAL AREA =	1,122.29 S.F.
1,122.29 ÷ 9 x 1.25" ÷ 2 ÷ 36 =	2.16 C.Y.

STA. 20+27 To STA. 20+50 AREA BY AREAGRAPH =	1,853.67 S.F.
STA. 23+60 To STA. 23+85 25 L.F. x 22 =	550.00 S.F.
TOTAL AREA =	2,403.67 S.F.
2,403.67 ÷ 9 x 2.5" ÷ 2 ÷ 36 x 0.667 =	6.18 C.Y.

STA. 12+85 To STA. 15+18 (BERMS) 233 L.F. x 4' =	932.00 S.F.
932 ÷ 9 x 2 ÷ 36 =	5.75 C.Y.
CONTINGENCY =	1.17 C.Y.
TOTAL =	81.00 C.Y.

TOTAL ITEM 404 To SUMMARY 81 C.Y.

ITEM 408 BITUMINOUS PRIME COAT

SEE ITEM 404 932 S.F. x 4 ÷ 9 x 0.4 =	165.69 GAL.
CONTINGENCY =	4.31 GAL.
TOTAL =	170.00 GAL.

TOTAL ITEM 408 PRIME COAT To SUMMARY 170 GAL.

ITEM 402 ASPHALT CONCRETE AC-20

STA. 13+00 To STA. 14+00 100 L.F. x (1+15) ÷ 2 =	800.00 S.F.
STA. 14+00 To STA. 14+42.23 42.23 L.F. x 15' =	633.45 S.F.
STA. 14+42.23 To STA. 15+08.42 66.19 L.F. x (15+12) ÷ 2 =	893.57 S.F.
STA. 15+08.42 To STA. 15+21.20 12.78 L.F. x (12+0) ÷ 2 =	76.68 S.F.
STA. 20+50 To STA. 23+60 (SEE ITEM 404) TOTAL AREA =	10,167.85 S.F.
12,571.55 ÷ 9 x 1.25 ÷ 36 =	48.50 C.Y.
FEATHER AREAS: STA. 20+27 To STA. 20+50 =	1,853.67 S.F.
STA. 23+60 To STA. 23+85 =	550.00 S.F.
TOTAL AREA =	2,403.67 S.F.
2,403.67 ÷ 9 x 2.5 ÷ 2 ÷ 36 x 0.333 =	3.05 C.Y.
CONTINGENCY	3.41 C.Y.
TOTAL =	55.00 C.Y.
TOTAL ITEM 402 To SUMMARY	<u>55 C.Y.</u>

ITEM 301 BITUMINOUS AGGREGATE BASE

STA. 13+00 To STA. 14+00 100 L.F. x (1.25+15.25) ÷ 2 =	825.00 S.F.
STA. 14+00 To STA. 14+42.23 42.23 L.F. x 15.25 =	644.01 S.F.
STA. 14+42.23 To STA. 15+08.42 66.19 L.F. x (15.25+12.25) ÷ 2 =	910.11 S.F.
STA. 15+08.42 To STA. 15+21.20 12.78 L.F. x (12.25+0) ÷ 2 =	81.23 S.F.
STA. 20+27 To STA. 20+78.56 (LT.) AREA BY AREAGRAPH =	690.00 S.F.
STA. 20+27 To STA. 20+78.56 (RT.) AREA BY AREAGRAPH =	539.43 S.F.
STA. 20+78.56 To STA. 22+00 121.44 L.F. x 13.71 (AVE.) =	1,664.94 S.F.
STA. 22+00 To STA. 23+60 160.00 L.F. x 8.21 (AVE.) =	1,313.60 S.F.
TOTAL AREA =	6,668.32 S.F.
6,668.32 S.F. ÷ 9 x 6 ÷ 36 =	123.49 C.Y.
CONTINGENCY	1.51 C.Y.
TOTAL =	125.00 C.Y.
TOTAL ITEM 301 To SUMMARY	<u>125 C.Y.</u>

ITEM 407 COVER AGGREGATE

SEE 407 TACK COAT

13,952.94 ÷ 9 x 7 ÷ 2000 =	5.43 TONS
CONTINGENCY =	0.57 TONS
TOTAL =	6.00 TONS
TOTAL ITEM 407 COVER AGGREGATE To SUMMARY	<u>6 TONS</u>

ITEM 310 SUBBASE

STA. 13+00 To STA. 14+00 100 L.F. x (1.75+15.75) ÷ 2 =	875.00 S.F.
STA. 14+00 To STA. 14+42.23 42.23 L.F. x 15.75 =	665.12 S.F.
STA. 14+42.23 To STA. 15+08.42 66.19 L.F. x (15.75+12.75) ÷ 2 =	943.21 S.F.
STA. 15+08.42 To STA. 15+21.20 12.78 L.F. x (12.75+0) ÷ 2 =	81.47 S.F.
STA. 20+27 To STA. 20+78.56 (LT.) =	690.00 S.F.
STA. 20+27 To STA. 20+78.56 (RT.) =	539.43 S.F.
STA. 20+78.56 To STA. 22+00 =	1,664.94 S.F.
STA. 22+00 To STA. 23+60 =	1,313.60 S.F.
TOTAL =	6,772.77 S.F.
6,772.77 S.F. ÷ 9 x 6" ÷ 36 =	125.42 C.Y.

UNDER NORTHEAST CURB RETURN = 79.18 L.F.

UNDER SOUTHEAST CURB RETURN = 76.69 L.F.

TOTAL =	155.87 L.F.
155.87 L.F. x 1 ÷ 9 x 6 ÷ 36 =	2.89 C.Y.
STA. 20+75.08 To STA. 23+60 =	284.92 L.F.
STA. 20+78.56 To STA. 23+60 =	281.44 L.F.
TOTAL =	566.36 L.F.

566.36 L.F. x 3.25 ÷ 9 x 5.25" ÷ 36 =	29.83 C.Y.
CONTINGENCY =	1.86 C.Y.
TOTAL =	160.00 C.Y.

TOTAL ITEM 310 To SUMMARY 160 C.Y.

ITEM 304 AGGREGATE BASE

STA. 12+85 To STA. 15+18 233.00 L.F. x 3.75 ÷ 9 x 6" ÷ 36 =	16.18 C.Y.
CONTINGENCY =	0.82 C.Y.
TOTAL =	17.00 C.Y.
TOTAL ITEM 304 To SUMMARY	<u>17 C.Y.</u>

ITEM 407 TACK COAT

SEE ITEM 404

17,038.65 S.F. + 1,122.29 S.F. + 2,403.67 S.F. = 20,564.61 S.F.

STA. 13+00 To STA. 14+00 100 L.F. x (1+15) ÷ 2 =	800.00 S.F.
STA. 14+00 To STA. 14+42.23 42.23 L.F. x 15 =	633.45 S.F.
STA. 14+42.23 To STA. 15+08.42 66.19 L.F. x (15+12) ÷ 2 =	893.57 S.F.
STA. 15+08.42 To STA. 15+21.20 12.78 L.F. x (12+0) ÷ 2 =	76.68 S.F.
STA. 20+27 To STA. 20+78.56 (LT.) =	690.00 S.F.
STA. 20+27 To STA. 20+78.56 (RT.) =	539.43 S.F.
STA. 20+78.56 To STA. 22+00 =	1,664.94 S.F.
STA. 22+00 To STA. 23+60 =	1,313.60 S.F.
TOTAL AREA =	13,952.94 S.F.

13,952.94 ÷ 9 x 0.1 =	155.03 GAL.
CONTINGENCY =	4.97 GAL.
TOTAL =	160.00 GAL.
TOTAL ITEM 407 Tack To SUMMARY	<u>160 GAL.</u>

MICROFILMED
NOV 27 1986

CALCULATIONS

CALC. BY W.D.P.
DATE 6/82
CK'D. BY _____
DATE _____

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO	HES-2A43 () 1R-80-5 ()	

8
57

TRU-193-1.37

ITEM 203 SUBGRADE COMPACTION

STA. 13+07.14 To STA. 14+00
 $92.86 \text{ L.F.} \times (6+19) \div 2 =$ 1,160.75 S.F.
STA. 14+00 To STA. 14+42.23
 $42.23 \text{ L.F.} \times 19 =$ 802.37 S.F.
STA. 14+42.23 To STA. 15+08.42
 $66.19 \text{ L.F.} \times (19+16) \div 2 =$ 1,158.33 S.F.
STA. 15+08.42 To STA. 15+16.50
 $8.08 \text{ L.F.} \times (16+6) \div 2 =$ 88.88 S.F.
NORTHEAST RETURN BY AREAGRAPH = 644.00 S.F.
SOUTHEAST RETURN BY AREAGRAPH = 502.13 S.F.
STA. 20+78.56 To STATION 22+00
 $121.44 \text{ L.F.} \times 18.71 \text{ (AVE.)} =$ 2,272.14 S.F.
STA. 22+00 To STA. 22+30 (LT)
 $30 \text{ L.F.} \times (8.5+6) \div 2 =$ 362.50 S.F.
STA. 22+00 To STA. 22+30 (RT)
 $30 \text{ L.F.} \times (10.5+6) \div 2 =$ 742.50 S.F.
TOTAL = 7,733.60 S.F.

$7,733.60 \text{ S.F.} \div 9 =$ 859.29 S.Y.
CONTINGENCY = 5.71 S.Y.
TOTAL = 865.00 S.Y.

TOTAL ITEM 203 To SUMMARY 865 S.Y.

ITEM 403 ASPHALT CONCRETE PRELEVELING COURSE

STATION	END AREA	VOLUME
20+40	0	0.88
20+50	4.74	6.63
21+00	2.42	3.06
21+50	0.89	2.44
22+00	1.74	2.94
22+50	1.44	3.02
23+00	1.82	2.04
23+50	0.38	0.25
23+85	0	
CONTINGENCY =	3.74	
TOTAL =	25 C.Y.	

TOTAL ITEM 403 ASPH. CONC. PRELEVELING To SUMMARY 25 C.Y.

NOTE: PLOTTED SECTIONS ARE AVAILABLE AT THE DISTRICT FOUR OFFICES
RAVENNA, OHIO.

ITEM 659 SEEDING AND MULCHING

SHEET No. 22 441 S.Y.
SHEET No. 23 140 S.Y.
SHEET No. 25 27 S.Y.
SHEET No. 26 357 S.Y.
SHEET No. 27 56 S.Y.
TOTAL = 1,021 S.Y.

TOTAL ITEM 659 SEEDING & MULCHING To SUMMARY 1,021 S.Y.

ITEM 659 COMMERCIAL FERTILIZER

$1021 \times 0.00009 =$ 0.092 Ton

TOTAL 659 COMMERCIAL FERTILIZER To SUMMARY 0.10 Ton

ITEM 659 AGRICULTURAL LIMING

$1021 \times 0.00045 =$ 0.459 Ton

TOTAL 659 AGRICULTURAL LIMING To SUMMARY 0.50 Ton

ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION

SHEET No. 17 235 C.Y.
SHEET No. 18 35 C.Y.
SHEET No. 22 55 C.Y.
SHEET No. 23 73 C.Y. *
SHEET No. 23 78 C.Y.
SHEET No. 25 33 C.Y.
SHEET No. 26 290 C.Y.
SHEET No. 27 28 C.Y.
TOTAL = 754 C.Y.
TOTAL = 73 C.Y. *

TOTAL ITEM 203 To SUMMARY [HES-2A43 ()] 754 C.Y.

TOTAL ITEM 203 To SUMMARY [1R-80-5 ()] 73 C.Y.

ITEM 203 EMBANKMENT

SHEET No. 22 123 C.Y.
SHEET No. 23 13 C.Y.
SHEET No. 25 1 C.Y.
SHEET No. 26 12 C.Y.
SHEET No. 27 10 C.Y.
TOTAL = 165 C.Y.

TOTAL ITEM 203 EMBANKMENT To SUMMARY 165 C.Y.

PAVEMENT ELEVATIONS

STATION	OFFSET LT.	ELEVATION	℄ ELEVATION	OFFSET RT.	ELEVATION
20+50	SEE		1063.44	SEE	
20+75	INTERSECTION DETAIL		1063.45	INTERSECTION DETAIL	
21+00	18.00'	1063.30	1063.58	18.00'	1063.30
21+25	18.00'	1063.53	1063.81	18.00'	1063.53
21+50	18.00'	1063.88	1064.16	18.00'	1063.88
21+75	18.00'	1064.27	1064.55	18.00'	1064.27
22+00	18.00'	1064.71	1064.99	18.00'	1064.71
22+25	17.25'	1065.26	1065.53	17.25'	1065.26
22+50	15.50'	1065.93	1066.17	15.50'	1065.93
22+75	14.25'	1066.59	1066.81	14.25'	1066.59
23+00	13.00'	1067.17	1067.37	13.00'	1067.17
23+25	12.00'	1067.66	1067.85	11.75'	1067.67
23+50	12.00'	1068.06	1068.25	10.50'	1068.09
23+60	12.00'	1068.22	1068.41	10.00'	1068.25

CALCULATIONS

GENERAL SUMMARY

TRU-193-1.37

* FROM SHEET 14

ITEM	SHEET NUMBER																HES-2A43			IR-80-5			ITEM	QUANT.	UNIT	DESCRIPTION
	6	7	8	12	13	14	15	16	17	18	19	20	21	TOTAL	8	19	TOTAL									
201															LUMP				201	LUMP	LUMP	ROADWAY				CLEARING AND GRUBBING
202													171	148	319				202	319	Lin.Ft.					PIPE REMOVED, 24" AND UNDER
202														125	125		13	13	202	138	Sq.Yd.					PAVEMENT REMOVED
202														160	160				202	160	Sq.Ft.					WALK REMOVED
202										719	187		103	127	1136		145	145	202	1281	Lin.Ft.					CURB REMOVED
202											198				198				202	198	Lin.Ft.					FENCE TYPE CL, REMOVED FOR REUSE
202														1	1				202	1	EACH					MANHOLE REMOVED
202													3		3				202	3	EACH					CATCH BASIN REMOVED
202																										
202																										
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GENERAL SUMMARY

TRU-193-1.37

LD 0303 Rev. 11-21-73

MICROFILMED
NOV 27 1984

0 10 20 30 40 50
SCALE IN FEET

FED. RD. DIVISION STATE PROJECT
5 OHIO HES-2A43()
12-80-5()

11
57

TRU-193-1.37

BEGIN SHEET STA. 65+00

END SHEET STA. 70+00

BEGIN WORK
STA. 65+05
HES-2A43()

EXIST. R/W

8" SANITARY

6" WATER TRANSMISSION LINE

S.R. 1937

N 05° 34' 30" E

8" SANITARY

8" WATER TRANSMISSION LINE

EXIST. R/W

EXIST. R/W

OVERHEAD SIGN

1070
1068
1066
1064
1062
1060
1058

8" SAN.

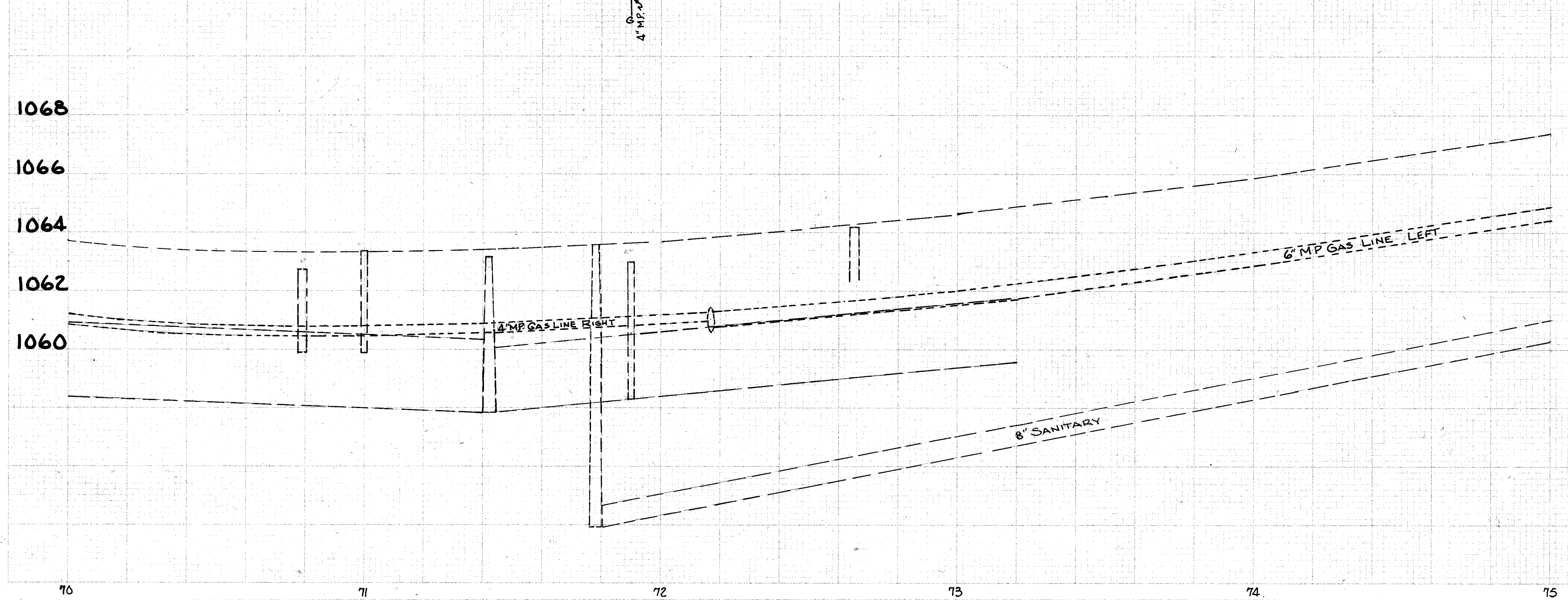
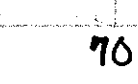
8" SANITARY

4" M.P. GAS LINE RIGHT

8" SAN.

LINE SHEET STA. 65+00 TO STA. 70+00

TRIAL	SURVIVED	IN	DATE
SURVEY	FLOTTED		
WATER BOOM	TENTATIVE		
ANCHOR	RECEIVED		
NO.			



0 10 20 30 40 50
SCALE IN FEET

12
57

MISCELLANEOUS QUANTITIES								
M A R K	S T A T I O N		S I D E	612 CONC. MEDIAN	404 ASPH. CONC. 1 1/4"	402 ASPH. CONC. VAR.	407 TACK COAT 0.1 GAL. PER S.Y.	407 COVER AGGR. 7 1/2" S.Y.
	FROM	TO		S.Y.	C.Y.	C.Y.	GAL.	TON
CM-I	72+07.40	75+00.00	M	64.97				
PR-I	74+08.40	75+00.00	M		2.05	6.57	5.91	0.21
TOTALS				64.97	2.05	6.57	5.91	0.21

CALC. BY WDP
DATE 2/82
CK'D. BY _____
DATE _____

LINE SHEET STA. 70+00 TO STA. 75+00

MICROFILMED
NOV 27 1984

SCALE IN FEET
0 10 20 30 40 50

FED. RD. DIVISION
STATE OHIO
PROJECT HES-2A43(1)
1R-80-3()

13
57

TRU-193-1.31

BEGIN SHEET STA. 75+00

END SHEET STA. 80+00

202 REMOVAL QUANTITIES

MARK	STATION		SIDE	CONC. MEDIAN REMOVED S.Y.		
	FROM	TO				
R-2	75+00.00	76+55.40	M	205.48		
R-3	77+15.40	80+00.00	M	196.74		
TOTALS				402.22		

MISCELLANEOUS QUANTITIES

MARK	STATION		SIDE	612 CONC. MED	404 ASPH CONC. 1 1/4"	402 ASPH CONC. VAR.	407 TACK COAT O/GAL PER SY	407 COVER AGG 7 1/2" S.Y.	
	FROM	TO		S.Y.	C.Y.	C.Y.	GAL.	TON	
CM-2	75+00.00	76+55.40	M	93.62					
CM-3	77+15.40	80+00.00	M	63.20					
PR-2	75+00.00	76+55.40	M		3.90	12.49	11.24	0.33	
PR-3	78+41.40	80+00.00	M		4.64	14.84	13.35	0.47	
TOTALS				156.82	8.54	27.33	24.59	0.86	



1076
1074
1072
1070
1068
1066

8" SANITARY

76

77

78

79

80

LINE SHEET STA. 75+00 TO STA. 80+00

CALC. BY W.D.P.
DATE 2/82
CK'D. BY
DATE

MICROFILMED
NOV 28 1984

0 10 20 30 40 50
SCALE IN FEET

DEF. STA. 84+71.20
 $\Delta = 0^\circ 03' 12''$

PROJ. NO. 14
STATE OHIO
PROJECT HES-2A-43()
IR-80-5()
14
57

TRU-193-1.37

BEGIN SHEET STA. 80+00

END SHEET STA. 85+00

202 REMOVAL QUANTITIES						
MARK	STATION		SIDE	202 CONC. MED. REMOVED S.Y.	GUARD RAIL REMOVED FOR STORAGE LIN. FT.	
	FROM	TO				
R-4	80+00.00	85+00.00		666.67		
R-1	80+85	81+10	LT.		25 *	
TOTAL				666.67	25 *	

MISCELLANEOUS QUANTITIES								
MARK	STATION		SIDE	612 CONC. MED.	404 ASPH. CONC. 1 1/4"	402 ASPH. CONC. VAR.	407 TACK COAT 0.1 GAL PER S.Y.	407 COVER AGG. 7 [#] /S.Y.
	FROM	TO		S.Y.	C.Y.	C.Y.	GAL.	TON
CM4	80+00.00	85+00.00	M	355.27				
PR4	80+00.00	85+00.00	M		6.37	20.39	18.35	0.64
PR5	80+50.00	85+00.00	M		4.44	14.21	12.79	0.43
TOTALS				355.27	10.81	34.60	31.14	1.09

606 GUARDRAIL					
MARK	STATION		SIDE	GUARD RAIL TYPE S LIN. FT.	ANCHOR ASSEMBLY TYPE A EACH
	FROM	TO			
GR-1	80+85	81+47.5	LT.	37.5	1
TOTAL				37.5	1



* IR-80-5()

1076

1074

1072

10" CSG LEFT

6" M.P. GAS LINE LEFT

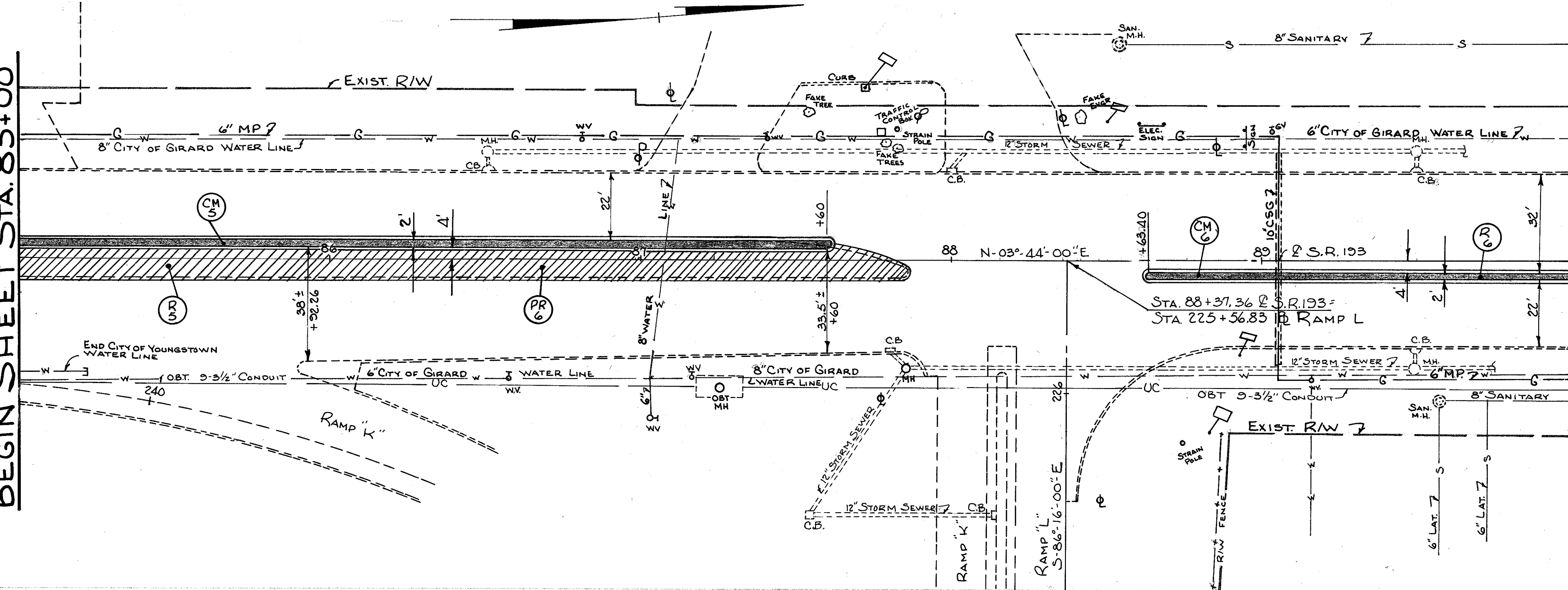
CALC. BY W.D.P.
DATE 2/82
CK'D. BY
DATE

LINE SHEET STA. 80+00 TO STA 85+00

0 10 20 30 40 50
SCALE IN FEET

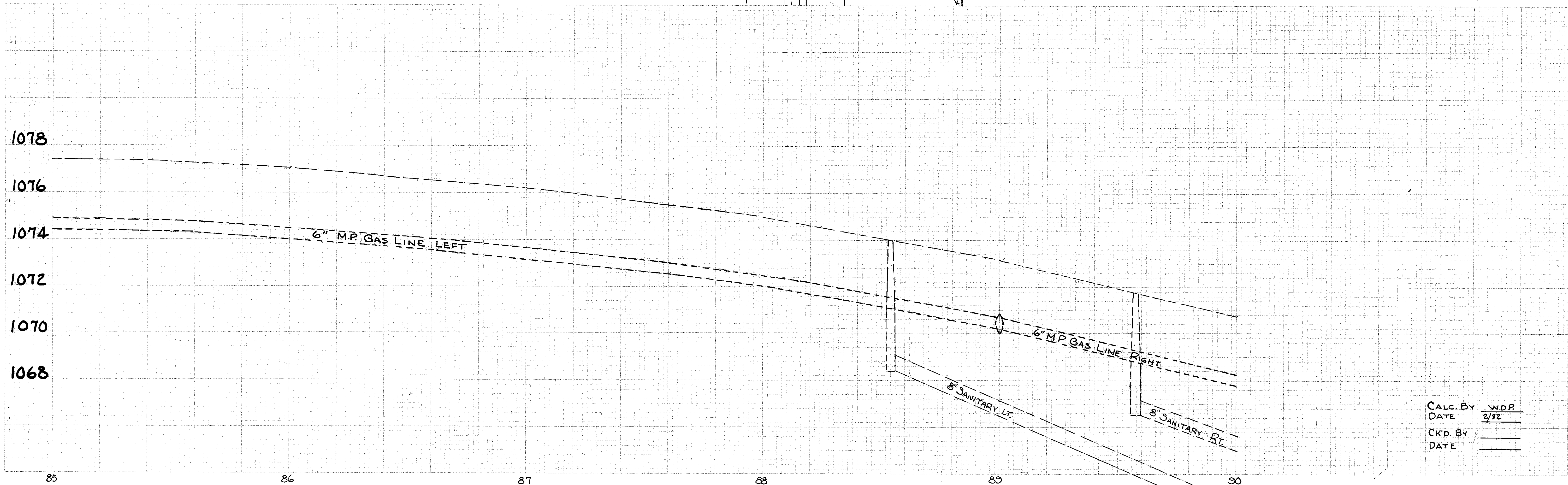
TRU-193-1.37

BEGIN SHEET STA. 85+00



202 REMOVAL QUANTITIES						
SIDE	STATION		SIDE	CONC. MEDIAN REMOVED		
	FROM	TO				
R-5	85+00.00	87+86.40	M	SY. 366.13		
R-6	88+62.40	90+00.00	M	30.53		
TOTAL				396.66		

MISCELLANEOUS QUANTITIES								
MARK	STATION		SIDE	612 CONC. MED.	404 ASPH. CONC. 1 1/4"	402 ASPH. CONC. VAR.	407 TACK COAT 0.1 GAL PER SQ. GAL.	407 COVER AGG 7 1/2 S.Y.
	FROM	TO		S.Y.	C.Y.	C.Y.	GAL.	TON
CM-5	85+00.00	87+61.00	M	57.35				
CM-6	88+62.40	90+00.00	M	30.53				
PR-6	85+00.00	87+86.40	M		11.05	35.50	31.95	1.12
TOTALS				88.48	11.05	35.50	31.95	1.12

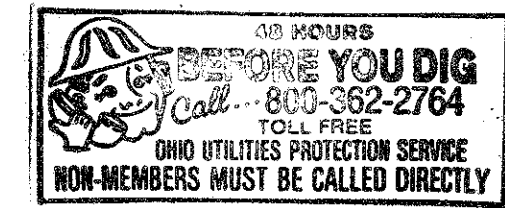


CALC. BY _____ W.D.P. _____
DATE 2/92

CK'D. BY _____
DATE _____

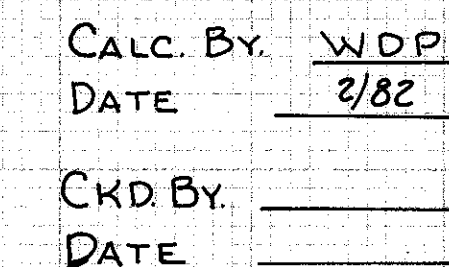
LINE SHEET STA. 85+00 To STA. 90+00

FINAL SURVEY	UNITED STATES	BY	DAYS
NO.			
PROJECT			
AREA			
ACROSS			
AND			
AREA			
BEHIND			



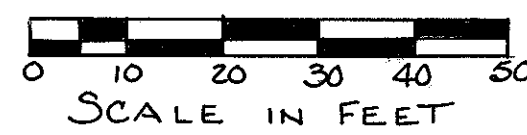
TRU-193-1.37

MISCELLANEOUS QUANTITIES								
MARK	STATION		SIDE	612 CONC. MED.	404 ASPH CONC. 1 1/4"	402 ASPH CONC. VAR.	407 TACK COAT 0.1 GAL PER SQ.	408 CONC. AGG. 1 1/2"
	FROM	TO		S.Y.	C.Y.	C.Y.	GAL	Tons
CM-7	90+00.00	90+76.00	M	16.84				
PR-7	90+25.00	91+33.90	M		4.35	13.91	12.52	0.4
PR-8	91+83.46	92+82.90	M		4.94	15.81	14.23	0.49
TOTALS				16.84	9.29	29.72	26.75	0.9



LINE SHEET STA. 90+00 TO STA. 95+00

MICROFILMED
NOV 28 1984



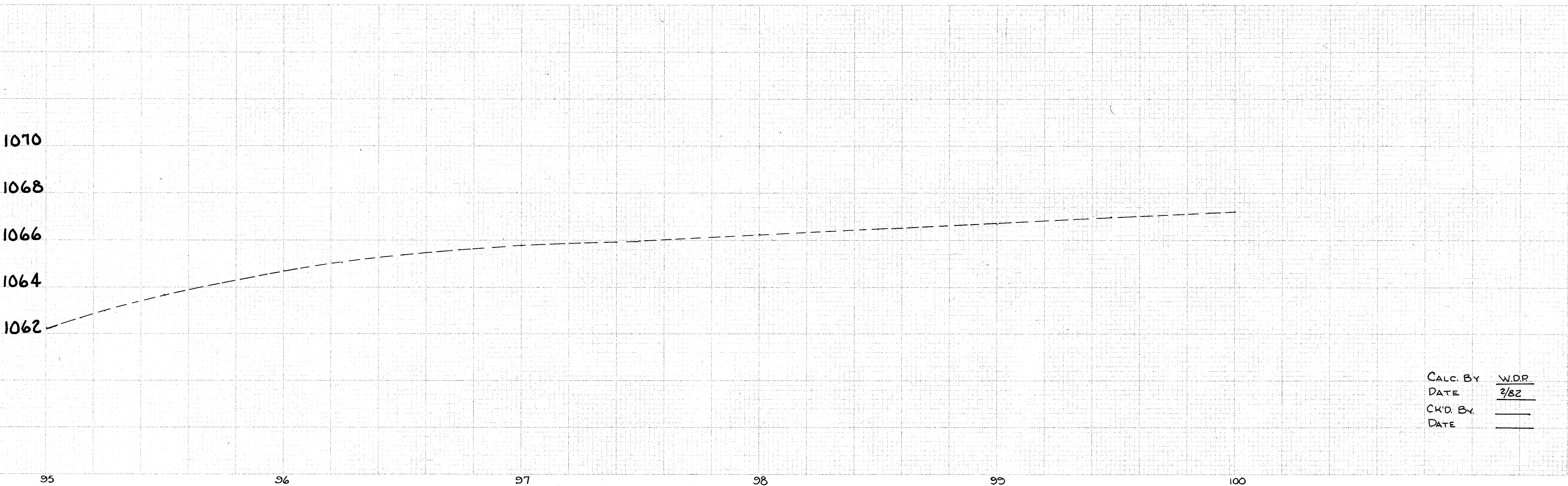
TRU-193-1.37

BEGIN SHEET STA. 95+00

END SHEET STA. 100+00

202 REMOVAL QUANTITIES						
MARK	STATION		SIDE	202 CURB REMOVED L.F.		
	FROM	TO				
PR-9	96+44.02	100+00.00	M	718.79		
TOTALS				718.79		

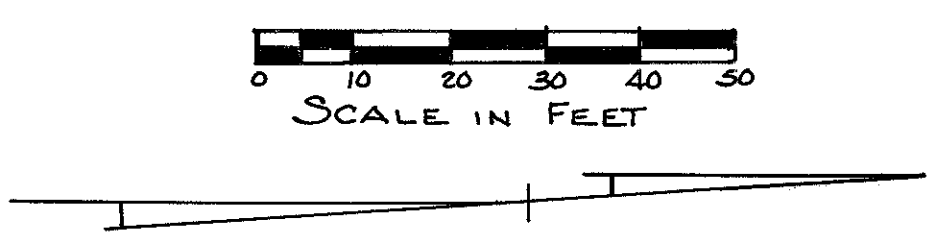
MISCELLANEOUS QUANTITIES											
MARK	STATION		SIDE	404 ASPH. CONC. 1 1/4"	402 ASPH. CONC. 1 1/4"	402 ASPH. CONC. 2" AVE	305 PORT. CEMENT CONC. BASE PER S.Y.	407 TACK COAT OIL GAL	407 COVER AGG. 7" PER S.Y. TON	310 SUB-BASE 1" AVE	203 EXC. C.Y.
	FROM	TO		C.Y.	C.Y.	C.Y.	S.Y.	GAL	TON	C.Y.	C.Y.
E-1	96+44.02	100+00.00	M								235
PR-9	96+44.02	100+00.00	M	22.43	22.43	2.22	605.55	64.59	2.26	16.85	
TOTALS				22.43	24.65	605.55	64.59	2.26	16.85	235	



CALC. BY W.D.P.
DATE 3/82
CK'D. BY
DATE

LINE SHEET STA. 95+00 TO STA. 100+00

MICROFILMED
NOV 28 1984



DEF. STA. 104+18.33
 $\Delta = 0^{\circ} 09' \text{ LT.}$

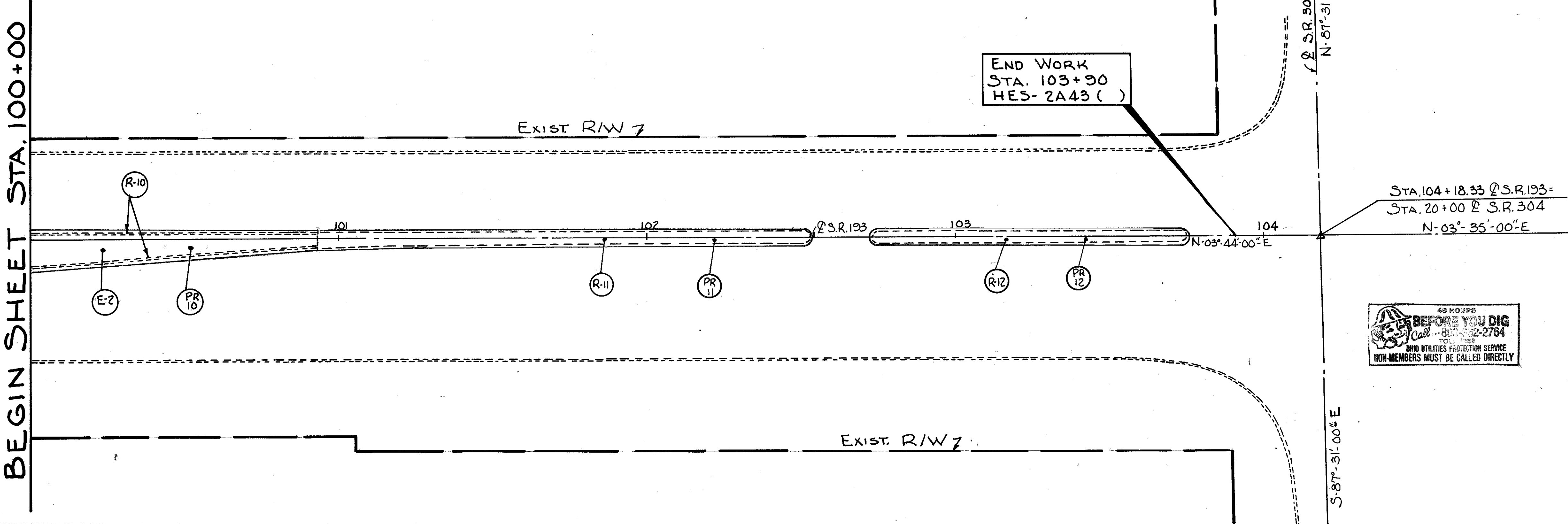
FED. RD. DIVISION 5
STATE OHIO
PROJECT HES-2A43(C)
1R-80-5(C)

18
57

TRU-193-1.37

BEGIN SHEET STA. 100+00

END SHEET STA. 105+00



202 REMOVAL QUANTITIES						
MARK	STATION		SIDE	202 CURB REMOVED	202 CONCRETE MEDIAN REMOVED	
	FROM	TO		L.F.	S.Y.	
R-10	100+00.00	100+93.28	M	186.56		
R-11	100+93.28	102+53	M		75.34	
R-12	102+73	103+75	M		44.95	
TOTAL				186.56	120.29	

MISCELLANEOUS QUANTITIES											
MARK	STATION		SIDE	404 ASPH CONC 1 1/4"	402 ASPH CONC 1 1/4" 2" AVE	505 PORT CEM CONC 0.1 BASE PER S.Y.	407 TACK COAT 0.1 GAL PER S.Y.	407 COVER AGG 7" PER S.Y.	510 SUB-BASE 1" PER S.Y.	203 EXC.	
	FROM	TO		C.Y.	C.Y.	C.Y.	TON	TON	CY	CY	
E-2	100+00.00	100+93.28	M							35	
PR-10	100+00.00	100+93.28	M	3.57	3.57	0.58	27.39	10.28	0.36	2.57	
PR-11	100+93.28	102+54	M	3.87	3.87	2.01	75.34	11.14	0.39		
PR-12	102+72	103+76	M	2.39	2.39	1.33	44.95	6.88	0.24		
TOTALS				9.83	13.15	2.12	128.80	28.50	0.99	2.57	35



CALC BY. W.D.P.
DATE 2/82
CK'D BY.
DATE

LINE SHEET STA. 100+00 TO STA. 105+00

MICROFILMED
NOV 28 1964

SCALE IN FEET
0 10 20 30 40 50

BEGIN SHEET STA. 12+20

END SHEET STA. 17+20

BEGIN WORK
STA. 12+30
HES-2A43 ()

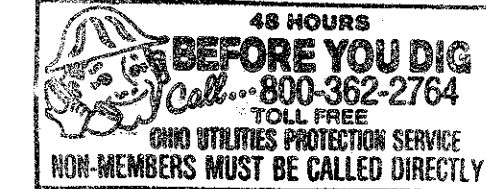
BEGIN WORK
RAMP "J" STA. 213+65
IR-80-5 ()

END WORK
RAMP "J" STA. 216+52
IR-80-5 ()

FOR P-1 PROFILE AND
CHANNEL CROSS SECTIONS
SEE SHEET NO. 22

PAVEMENT

MARK	STATION		SIDE	404 ASPH. CONC. 1 1/4"	402 ASPH. CONC. 1 1/4"	301 BIT. AGG. BASE 6"	310 SUBBASE 6"
	FROM	TO		C.Y.	C.Y.	C.Y.	C.Y.
NP-1	15+38.59	16+00.50	RT.	3.45	3.45	16.58	16.58
TOTALS				* 3.45	* 3.45	* 16.58	* 16.58



1060
1058
1056
1054
1052
1050

PROPOSED PROFILE
IS EXISTING PLUS 1/4"

8" SANITARY

4" M.P. GAS LINE LEFT

12" C.M.P. LT.

24" R.C.P. LGR

8" SANITARY

12" TILE LT.

36" R.C.P. RT.

8" SANITARY

MISCELLANEOUS QUANTITIES

MARK	STATION		SIDE	202 CURB REMD L.F.	202 PAVT. REMD SY.	612 CONC. MEDIAN SY.	502 SPEC. PAVT. SAWING L.F.	202 FENCE TYPE C L.F.	602 FENCE REBUILT TYPE B L.F.	603 CONC. CONDUIT 24" 706.02 L.F.	602 CONC. MASONRY C.Y.
	FROM	TO									
R-1	15+38.59	16+01.5	RT.	145							
R-2	15+38.59	15+47.5	RT.		12.62		35				
R-3	13+23.5	15+18	RT.					198			
* CM-1	15+38.59	15+63.70	RT.			34.84					
F-1	13+23.5	15+18	RT.						197		
P-1	14+18		RT.							22	0.43
TOTALS				* 145	* 12.62	* 34.84	* 35	198	197	22	0.43

* IR-80-5 ()

LINE SHEET STA. 12+20 TO STA. 17+20

MICROFILMED
NOV 28 1964

SCALE IN FEET
0 10 20 30 40 50

LIBERTY JONES RD
4TH BRICK UP AT NW COR 7-11 STORE
7-11 STORE
P.O.T. STA. 19+00

BRICK SERVICE STATION

LIBERTY JONES RD
4TH BRICK UP AT NW COR UNION SAVINGS BANK
UNION SAVINGS BANK
P.O.T. STA 21+00

STATE OF OHIO
PROJECT
HES-2A43 ()
1R-80-5 ()

20
57

TRU-193-1.37

BEGIN SHEET STA. 17+20

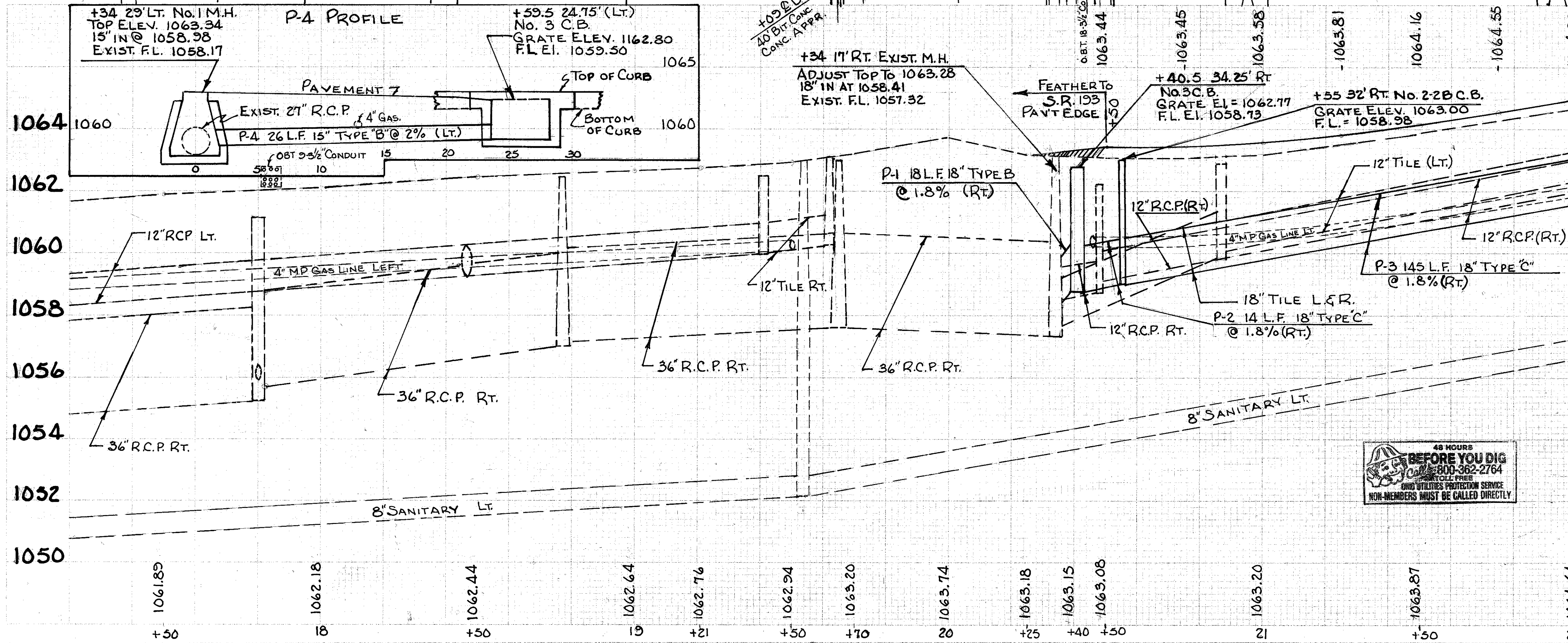
END SHEET STA. 22+00

DRIVES AND APPROACHES							
STATION	SIDE	TYPE	LENGTH	WIDTH	404 ASPH. CONC. 1" C.Y.	301 BIT. AGG. BASE 5" C.Y.	609 CONC. CURB TYPE 6 L.F.
19+21	Rt.	Com.	5'	90"	0.31	1.54	
71+09	Lt.	Com.	-	50"			8.30
72+05	Rt.	Com.	5'	60"	0.60	3.02	8.80
20+98	Lt.	Com.	14.5'	35'	1.84	9.21	55.16
21+66	Lt.	Com.	14.5'	35'	1.82	9.09	62.12
TOTALS					5	23	135

202 REMOVAL ITEMS							
MARK	STATION		SIDE	PIPE REMO. 24" UNDER L.F.	C.B. REMO. EA.	CURB REMO. L.F.	SIDE WALK REMO. S.F.
R-1	20+34	22+00	Rt.	166	1		
R-2	71+15	71+47	Rt.				160
R-3	70+92.76	71+30	Rt.			37.24	
R-4	72+05.1	20+64	Lt.			60	
R-5	21+98.5	22+00	Lt.			6	
R-7	71+00		Rt.	5	1		
R-8	20+87		Lt.				
TOTALS				171	3	103	160

MISCELLANEOUS ITEMS							
MARK	STATION		SIDE	608 CONC. WALK 4" S.F.	608 CURB RAMP STD. EA.	609 CONC. CURB TYPE 6 L.F.	609 CONC. CURB TYPE 6 L.F.
SW-1	71+15	71+31.5	Rt.				
CR-1	71+31.5		Rt.				
C-1	70+92.76	20+75.08	Rt.				76.69
C-2	20+75.08	22+00	Rt.			124.92	
C-3	71+92.60	20+78.56	Lt.				45.05
C-4	20+78.56	22+00	Lt.			121.44	
TOTALS				83	1	247	121.74

DRAINAGE							
MARK	STATION		SIDE	603 TYPE B 15" L.F.	603 TYPE C 18" L.F.	604 M.H. No. 3 C.B. EA.	604 M.H. No. 1 C.B. EA.
P-1	20+34	20+40.5	Rt.	18		1	
P-2	20+40.5	20+55	Rt.		14		
P-3	20+55	22+00	Rt.		145		
P-4	20+34	20+59.5	Lt.	26		1	
A-1	20+87		Lt.				1
TOTALS				26	18	159	1



48 HOURS
BEFORE YOU DIG
800-862-2764
TOLL FREE
AND UTILITIES PROTECTION SERVICE
NON-MEMBERS MUST BE CALLED DIRECTLY

LINE SHEET STA. 17+20 TO STA. 22+00

MICROFILMED
NOV 8 1984

SCALE IN FEET
0 10 20 30 40 50

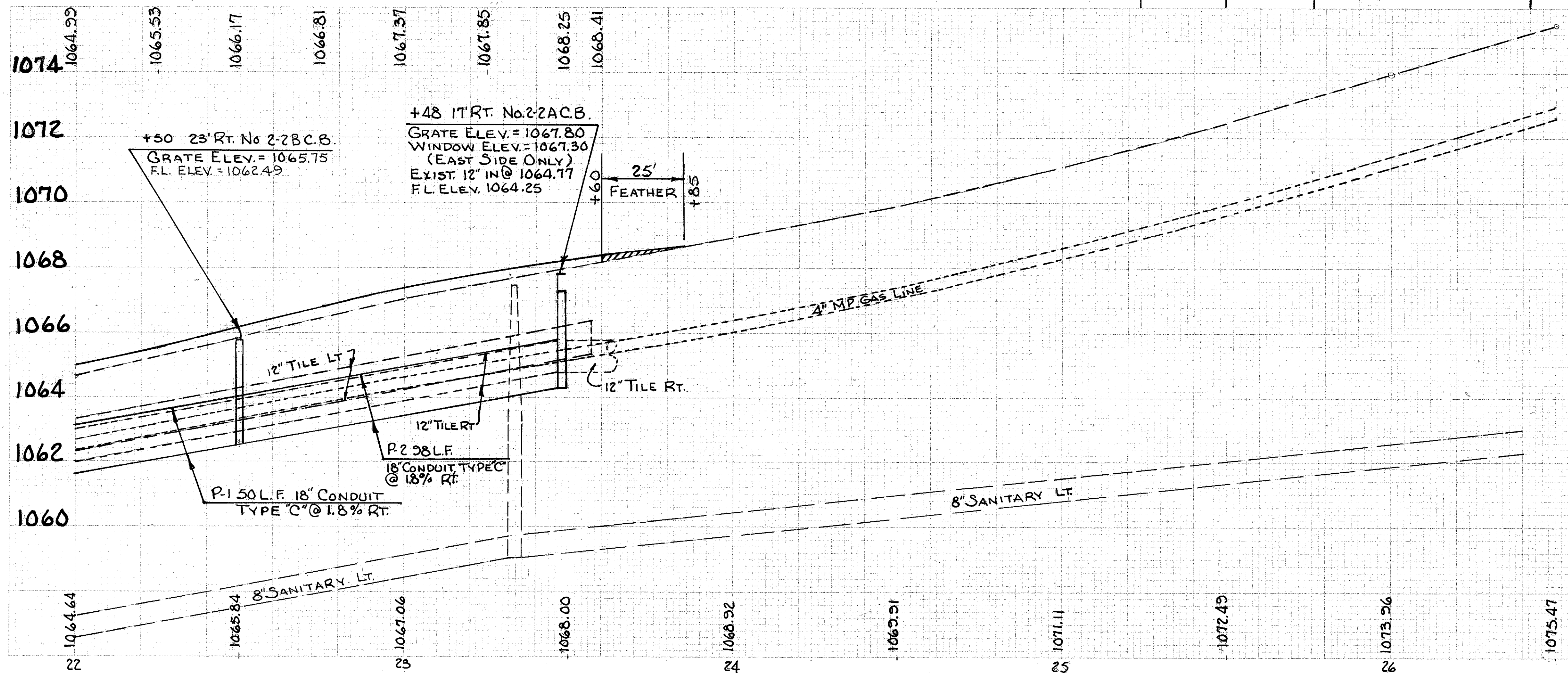
FED. RD. DIVISION STATE PROJECT
5 OHIO HES-2A43 ()
TRU-193-1.37

21
57

BEGIN SHEET STA. 22+00

END WORK
STA. 23+90
HES-2A43 ()

DRIVES AND APPROACHES									
STATION	SIDE	TYPE	LENGTH	WIDTH	404 ASPH. CONC. C.Y.	SPEC. PAV'T. SAWING L.F.	301 BIT. AGG. BASE 5" C.Y.	452 P.P.C. CONC. 8" S.Y.	609 CONC. CURB TYPE 6 L.F.
22+05	LT.	C-1	13.25	20	4.79		23.95		92.42
22+12	RT.	C-2	15.10	20.5		22.5		45.16	43.01
23+23	RT.	C-2	15.75	20		21		44.06	43.62
TOTALS					4.79	43.5	23.95	89.22	191.05



202 REMOVAL QUANTITIES									
MARK	STATION		SIDE	PIPE REMD. 24" E UNDER L.F.	CURB REMD. L.F.	PAV'T. REMD. S.Y.	M.H. REMD. EA.		
R-1	22+00	22+02	LT.		3				
R-2	22+12				66.12	69.26			
R-3	23+23				57.32	55.40			
R-4	22+00	23+48		148			1		
TOTALS				148	127	125	1		

MISCELLANEOUS QUANTITIES									
MARK	STATION		SIDE	609 COMBINATION CURB & GUTTER TYPE 2 L.F.	603 18" TYPE "C" CONDUIT L.F.	604 2-2A CATCH BASIN EA.	604 2-2B CATCH BASIN EA.		
C-1	22+00	23+60	LT.	160					
C-2	22+00	23+60	RT.	160					
P-1	22+00	22+50	RT.		50		1		
P-2	22+50	23+48	RT.		38	1			
TOTAL				320	148	1	1		

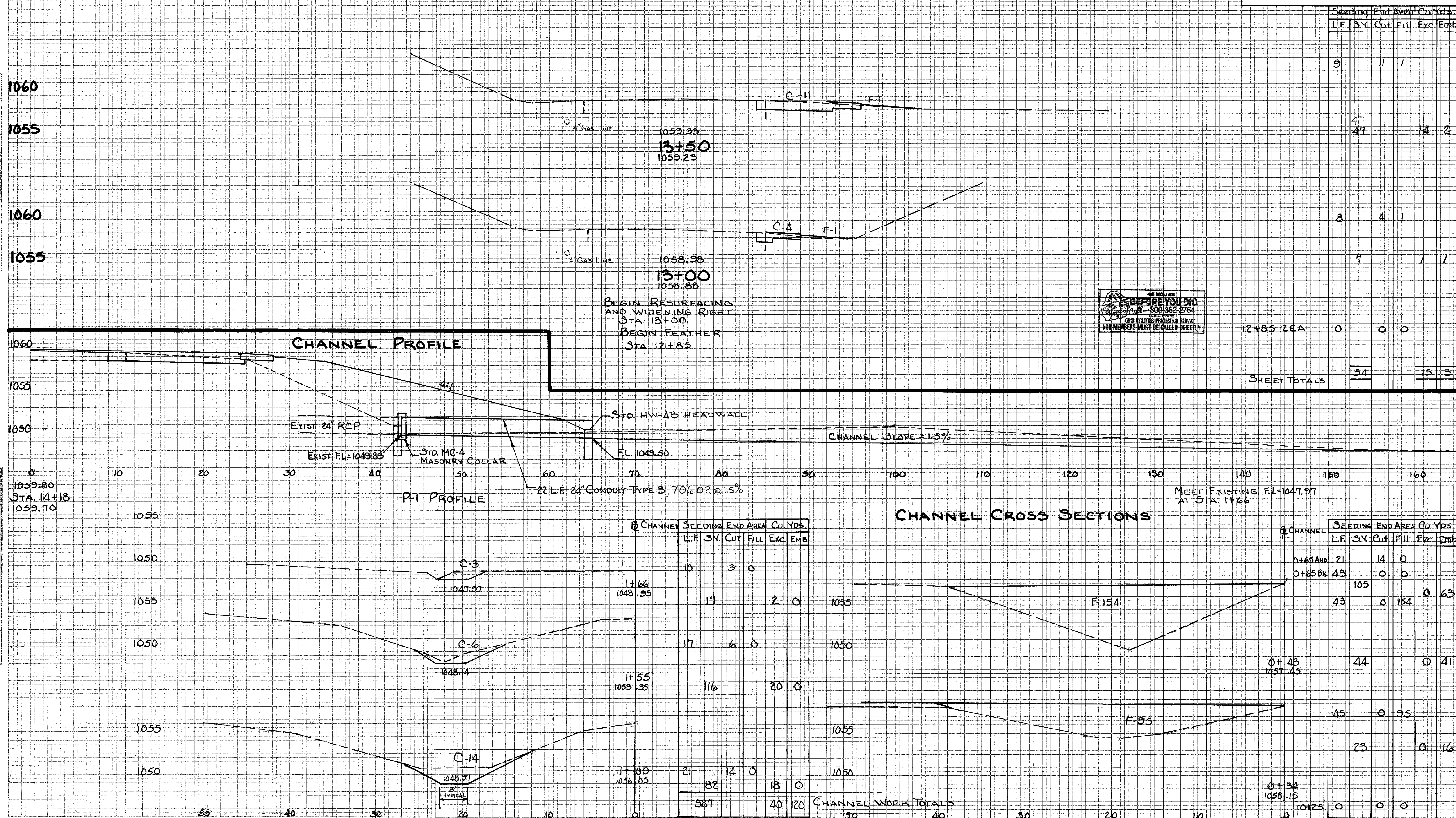
LINE SHEET STA. 22+00 TO STA. 26+00

MICROFILMED
NOV 8 1984

FHWA REGION	STATE	PROJECT	
5	OHIO	WES-2A43 () 180-5 ()	
TRU-193-1.37			22 57

DATE	
BY	
FINAL SURVEY	
NOTED BOOK	
NO.	

DATE	
BY	
ORIGINAL SURVEY	
NOTED BOOK	
NO.	



CROSS SECTIONS STA. 13+00 TO STA. 13+50 LIBERTY JONES ROAD

MICROFILMED
NOV 28 1984

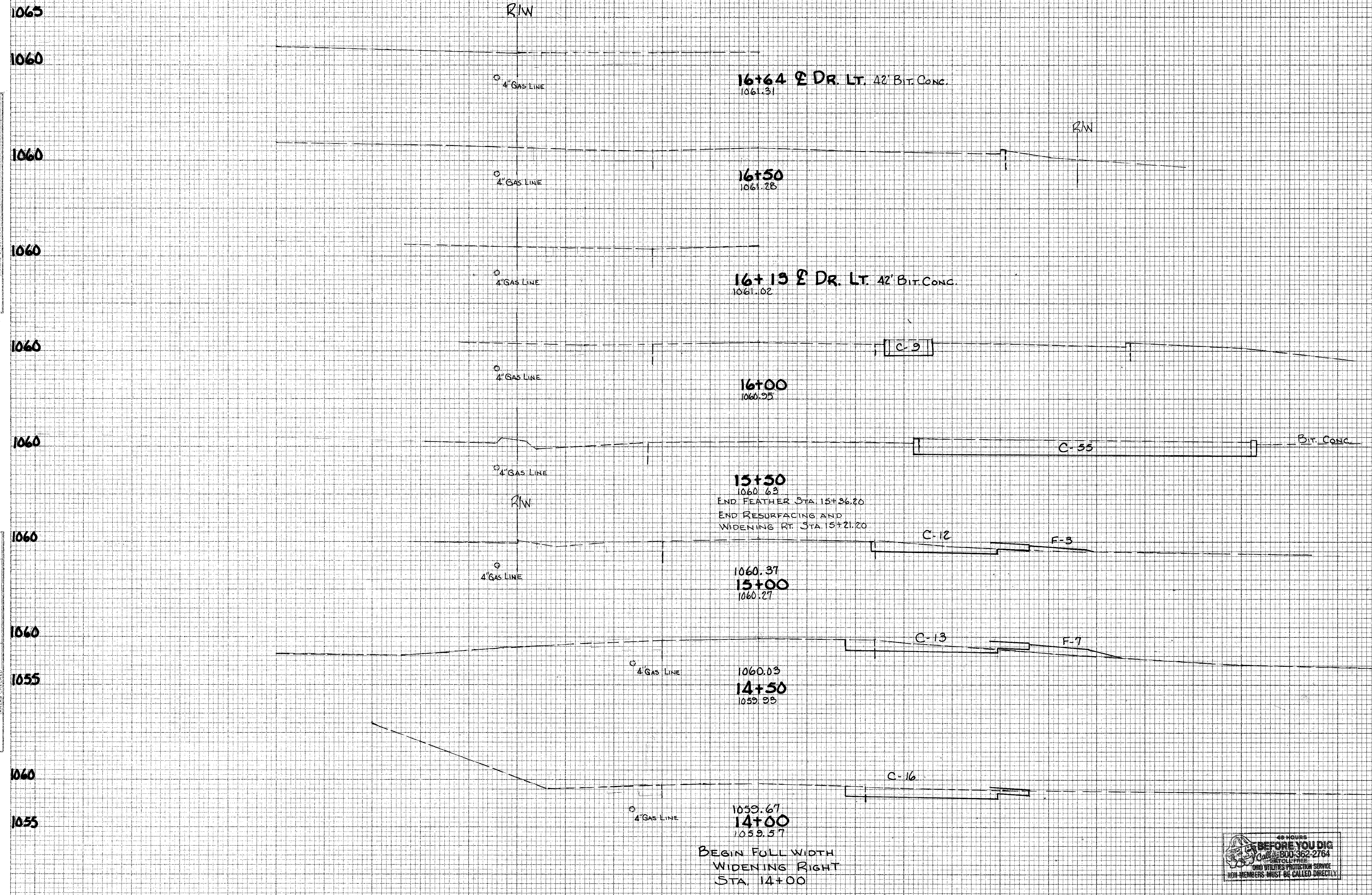
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BY	PLATTED	
NO.	NOTE BOOK	
	AREAS	
	CHECKED	

ORIGINAL	SURVEY	DATE
BY	PLATTED	
NO.	NOTE BOOK	
	AREAS	
	CHECKED	

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO	HES-2A43 () TR-80-5 ()	

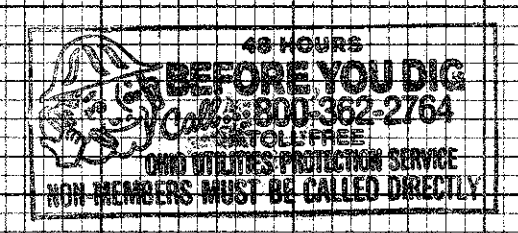
23
57

TRU-193-1.31



SEEDING		END AREA		C.U. YDS.	
L.F.	S.Y.	CUT	FILL	Exc.	EMB.
0	0	0	0		
0	0	9	0	1	0
0	0			60	0
0	0	55	0		
0	0			12	0
0	0	0	0		
11				3	1
9		12	3		
59				23	10
12		13	7		
39				27	7
2		16	0		
31				25	1
9		11	1		
SHEET TOTAL		140		151	19

BEGIN FULL WIDTH
WIDENING RIGHT
STA. 14+00



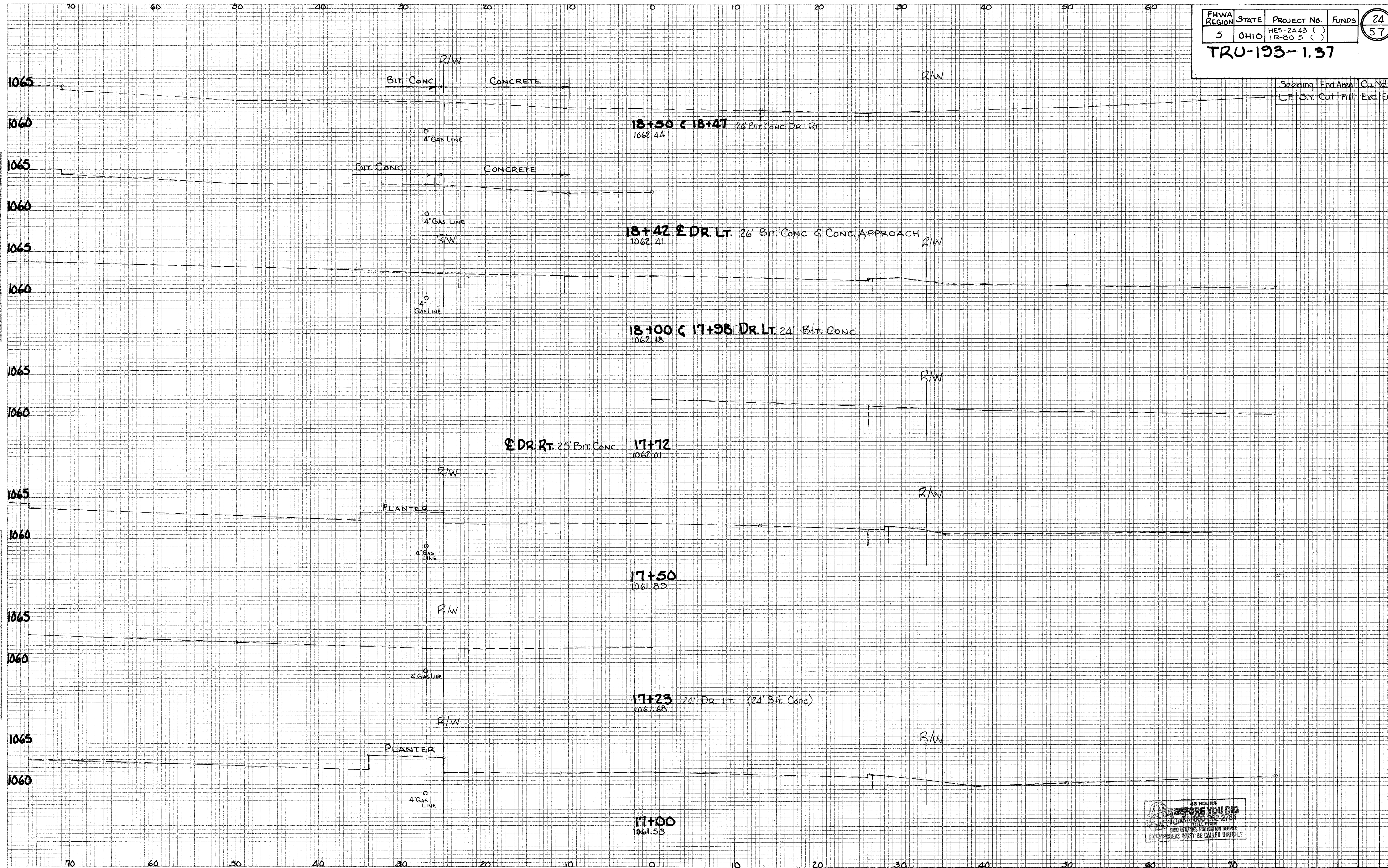
MICROFILMED
NOV 8 1988

DATE	BY
SURVEY	PLATTED
NOTE BOOK	AREAS
NO.	AREAS

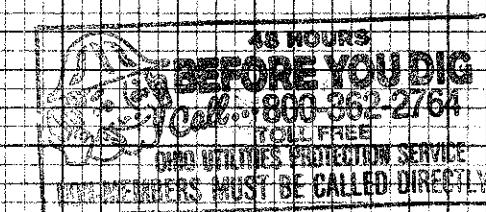
DATE	BY
SURVEY	PLATTED
NOTE BOOK	AREAS
NO.	AREAS

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO	HES-2A43 () IR-805 ()	24 57

TRU-193-1.37



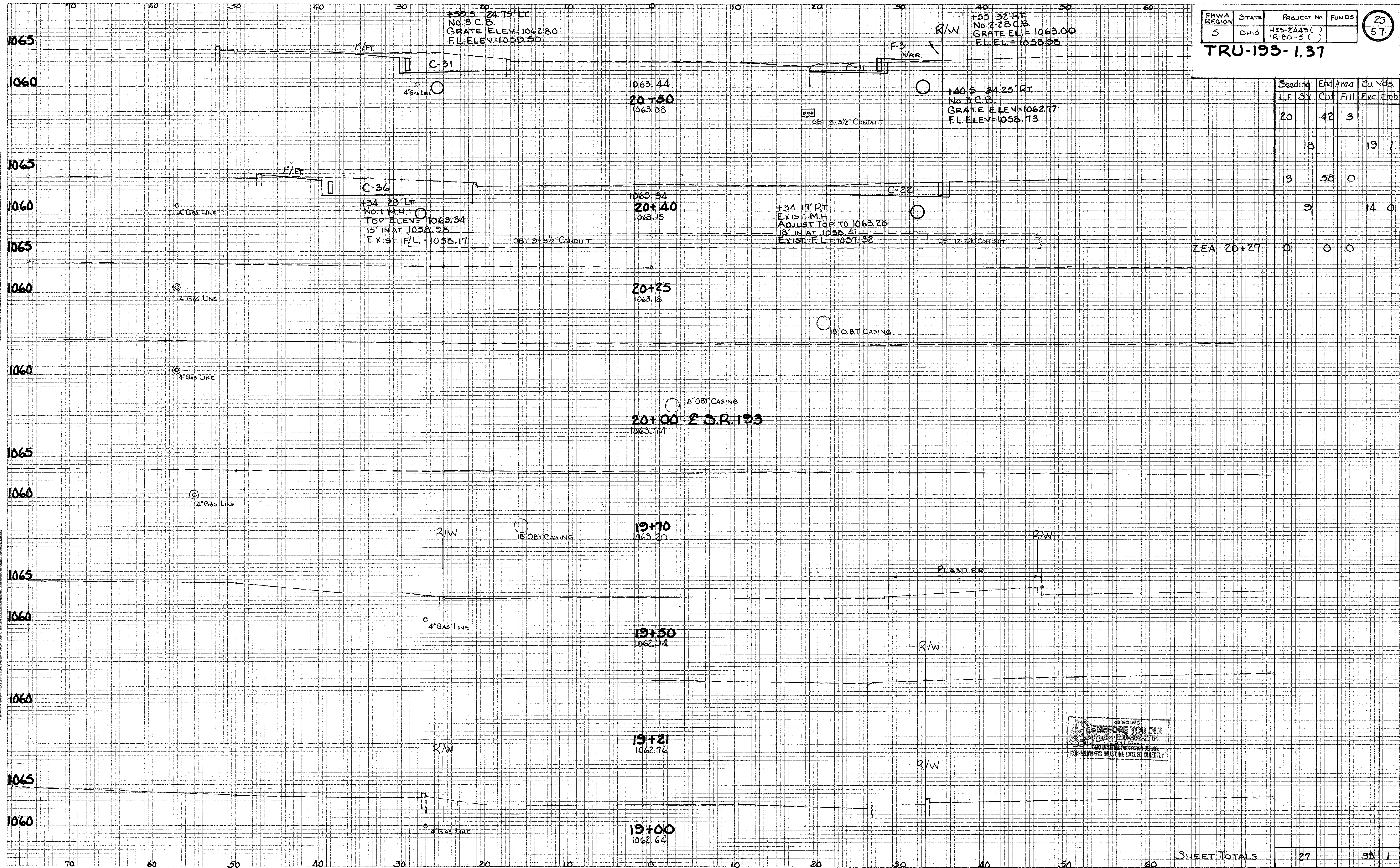
Seeding	End Area	Cu. Yd.			
L.F.	S.Y.	Cut	Fill	Exc.	Emb.



MICROFILMED
NOV 28 1964

DATE	BY
FINAL SURVEY	NO. 1
NOTE BOOK	NO. 2
TEMPLATE	NO. 3
AREAS CHECKED	NO. 4

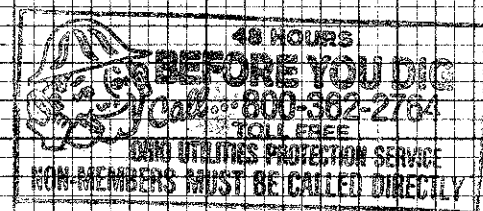
DATE	BY
ORIGINAL SURVEY	NO. 1
NOTE BOOK	NO. 2
TEMPLATE	NO. 3
AREAS CHECKED	NO. 4



FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO	HES-2A43() IR-80-5 ()	25 57

TRU-193-1.37

Seeding		End Area		Cu. Yds.	
L.F.	3Y.	Cut	Fill	Exc.	Emb.
20		42	3		
	18			19	1
13		58	0		
	9			14	0
0		0	0		
ZEA 20+27					
SHEET TOTALS					
27				35	1

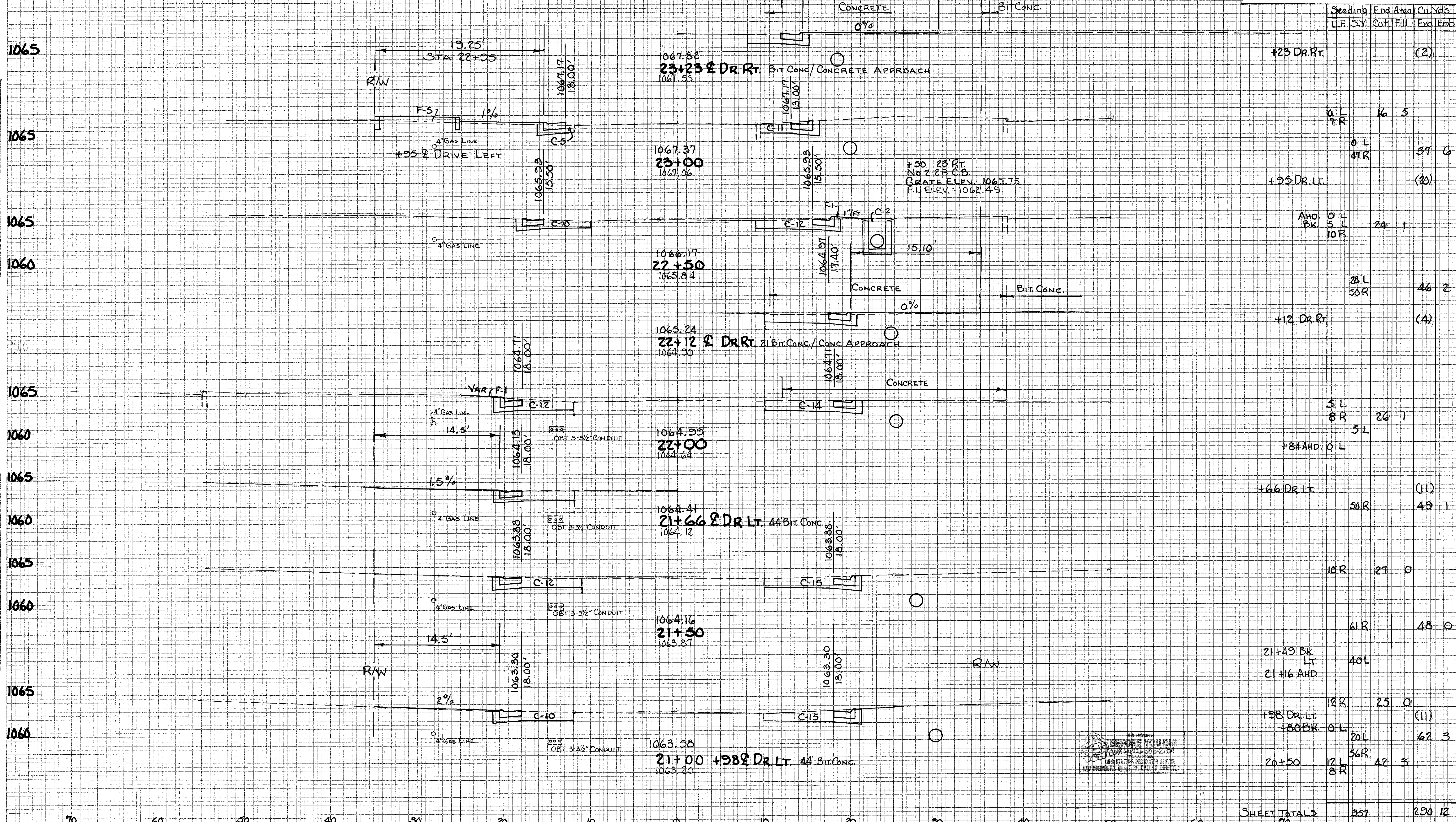


CROSS SECTIONS 19+00 TO STA 20+50 LIBERTY JONES ROAD

MICROFILMED
NOV 28 1984

DATE
BY
SURVEYED
PLOTTED
NOTE BOOK
NO.

DATE
BY
SURVEYED
PLOTTED
NOTE BOOK
NO.



Seeding	End Area	Co. Yds.
L.F. SY.	Cut	Exc. Emb.
357	290	12

MICROFILMED
NOV 28 1984

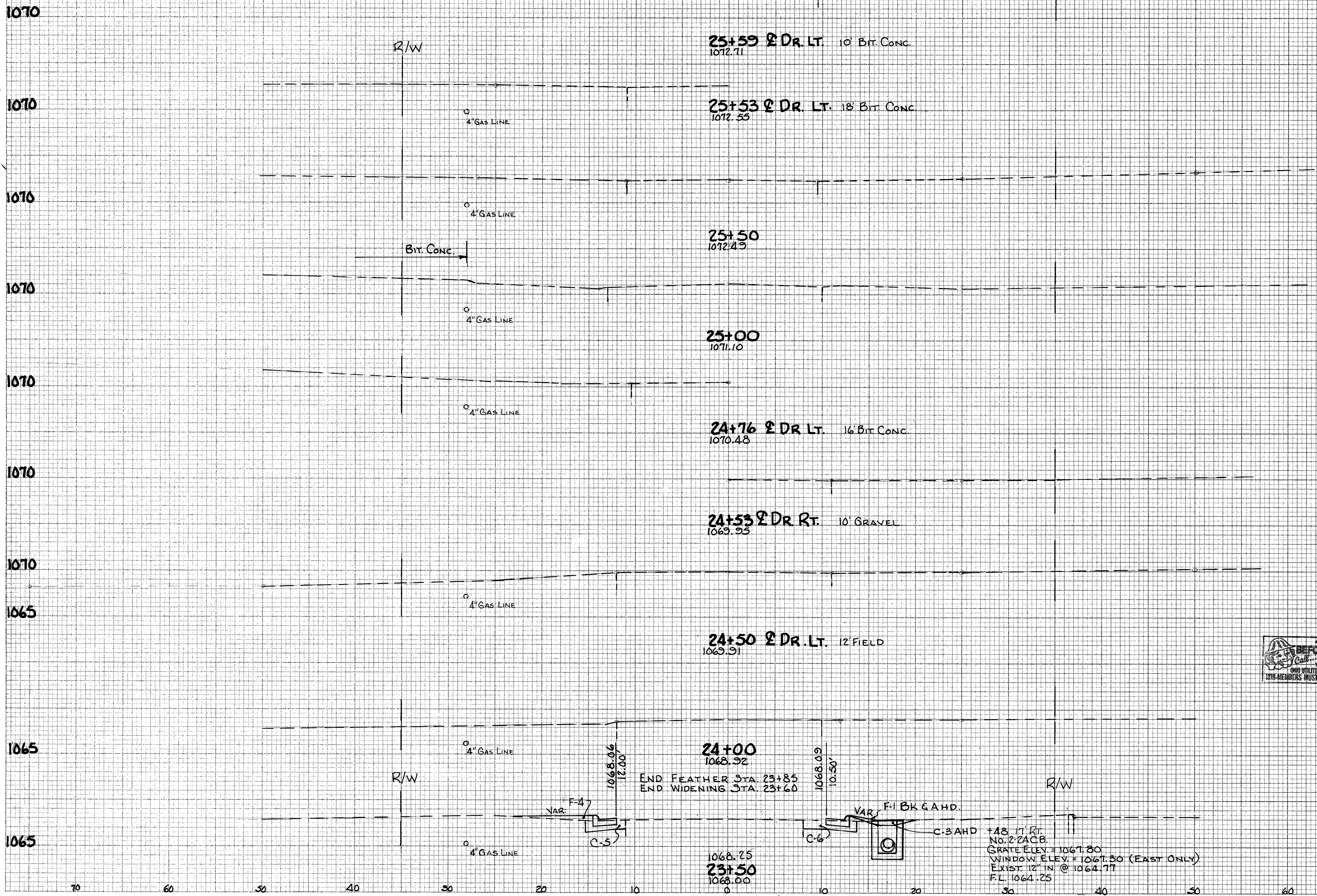
FINAL SURVEY	DATE
SURVEYED	BY
PLANNED	BY
NOTE BOOK	NO.
AREAS CHECKED	

ORIGINAL SURVEY	DATE
SURVEYED	BY
PLANNED	BY
NOTE BOOK	NO.
AREAS CHECKED	

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO	HES-2A43() 1980 S ()	

TRU-193-1.37

27
57



SEA STA 23+60	0	0	0
	12		3 1
AHD 13L			
BK 0L		14AHD	
9R		11BK	5
	44R		25 9
	6L		
STA 23+00	0 L	16	5
	7R		
SHEET TOTALS	56		28 10

HIGHWAY FEDERAL AID SHEET
PLATE 3-FULL CROSS SECTION-FULL LINE
INDIANAPOLIS, INDIANA
PRINTED IN U.S.A.

CROSS SECTIONS STA. 23+50 TO STA 25+59 LIBERTY-JONES RD.

MICROFILMED
NOV 28 1984

FINAL	SURVEY	DATE
SURVEY	BY	
NOTE BOOK	AREA	
NO.	AREAS CHECKED	

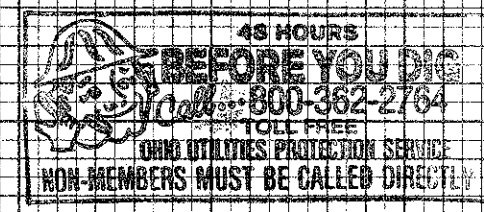
ORIGINAL	SURVEY	DATE
SURVEY	BY	
NOTE BOOK	AREA	
NO.	AREAS CHECKED	

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO	HES-2A43 () 1R-80-5 ()	

28
57

TRU-193-1.37

Seeding	End Area	Cu Yds.
L.F.	S.Y.	Cut
Fill	Exc.	Emb.



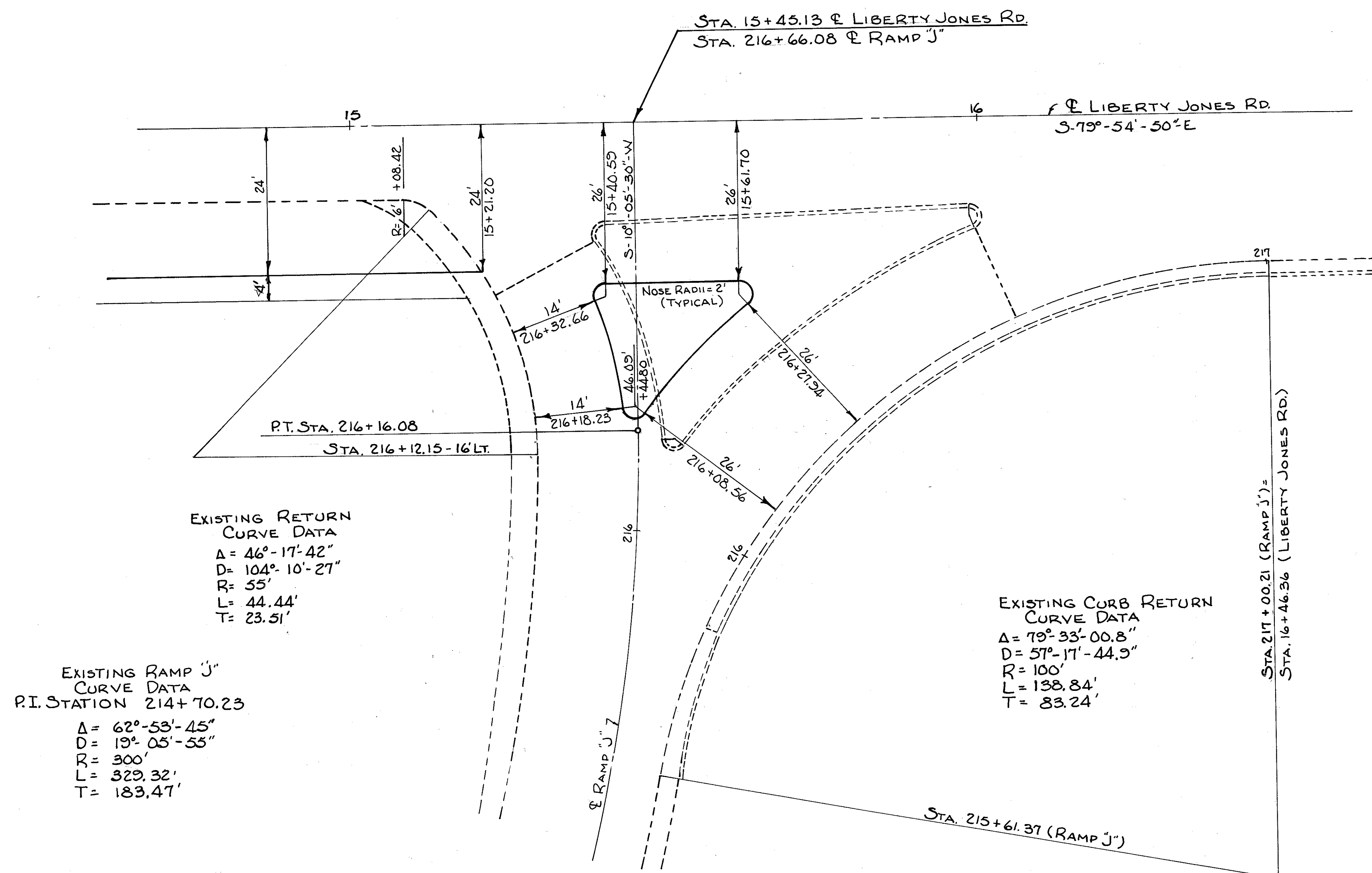
MICROFILMED
NOV 28 1984

0 5 10 20 30 40 50
SCALE IN FEET

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO	HES 2A43 1R 80-5	

29
57

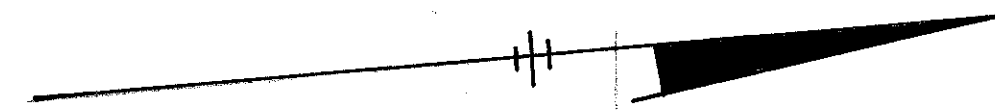
TRU-193-137



TRAFFIC ISLAND DETAIL RAMP "J"

MICROFILMED
NOV 28 1984

0 5 10 20 30 40 50
SCALE IN FEET



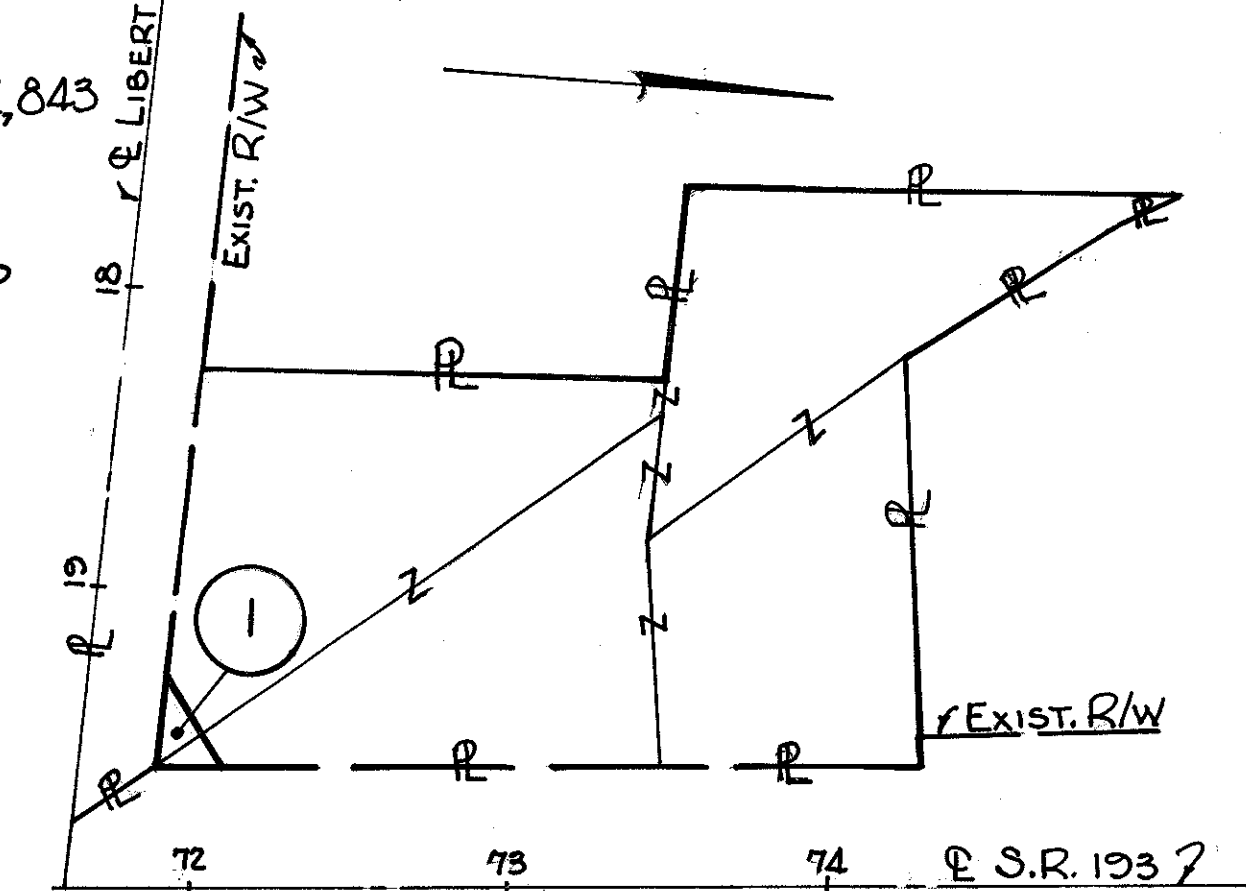
LIBERTY TOWNSHIP
R-2W T-3N
SECTION 8
TRUMBULL COUNTY

VOLUME 1019 PAGES 839,840,841,842,843

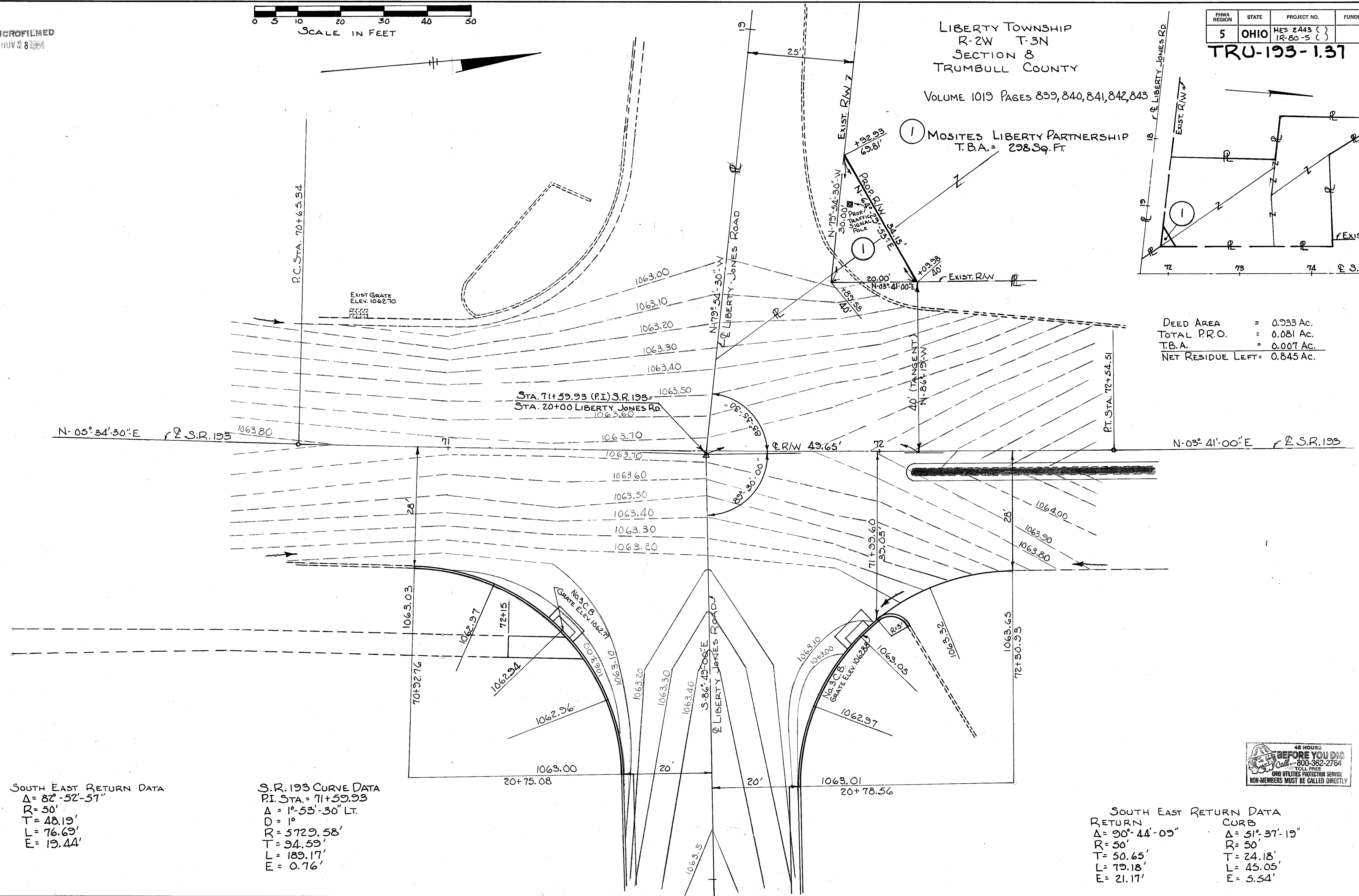
FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO	HES 2443 () 1R-80-5 ()	

TRU-193-1.31

30
57



DEED AREA = 0.933 Ac.
TOTAL P.R.O. = 0.081 Ac.
T.B.A. = 0.007 Ac.
NET RESIDUE LEFT = 0.845 Ac.



SOUTH EAST RETURN DATA
 $\Delta = 82^\circ-52'-57''$
 $R = 50'$
 $T = 48.19'$
 $L = 76.63'$
 $E = 19.44'$

S.R. 193 CURVE DATA
P.I. STA. = 71+59.93
 $\Delta = 1^\circ-53'-30''$ LT.
 $D = 1^\circ$
 $R = 5729.58'$
 $T = 94.59'$
 $L = 189.17'$
 $E = 0.76'$

SOUTH EAST RETURN DATA
RETURN
 $\Delta = 90^\circ-44'-09''$
 $R = 50'$
 $T = 50.65'$
 $L = 79.18'$
 $E = 21.17'$
CURB
 $\Delta = 51^\circ-37'-19''$
 $R = 50'$
 $T = 24.18'$
 $L = 45.05'$
 $E = 5.54'$



INTERSECTION DETAILS

TRAFFIC CONTROL GENERAL NOTES

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

TRU-193-1.37

TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS

References To Supplemental Specifications 857,858,859,957,958, And 959 On The Traffic Control Standard Construction Drawings In These Plans Shall Be Considered To Read As Respective References To Items 630,631, 632,730,731, And 732.

614 MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS

The Contractor Shall Be Responsible For Maintaining Traffic Signal Installations Within The Project Under The Following Conditions:

a) Existing Signal Installations Which The Plans Require The Contractor To Adjust, Modify, Add Onto Or Remove, Or Which The Contractor Actually Adjusts, Modifies Or Otherwise Disturbs. The Contractor Shall Be Responsible For The Entire Installation (At An Intersection) From The Time His Operations First Disturb The Installation Until The Installation Has Been Subsequently Removed Or Modified And The Work Is Accepted.

b) New Or Reused Signal Installations Or Devices, Installed By The Contractor. The Contractor Shall Be Responsible For Maintenance Of These From The Time Of Installation Until The Work Is Accepted.

The Contractor Shall Correct As Quickly As Possible All Outages Or Malfunctions. He Shall Provide The Engineer Such Addresses And Phone Numbers Where His Maintenance Forces Can Be Contacted. The Contractor Shall Provide One Or More Persons To Receive All Calls And Dispatch The Necessary Maintenance Forces To Correct Outages. Such A Person Or Persons May Be Used To Perform Other Duties As Long As Prompt Attention Is Given To These Calls And A Person Is Readily Available Continuously 24 Hours A Day, 7 Days A Week. All Lamp Outages, Cable Outages, Electrical Failures, Equipment Malfunctions And Misaligned Signal Heads Shall Be Corrected To The Satisfaction Of The Engineer With The Signal Back In Service Within Four Hours After The Contractor Has Been Notified Of The Outage.

In The Event New Signals Are Damaged Prior To Acceptance All Damaged Equipment Except Poles And Control Equipment Shall Be Replaced By The Contractor To The Satisfaction Of The Engineer With The Signal Back In Service Within 8 Hours After The Contractor's Notification Of The Outage.

If Poles And/Or Control Equipment Are Damaged And Must Be Replaced, The Contractor Shall Make Temporary Repairs As Necessary To Bring The Signal Back Into Full Operation Within The Allowed 8-Hour Period, And Shall Make Permanent Repairs Or Replacement As Soon Thereafter As Possible.

None Of The Above Shall Be Construed As Collective Or Consecutive Outage Time Periods At Any One Location. That Is, Where More Than One Outage Occurs At Any One Location, Then The Allotted Time Limit Shall Be For The Worst Single Outage.

Where Outages Are The Direct Result Of A Vehicle Accident The Response Of The Contractor Shall Be As Outlined Above. The Contractor Shall Be Responsible For Collection Of Any Compensation For This Work From Those Parties Responsible For The Damage. Where The Contractor Has Failed To Or Cannot Respond To An Outage Or Signal Equipment Malfunction, At The Locations Within His Responsibility, Within Periods As Specified Above, The Engineer May Invoke The Provisions Of Section 105.15 And Any Subsequent Billings To The State For Maintenance Services By State Forces Shall Be Deducted From Monies Due Or To Become Due The Contractor In Accordance With Provisions Of Section 105.15.

The Contractor Shall Be Responsible For Any Damage To Any Traffic Signal Components Required To Be Handled During The Relocation Of Poles And Revisions To The Signal System.

When A Traffic Signal Must Be Taken Out Of Service By The Contractor, Due To Construction Procedures, This Outage Shall Not Exceed 8 Hours And Shall Not Include The Hours Of 3:00 P.M. To 7:00 A.M.. Any Signalized Intersection, Where The Signal Is Out Of Service Due To Construction Procedures, Or Due To An Outage Or Malfunction Of Equipment As Described Above, Shall

Be Protected, By The Contractor, By The Installation Of Temporary "STOP" Signs.

Any Vehicular Traffic Signal Head, Either New Or Existing Which Will Be Out Of Operation Shall Be Covered In The Manner Described In 632.24.

All Costs Resulting From The Above Requirements Shall Be Considered To Be Included In The Lump Sum Price Bid For Item 614, Maintaining Traffic.

625 POWER SUPPLY FOR SIGN LIGHTING

Electric Power Shall Be Obtained From Ohio Edison Co., 730 South Avenue, Youngstown, Ohio 44502 At The Location Indicated On The Plans. Power Supplied Shall Be 120 Volts.

631 SIGN SERVICE, AS PER PLAN

In Lieu Of The Requirements Of 631.06, Cable For Sign Service Shall Be Rated The Same As The Highway Lighting Distribution And Circuit Cable Used On This Project.

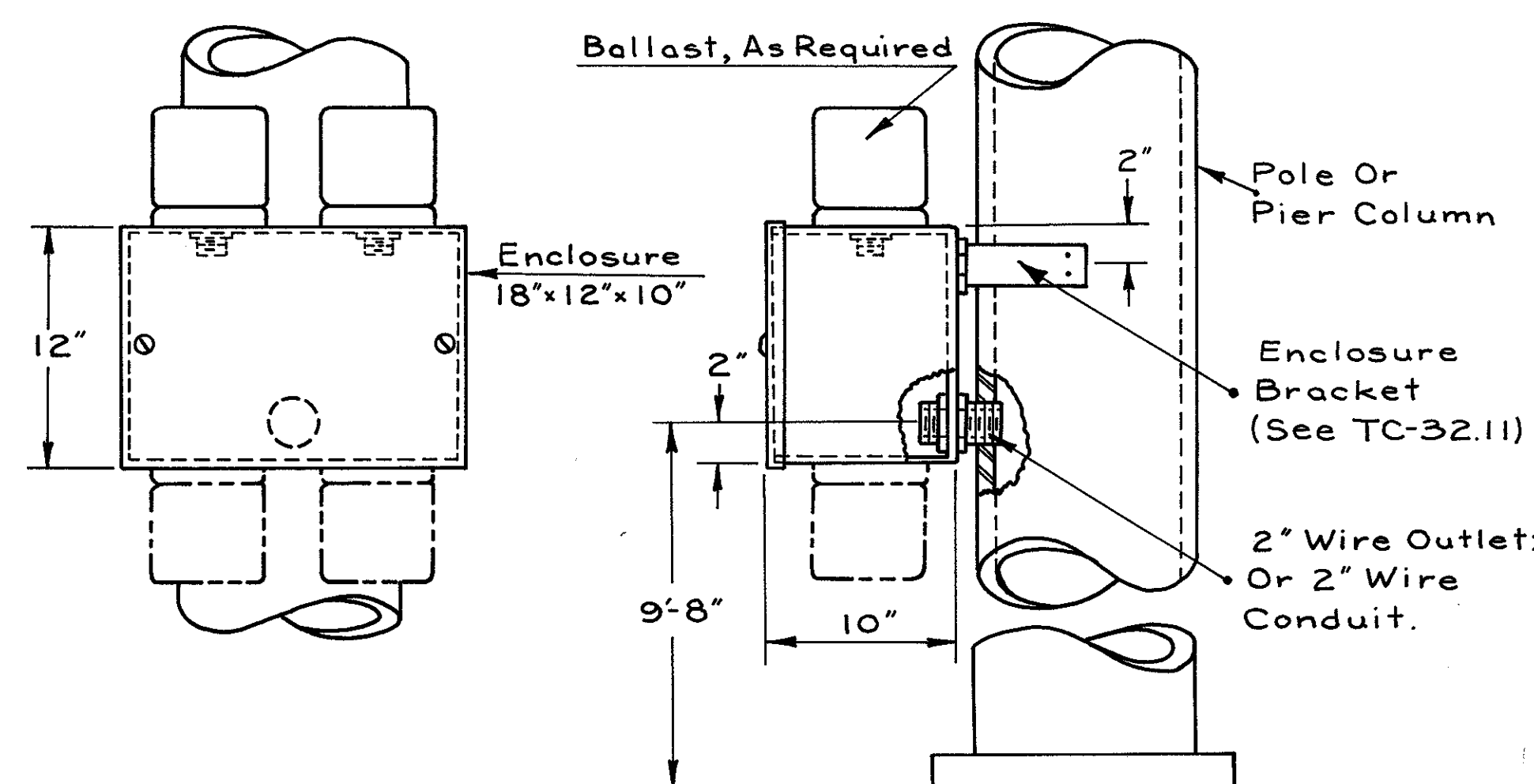
625 POWER SUPPLY FOR TRAFFIC SIGNALS

Electric Power Shall Be Obtained From The Ohio Edison Co., 730 South Avenue, Youngstown, Ohio 44502 At The Location Indicated On The Plans. Power Supplied Shall Be 120/240 Volts.

631 ENCLOSURE PADLOCKS

Disconnect Switch Enclosure Furnished In Accordance With Specification 631.08 Shall Include A Padlock Equal To Master No. 4 BKA Or Wilson Bohannon 660, With Lock Body Of Bronze Or Brass, And Keying In Accordance With The Foregoing Specification.

631 BALLAST WIRING ENCLOSURE TYPE B



BALLAST ENCLOSURE
TYPE B

632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION

Traffic Signal Installations, Including Signal Heads, Cable, Messenger Wire, Strain Poles, Cabinet, Controller, Etc., Shall Be Removed In Accordance With Specification 632.25 And As Indicated On The Plans. Removed Items Shall Be Stored On The Project For Salvage By State Forces, In Accordance With The Listing Given Herein.

(Items To Be Stored For Removal)

S.R. 193 At Liberty Jones Road

- a. 4 Each Strain Poles With Appurtenances
- b. 8 Each Vehicular Signal Head, 3 Section, 12 Inch Lens, 1 Way
- c. 1 Each Controller Cabinet-Ground Mounted-Serial No. 1428433
- d. 1 Each Controller 8 Phase Traf-O-Matic
- e. 7 Each Loop Detector Amplifiers
 - 4 Sentry IV
 - 2 Automatic
 - 1 Unidentified
- f. 6 Each Signal Relays (Traf-O-Matic)
- g. 1 Each Flasher
- h. 1 Each Disconnect Switch (Pole Mounted) 2 Pole 30A

S.R. 193 At Ramps K&L

- a. 1 Each Vehicular Signal Head, 3 Section, 12 Inch Lens, 1-Way
- b. 4 Each Vehicular Signal Head, 3 Section, 12 Inch Lens, 2-Way
- c. 1 Each Controller Cabinet-Ground Mounted Serial No. 594061610
- d. 1 Each Controller 4 Phase, Econolite
- e. 1 Each Conflict Monitor, Econolite NCMU-6
- f. 4 Each Loop Detector Amplifiers
 - 3 Econolite ED3
 - 1 Sarasota 235 T/MS
- g. 4 Each Load Switches
- h. 1 Each Flasher
- i. 1 Each Lightning Arrestor
- j. 1 Each Disconnect Switch-General Electric

TRAFFIC CONTROL GENERAL NOTES

TRU-193-1.37

861 CONTROLLER, FULL ACTUATED, 3 PHASE SOLID STATE DIGITAL, MICROPROCESSOR, AS PER PLAN

THE OVERLAP PROGRAMMING SHALL BE BY USE OF AN INTERCHANGEABLE PLUG-IN PRINTED CIRCUIT BOARD ASSEMBLY AS DESCRIBED IN PART 14 OF TS-1-1983. IN ADDITION TO NEMA REQUIREMENTS, THE CONFLICT MONITOR SHALL ALSO HAVE EXTENDED MONITORING IN ACCORDANCE WITH 961.04 PART 3 b.

THE CONTROLLER HOUSING SHALL BE KEYS TO THE STATE MASTER. CONTROLLER CABINET SHALL BE PAINTED YELLOW FEDERAL STANDARD 595 COLOR 13655. PAYMENT FOR ITEM 861 CONTROLLER, FULL ACTUATED, 3 PHASE, SOLID STATE DIGITAL, MICROPROCESSOR WILL BE AT THE CONTRACT BID PRICE PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS TESTED AND ACCEPTED.

861 CONTROLLER, FULL ACTUATED, 5 PHASE, SOLID STATE DIGITAL, MICROPROCESSOR, AS PER PLAN

THE OVERLAP PROGRAMMING SHALL BE BY USE OF AN INTERCHANGEABLE PLUG-IN PRINTED CIRCUIT BOARD ASSEMBLY AS DESCRIBED IN PART 14 OF TS-1-1983. IN ADDITION TO NEMA REQUIREMENTS, THE CONFLICT MONITOR SHALL ALSO HAVE EXTENDED MONITORING, IN ACCORDANCE WITH 961.04 PART 3 b.

THE CONTROLLER HOUSING SHALL BE KEYS TO THE STATE MASTER. CONTROLLER CABINET SHALL BE PAINTED YELLOW FEDERAL STANDARD 595 COLOR 13655. PAYMENT FOR ITEM 861 CONTROLLER, FULL ACTUATED, 5 PHASE, SOLID STATE DIGITAL, MICROPROCESSOR WILL BE AT THE CONTRACT BID PRICE PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS TESTED AND ACCEPTED.

847 EXTRUDED THERMOPLASTIC MATERIAL APPLICATION

IN ADDITION TO THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 847 THE FOLLOWING PROVISIONS SHALL APPLY BEFORE MARKING APPLICATION. THE CONDITION OF THE PAVEMENT SHALL BE IN ACCORDANCE WITH 847.15 AND A JET OF COMPRESSED AIR SHALL BE USED TO ASSURE A THOROUGH CLEANING. THE THICKNESS OF MARKING MATERIAL SHALL BE NOT LESS THAN 0.125 INCH ACCORDING TO 847.15 AND NOT GREATER THAN 0.188 INCH. A SHAPING DIE OF UP TO AND INCLUDING 24 INCH WIDTH MAY BE USED.

MARKINGS AT INTERSECTIONS CONSISTING OF LINES, WORDS, AND ARROWS, MID-BLOCK CROSS WALK MARKINGS, AND AUXILIARY MARKINGS AT SCHOOL ZONES AND RAILROAD CROSSINGS, MAY BE PLACED BY ALTERNATIVE EQUIPMENT NOT PROVIDED WITH A BUILT-IN HEATER, MIXER OR BEAD DISPENSER. THE APPLICATION OF DROPPED-ON GLASS BEADS MAY BE BY A MANUAL DEVICE.

WHEN SUCH EQUIPMENT IS USED, COMPLIANCE WITH THE MINIMUM APPLICATION TEMPERATURE OF 375 DEGREES F. AT THE TIME AND POINT OF APPLICATION SHALL BE RIGIDLY MAINTAINED AND WILL BE CHECKED BY THE ENGINEER AS NECESSARY TO ASSURE A SATISFACTORY APPLICATION. MARKINGS WHICH HAVE BEEN APPLIED AT A TEMPERATURE BELOW THAT SPECIFIED SHALL BE REMOVED WITHOUT DELAY AND REAPPLIED AT SPECIFIED TEMPERATURES.

847 PAVEMENT CONDITIONS

THERMOPLASTIC PAVEMENT MARKINGS SHALL NOT BE PLACED ON PAVEMENT SURFACE THAT SHOW VISIBLE EVIDENCE OF CRACKING, CHIPPING, SPALLING OR FAILURE OF UNDERLYING BASE MATERIAL, AS DETERMINED BY THE ENGINEER.

ITEM 847 LANE LINES (AND CENTER LINES), AS PER PLAN

IN LIEU OF THE REQUIREMENTS OF (SUPPLEMENTAL) SPECIFICATION 847.03, LANE LINES (AND BROKEN CENTER LINES) SHALL HAVE A SEGMENT-TO-GAP RATIO OF 1:3 WITH A TEN (10) FOOT PAINTED (THERMOPLASTIC) SEGMENT AND A THIRTY (30) FOOT GAP WHERE BROKEN LINES EXIST. TEN FOOT SEGMENTS SHALL START AT THE BEGINNING OF THE EXISTING FIFTEEN FOOT SEGMENT.

847-PLASTIC PAVEMENT MARKINGS

THE REQUIREMENTS OF 847.04 MATERIAL PREQUALIFICATION AND SAMPLING, AND 847.05 SERVICE TESTING ARE HEREBY WAIVED ON THIS PROJECT AND THE FOLLOWING REQUIREMENTS SHALL BE SUBSTITUTED THEREFORE:

THE CONTRACTOR SHALL FURNISH TO THE ENGINEER CERTIFIED TEST DATA, INCLUDING TESTING PROCEDURES, BASED ON CERTIFIED FORMULATION FOR MATERIAL MEETING REQUIREMENTS CONTAINED IN 847.07, 847.08, 847.09 OR 847.10 AS APPLICABLE TO THE MATERIAL SPECIFIED IN THE PLANS. HE SHALL ALSO FURNISH TYPICAL FIELD SAMPLES OF LINE, 4 INCHES WIDE BY 10 INCHES LONG, FOR EACH COLOR AND PLASTIC COMPOUND SPECIFIED FOR USE.

608-4" CONCRETE WALKS, AS PER PLAN

A QUANTITY OF 36 SQ. FT. OF 4" CONCRETE WALKS, AS PER PLAN IS INCLUDED FOR USE WHEN DIRECTED BY THE ENGINEER. THIS IS TO PROVIDE A 4 FT. x 3 FT. PLATFORM NEAR POLE OR PEDESTAL MOUNTED SIGNAL CONTROL CABINETS IN UNPAVED AREAS, FROM WHICH SIGNAL MAINTENANCE PERSONNEL CAN CONVENIENTLY REACH THE SIGNAL EQUIPMENT FOR SERVICE.

ITEM 630 SIGNS (FLAT SHEET, EXTRUSHEET,) TYPE G

IN LIEU OF THE REQUIREMENTS OF 630.04, REFLECTIVE SHEETING SHALL BE TYPE G IN CONFORMANCE WITH THE REQUIREMENTS OF 730.19. PAYMENT FOR THIS ITEM SHALL BE AT THE UNIT PRICE BID PER SQUARE FOOT FOR ITEM 630 SIGNS (FLAT SHEET, EXTRUSHEET,) TYPE G.

202 REMOVE EXISTING LIGHT POLE, AS PER PLAN

AT THE LOCATIONS INDICATED ON THE PLANS THE EXISTING LIGHT POLES INCLUDING BRACKET ARMS, LUMINAIRES, LAMPS AND FRANGIBLE BASES SHALL BE CAREFULLY DISMANTLED AND STORED ON THE PROJECT FOR REMOVAL BY STATE FORCES.

LIGHT POLES SHALL BE REMOVED IN A MANNER AVOIDING DAMAGE TO THE POLE, BRACKET ARM, OR LUMINAIRE.

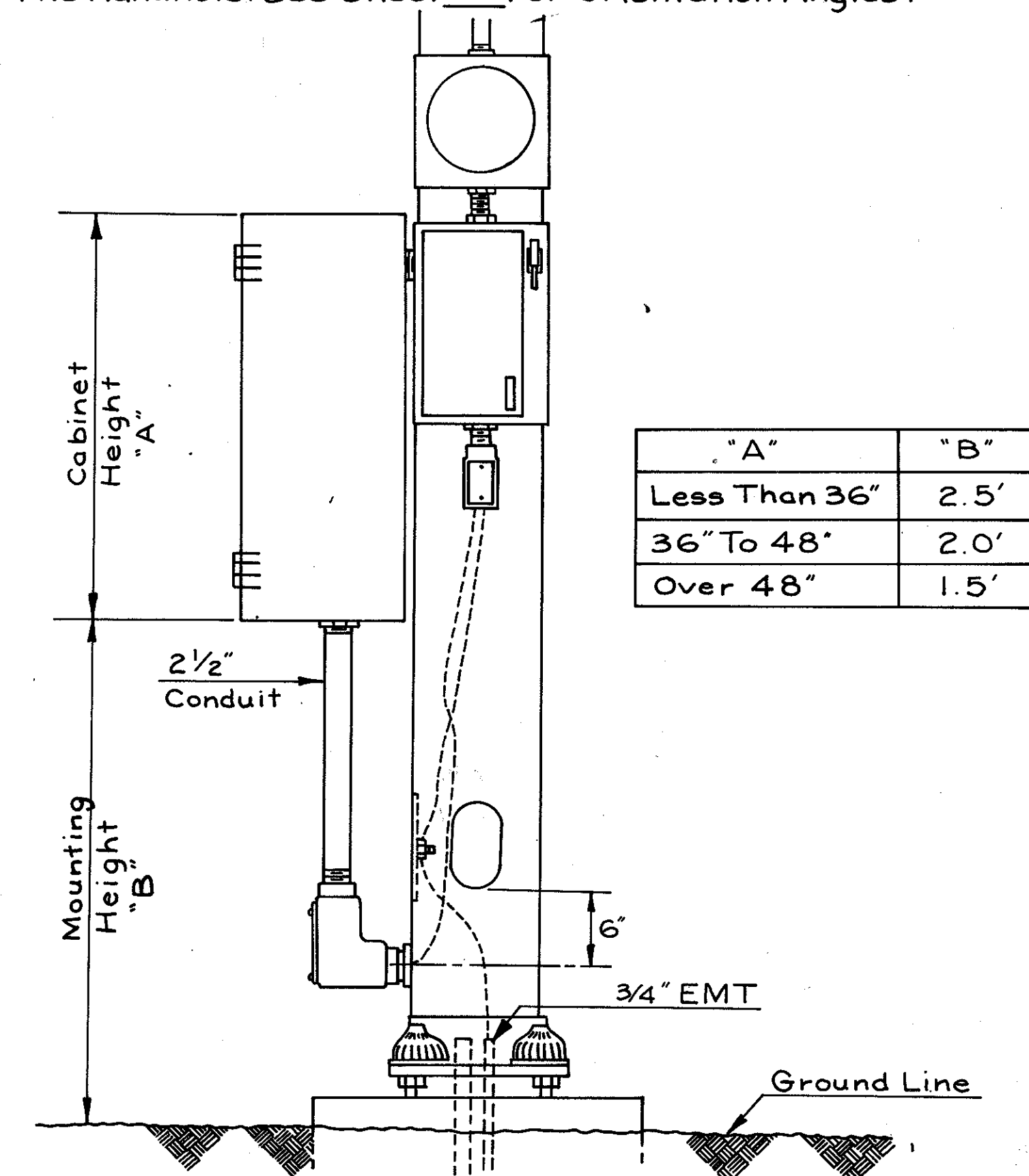
BASIS OF PAYMENT FOR THIS ITEM OF WORK SHALL BE AT THE CONTRACT UNIT PRICE BID PER EACH ITEM 202 REMOVE EXISTING LIGHT POLE, AS PER PLAN AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIAL AND INCIDENTALS NEEDED TO PERFORM THE WORK.

713.14 LAMPS

HIGH PRESSURE SODIUM LAMPS SHALL BE GENERAL ELECTRIC "Lucalox", WESTINGHOUSE "CERAMALUX", SYLVANIA "LUMALUX", OR EQUAL APPROVED BY THE ENGINEER. 150 WATT HPS LAMPS SHALL BE OF THE 100 VOLT DESIGN, ANSI S56.

SIGNAL CONTROLLER CABINET MOUNTING

IN LIEU OF DETAILS SHOWN ON STANDARD CONSTRUCTION DRAWING TC-83.10, THE CONTROLLER CABINET AT THE INTERSECTION OF LIBERTY JONES AND RAMP J SHALL BE MOUNTED AS SHOWN IN DETAIL BELOW. THE BLIND HALF COUPLING FOR THE 2 1/2" LB SHALL BE CENTERED 6" BELOW THE BOTTOM OF THE HANDHOLE FRAME AND AT 90° TO THE HANDHOLE. SEE SHEET FOR ORIENTATION ANGLES.



202 REMOVE EXISTING LIGHT POLE FOUNDATION, AS PER PLAN

AT THE LOCATIONS INDICATED ON THE PLANS THE EXISTING LIGHT POLE FOUNDATIONS SHALL BE REMOVED TO AT LEAST ONE FOOT BELOW FINISHED GROUND LINE. BACKFILLING, RESTORATION OF SURFACES AND DISPOSAL OF SURPLUS MATERIAL SHALL BE IN ACCORDANCE WITH 603.09.

BASIS OF PAYMENT FOR THIS ITEM OF WORK SHALL BE AT THE CONTRACT UNIT PRICE BID PER EACH ITEM 202 REMOVE EXISTING LIGHT POLE FOUNDATION, AS PER PLAN AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIAL AND INCIDENTALS NEEDED TO PERFORM THE WORK.

625.07-713.11 LUMINAIRES

STYLE B LUMINAIRES SHALL HAVE SINGLE RATED 480 VOLT, 200 WATT, INTEGRAL REGULATOR BALLASTS FOR USE WITH HIGH PRESSURE SODIUM LAMPS AND SHALL BE GENERAL ELECTRIC M400, WESTINGHOUSE OV-25, ITT AMERICAN 400, OR EQUAL APPROVED BY THE ENGINEER.

MICROFILMED
NOV 28 1984

TRAFFIC CONTROL GENERAL SUMMARY

Drawn By J.K.P. Date 7-22-83
Checked By _____ Date _____

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

33
57

TRU-193-1.37

ITEM	SHEET NUMBER												PARTICIPATION			ITEM	QUANT.	UNIT	DESCRIPTION	LINE NO.
		35		36		48		53		50		52	IR	HES						
		0.14												0.14		847	0.14	Miles	4 Inch Edge Lines, 947.02	1
		1.25												1.25		847	1.25	Miles	4 Inch Lane Lines, 947.02	2
		0.65												0.65		847	0.65	Miles	4 Inch Center Lines, 947.02	3
		2104												2104		847	2104	Lin.Ft.	8 Inch Channelizing Lines, 947.02	4
		337												337		847	337	Lin.Ft.	24 Inch Stop Lines, 947.02	5
		17												17		847	17	Each	Lane Arrows 947.02	6
		7												7		847	7	Each	Word On Pavement, 96 Inch "ONLY", 947.02	7
																				8
		272												272		621	272	Lin.Ft.	Transverse Lines	9
		50												50		621	50	Lin.Ft.	Curb Marking	10
		340												340		621	340	Sq.Ft.	Island Marking	11
													9	174		630	183	Sq.Ft.	Signs Flat Sheet Type G	12
													52.19	27.69		630	77.88	Sq.Ft.	Signs, Flat Sheet	13
													478			630	478	Sq.Ft.	Signs, Extrusheet Type G	14
													-0-	12		630	12	Each	Removal Of Overhead Mounted Sign And Storage	15
													24	11		630	35	Each	Removal Of Ground Mounted Sign And Storage	16
													14	6		630	20	Each	Removal Of Ground Mounted Post Support	17
													17	6		630	23	Cu.Yd.	Concrete For Anchor Base Foundations	18
													97	62		630	159	Lin.Ft.	Ground Mounted Supports, No. 3 Post	19
													40	15		630	55	Lin.Ft.	Ground Mounted Supports, No. 4 Post	20
													4			630	4	Each	Overhead Sign Support, Type TC-12.30, Design No. 1, 16 Foot Arms, Modified	21
													2			630	2	Each	Combination Overhead Sign Support Type TC-12.30, Design No. 1, 16 Foot Arms	22
													1			630	1	Each	Combination Overhead Sign Support Type TC-9.10, Design No. 2, 9 Foot Arms, Modified	23
														1		630	1	Each	Span Wire Sign Support Type TC-17.10, Design No. 7, Span 98 Feet, Modified	24
														1		630	1	Each	Sign Hanger Assembly, Span Wire	25
																				26
																				27
																				28
																				29
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																				72

For Additional Traffic Control Quantities See Sheet 34

TRAFFIC CONTROL GENERAL SUMMARY

TRU-193-1.37

ITEM	SHEET NUMBER												PARTICIPATION			ITEM	QUANT.	UNIT	DESCRIPTION	LINE NO.		
						32		53		50		52		IR	HES							
						36																1
						36									36		608	36	SQ.FT.	4" Concrete Walks, as per plan		2
								444				880			1324		625	1324	Lin.Ft.	Conduit 1½ Inch, 713.04		3
								19				68			87		625	87	Lin.Ft.	Conduit 3 Inch, 713.04		4
																						5
																						6
								6		3		4			13		632	13	Each	Vehicular Signal Head, 3-Section, 12- Inch Lens, 1-Way		7
										2					2		632	2	Each	Vehicular Signal Head, 3-Section, 12- Inch Lens, 2-Way		8
								2		1					3		632	3	Each	Vehicular Signal Head, 5-Section, 12- Inch Lens, 1-Way		9
												5			5		632	5	Each	Vehicular Signal Head, Optically Programmed, 3-Section, 12 Inch Lens, 1-Way		10
																						11
								8		6		9			23		632	23	Each	Covering Of Vehicular Signal Heads		12
																						13
								6		3		4			13		632	13	Each	Loop Detector Amplifier, 732.07		14
								2		2					4		632	4	Each	Loop Detector Amplifier, Delay And Extension Type, 732.08		15
																						16
								330				175			505		632	505	Lin.Ft.	Loop Detector Pavement Cutting, As Per Plan		17
																						18
								800				530			1330		632	1330	Lin.Ft.	Loop Detector Wire, Type E		19
																						20
								1530				1120			2650		632	2650	Lin.Ft.	Loop Detector Lead-In Cable		21
																						22
								10.7				5.3			16.0		632	16.0	Cu.Yd.	Concrete For Anchor Base Foundations		23
																						24
												1			1		632	1	Each	Signal Support, Type TC-81.20, Design 4 With Mast Arms 20 Foot And 38 Foot		25
																						26
												1			1		632	1	Each	Signal Support, Type TC-81.20, Design 11 With Mast Arm 45 Foot		27
																						28
								4							4		632	4	Each	Strain Pole, Type TC-81.10 Design 7		29
																						30
								4		1		3			7		632	7	Each	Cable Support Assembly		31
																						32
								329							329		632	329	Lin.Ft.	Messenger Wire, 7 Strand, 3/8 Inch Diameter With Accessories		33
																						34
								245		196		170			611		632	611	Lin.Ft.	Signal Cable, 5 Conductor, No. 14 AWG		35
								310		110		130			550		632	550	Lin.Ft.	Signal Cable, 7 Conductor, No. 14 AWG		36
																						37
								53				30			83		632	83	Lin.Ft.	Power Cable 3 Conductor, No. 8 AWG		38
																						39
								1				1			2		632	2	Each	Power Service		40
																						41
								1		1					2		632	2	Each	Removal Of Traffic Signal Installation		42
																						43
																						44
								2				1			3		861	3	Each	Relay, Calling		45
																						46
								1		1					2		861	2	Each	Coordinator Time Based, As Per Plan		47
																						48
								1							1		861	1	Each	Controller, Actuated, 5 Phase, Solid State Digital Microprocessor, As Per Plan		49
																						50
										1		1			2		861	2	Each	Controller, Actuated, 3 Phase, Solid State Digital Microprocessor, As Per Plan		51
																						52
																						53
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MICROFILMED NOV 28 1984		621 & 847 PAVEMENT MARKING SUB-SUMMARY															Complete By JKP Date 6-28-83 Checked By KAG Date 6-30-83				FHWA REGION 5 STATE OHIO PROJECT NO. TRU-193-1.37 FUNDS				35 57						
LOCATION	SIDE	STATION		847	847	847	847	847	847	621	621	621	621	847	847	621	Edge Lines, Yellow	Edge Lines, White	Lane Lines, 4 Inch	Center Lines, Double Solid	Center Lines, Double Solid / Dashed	Channelizing Lines	Stop Lines	Transverse Lines, Yellow	Transverse Lines, White	Curb Marking (Yellow)	Island Marking (White)	Lane Arrows	Word On Pavement 96 Inch, ONLY	Island Marking (Yellow)	
		FROM	TO	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Sq. Ft.	Each	Each	Sq. Ft.															
SHEET 38																															
SR 193		72+08	72+28			40			20	35																					
SR 193		72+28	75+00			544			272					2	1																40
SHEET 39																															
SR 193		75+00	75+20			40			20																						
SR 193		75+20	76+34			228																									
SR 193		76+34	76+55			42			5			50																			
SR 193		76+55	77+15			120			60																						
SR 193		77+15	77+35			40			20																						
SR 193		77+35	80+00			530			265					2	1																40
SHEET 40																															
SR 193		80+00	80+20			40			20																						
SR 193		80+20	81+19	69		198																									
SR 193		81+19	84+31	624		624																									
SR 193		84+31	85+00	69		138																									
RAMP K		240+43	241+00					114			12																				
RAMP K		241+00	242+00			100																									
SHEET 41																															
SR 193		85+00	85+40			80																									
SR 193		85+40	86+12			144			72																						
SR 193		86+12	87+55			286			286	32	21		1	1	40																
SR 193		87+55	88+63			216				20																					
SR 193		88+63	90+00			274			137	32			1	1	40																
RAMP K		239+31	240+43					205			87	100																			
RAMP L		225+93	226+15						40						40																
SHEET 42																															
SR 193		90+00	90+35			70			35																						
SR 193		90+35	90+75			80																									40
SR 193		90+75	91+32			114	80	34			48																				
SR 193		91+32	95+00			736		736					2																		
SHEET 43																															
SR 193		95+00	96+00			200		200					2																		
SR 193		96+00	98+40			480		480																							
SR 193		98+40	100+00			320		320					2																		
SHEET 44																															
SR 193		100+00	100+94			188		188			20																				
SR 193		100+94	101+34			80	80				33																				
SR 193		101+34	101+75			82	41																								
SR 193		101+75	103+85			420	210		210	43			2	1																	
SUB TOTAL LEFT SIDE						762		6454	411	1958	1741	202	101	120	50	100	14	5	240												
SHEET 45																															
LIBERTY-JONES		12+85	14+00																												
LIBERTY-JONES		14+00	15+03																												
LIBERTY-JONES		16+37	17+20																												
LIBERTY-JONES		17+20	19+00																												
RAMP J		216+30	216+37																												
SHEET 38																															
LIBERTY-JONES		19+00	19+50																												
LIBERTY-JONES		21+42	22+00																												
SHEET 46																															
LIBERTY-JONES		22+00	23+85																												
SUB TOTAL RIGHT SIDE																															
SUB TOTAL LEFT SIDE						762		6454	411	1958	1741	202	101	120	50	100	14	5	240												
TOTAL						762		6609	1454	1958	2104	337	152	120	50	100	17	7	240												
COMBINED TOTALS																															
÷ 5280						0.14		1.25	0.65																						
* TOTAL ISLAND MARKING = 100 + 240 = 340 SQ. FT.																															

* HES FUNDING

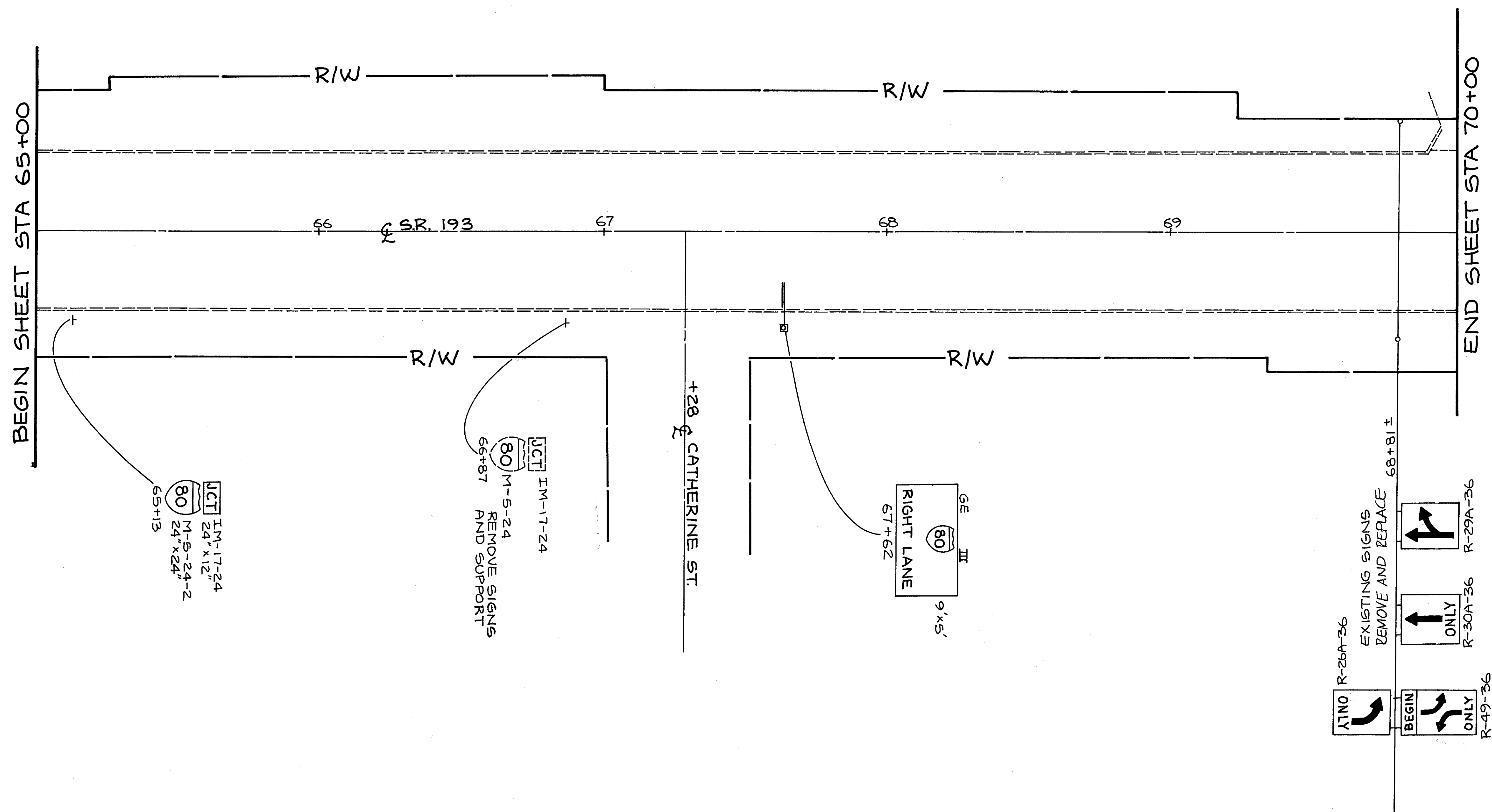
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SIGNING SUB-SUMMARY:

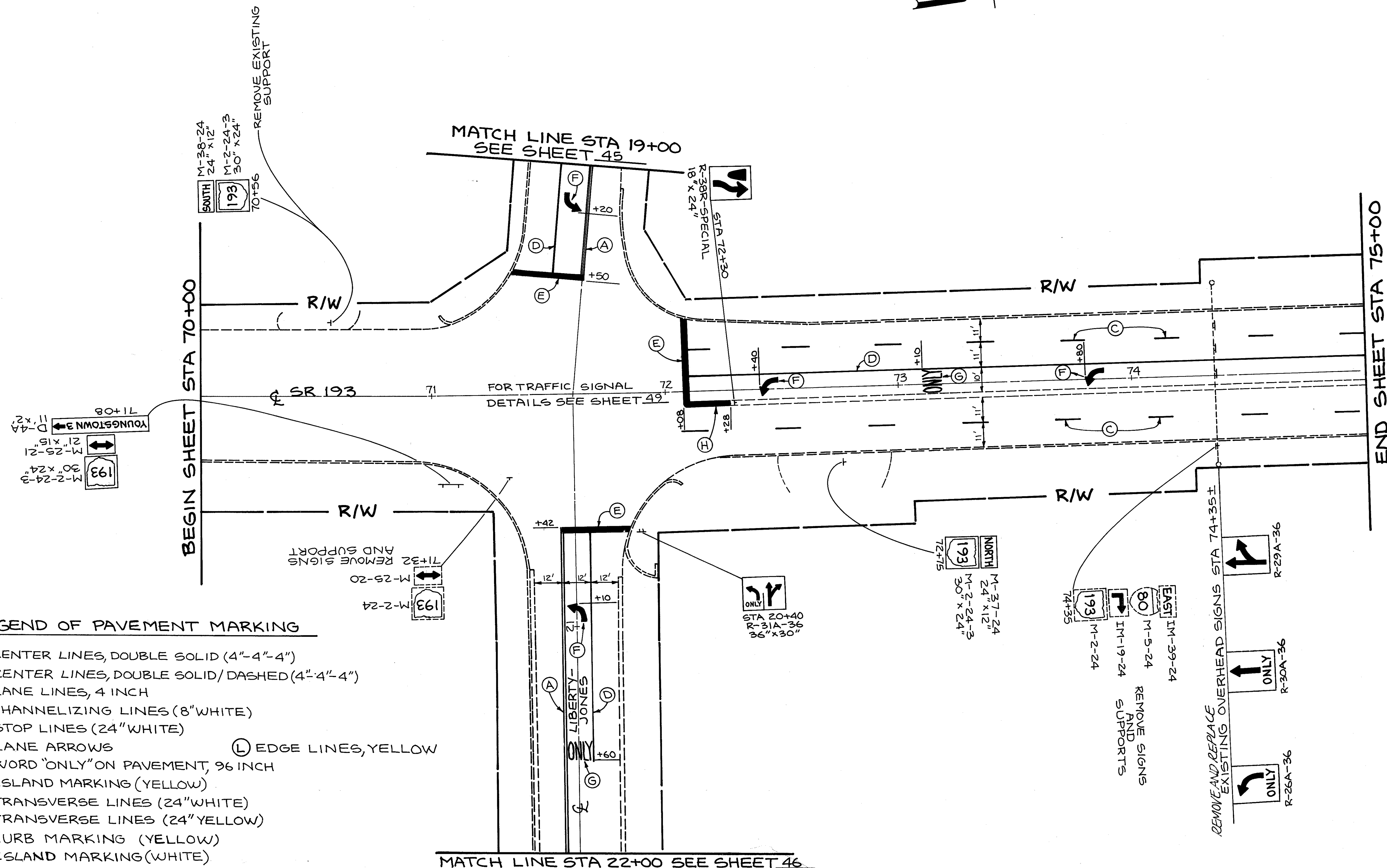
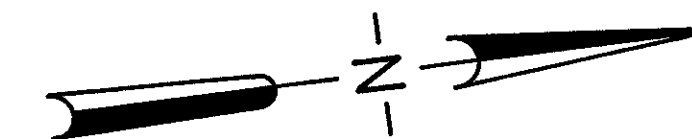
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

TRU-193-1.37

37
57



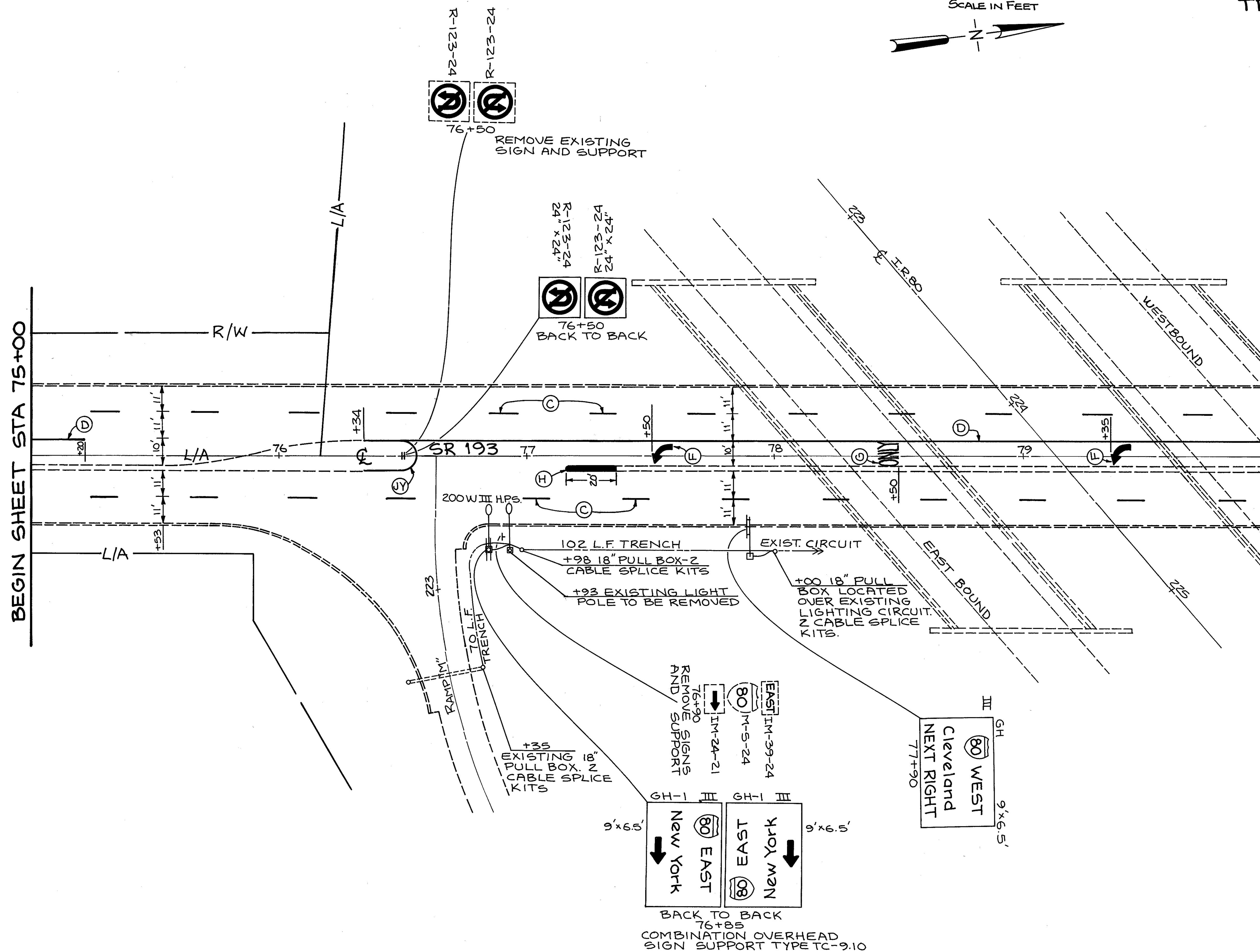
STA 65+00 TO STA 70+00



LEGEND OF PAVEMENT MARKING

- (A) CENTER LINES, DOUBLE SOLID (4"-4"-4")
- (B) CENTER LINES, DOUBLE SOLID/DASHED (4"-4"-4")
- (C) LANE LINES, 4 INCH
- (D) CHANNELIZING LINES (8" WHITE)
- (E) STOP LINES (24" WHITE)
- (F) LANE ARROWS
- (G) WORD "ONLY" ON PAVEMENT, 96 INCH
- (H) ISLAND MARKING (YELLOW)
- (I) TRANSVERSE LINES (24" WHITE)
- (J) TRANSVERSE LINES (24" YELLOW)
- (K) CURB MARKING (YELLOW)
- (L) EDGE LINES, YELLOW

END SHEET STA 80+00



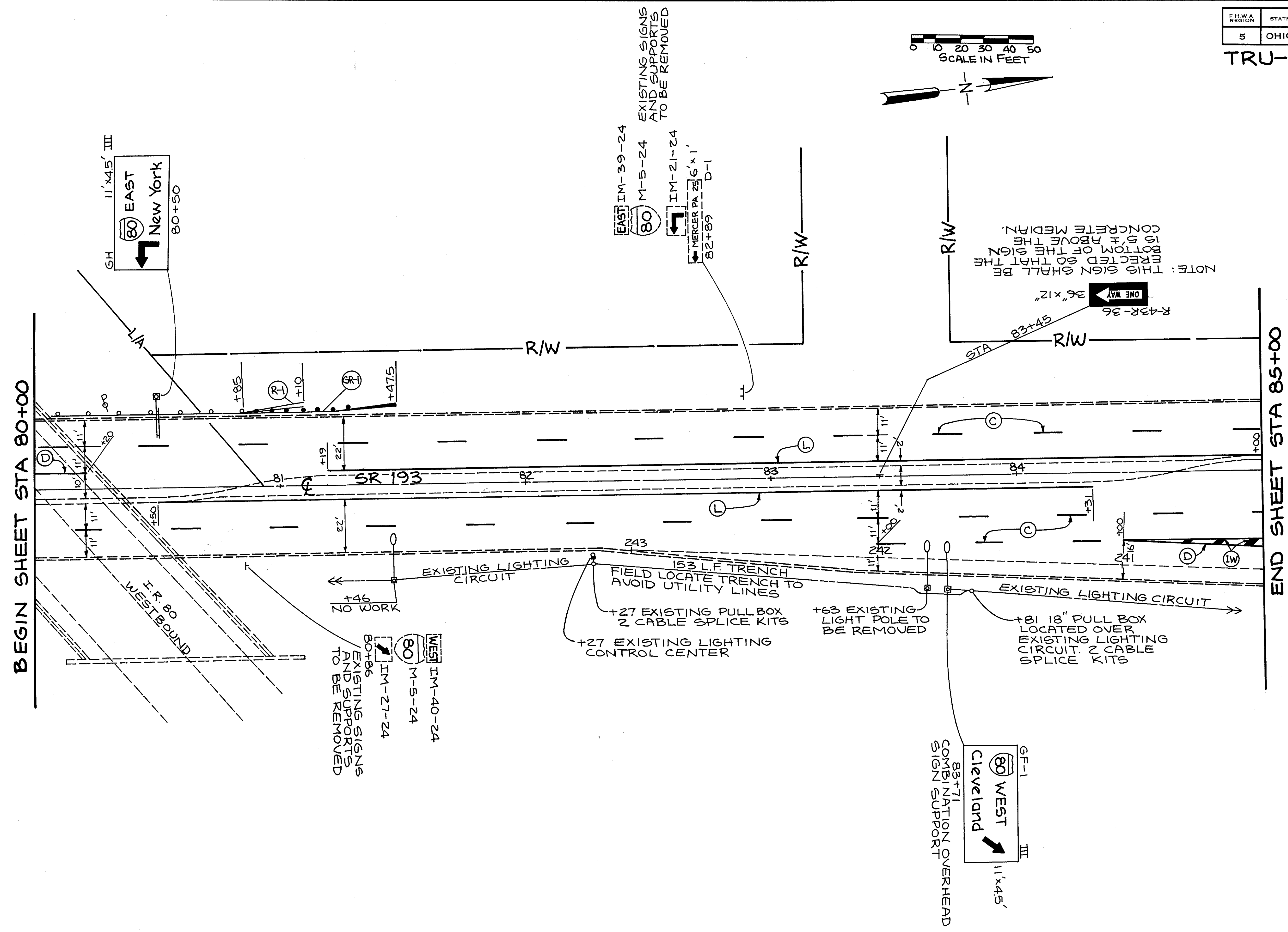
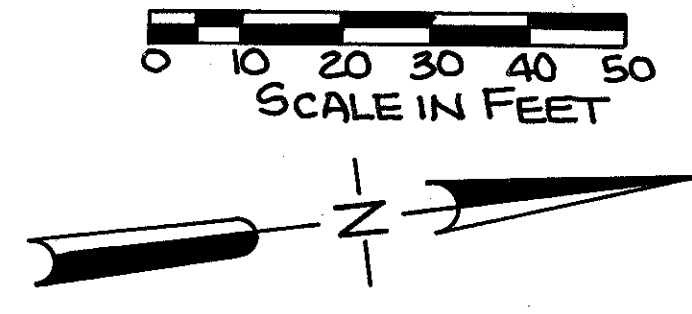
STA 75+00 TO STA 80+00

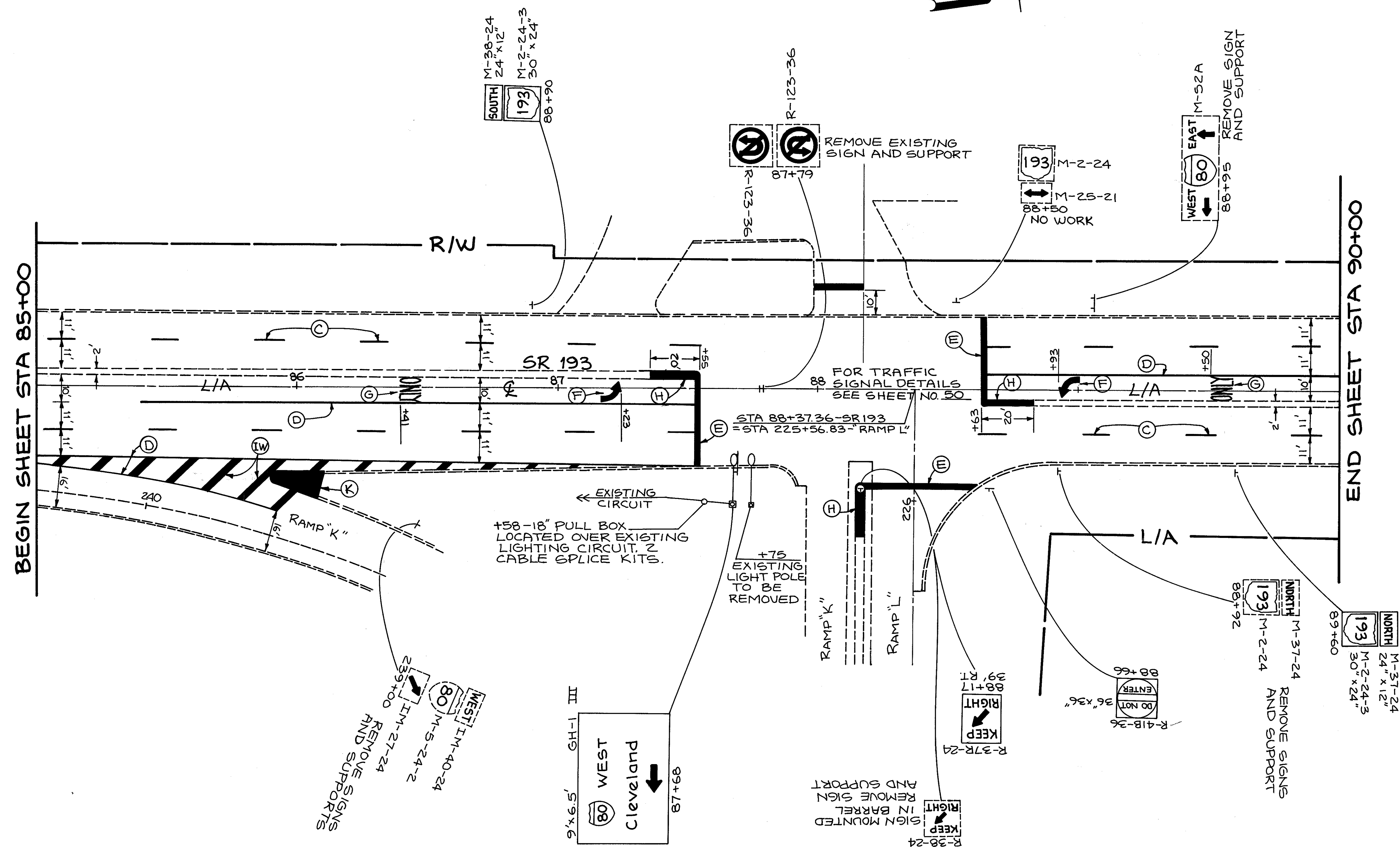
MICROFILMED
NOV 28 1984

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

40
57

TRU-193-1.37





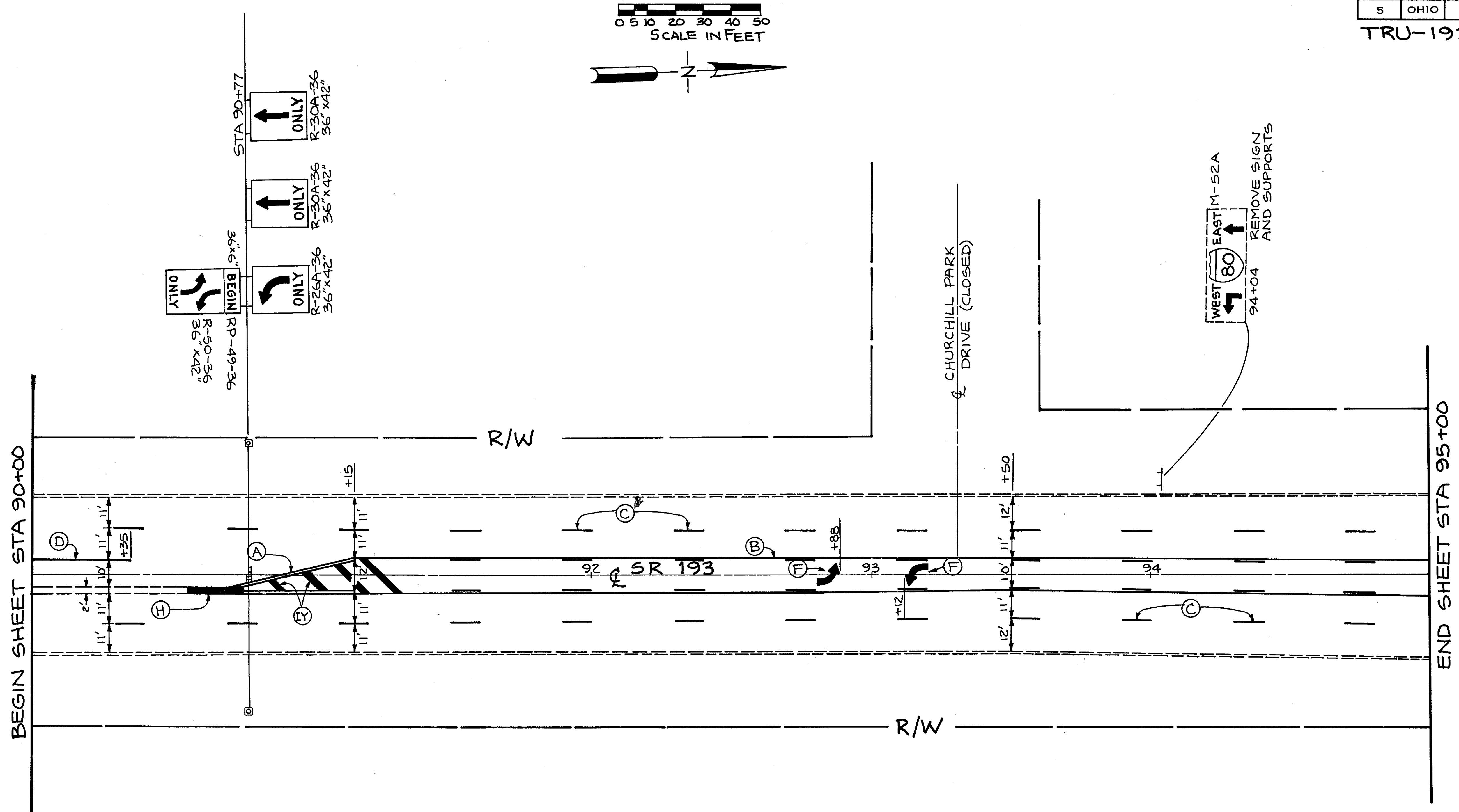
STA 85+00 TO STA 90+00

MICROFILMED
NOV 28 1984

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

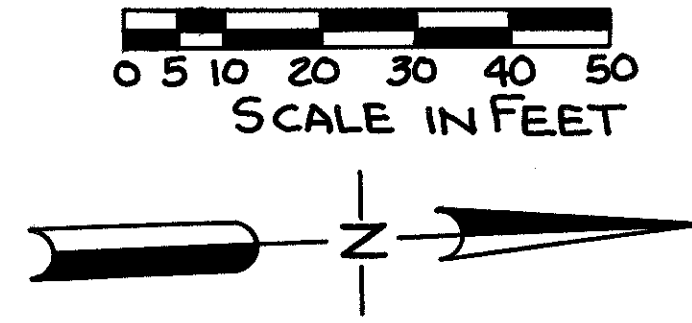
TRU-193-1.37

42
57



STA 90+00 TO STA 95+00

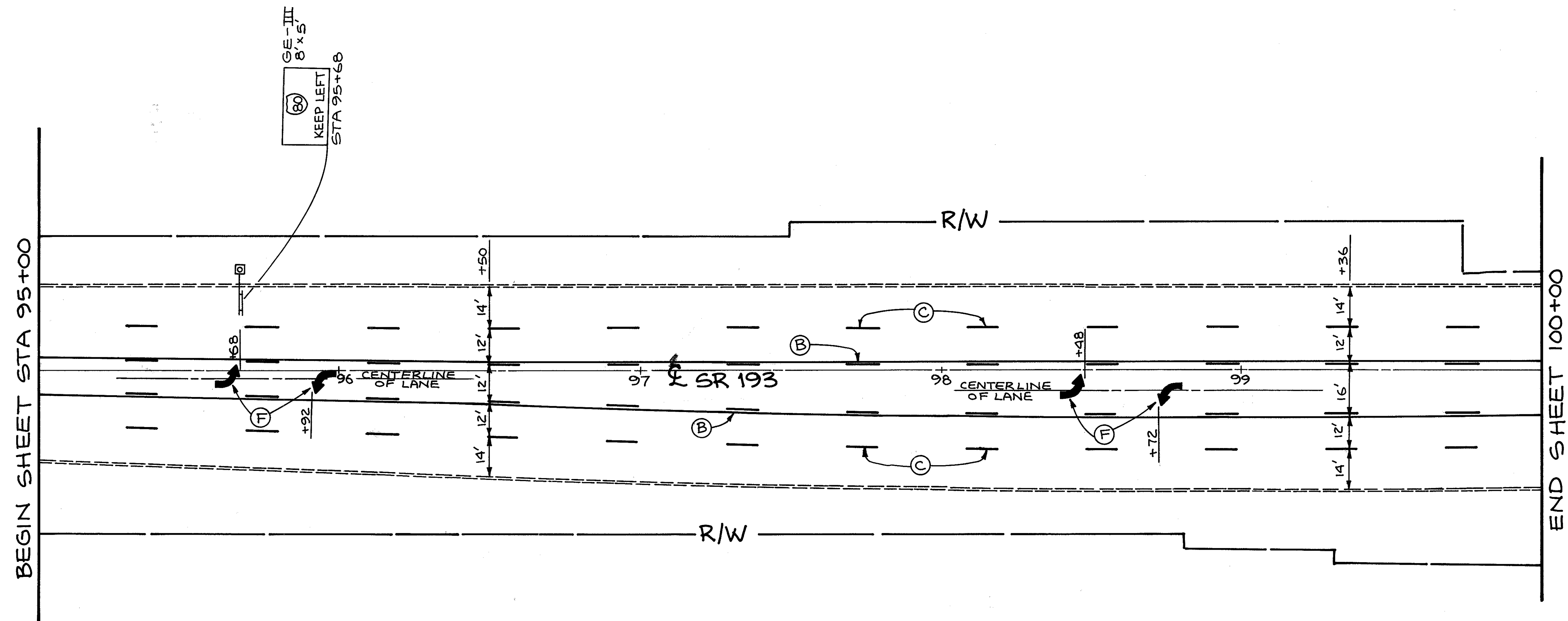
MICROFILMED
NOV 28 1964



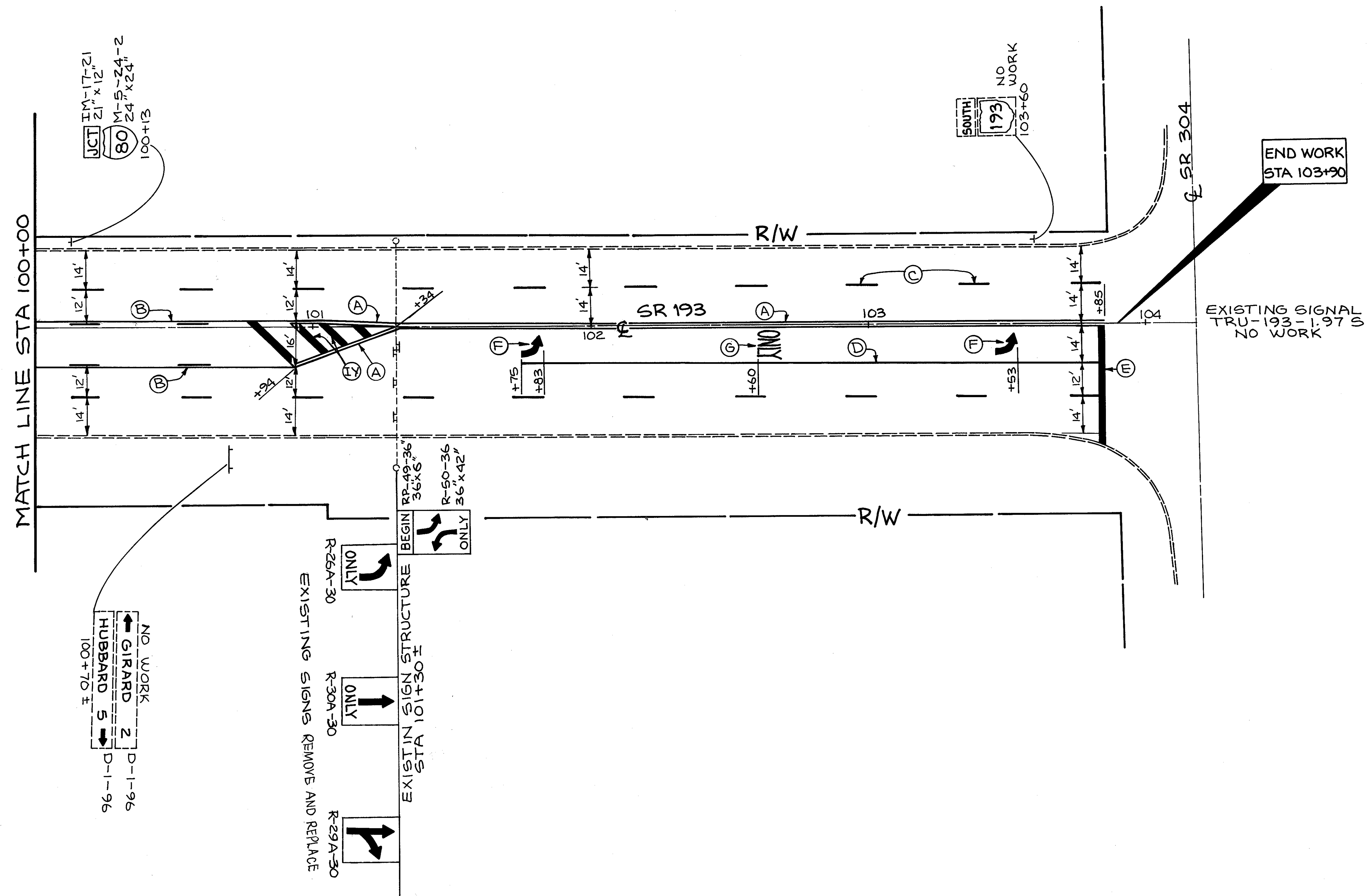
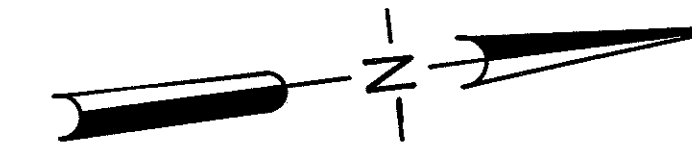
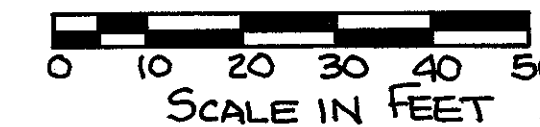
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

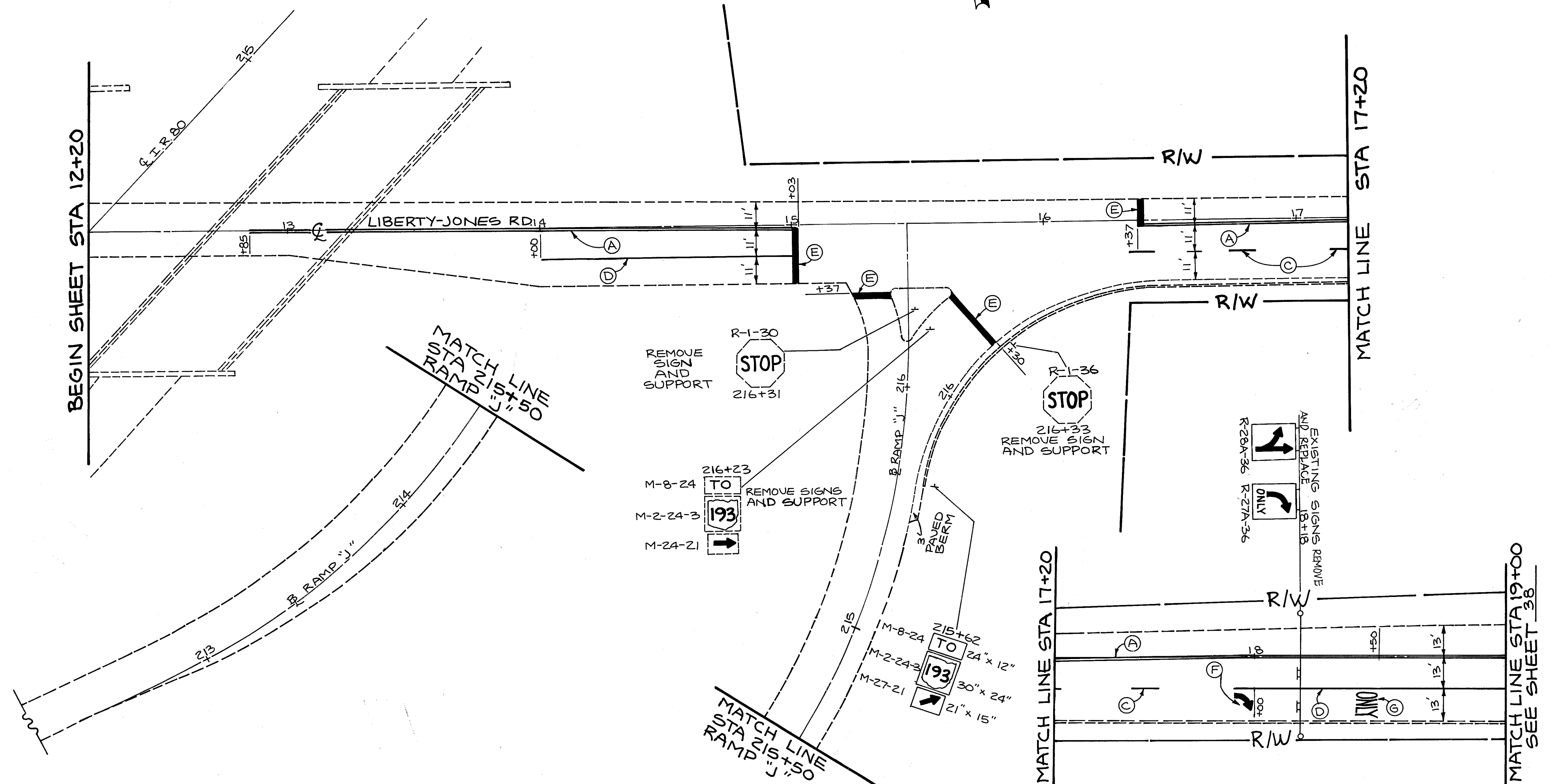
43
57

TRU-193-1.37



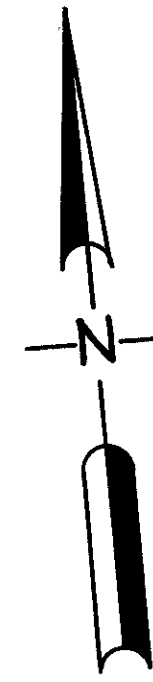
STA 95+00 TO STA 100+00





MICROFILMED
NOV 8 8 1964

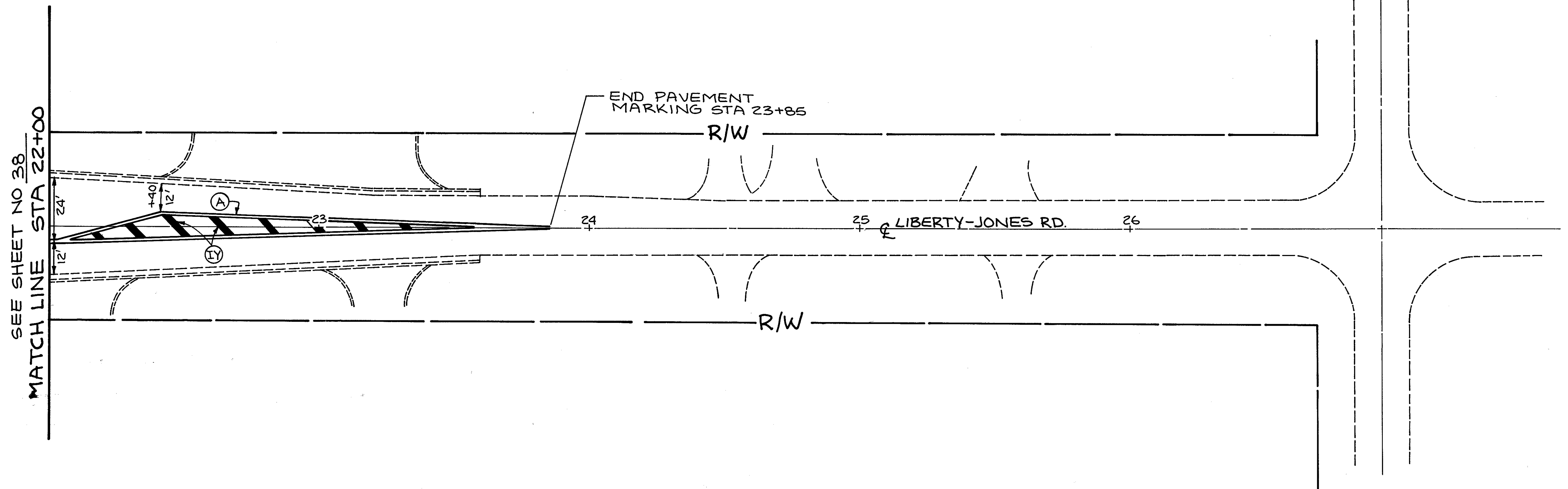
0 5 10 20 30 40 50
SCALE IN FEET



F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

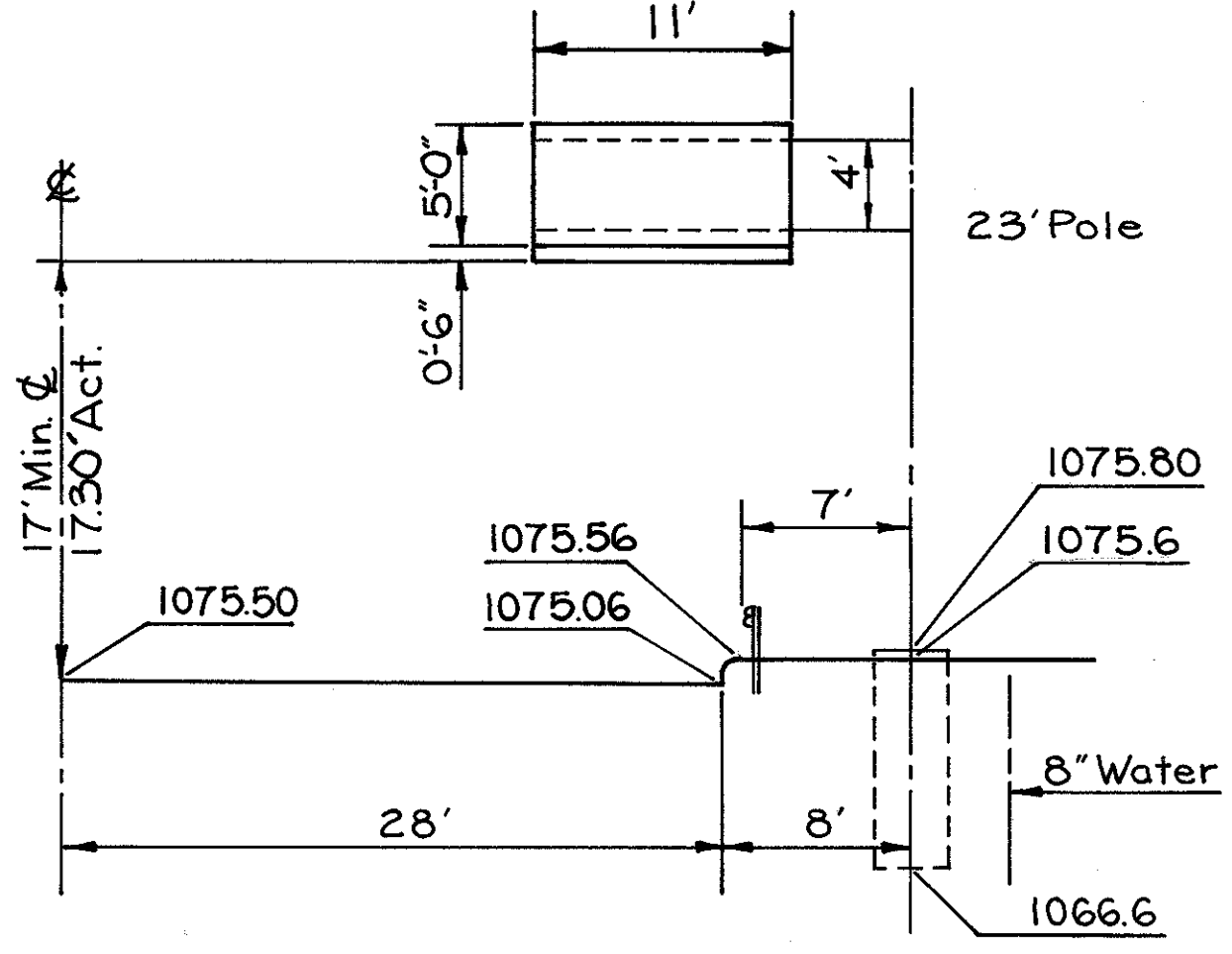
46
57

TRU-193-1.37



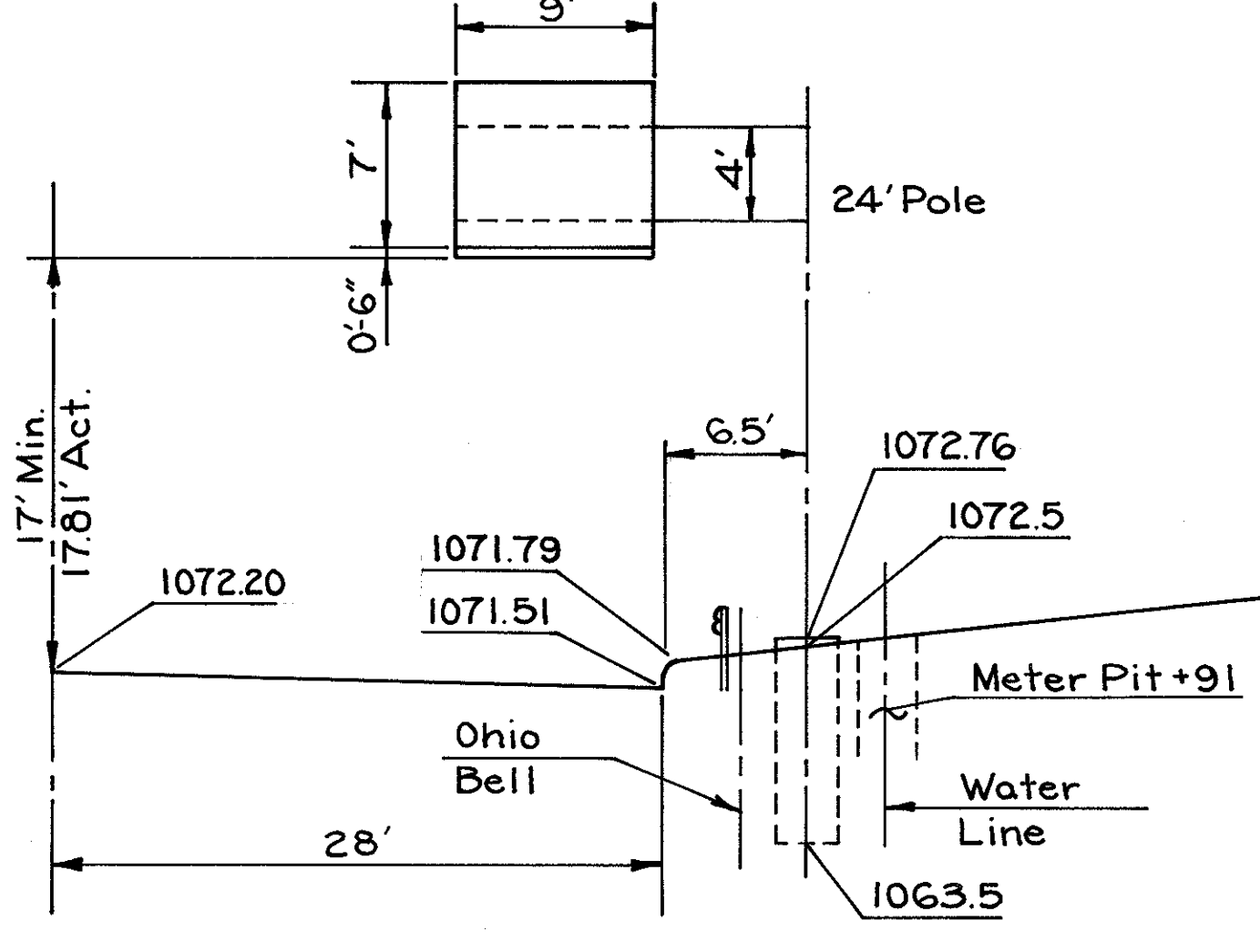
STA 22+00 TO STA 26+00 LIBERTY JONES ROAD

TRU-193-1.37



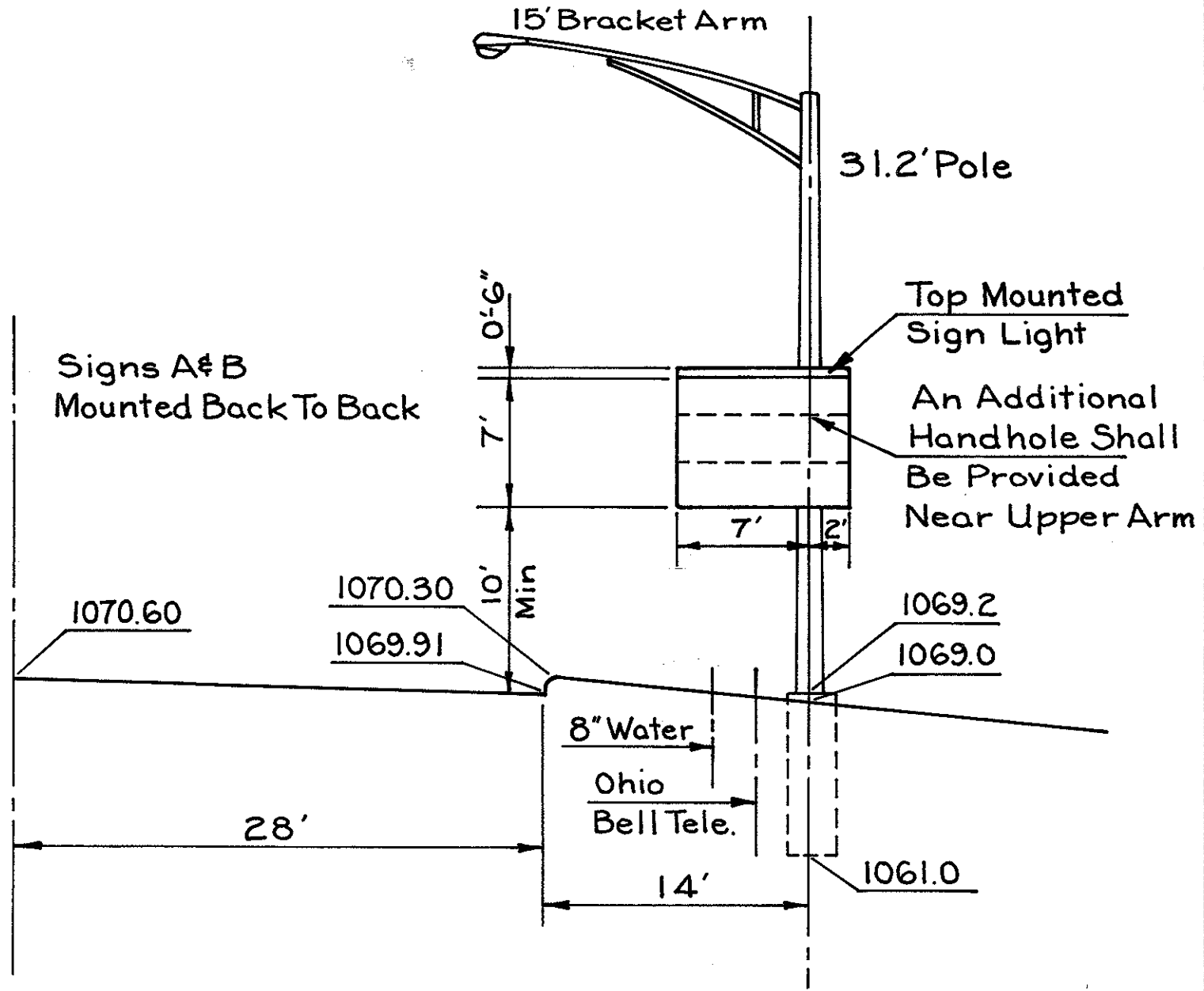
S.R. 193 STA. 80+50 LT.

Overhead Sign Support Type TC-12.30 Design No. 1 Modified, 16' Arms, 11' x 5.0' = 55.0 Sq. Ft., Spacing = 16 3/8", 99 3/8", 16 1/4", No. Of Brackets = 2 Height 5'-6", TC-31.21 6" Glare Shield



S.R. 193 STA. 77+90 RT.

Overhead Sign Support TC-12.30, Design No. 1 Modified, 16' Arms, 9' x 7' = 63 Sq. Ft., Spacing = 16 3/8", 75 3/8", 16 1/4", No. Brackets = 2 Height = 7'-6", TC 31.21 6" Glare Shield

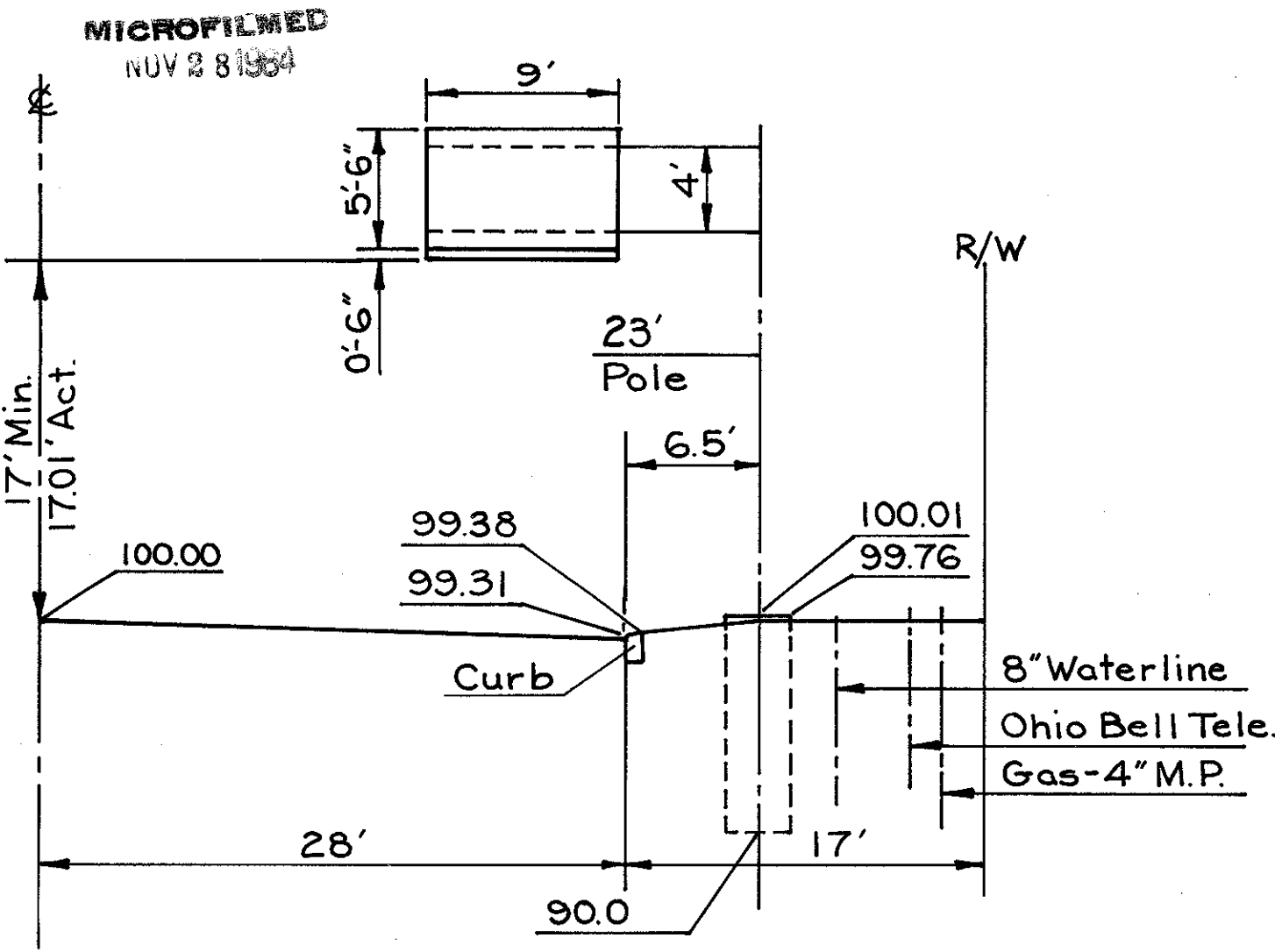


S.R. 193 STA. 76+85 RT.

Combination Overhead Sign Support Type TC-9.10 Design No. 2 Modified, 9' Arms

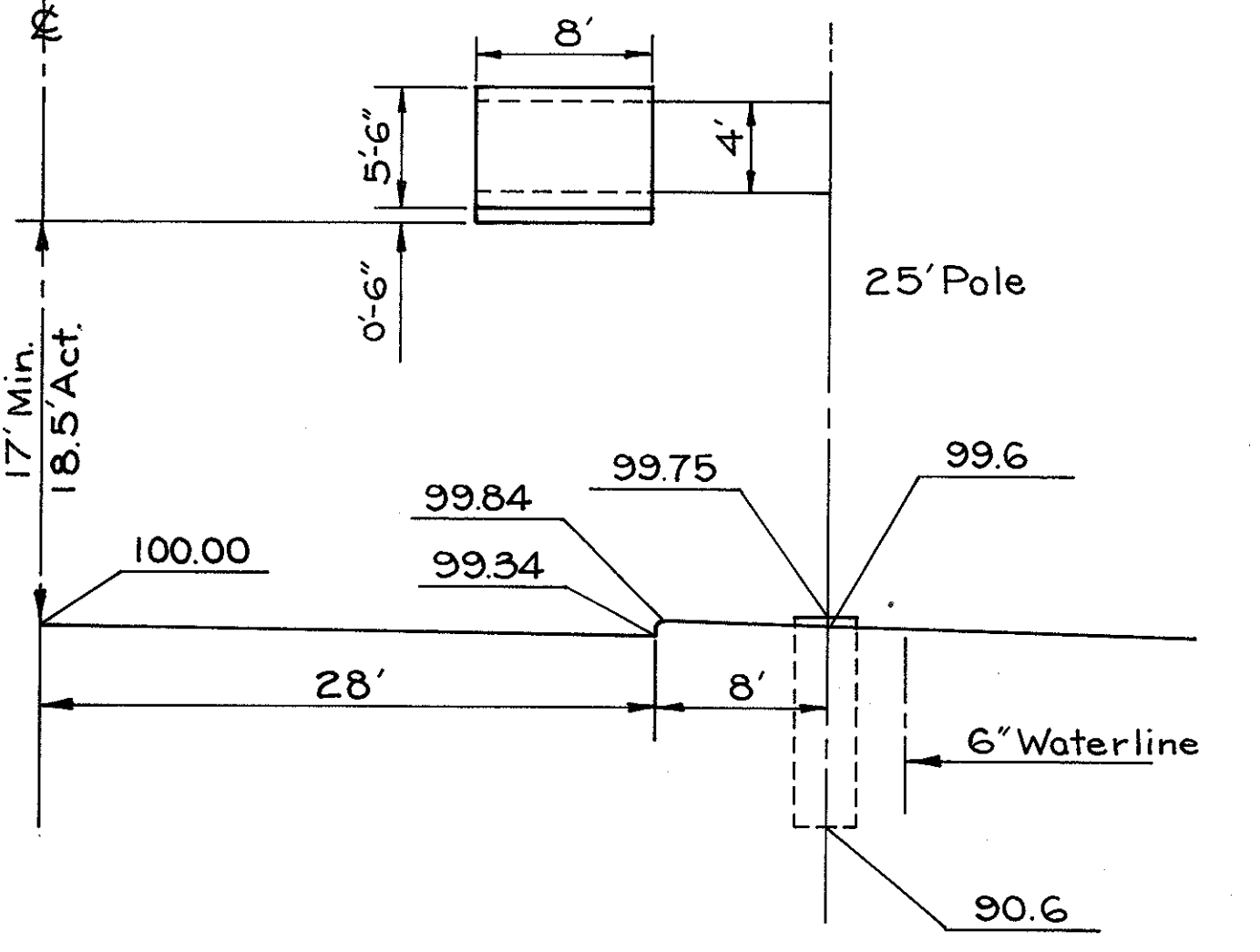
- Sign A
9' x 7' = 63 Sq. Ft.
Spacing = 16 3/8", 75 3/8", 16 1/4"
No. Brackets = 2 Height 7'-6"
TC 31.21 6" Glare Shield

Sign B
9' x 7' = 63 Sq. Ft.
Spacing = 16 3/8", 75 3/8", 16 1/4"
No. Brackets = 2 Height 7'-6"
TC 31.21 6" Glare Shield



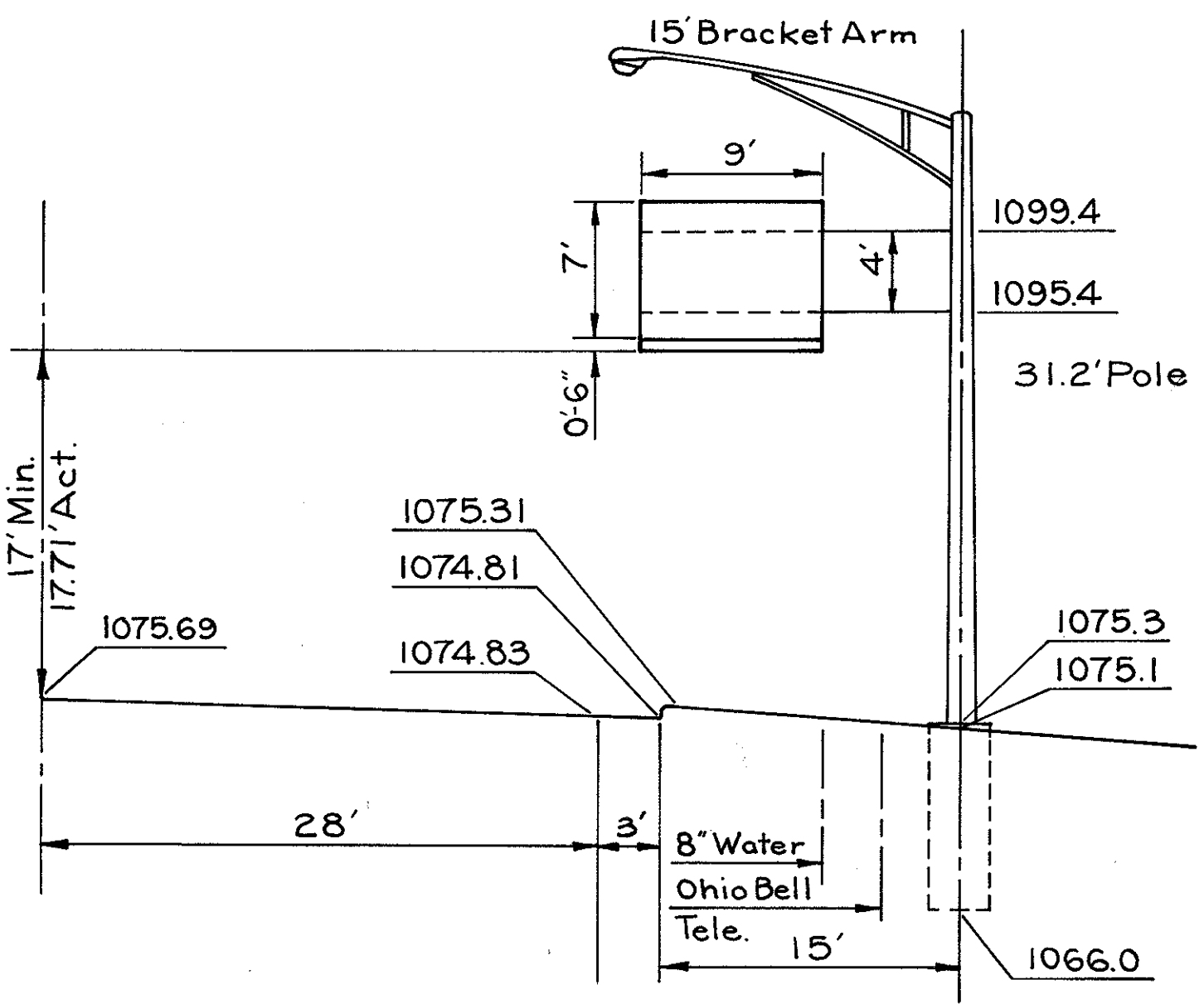
S.R. 193 STA. 67+62 RT.

Overhead Sign Support TC-12.30, Design No. 1 Modified, 16' Arms, 9' x 5.5' = 49.5 Sq. Ft., Spacing = 16 3/8", 75 3/8", 16 1/4", No. Brackets = 2, Height = 6', TC-31.21 6" Glare Shield



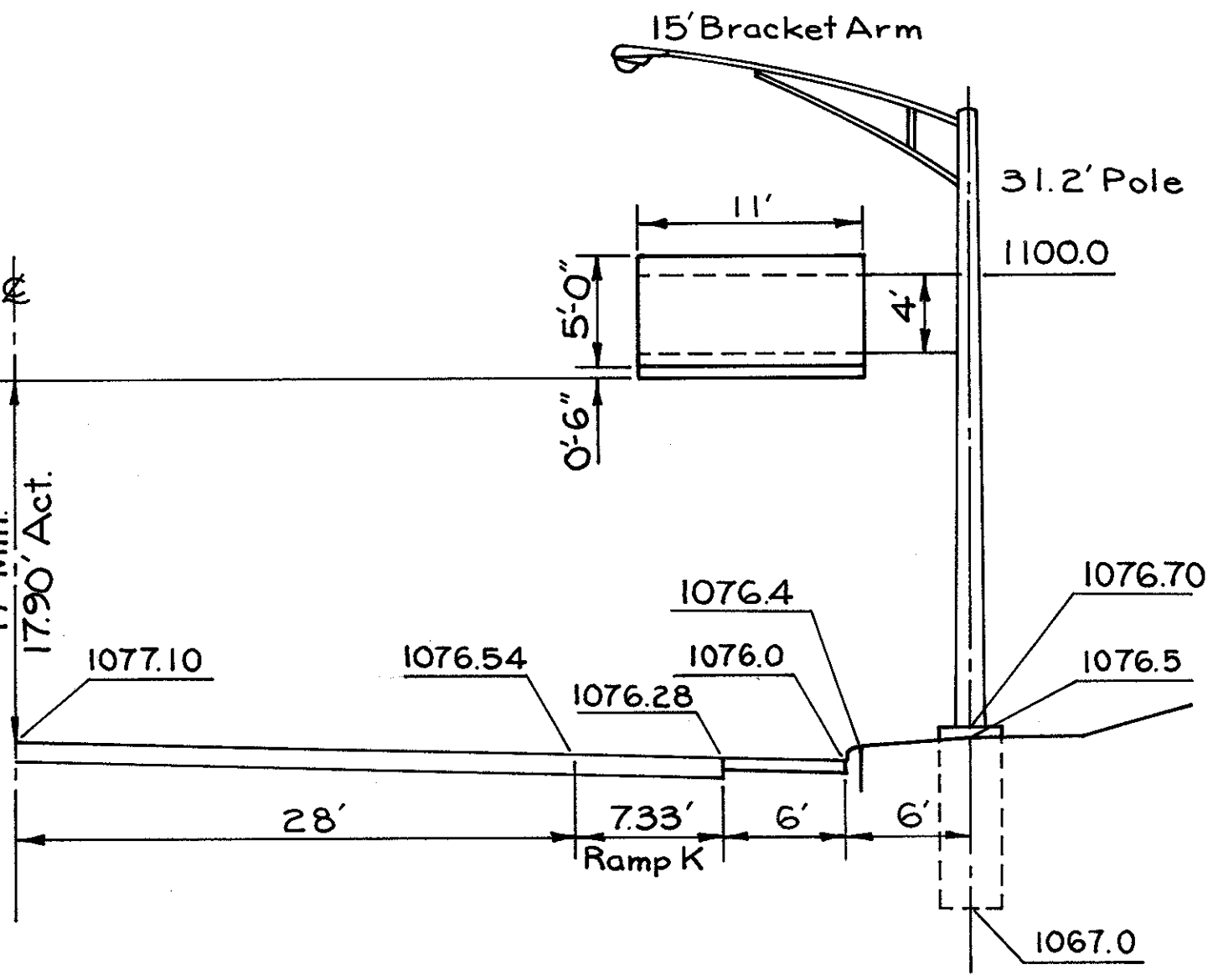
S.R. 193 STA. 95+68 LT.

Overhead Sign Support TC-12.30, Design No. 1 Modified, 16' Arms, 8' x 5.5' = 44 Sq. Ft. Spacing = 10 3/8", 75 3/8", 10 1/4" No. Of Brackets = 2, Height = 6'-0", TC-31.21 6" Glare Shield



S.R. 193 STA. 87+68 RT.

Combination Overhead Sign Support Type TC-12.30, Design No. 1, 16' Arms 9' x 7' = 63 Sq. Ft., Spacing = 16 3/8", 75 3/8", 16 1/4" No. Of Brackets = 2, Height 7'-6", TC-31.21 6" Glare Shield



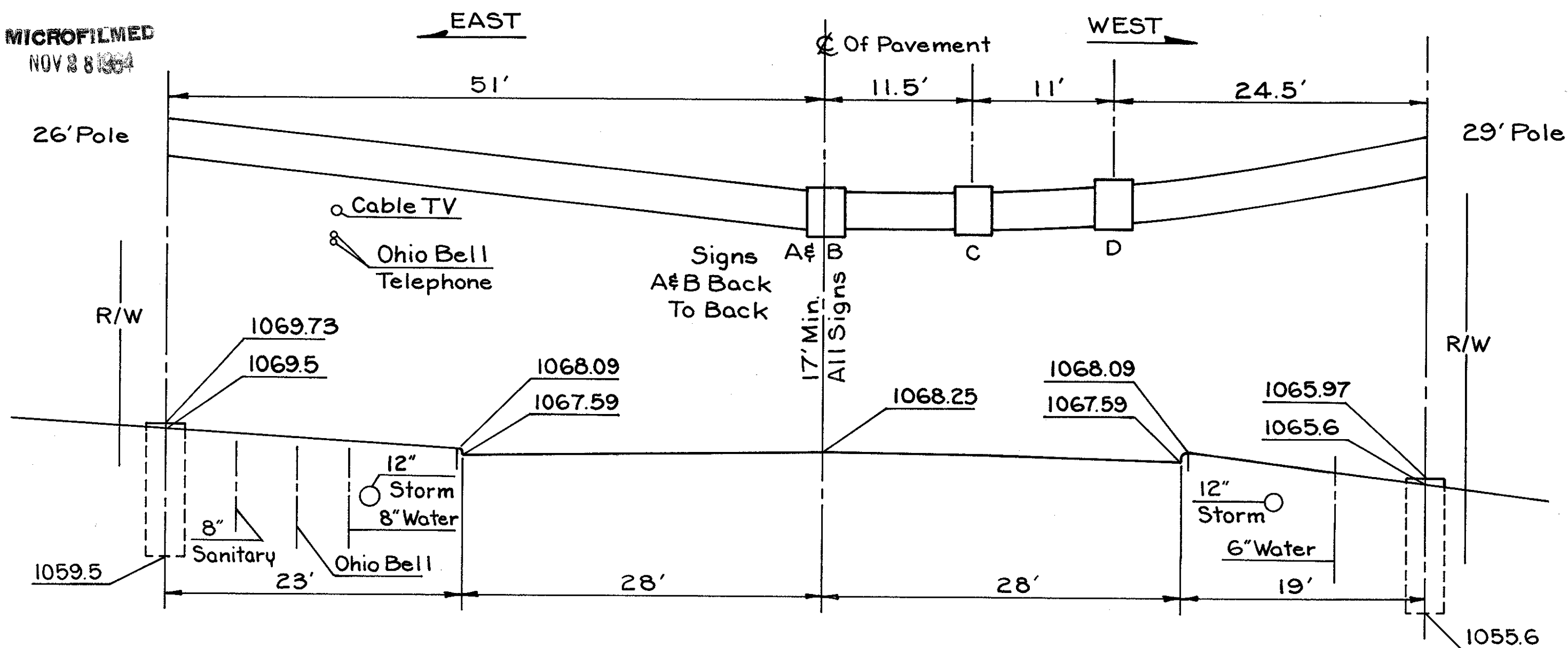
S.R. 193 STA. 83+71 RT.

Combination Overhead Sign Support Type TC-12.30, Design No. 1, 16' Arms 11' x 5.0' = 55.0 Sq. Ft., Spacing = 16 3/8", 99 3/8", 16 1/4" No. Of Brackets = 2, Height 5'-6", TC-31.21 6" Glare Shield

Note: All Sign Sizes Include A 0'-6" Glare Shield

Note: All Utility Locations Are Approximate. See Sheets 21 To 24 For Further Utility Information.

TRU-193-1.37



S.R.193 STA. 90+77 LOOKING BACK

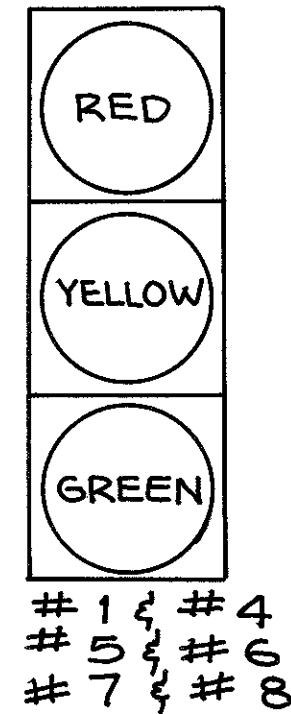
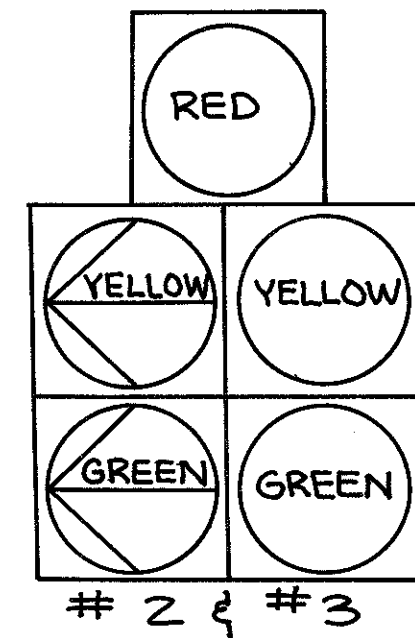
Span Wire Sign Support, Type TC-17.10
Design No. 7 Modified, Span 98 Feet

A	B	C	D
R-50-36	R-26A-36	R-30-36	R-30-36
36"x42"=10.5 S.F.	36"x42"=10.5 S.F.	36"x42"=10.5 S.F.	36"x42"=10.5 S.F.
RP-49-36			
36"x6"=1.5 S.F.			
Total Area=43.5 S.F.			

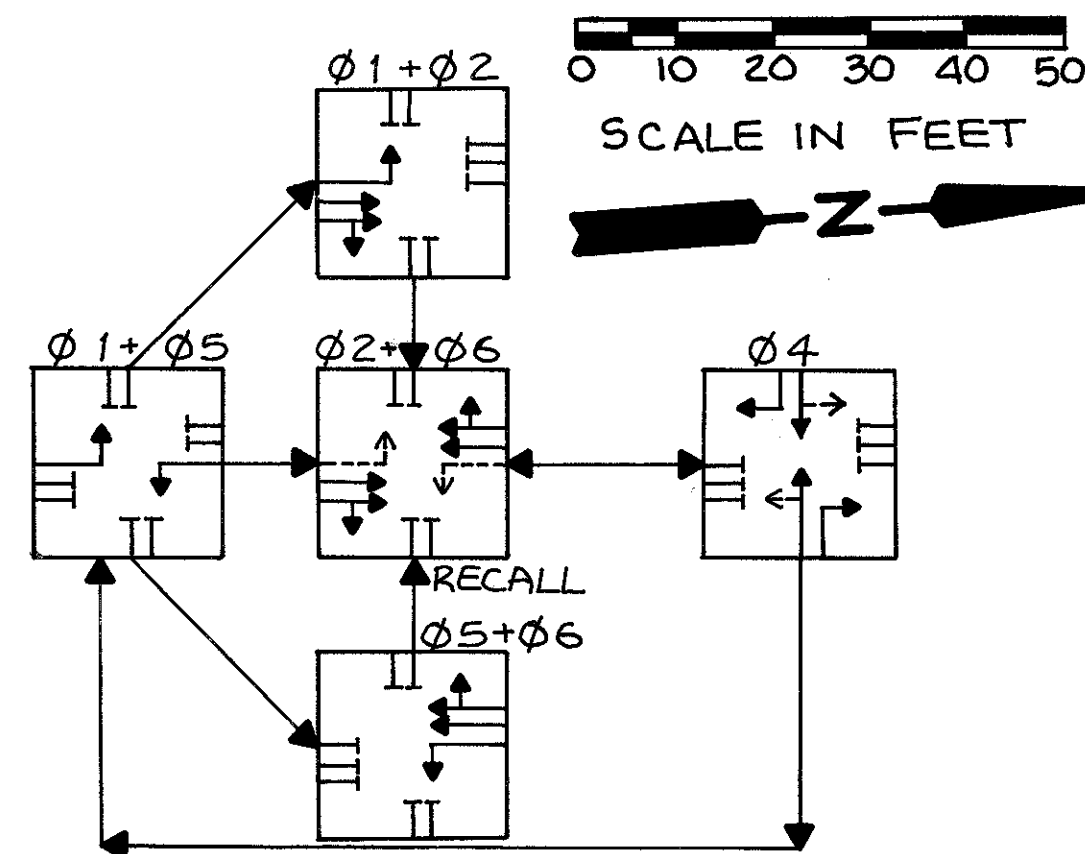
SIGN LIGHTING QUANTITIES														ROADWAY LIGHTING QUANTITIES													
LOCATION	SIDE	625		631	631	631	631	631	631	631	631	631	631	625	625	625	625	625	625	625					202	202	
		Ground Rod		Sign Service	Signs Wired	Photoelectric Control	Disconnect Switch With Enclosure Type X	Ballast Type CMRI-100-120	Ballast Type CMRI-100-480	Ballast Type CMRI-175-480	Mercury Vapor Luminaire Type TC-51.21 With 175 Watt Lamp	Ballast Enclosure Type B	Mercury Vapor Luminaire Type TC-51.21 With 100 Watt Lamp	Style "B" Luminaire Type III 200 Watt High Pressure Sodium 713.11	Bracket Arm 15 Feet	No. 10 AWG Pole And Bracket Cable	Trench	1½" Duct Cable With 2 No.4 AWG 5000 Volt Cables	Pull Box, 18" Metal, 713.09	Cable Splice Kits					Remove Existing Light Pole As Per Plan	Remove Existing Light Pole Foundation As Per Plan	
Station		Each		Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	Lin.Ft.	Lin.Ft.	Lin.Ft.	Each	Each					Each	Each	
67+62	Rt.	1		1	1	1	1	1				1	1														
76+85	Rt.	1		1	2		1			2	2	1		1	1	94	70	80	1	4							
77+90	Rt.	1		1	1		1			1	1	1					102	112	1	2							
80+50	Lt.	1		1	1	1	1	1				1	1						1	2							
83+71	Rt.	1		1	1		1		1			1	1	1	1	94	153	163	1	2							
87+68	Rt.	1		1	1		1			1	1	1		1	1	94			1	2							
95+68	Lt.	1		1	1	1	1	1				1	1														
90+77	Rt./Lt	2*		1	1		1																				
76+93	Rt.																							1	1		
83+63	Rt.																							1	1		
87+75	Rt.																							1	1		
Total		9		7	8	3	7	3	1	4	4	7	4	3	3	282	325	355	4	10					3	3	

* HES Funds

ALL HEADS ARE 12 INCH LENS



MICROFILMED
NOV 28 1994



EXISTING 12" PULL BOX

EXISTING DUAL 6'x8' LOOPS
EASTBOUND TRAFFIC

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

49
57

TRU-193-1.37

STRAIN POLE "A"

4LF 3" CONDUIT
WITH 6-2/C

EXISTING 3" CONDUIT

EXISTING STRAIN POLE
TO BE REMOVED

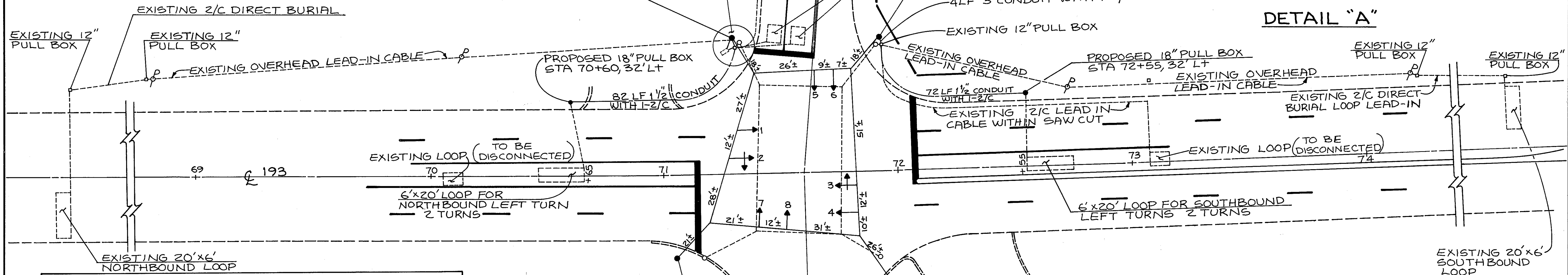
EXISTING LOOP
LEAD-IN CABLES

EXISTING 18" PULL BOX

6LF 3" CONDUIT
WITH 2/C POWER
& 2-7/C, 1-5/C
SIGNAL CABLE

EXISTING CABINET AND CONTROL EQUIPMENT
TO BE REMOVED AND SALVAGED. PROPOSED
CONTROLLER WITH WIRED CABINET TO
BE PLACED ON EXISTING FOUNDATION AT
THE DIRECTION OF THE ENGINEER.

DETAIL "A"



SIGNAL SEQUENCING

INTERVAL	SIGNAL HEAD NUMBER								DESCRIPTION
	1	2LT	2RT	4	3LT	3RT	5	6	
1	G		G	G		G	R	R	R
2	Y		Y	Y		Y	R	R	R
3	R		R	R		R	R	R	R
4	R		R	R		R	G	G	G
5	R		R	R		R	Y	Y	Y
6	R		R	R		R	R	R	R
7	R	G	R	R	G	R	R	R	R
8	R	Y	R	R	Y	R	R	R	R
9	R	R	R	R	R	R	R	R	R
10	R	R	G	G	R	R	R	R	R
11	R	R	Y	Y	Y	R	R	R	R
12	R	R	R	R	R	R	R	R	R
13	G	G	G	R	R	R	R	R	R
14	Y	Y	Y	R	R	R	R	R	R
15	R	R	R	R	R	R	R	R	R
	Y	Y	Y	Y	Y	Y	R	R	R

NOTES: 1. HEAD 2LT SHALL REMAIN A GREEN ARROW WHEN
CLEARING TO PHASE 5 & 6.
2. HEAD 3LT SHALL REMAIN A GREEN ARROW WHEN
CLEARING TO PHASE 1 & 2.
3. HEADS 3RT & 4 SHALL REMAIN A GREEN BALL WHEN
CLEARING TO PHASE 2 & 6.
4. HEADS 1 & 2 RT SHALL REMAIN A GREEN BALL WHEN
CLEARING TO PHASE 2 & 6.

STRAIN POLE "C" STA 71+05±,
35' RT DESIGN 7

DUAL 6'x10' LOOPS
2 TURNS CALL ONLY

STRAIN POLE "D" STA 71+96.5±,
48.5' RT. DESIGN 7

5LF 3" CONDUIT
WITH 3-2/C

PROPOSED 18" PULL BOX
STA 20+55, 32' LT.

PROPOSED 18" PULL BOX
STA 21+40, 24' LT.

200 LF 1 1/2" CONDUIT
WITH 1-2/C

PROPOSED 18" PULL BOX
STA 23+40, 24' LT.

7'x8' LOOP FOR WESTBOUND
TRAFFIC 3 TURNS

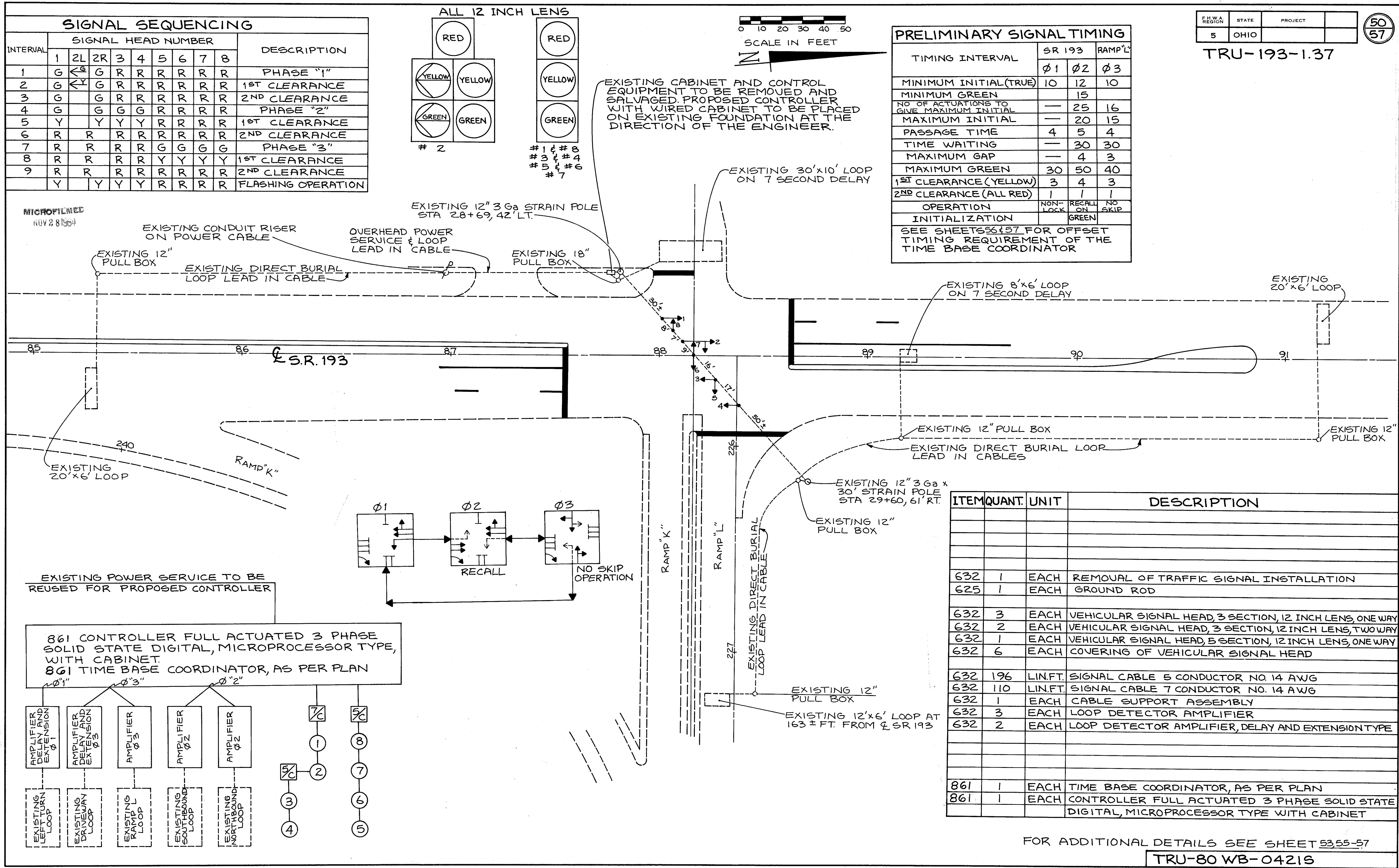
PRELIMINARY SIGNAL TIMING					
TIMING INTERVAL	SR 193				SIDE ROAD
	2	6	1	5	
MINIMUM INITIAL (TRUE)	10	10	6	6	10
MINIMUM GREEN	15	15	10	10	15
NO. OF ACTUATIONS TO GIVE MAXIMUM INITIAL	30	30	—	—	—
MAXIMUM INITIAL	20	20	—	—	—
PASSAGE TIME	5	5	4	4	5
TIME WAITING	40	40	—	—	—
MAXIMUM GAP	5	5	—	—	3
MAXIMUM GREEN	39	39	20	10	24
1ST CLEARANCE (YELLOW)	4	4	3	3	4
2ND CLEARANCE (ALLRED)	1	1	1	1	1
OPERATION	RECALL	RECALL	NON LOCK	NON LOCK	NON LOCK
INITIALIZATION	G	G	—	—	R

SEE SHEETS 56 & 57 FOR OFFSET
TIMING REQUIREMENTS OF THE TIME
BASE COORDINATOR.

FOR ADDITIONAL DETAILS SEE SHEETS 53-57

TRU-193-0137S

SIGNAL INSTALLATION SR 193 AND LIBERTY JONES ROAD



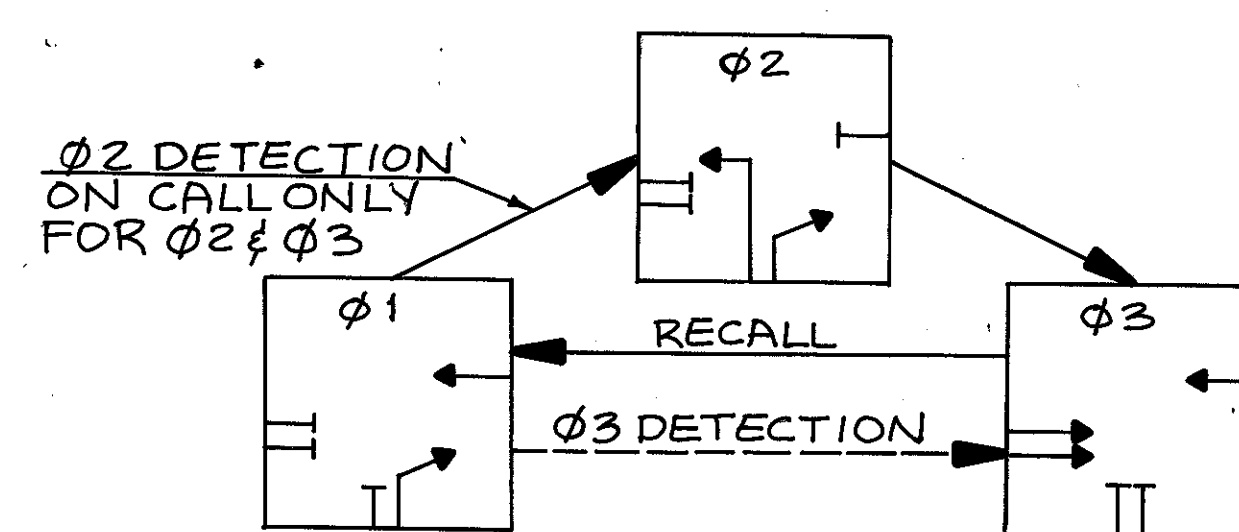
SIGNAL SEQUENCING									
INTERVAL	1	2	3	4	5	6	7	8	9
1	R	R	G	G	R	R	G	G	R
2	R	R	Y ₂	Y ₂	R	R	Y ₁	Y ₁	R
3	R	R	R ₂	R ₂	R	R	R ₁	R ₁	R
4	R	R	R	R	Y	Y	G	G	R
5	R	R	R	R	Y	Y	Y	Y	R
6	R	R	R	R	R	R	R	R	R
7	G	G	G	G	R	R	R	R	R
8	Y	Y	Y ₃	Y ₃	R	R	R	R	R
9	R	R	R ₃	R ₃	R	R	R	R	R
	Y	Y	Y	Y	R	R	R	R	R
	FLASHING OPERATION								

NOTES: 1. HEADS 7, 8 & 9 SHALL REMAIN A GREEN ARROW WHEN CLEARING TO PHASE 2.
2. HEADS 3 & 4 SHALL REMAIN A GREEN BALL WHEN CLEARING TO PHASE 3.
3. HEADS 3 & 4 SHALL REMAIN A GREEN BALL WHEN CLEARING TO PHASE 1.

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BEGIN SHEET STA 12+20

18" PULL BOX
STA 213+75,
24' LT.



0 5 10 20 30 40 50
SCALE IN FEET

F H W A REGION	STATE	PROJECT
5	OHIO	

51
57

TRU-193-1.37

18" PULL BOX
STA 18+20, 17' LT.

6'x8' LOOP
3 TURNS

MATCH LINE
STA 17+20

24" PULL BOX
STA 15+30, 17' LT.

110 LIN. FT. 1 1/2" CONDUIT
WITH 1-2/C

16 LIN. FT. 3" CONDUIT
WITH 4-2/C

18" PULL BOX
STA 16+40, 17' LT.

R/W

180 LIN. FT. 1 1/2" CONDUIT
WITH 1-2/C

130 LIN. FT. 1 1/2" CONDUIT
WITH 1-2/C

LIBERTY JONES RD. 14

6'x8' LOOP
3 TURNS

52 LIN. FT. 3" CONDUIT
WITH 2-2/C

18" PULL BOX
STA 15+15, 32' RT.

10'x6' LOOP 3 TURNS
CALL ONLY Φ2 & Φ3

R/W

40' LIN. FT. 1 1/2" CONDUIT
WITH 1-7/C

MATCH LINE
STA 215+50
RAMP "J"

RAMP "J"

PAVED BERM

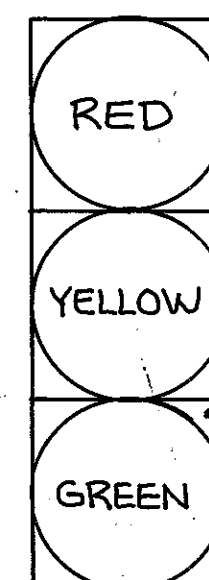
18" PULL BOX
STA 215+25
24' LT.

110 LIN. FT. 1 1/2" CONDUIT
WITH 1-2/C

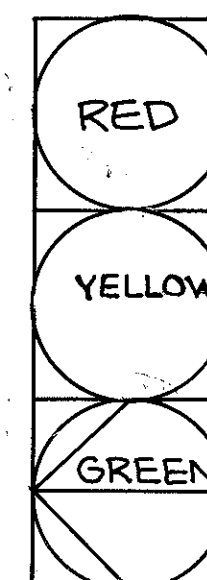
20'x6' LOOP
2 TURNS

PRELIMINARY SIGNAL TIMING

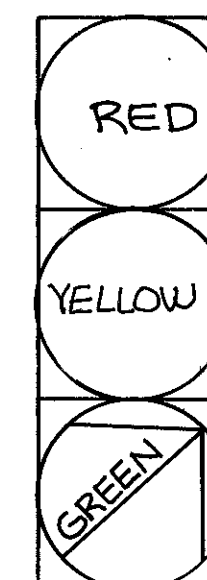
TIMING INTERVAL	LIBERTY-JONES Φ3	RAMP "J"	
		Φ1	LEFT TURNS Φ2
MINIMUM INITIAL (TRUE)	10	10	
MINIMUM GREEN	15	15	9
NO. OF ACTUATIONS TO GIVE MAXIMUM INITIAL	10	20	
MAXIMUM INITIAL	15	20	
PASSAGE TIME	5	5	
TIME WAITING	20	20	
MINIMUM GAP	3	3	
MAXIMUM GREEN	30	40	9
1 ST CLEARANCE (YELLOW)	3	4	3
2 ND CLEARANCE (ALL RED)	2	1	1
OPERATION	LOCK	RECALL	LOCK
INITIALIZATION	RED	GREEN	RED



1 & 2
3 & 4



5 & 6



7 & 8 & 9

ALL HEADS 12" LENS

OPTICALLY PROGRAMMED (RIGID MOUNTING REQUIRED)

- (A) SIGNAL SUPPORT "A" STA 15+45, 18±' LT. WITH POWER SERVICE AND POLE MOUNTED CONTROLLER. TYPE TC-81.20, DESIGN 4 WITH MAST ARMS 20 FT. AND 38 FT.
(B) SIGNAL SUPPORT "B" STA 15+85, 18±' LT. TYPE TC-81.20 DESIGN 11 WITH 45 FT. MAST ARM.

NOTE:

FOR ADDITIONAL TRAFFIC SIGNAL DETAILS SEE SHEET 52-57

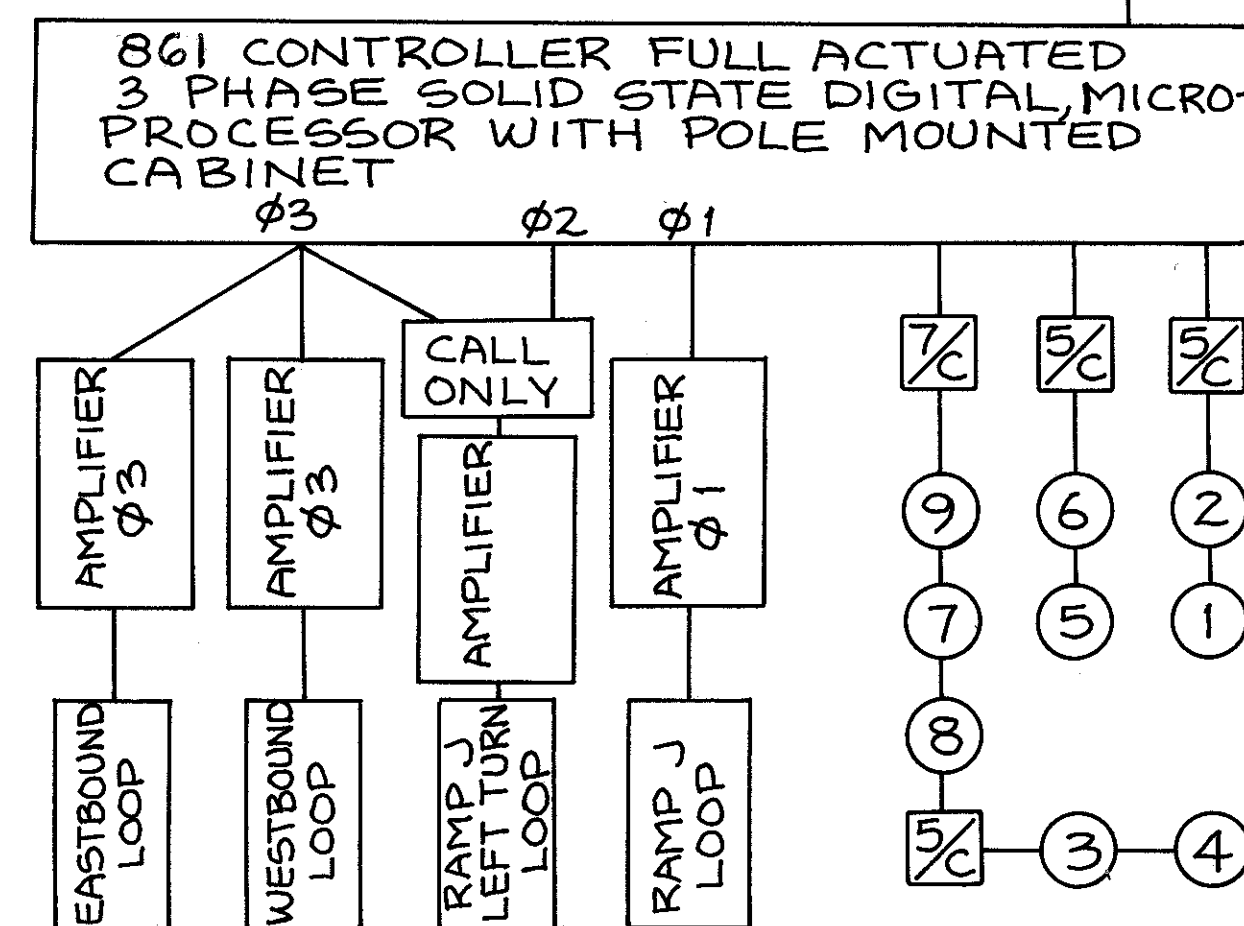
SIGNAL INSTALLATION AT LIBERTY JONES RD. AND RAMP "J"

MICROFILMED
NOV 8 8 1984

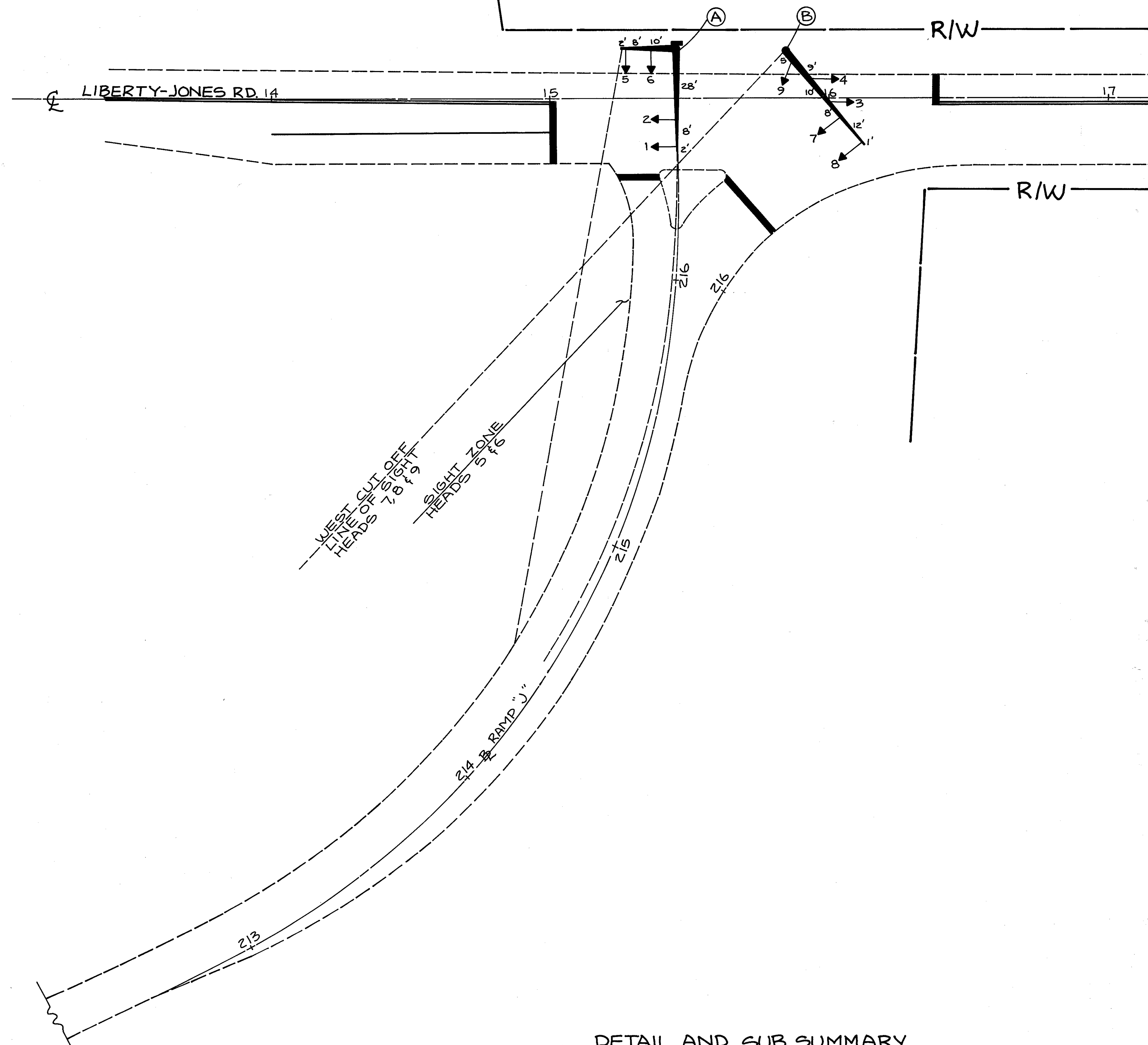
TRU-193-1.37

PROPOSED POWER SERVICE WITH
METER BASE & DISCONNECT SWITCH

ONLY 2 CONDUCTOR TO
BE UTILIZED BETWEEN
METER AND CONTROLLER



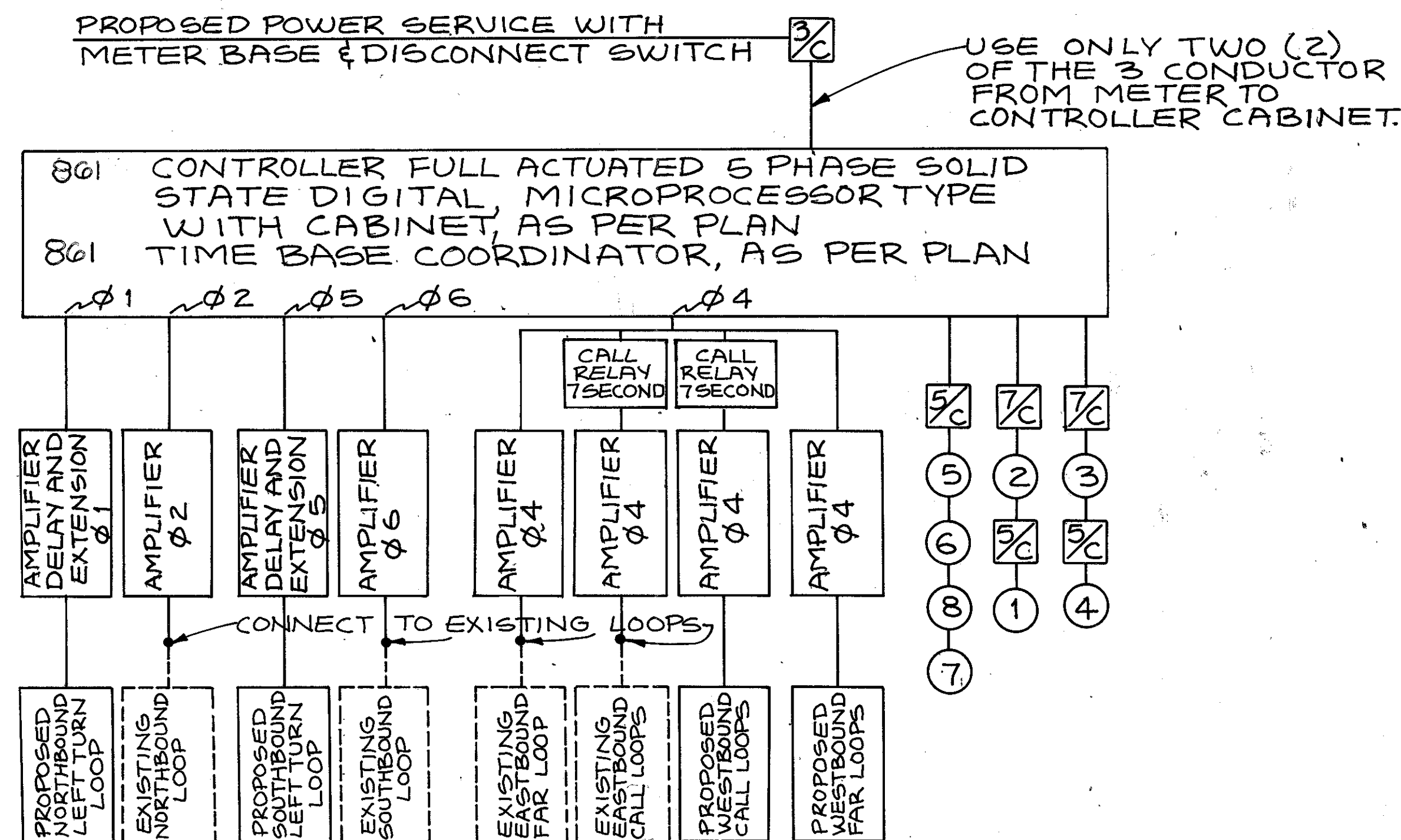
ITEM	QUANT	UNIT	DESCRIPTION
632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4 WITH MAST
			ARMS, 20 FOOT AND 38 FOOT
632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11 WITH 45 FOOT
			MAST ARM
632	5.30	CU.YD.	CONCRETE FOR ANCHOR BASE FOUNDATIONS
625	2	EACH	GROUND ROD
632	5	EACH	VEHICULAR SIGNAL HEAD OPTICALLY PROGRAMMED, 3
			SECTION 12 INCH LENS, ONE WAY
632	4	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION 12 INCH LENS, ONE WAY
632	9	EACH	COVERING OF VEHICULAR SIGNAL HEADS
632	170	LIN.FT.	SIGNAL CABLE 5 CONDUCTOR NO.14 AWG
632	130	LIN.FT.	SIGNAL CABLE 7 CONDUCTOR NO.14 AWG
632	30	LIN.FT.	POWER CABLE 3 CONDUCTOR NO.14 AWG
632	1	EACH	POWER SERVICE
632	3	EACH	CABLE SUPPORT ASSEMBLY
632	4	EACH	LOOP DETECTOR AMPLIFIER
632	175	LIN.FT.	LOOP DETECTOR PAVEMENT CUTTING
632	530	LIN.FT.	LOOP DETECTOR WIRE, TYPE E
632	1120	LIN.FT.	LOOP DETECTOR LEAD IN CABLE
625	7	EACH	PULL BOX 18 INCH CIRCULAR 713.09
625	1	EACH	PULL BOX 24 INCH CIRCULAR 713.09
625	880	LIN.FT.	CONDUIT 1 1/2 INCH 713.04
625	68	LIN.FT.	CONDUIT 3 INCH 713.04
625	758	LIN.FT.	TRENCH
625	190	LIN.FT.	TRENCH IN PAVED AREAS TYPE B
861	1	EACH	CALLING RELAY
861	1	EACH	CONTROLLER FULL ACTUATED 3 PHASE SOLID STATE
			DIGITAL, MICROPROCESSOR WITH POLE MOUNTED CABINET



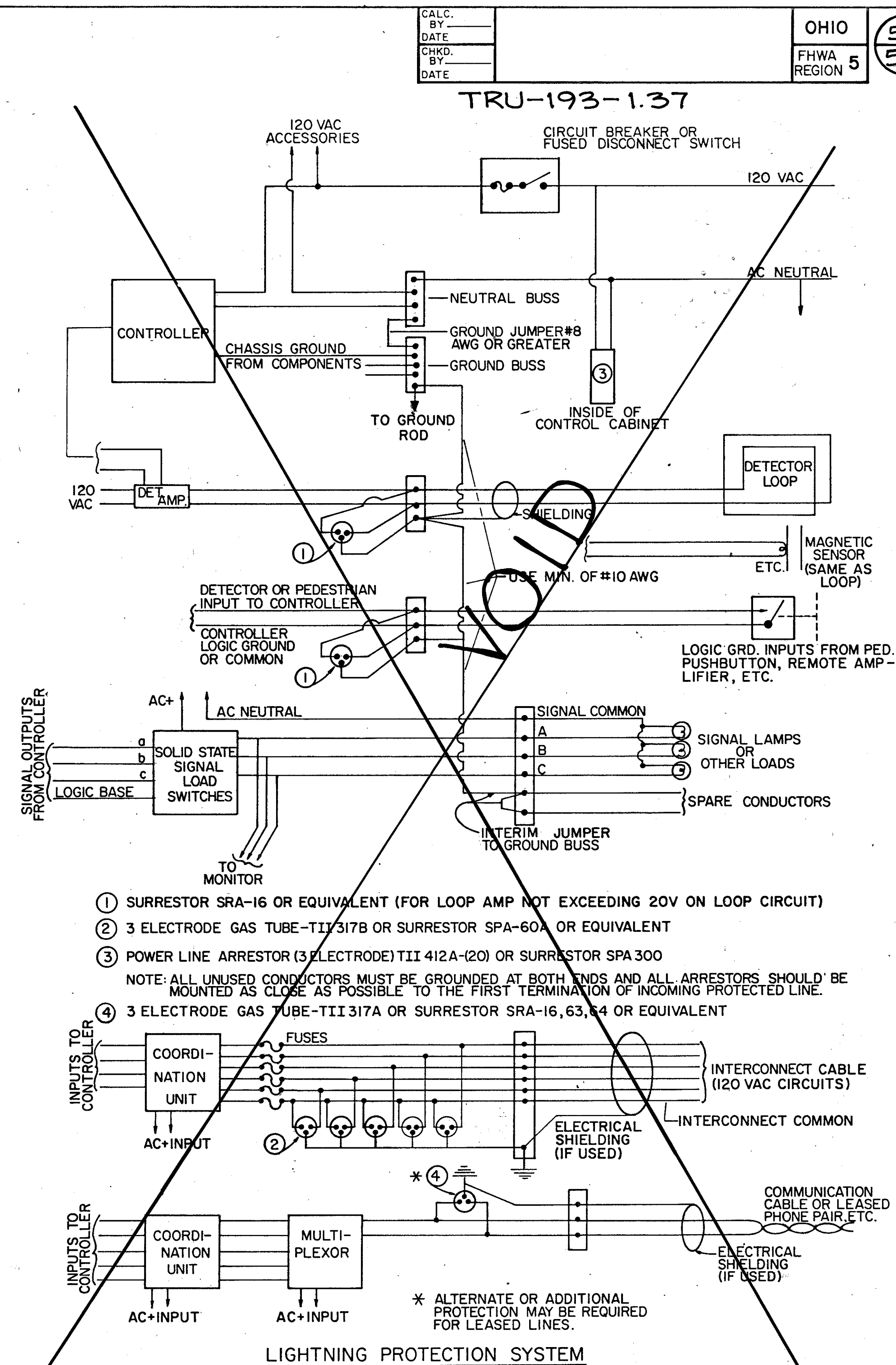
DETAIL AND SUB SUMMARY
LIBERTY JONES ROAD AT RAMP 'J'

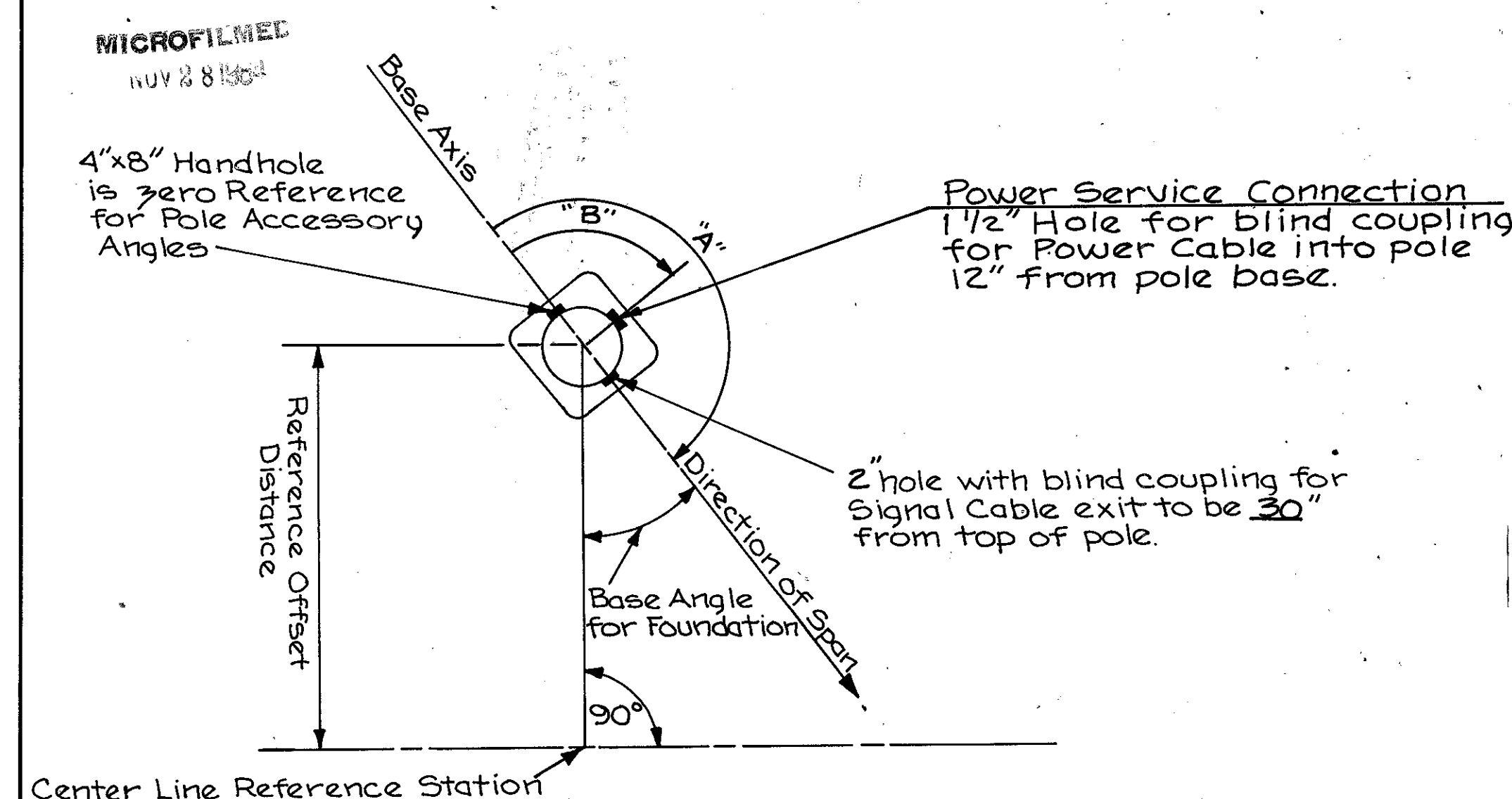
MICROFILMED
NOV 28 1964

SR 193 AT LIBERTY JONES ROAD



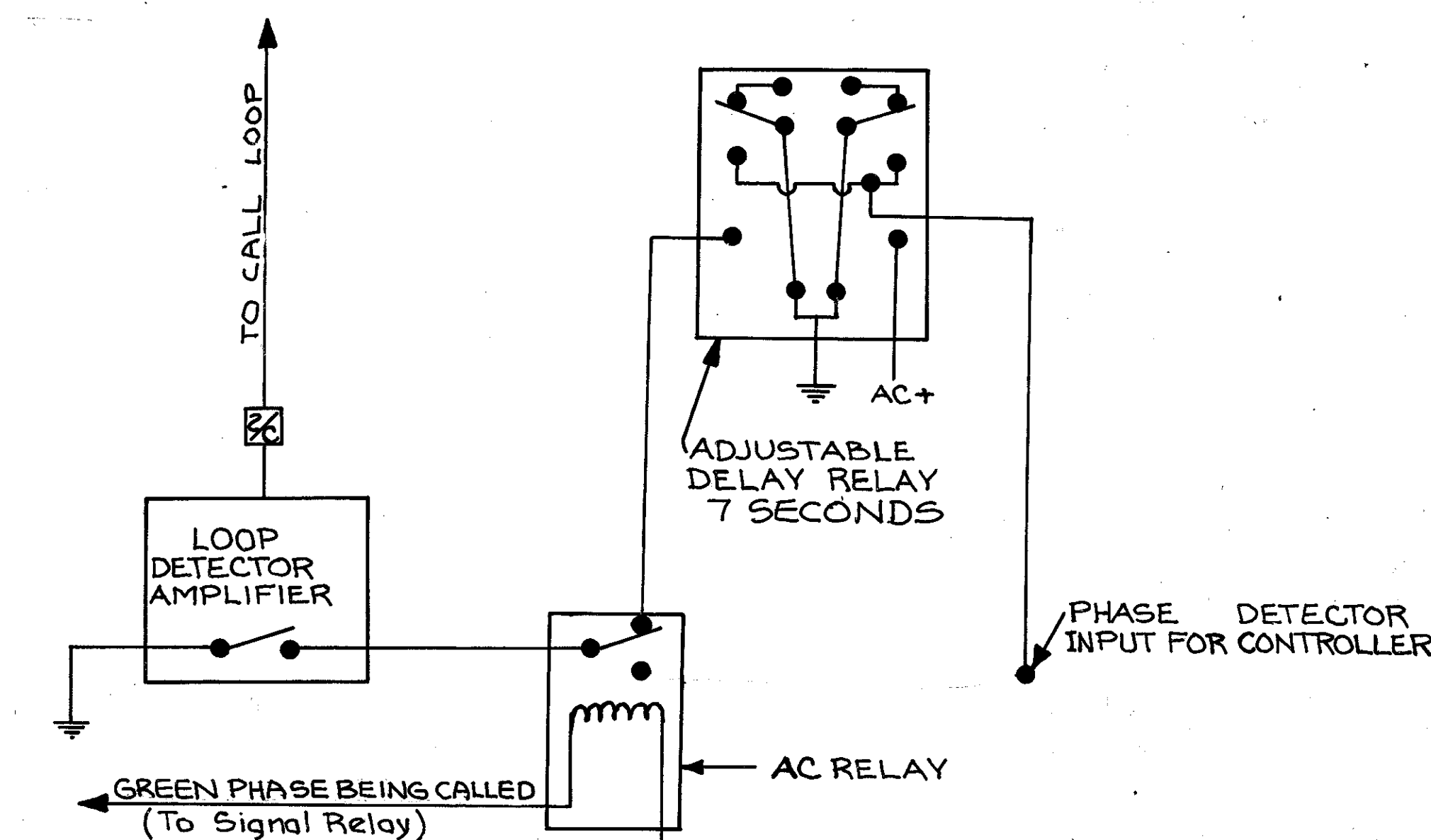
ITEM	QUANT.	UNIT	DESCRIPTION
632	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION
632	4	EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 7
632	10.64	CU.YD.	CONCRETE FOR ANCHOR BASE FOUNDATIONS
625	4	EACH	GROUND ROD
632	6	EACH	VEHICULAR SIGNAL HEAD, 3-SECTION, 12 INCH LENS, ONE WAY
632	2	EACH	VEHICULAR SIGNAL HEAD, 5-SECTION, 12 INCH LENS, ONE WAY
632	8	EACH	COVERING OF VEHICULAR SIGNAL HEAD
632	329	LIN.FT.	MESSANGER WIRE 7 STRAND 3/8 INCH DIAMETER WITH ACCESSORIES
632	245	LIN.FT.	SIGNAL CABLE 5-CONDUCTOR NO 14 AWG
632	310	LIN.FT.	SIGNAL CABLE 7-CONDUCTOR NO 14 AWG
632	53	LIN.FT.	POWER CABLE 3-CONDUCTOR NO 8 AWG
632	1	EACH	POWER SERVICE
632	4	EACH	CABLE SUPPORT ASSEMBLY
632	6	EACH	LOOP DETECTOR AMPLIFIER
632	2	EACH	LOOP DETECTOR AMPLIFIER, DELAY AND EXTENSION
632	330	LIN.FT.	LOOP DETECTOR PAVEMENT CUTTING
632	800	LIN.FT.	LOOP DETECTOR WIRE, TYPE E
632	1530	LIN.FT.	LOOP DETECTOR LEAD-IN CABLE
625	5	EACH	PULL BOX 18" CIRCULAR 713.09
625	444	LIN.FT.	CONDUIT 1 1/2 INCH 713.04
625	19	LIN.FT.	CONDUIT 3 INCH 713.04
625	250	LIN.FT.	TRENCH
625	213	LIN.FT.	TRENCH IN PAVED AREAS TYPE B
861	2	EACH	CALLING RELAYS
861	1	EACH	TIME BASE COORDINATOR, AS PER PLAN
861	1	EACH	CONTROLLER FULL ACTUATED 5 PHASE SOLID STATE DIGITAL MICROPROCESSOR WITH CABINET, AS PER PLAN





CABLE ENTRANCE DETAILS FOR STRAIN POLES

LOCATION REFERENCE	STATION	OFFSET DISTANCE FEET	STRAIN POLE			ACCESSORY ANGLES					DESIGN POLE NUMBER
			GA. INCHES	DIA. INCHES	LENGTH FEET	BASE ANGLE FOR FOUNDATION	HANDHOLE	2" BLIND COUPLING SIGNAL CABLE	1 1/2" BLIND COUPLING POWER CABLE FOR SERVICE		
A	71+29 ±	59 ± Lt.	.299	13	30	32°	0°	180°	330°		7
B	71+93 ±	58 ± Lt.	.299	13	30	44°	0°	180°	—		7
C	71+05 ±	35 ± Rt.	.299	13	30	44°	0°	180°	—		7
D	71+96.5 ±	48.5 ± Rt.	.299	13	30	32°	0°	180°	—		7



EQUIVALENT CALL RELAY DETAILS

TRU-193-1.37

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632 - Loop Detector Pavement Cutting, As Per Plan

THE WORK UNDER THIS ITEM SHALL COMPLY WITH ITEM 632 EXCEPT AS MODIFIED BELOW:

- SAWSLOTS SHALL BE CAREFULLY CLEANED AND DRIED PRIOR TO INSTALLATION OF WIRES.
- WHEN THE PLANS REQUIRE SURFACING, OR RESURFACING, WITH ASPHALT PAVEMENT, LOOPS SHALL (WHEN FEASIBLE AS DETERMINED BY THE ENGINEER) BE PLACED PRIOR TO THE FINAL PAVING COURSE. THE SLOTSLOTING AND SEALING SHALL BE PERFORMED IN THE EXISTING PAVEMENT (PROVIDED IT IS STABLE) OR IN THE SECOND LAST PAVING COURSE. ALL WORK SHALL OTHERWISE COMPLY WITH THE REQUIREMENTS HEREON. THE LOCATION OF THE LOOP SHALL BE MARKED ON THE ADJACENT CURB.
- THE NECESSITY FOR DIAGONAL CUTS AT CORNERS AS REQUIRED BY THE SPECIFICATIONS IS DELETED. HOWEVER, SAW CUTS ARE TO INTERSECT AT HOLES DRILLED OR BORED IN THE PAVEMENT AT LOOP CORNERS. HOLES ARE TO BE APPROXIMATELY 1 1/4" DIAMETER AND THE SAME DEPTH AS THE SAWSLOT. ALL SHARP EDGES AT TURN POINTS SHALL BE CHAMFERED OR CHISELED OUT.
- THE DEPTH OF THE SAWSLOT SHALL BE SUFFICIENT TO ALLOW FOR THE REQUIRED NUMBER OF TURNS OF LOOP WIRE, ENCASED IN TUBING, AND STILL MAINTAIN A MINIMUM COVER OF 3/4". THE WIDTH OF THE SAWSLOT WILL NORMALLY BE BETWEEN 1/4" AND 1/2", BUT SHALL BE APPROXIMATELY 1/8" WIDER THAN THE OUTSIDE DIAMETER OF THE TUBING.
- FIELD ADJUSTMENTS OF DETECTOR LOCATIONS OR SIZES SHALL BE MADE TO AVOID DETECTOR LOCATIONS WHICH WOULD PASS THROUGH OR ENCOMPASS MAJOR OBSTRUCTIONS SUCH AS MANHOLES. IN ORDER TO MINIMIZE CROSSING OR CUTTING ADJACENT TO PAVEMENT JOINTS, NO SAWSLOT SHALL BE LOCATED WITHIN 12" OF A LONGITUDINAL OR TRANSVERSE JOINT IN PCC PAVEMENTS, IF THE SLOT IS PARALLEL TO THE JOINT. IN AREAS OF POOR PAVEMENT CONDITION, THE SAWSLOT DEPTH SHALL BE INCREASED TO INSURE ADEQUATE WIRE EMBEDMENT. ALL FIELD ADJUSTMENTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- PRIOR TO POURING THE LOOP SEALANT, THE LOOP WIRES SHALL BE GENTLY WEDGED INTO THE SLOT AT INTERVALS OF NOT LESS THAN 2' TO PREVENT THE LOOP WIRE FROM FLOATING TO THE TOP OF THE SEALANT.

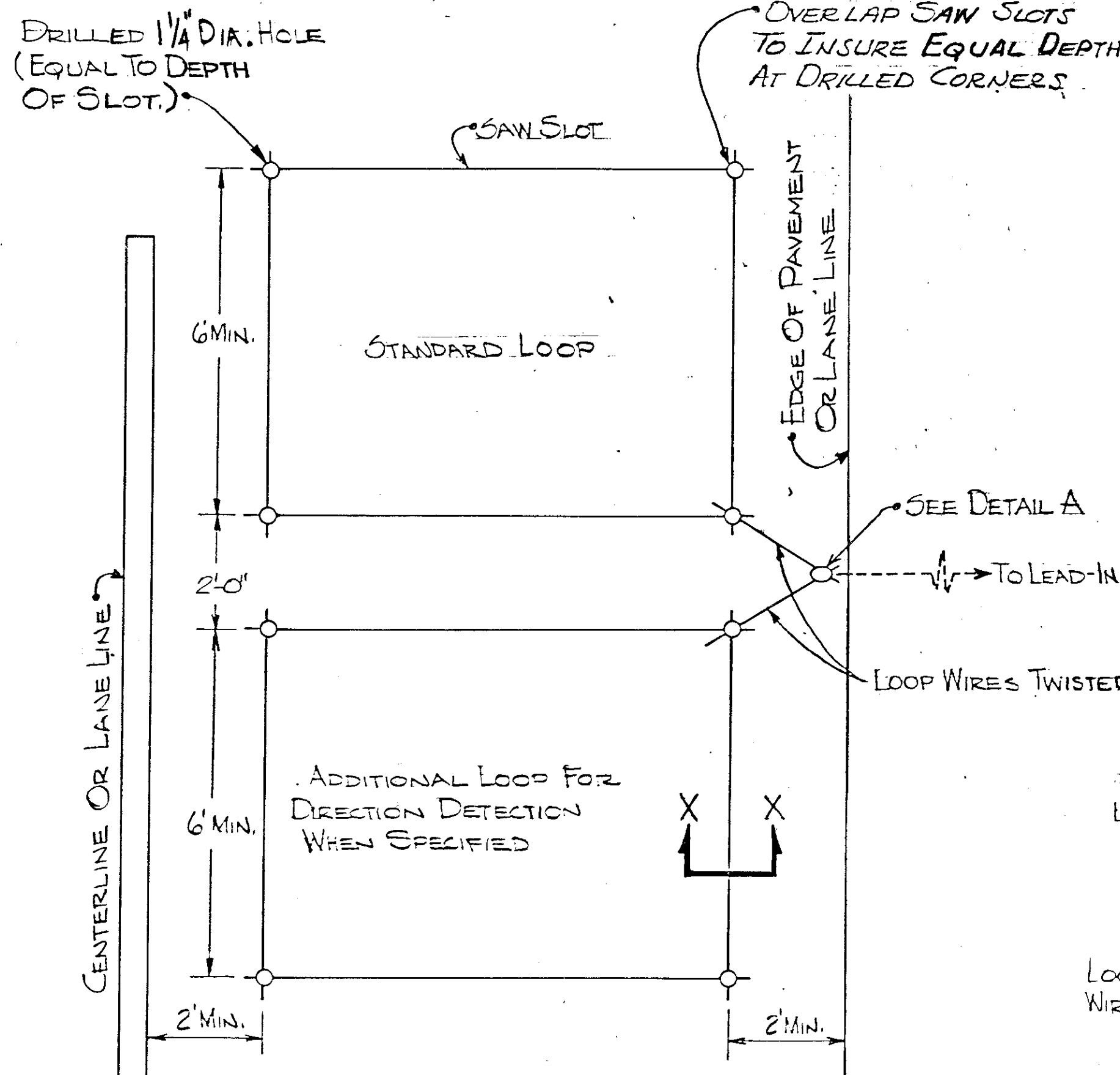
632 LOOP DETECTOR WIRE, TYPE "E"

THIS ITEM SHALL CONFORM TO 632 EXCEPT AS NOTED BELOW:

THE LOOP DETECTOR WIRE SHALL CONSIST OF A NO. 14 AWG STRANDED COPPER CONDUCTOR WITH INSULATION CONFORMING TO UL: XHHW, THHN OR THWN INSERTED INTO A FLEXIBLE VINYL PLASTIC TUBING WITH A MINIMUM WALL THICKNESS OF 0.025 INCHES. THE TUBING SHALL HAVE A NOMINAL O.D. OF 1/4 INCH. THE TUBING SHALL EXTEND CONTINUOUSLY FROM THE SPLICE AT THE LOOP DETECTOR LEAD-IN CABLE, THROUGH THE ENTIRE LOOP AND BACK TO THE SPLICE. BOTH ENDS OF THE TUBING SHALL EXTEND INTO THE POURED EPOXY SPLICE AND BE SEALED THEREIN. IF THE SPLICE BETWEEN LOOP WIRE AND LOOP DETECTOR LEAD-IN CABLE IS NOT MADE IMMEDIATELY, THE ENDS OF THE TUBING SHALL BE SEALED AT THE TIME THE LOOP WIRE IS PLACED INTO THE SAWED SLOTS.

THE TUBING SHALL BE CAPABLE OF RESISTING DETERIORATION FROM OILS AND SOLVENTS. THE TUBING SHALL BE HIGHLY ABRASION RESISTANT AND HAVE A SMOOTH BORE. ALL LENGTHS OF LOOP WIRE WITH TUBING THAT IS NOT EMBEDDED IN THE PAVEMENT SHALL BE TWISTED UNIFORMLY AT THREE TO FIVE TURNS PER FOOT, INCLUDING LENGTHS IN CONDUITS AND PULLBOXES. IF WIRES FROM MORE THAN ONE LOOP ARE CONTAINED IN A CONDUIT, THE TWO WIRES OF EACH LOOP SHALL BE TWISTED SEPARATELY FROM THE WIRE PAIR OF THE OTHER LOOP(S). THE PAIR OF WIRES FROM EACH LOOP SHALL BE TAGGED AT THE SPLICE POINT TO DISTINCTLY IDENTIFY THE LOOP WHICH THEY SERVE.

THE POLARITY OF EACH LOOP SHALL BE IDENTIFIED BY MEANS OF A TAG PLACED ON ONE OF THE LOOP WIRES AT THE SPLICE POINT. THE LOOP WIRE WHICH IS NOMINALLY TO BE IDENTIFIED AS POSITIVE (+) SIGN SHALL BE THE ONE WHICH, IF FOLLOWED FROM THE SPLICE AND AROUND THE LOOP, TRACES A CLOCKWISE PATTERN.



LOOP WIRE CONSTRUCTION	
LOOP PERIMETER	NUMBER OF TURNS
LESS THAN 40 FEET	3
40 TO 160 FEET	2
OVER 160 FEET	1

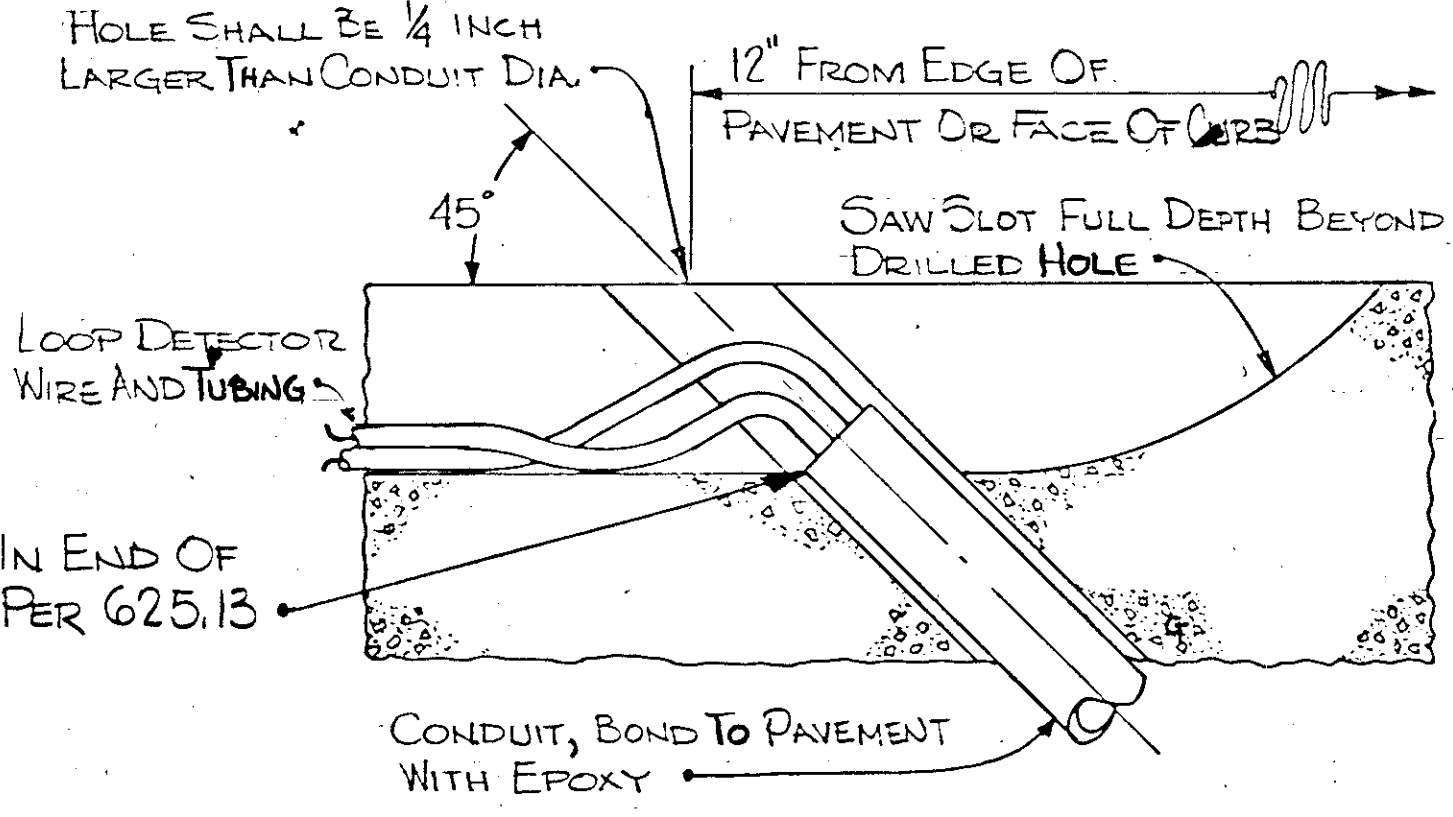
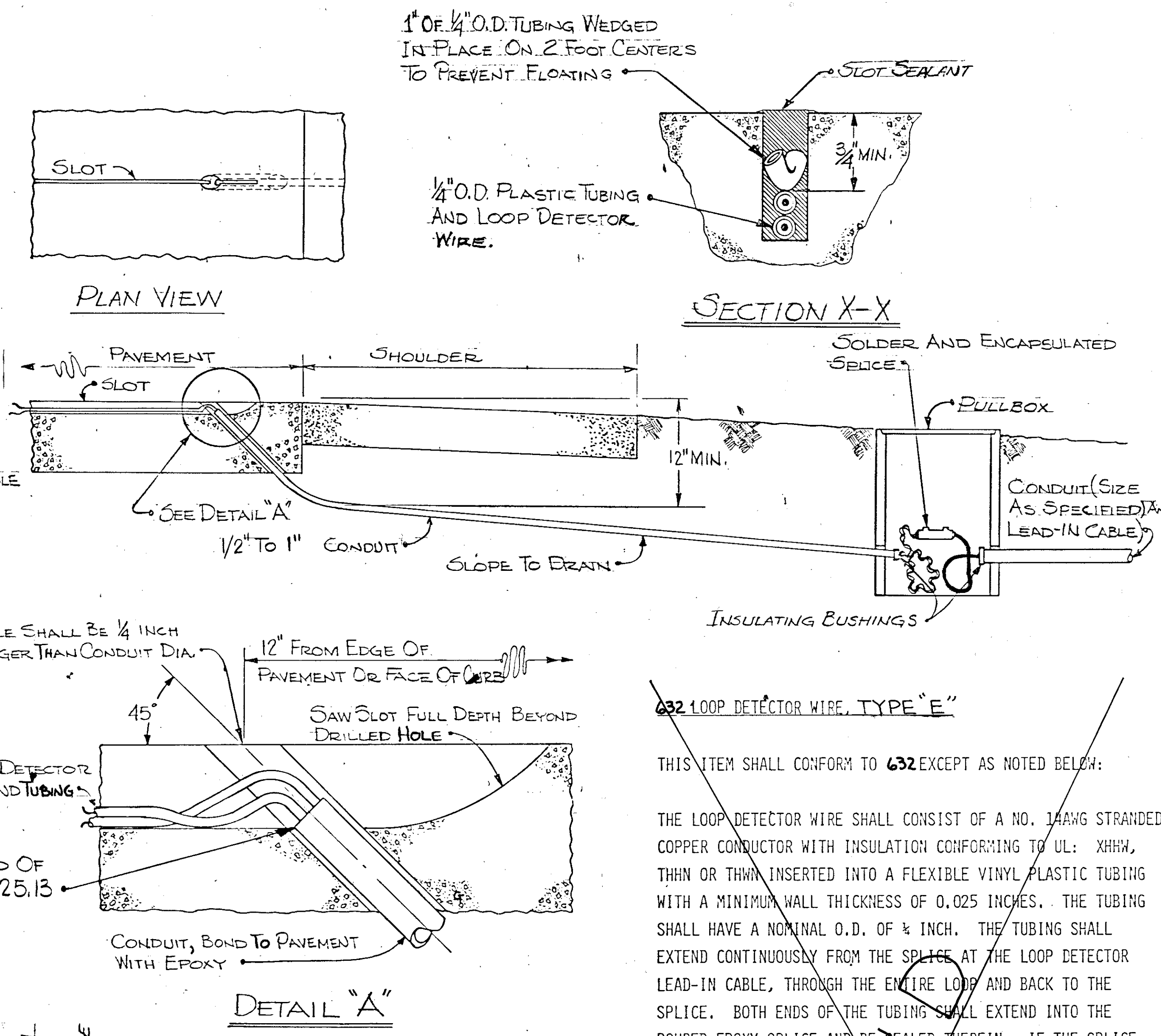
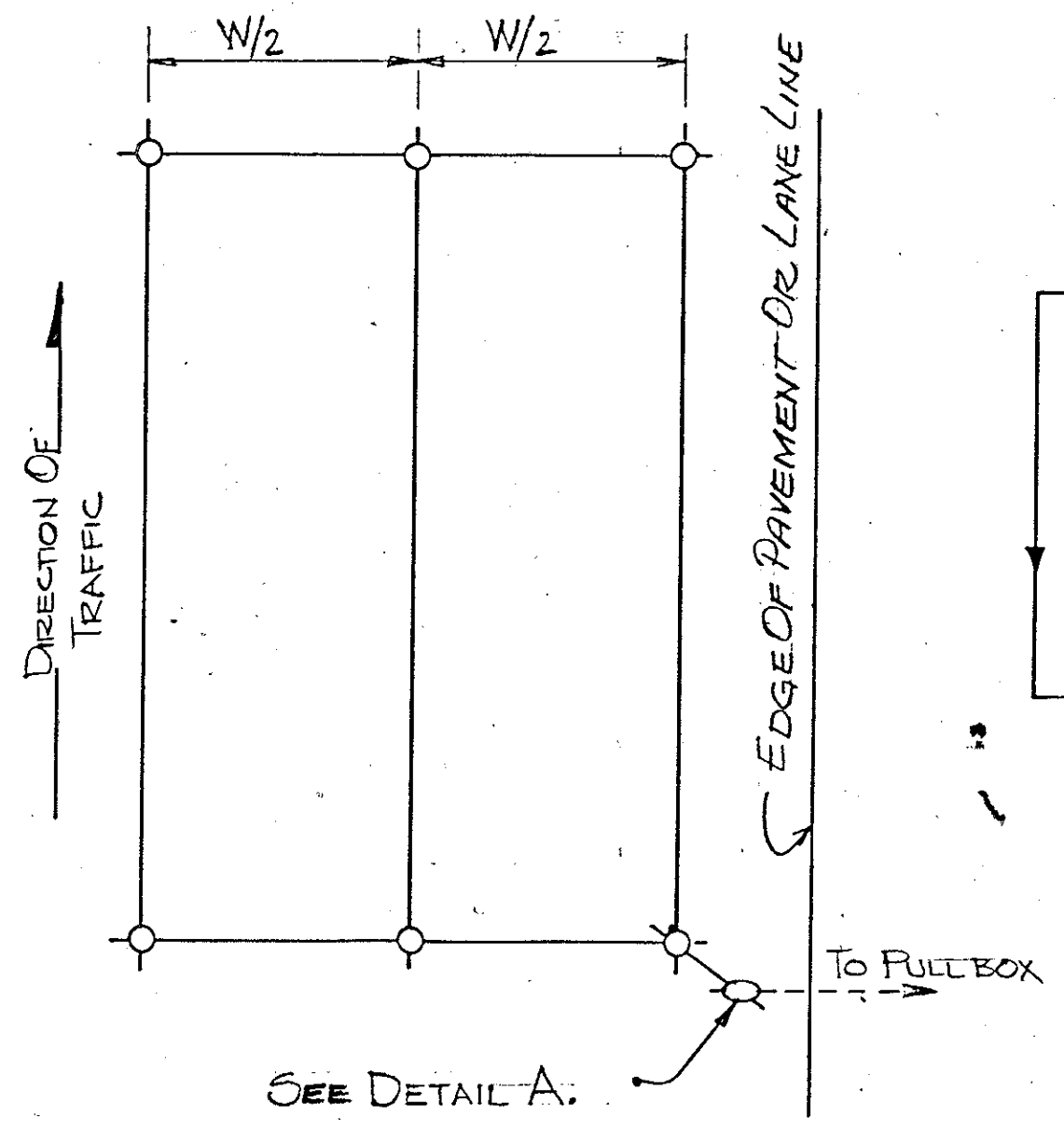
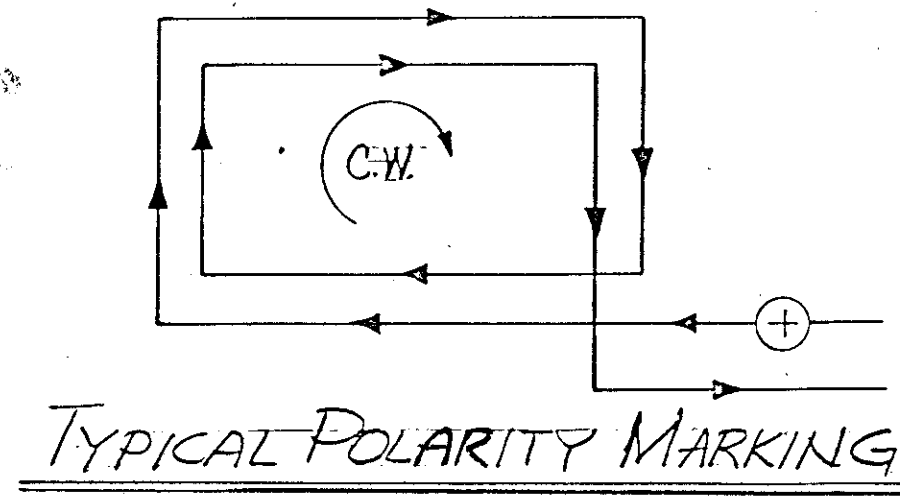


FIGURE 8 LOOP DETAILS

PROGRAM CARD

P.M.

Location LIBERTY-JONES INT. No. 1Program No. 1 Inbound Cycle Length 100 sec. Offset 0 sec.

OUTPUT	ON		OFF		DESCRIPTION
	%	Sec.	%	Sec.	
1	65	65	62	62	Ø2 HOLD LOGIC GRD.
2	65	65	62	62	Ø6 HOLD LOGIC GRD.
3	94	94	98	98	Ø4 TERMINATED F.O. #1
4	9	9	12	12	Ø5 TERMINATED F.O. #2
5	19	19	22	22	Ø1 TERMINATED F.O. #1
6					
7					
8					

PROGRAM CARD

A.M.

Location LIBERTY-JONES INT. No. 1Program No. 1 Inbound Cycle Length 80 sec. Offset 0 sec.

OUTPUT	ON		OFF		DESCRIPTION
	%	Sec.	%	Sec.	
1	68	54	62	50	Ø2 HOLD LOGIC GRD.
2	68	54	62	50	Ø6 HOLD LOGIC GRD.
3	93	75	98	78	Ø4 TERMINATED F.O. #1
4	11	9	15	12	Ø5 TERMINATED F.O. #2
5	11	9	15	12	Ø1 TERMINATED F.O. #1
6					
7					
8					

PROGRAM CARD

Location _____ INT. No. _____

Program No. 1 Inbound Cycle Length _____ sec. Offset _____ sec.

OUTPUT	ON		OFF		DESCRIPTION
	%	Sec.	%	Sec.	
1					
2					
3					
4					
5					
6					
7					
8					

PROGRAM CARD

Location _____ INT. No. _____

Program No. 1 Inbound Cycle Length _____ sec. Offset _____ sec.

OUTPUT	ON		OFF		DESCRIPTION
	%	Sec.	%	Sec.	
1					
2					
3					
4					
5					
6					
7					
8					

PROGRAM CARD

P.M.

Location RAMP "L" INT. No. 2Program No. 1 Inbound Cycle Length 100 sec. Offset 0 sec.

OUTPUT	ON		OFF		DESCRIPTION
	%	Sec.	%	Sec.	
1	69	69	66	66	Ø2 HOLD LOGIC GRD.
2	95	95	98	98	Ø3 TERMINATED F.O. #1
3	14	14	17	17	Ø1 TERMINATED F.O. #1
4					
5					
6					
7					
8					

PROGRAM CARD

A.M.

Location RAMP "L" INT. No. 2Program No. 1 Inbound Cycle Length 80 sec. Offset 7 sec.

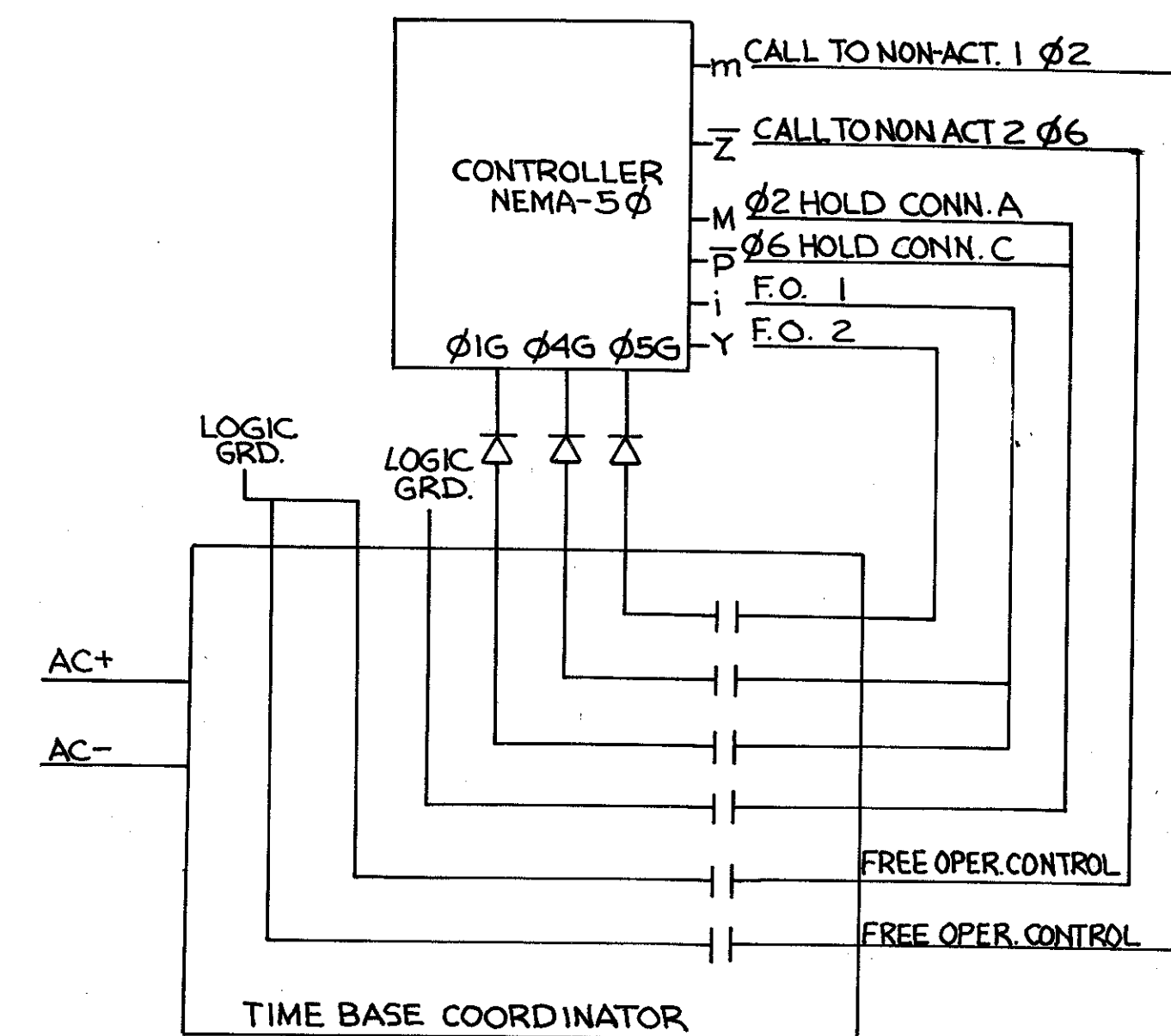
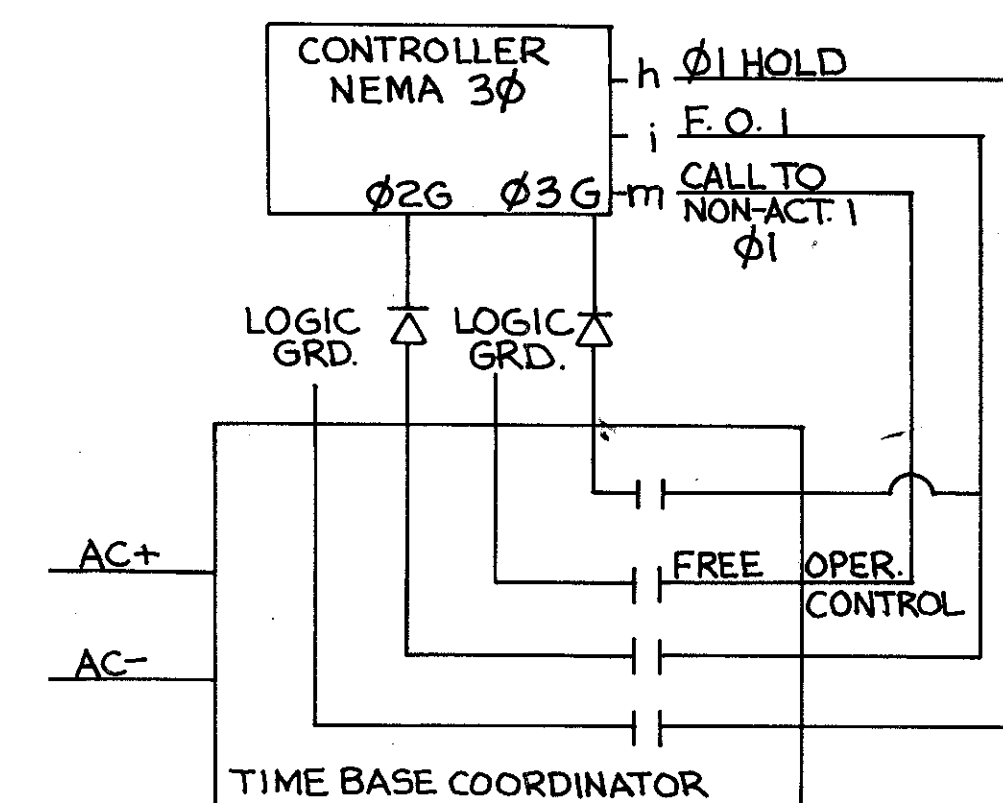
OUTPUT	ON		OFF		DESCRIPTION
	%	Sec.	%	Sec.	
1	100	80	96	77	Ø2 HOLD LOGIC GRD.
2	2	2	6	5	Ø3 TERMINATED F.O. #1
3	20	16	23	19	Ø1 TERMINATED F.O. #1
4					
5					
6					
7					
8					

WEEKLY PROGRAM CHART

PAGE _____ OF _____

Intersection Location TRU-193-1.37 Int. # 1 & 2

	DAY	HOUR	MIN.	SECOND	PROGRAM NUMBER	COMMENTS
1	SUN				1	FULL ACTUATION
2	MON	6	30	00	2	AM PEAK (80 SEC)
3	MON	10	30	00	3	PM PEAK (100 SEC)
4	MON	18	30	00	1	FULL ACTUATION
5	TUES	6	30	00	2	AM PEAK (80 SEC)
6	"	10	30	00	3	PM PEAK (100 SEC)
7	"	18	30	00	1	FULL ACTUATION
8	WED	6	30	00	2	AM PEAK (80 SEC)
9	"	10	30	00	3	PM PEAK (100 SEC)
10	"	18	30	00	1	FULL ACTUATION
11	THURS	6	30	00	2	AM PEAK (80 SEC)
12	"	10	30	00	3	PM PEAK (100 SEC)
13	"	18	30	00	1	FULL ACTUATION
14	FRI	6	30	00	2	AM PEAK (80 SEC)
15	"	10	30	00	3	PM PEAK (100 SEC)
16	"	18	30	00	1	FULL ACTUATION
17	SAT				1	FULL ACTUATION
18						
19						
20						
21						
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35						

HOOK-UP
TYPICAL FOR INTERSECTION 1
LIBERTY-JONESHOOK-UP
TYPICAL FOR INTERSECTION 2
RAMP "L"

FOR TIME SPACE DIAGRAM SEE SHEET 57

PROGRAM CARD/HOOK-UP TYPICAL FOR INTERSECTION

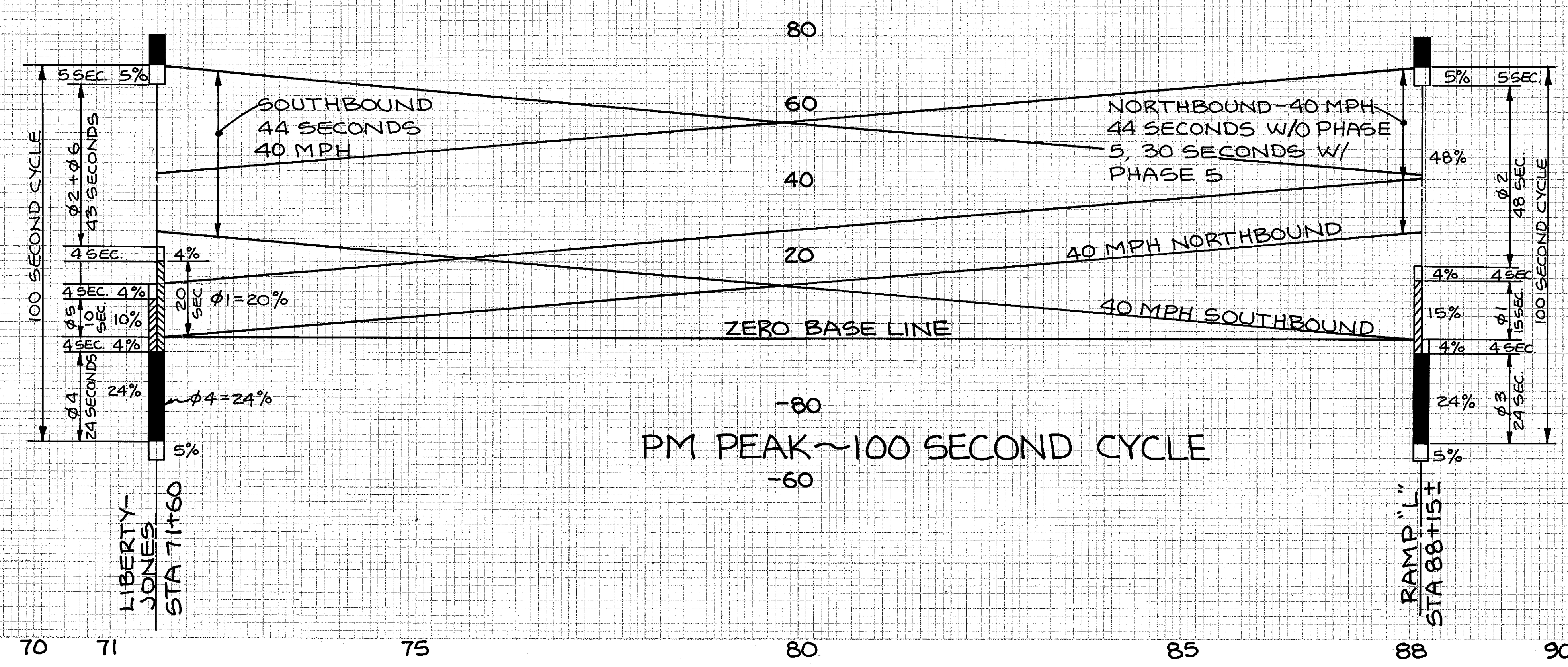
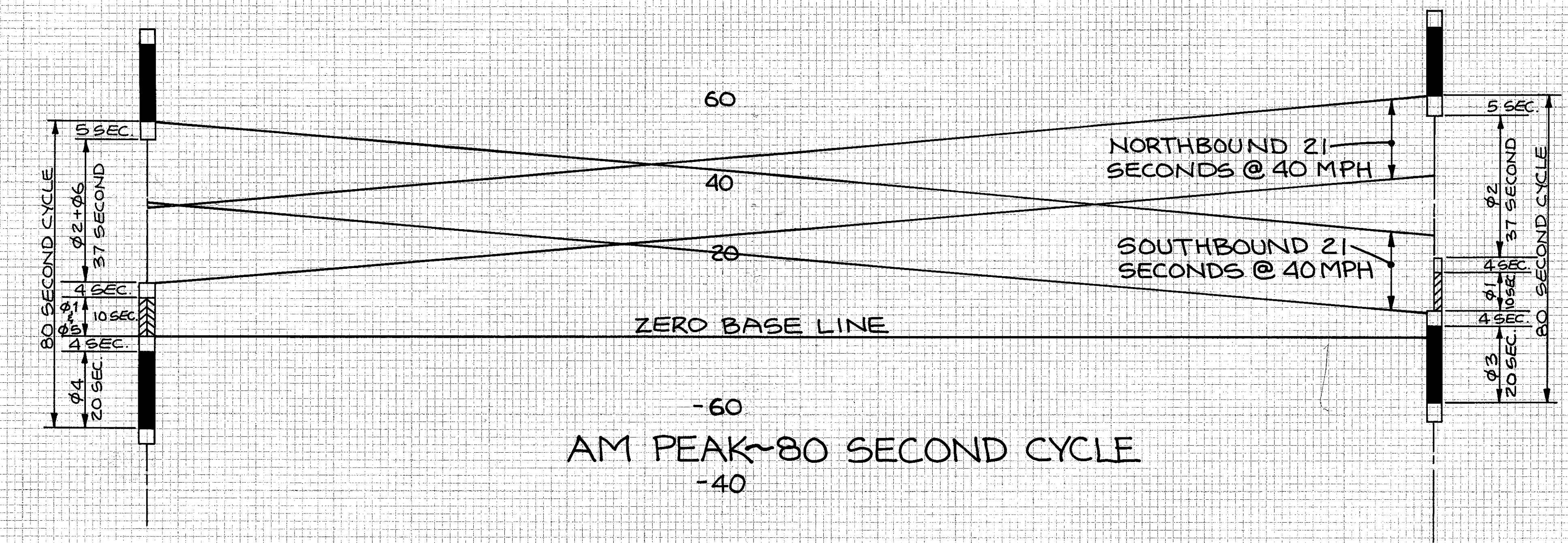
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FHWA REGION	STATE	PROJECT	
5	OHIO		

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TIME SPACE DIAGRAM