

OHIO
TRANSPORTATION

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

M-1A07 (I)
Proj 762-78

OHIO	1
FHWA REGION 5	14
M-1A07(I)	
CUY. COUNTY CUY-AMTRAK STATION ACCESS ROAD	

CUY-AMTRAK STATION ACCESS ROAD

CUYAHOGA COUNTY CITY OF CLEVELAND

SR-2

CONVENTIONAL SIGNS

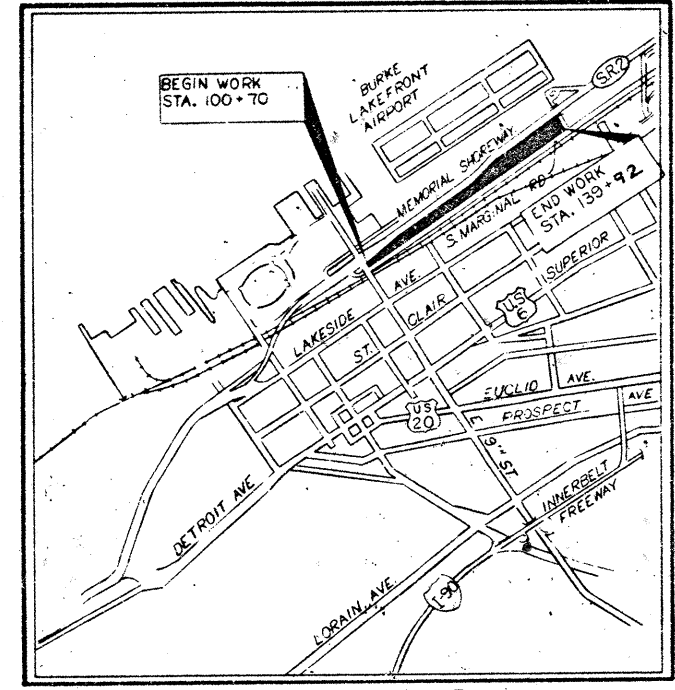
County Line _____	Limited Access (only) _____ LA _____
Township Line _____	Right of Way (only) _____ RW _____
Section Line _____	Limited Access & Right of Way _____ LA & RW _____
Corporation Line _____ or _____	Existing Right of Way _____
Fence Line (existing) -x- (proposed) -x-	Property Line (in existing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

INDEX OF SHEETS

TITLE SHEET _____	1
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LINE DATA

PROJECT LENGTH = 0.00 LIN. FT. OR 0.0 MILES
 BEGIN WORK STA. 100+70
 END WORK STA. 139+92
 NET LENGTH OF WORK 3922.0 LIN. FT. or 0.742 MILES

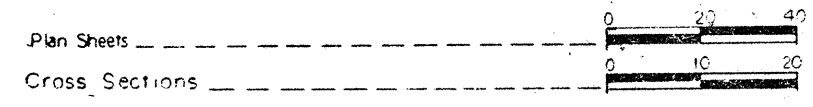


LOCATION MAP

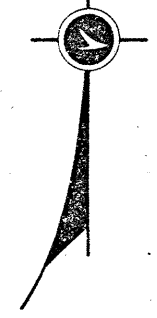


Portion to be improved _____
 State & Federal Routes _____
 Other Roads _____

SCALES



RECD. L & D *8-25-78*
 T. M. K. _____
 R. J. E. _____
 R/W _____
 CONST. *✓ 756TS*
 UTIL. _____



1977 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.

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

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

Approved *Thomas M. Hall*
 Date *2-22-78* District Deputy Director of Transportation

Approved *R.E. Gathie*
 Date *8-4-78* Chief Engineer, Planning & Design

Approved *David Z. Wein*
 Date *8-7-78* Director, Department of Transportation

SUPPLEMENTAL SPECIFICATIONS	
5625	1-11-74
5715	1-11-74
Special Supplemental Specs. "AMTRAK"	

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS			
BP-4	12/6/76		
BP-7	12/6/76		
CB-7	6/1/65		
BP-2	12/6/76		
BP-3	12/6/76		
MC-6	5/1/65		
MC-3	6/1/73		
CB-5	5/1/65		
MC-4	7/26/76		

Plan Prepared By:

RICHARD L. BOWEN AND ASSOCIATES INC.
 11724 SHAKER SQUARE, CLEVELAND, OHIO 44120-1175-49-7300



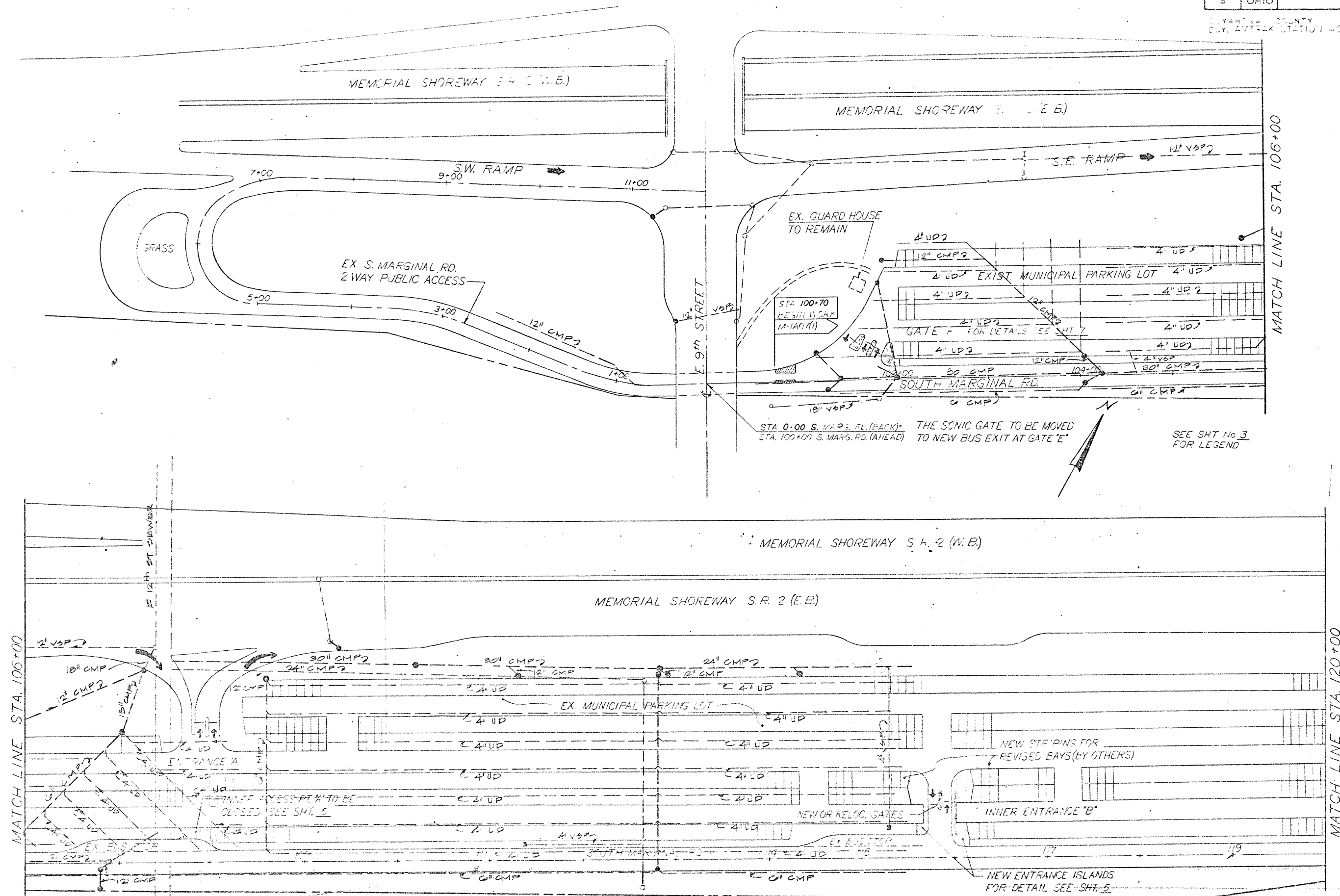
SEAL

DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____
 DIVISION ADMINISTRATOR DATE

FHA REGION	STATE	PROJECT
5	OHIO	

YARMA COUNTY
CIV. AVIATION STATION ACCESS RD.



STA 0+00 S. MARG. RD. (BACK) THE SONIC GATE TO BE MOVED
 STA. 100+00 S. MARG. RD. (AHEAD) TO NEW BUS EXIT AT GATE 'E'

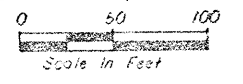
SEE SHT No 3 FOR LEGEND

MATCH LINE STA. 106+00

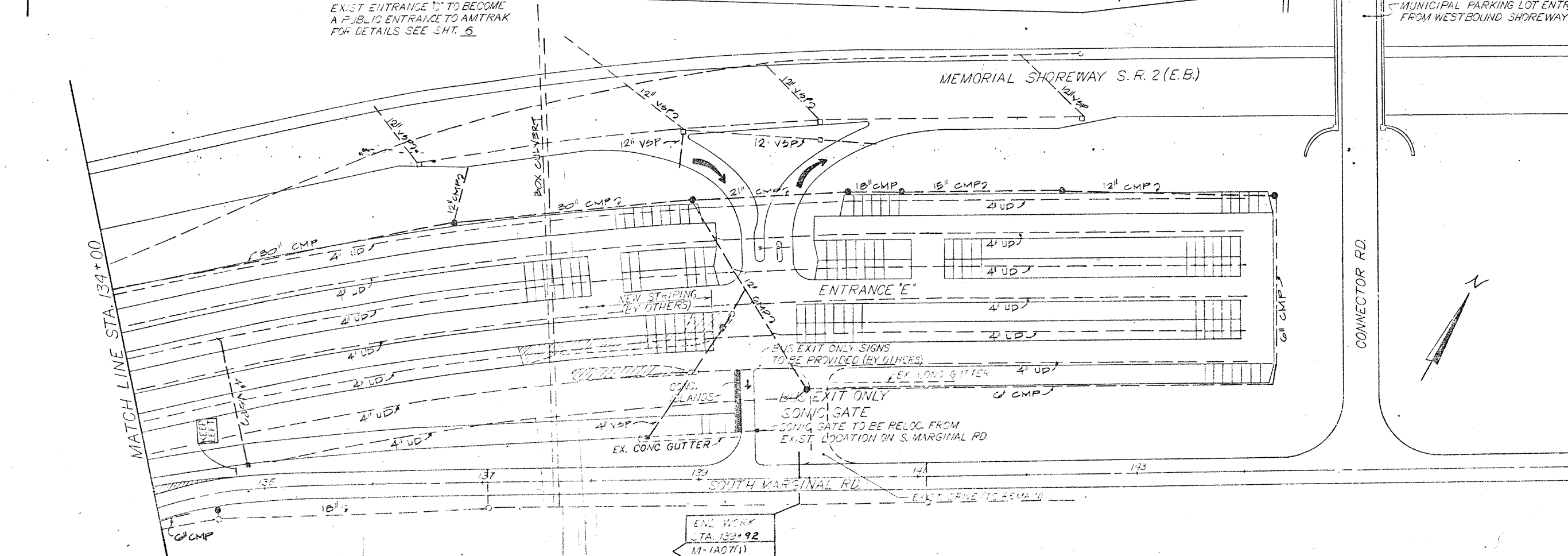
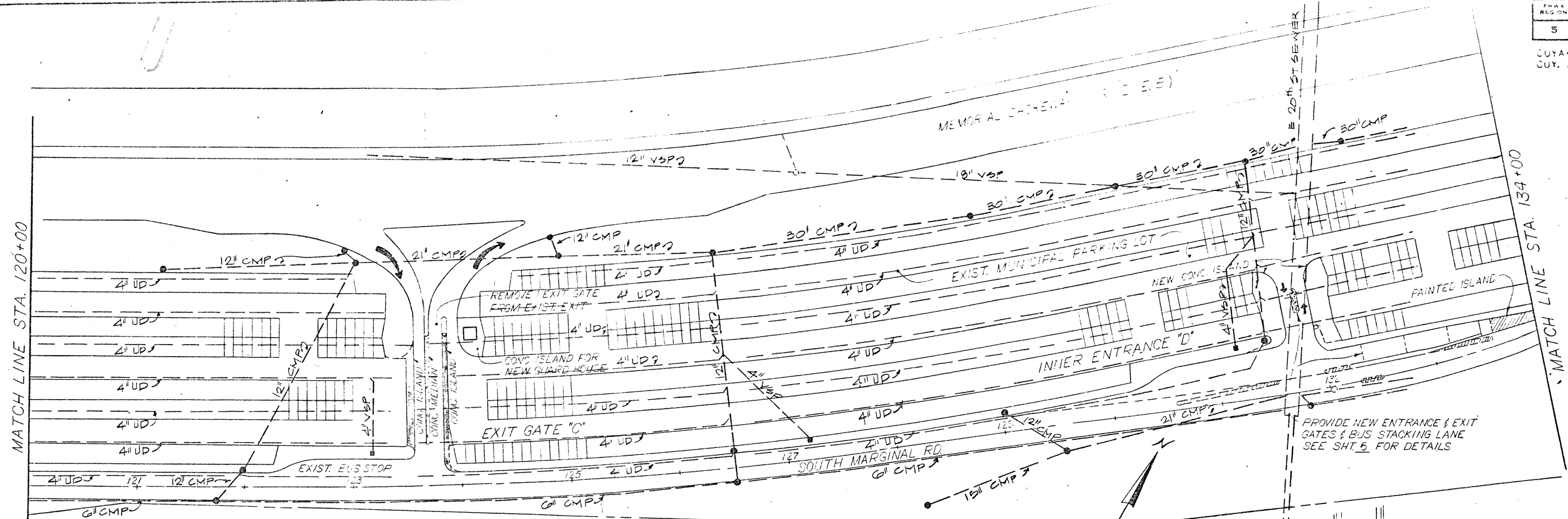
MATCH LINE STA. 120+00

ENTRANCE 'B' TO BE MODIFIED WITH THE ADDITION OF 1 ENTRANCE AND 1 EXIT GATE. FOR DETAILS SEE SHT. 5.

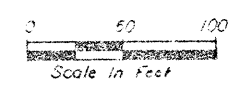
SCHEMATIC PLAN



STA. 1+00 TO STA. 11+00
 STA. 100+00 TO STA. 120+00 S. MARGINAL RD.



- LEGEND**
- PAVEMENT REMOVAL & 451 Replacement
 - PROPOSED CONCRETE ISLAND
 - PROPOSED CONCRETE MEDIAN



SCHEMATIC PLAN

GENERAL NOTES AND SUMMARY OF QUANTITIES

FHWA REGION	STATE	PROJECT
5	OHIO	

CUYAHOGA COUNTY
CIV. AMTRAK STATION ACCESS RD

TYPE CODE YC50
UNLESS OTHERWISE SHOWN

GENERAL

THE STATIONS SHOWN ON THE PLANS ARE FOR CONSTRUCTION PURPOSE ONLY AND ARE NOT TO BE USED FOR RECORD.

ESTIMATED QUANTITIES

SPECIFIC LOCATIONS, AND USAGE OF ESTIMATED QUANTITIES, SET UP ON THIS PLAN TO BE USED "AS DIRECTED BY THE ENGINEER" SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT. ESTIMATED QUANTITIES OF MATERIALS SHALL NOT BE ORDERED FOR DELIVERY TO THE PROJECT UNLESS AUTHORIZED BY THE ENGINEER.

PAVEMENT REMOVED

ESTIMATED QUANTITY INCLUDES REMOVAL OF CONCRETE ISLANDS, CONCRETE PAVEMENT & ASPHALT CONCRETE, WITHIN THE LIMITS SHOWN ON PLAN SHEETS. HOWEVER, PAYMENT SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 202-PAVEMENT REMOVED FOR THE ACTUAL SQUARE YARDS REMOVED.

PORTIONS OF STRUCTURE REMOVED

THIS WORK SHALL CONSIST OF THE PARTIAL REMOVAL, AND SATISFACTORY DISPOSAL OF EXISTING STRUCTURE WITHIN THE LIMITS SHOWN ON PLAN SHEET NUMBER 7.

PAYMENT FOR THIS ITEM SHALL BE MADE UNDER ITEM 202, PORTIONS OF STRUCTURE REMOVED.

PAVEMENT MARKINGS-PAINTING AND STRIPING

PAVEMENT MARKINGS, PAINTING AND STRIPING SHALL BE PERFORMED BY THE CITY OF CLEVELAND. ALL WORK SHALL BE IN ACCORDANCE WITH THE "OHIO UNIFORM TRAFFIC CONTROL MANUAL".

CONCRETE PAVEMENT

THIS WORK SHALL CONSIST OF A PAVEMENT COMPOSED OF REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT CONSTRUCTED ON A PREPARED SUBGRADE. CONCRETE SHALL BE 451.

WHEN PROPOSED CONCRETE ABUTS EXISTING CONCRETE AND/OR PLACED ON EXISTING CONCRETE, IT SHALL BE SEALED ALL AROUND USING 705.02 - COLD APPLIED JOINT SEALER. UNLESS OTHERWISE SHOWN ON PLANS, JOINTS SHALL BE PLACED AT LOCATIONS OF ABUTTING JOINTS.

COMMERCIAL FERTILIZER (12-12-12)

$$\frac{219 \text{ S.Y.} \times 9 \text{ S.F./S.Y.} \times 20 \text{ lbs}}{1000 \text{ S.F.}} \div 2000 \frac{\text{lbs}}{\text{TON}} = .02 \text{ TON}$$

CONNECTIONS 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 unit price bid for the pertinent 603 conduit items.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES, SHOWN ON THE PLANS, HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE STATE OF OHIO DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

MAINTENANCE OF TRAFFIC

TRAFFIC SHALL BE MAINTAINED THROUGH THE PROJECT AT ALL TIMES. ACCESS TO SOUTH MARGINAL ROAD AND THE MEMORIAL SHOREWAY SHALL BE MAINTAINED. TYPE II BARRICADES SHALL BE REQUIRED WHEN ANY PORTION OF THE ROAD IS CLOSED. TYPE II BARRICADES SHALL BE EQUIPPED WITH UNIDIRECTIONAL STEADY BURN LIGHTS AND SHALL CONFORM TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".

ALL TRAFFIC CONTROL MEASURES IMPLEMENTED DURING THE COURSE OF THIS WORK SHALL CONFORM TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL FOR CONSTRUCTION AND MAINTENANCE OPERATIONS" UNLESS OTHERWISE NOTED IN THE PLANS AND SHALL BE PAID FOR UNDER ITEM 614, MAINTAINING TRAFFIC.

UTILITIES

THE FOLLOWING IS A LIST OF UTILITIES WITHIN THE LIMITS OF THIS PROJECT:

CLEVELAND ELECTRIC ILLUMINATING COMPANY
ILLUMINATING BUILDING
55 PUBLIC SQUARE
CLEVELAND, OHIO 44114

EAST OHIO GAS COMPANY
1231 EAST 55 STREET
CLEVELAND, OHIO 44113

OHIO BELL TELEPHONE COMPANY
820 SUPERIOR AVENUE WEST
CLEVELAND, OHIO 44113

MUNICIPAL LIGHT AND POWER COMPANY
1201 LAKESIDE AVENUE
CLEVELAND, OHIO 44114

PRIOR TO EXCAVATION, THE CONTRACTOR SHALL CALL THE UTILITIES PROTECTION SERVICE AT 1-800-302-2764 TO INSURE THAT NO UTILITIES ARE DISTURBED.

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 150 SQUARE FEET OF FLOOR SPACE AND IN ADDITION TO THE REQUIREMENTS OF ITEM 619, HE SHALL PROVIDE AND MAINTAIN SANITARY PROVISIONS AS PER 107.06. ALL THE ABOVE IS INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 619 FIELD OFFICE.

CONTINGENCY WORK

MATERIALS ASSOCIATED WITH CONTINGENCY WORK SHALL NOT BE ORDERED BY THE CONTRACTOR UNLESS DIRECTED BY THE ENGINEER.

EXISTING TYPICAL SECTIONS

EXISTING TYPICAL SECTIONS HAVE BEEN TAKEN FROM RECORDS AND ARE BELIEVED TO REPRESENT THE EXISTING PAVEMENT, BUT THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF SAME.

CONSTRUCTION PHASING

PHASE I - NEWLY LOCATED "E" GATE, NEW "B" GATE AND NEW "C" GATE ARE TO ALL BE CONSTRUCTED. DURING THIS CONSTRUCTION ACCESS "A" AND "D" TO THE MARGINAL MUST REMAIN OPEN

PHASE II - CONSTRUCTION AT NEWLY LOCATED "D" GATE AND THE BUS LANE AT THIS LOCATION IS TO BE COMPLETED. THE EXISTING "D" GATE ON THE MARGINAL IS TO REMAIN IN OPERATION.

NOTE: AT THIS POINT, ALL GATES IN PHASE I AND II ARE TO BE READY FOR USE BUT ARE ONLY TO BE USED AS ACCESS POINTS NOT OPERATED AS PAY GATES.

ITEM	SHEET NUMBER							QUANT	UNIT	DESCRIPTION	
	4	5	6	7	100% CITY OF CLEVELAND						
					4		4			ROADWAY	
202		53	269	826				1156	SQ. YD.	PAVEMENT REMOVED	
202				29				29	LIN. FT.	GUARD RAIL REMOVED	
202				LUMP				LUMP	LUMP	PORTIONS OF STRUCTURE REMOVED	
Spec. 1								1	Each	12' x 8' Guardhouse	
202			25					25	LIN. FT.	CURB REMOVED	
203		47	93	141				281	CU. YD.	EMBANKMENT	
203		26	71	108				205	CU. YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	
606		2	5	17			4	4	32	EACH	GUARD POST, AS PER PLAN
										DRAINAGE	
604				1				1	EACH	CATCH BASIN ADJUSTED TO GRADE	
604				1				1	EACH	CATCH BASIN, STANDARD No. 7	
604				1				1	EACH	INLET RECONSTRUCTED TO GRADE, AS PER PLAN	
604				1				1	EACH	CATCH BASIN, STANDARD NO. 6	
603			7	76				83	LIN. FT.	12" CONDUIT, TYPE "B", 706.01, 706.02 or 706.08 PAVEMENT	
310			20	101				121	CU. YD.	SUBBASE	
451			127	608			4	4	743	SQ. YD.	9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
609		333	797	353				1483	LIN. FT.	CONCRETE CURB, STANDARD TYPE G	
612		196	357	70				623	SQ. YD.	4" CONCRETE TRAFFIC ISLAND	
612		.73	89	35				197	SQ. YD.	6" CONCRETE MEDIAN, MODIFIED AS PER PLAN	
612				80				80	SQ. YD.	6" CONCRETE TRAFFIC ISLAND	
										EROSION CONTROL (Y005)	
601				10				10	LIN. FT.	PAVED GUTTER, TYPE A	
609		.02						.02	TON	COMMERCIAL FERTILIZER (12-12-12)	
660			10	209				219	SQ. YD.	SODDING	
614 LUMP								LUMP	LUMP	MAINTAINING TRAFFIC	
612 LUMP								LUMP	LUMP	FIELD OFFICE	
623								LUMP	LUMP	CONSTRUCTION LAYOUT STAKES	
										FOR ELECTRICAL QUANTITIES, SEE SHEET NO. II	

PHASE III - COMPLETE CONSTRUCTION ON ROADWAY AT GATE "C". "C" EAST EXIT IS TO REMAIN IN OPERATION DURING THIS PHASE.

PHASE IV - DURING THIS PHASE ALL GATES ALONG MARGINAL ROAD CAN BE MADE OPERABLE AS PAY GATES. BUT NOT BEFORE THE "OLD" EXISTING GATE EQUIPMENT AT "E" AND "D" IS REMOVED OR AT LEAST THE AC'S REMOVED.

PHASE V - ASSUMING ALL ELSE IS IN OPERATION, GATES "A" AND "E" OFF THE SHOREWAY CAN BE WORKED ON. BOTH ENTRANCES CANNOT BE CLOSED OFF AT THE SAME TIME AND AT LEAST ONE EXIT LANE AT EACH GATE IS TO BE OPENED AT ALL TIMES THROUGHOUT THE DURATION OF THIS CONSTRUCTION. CONTACT IS TO BE MADE WITH THE DIVISION OF TRAFFIC ENGINEERING AND PARKING BEFORE AND AFTER EACH PHASE AND/OR BEFORE ANY GATES OR ACCESS POINTS ARE TO BE OPENED OR CLOSED.

THIS PHASING AS STATED CAN ONLY BE ALTERED UNDER THE DIRECT AGREEMENT OF THE ENGINEER.

GUARDHOUSE

THE CONTRACTOR SHALL FURNISH AND INSTALL PRE-FABRICATED BUILDING AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN. BUILDING TO BE PORTA-KING, MODEL NUMBER 14496SL, SIZE, 12' x 8'. BUILDING SHALL BE OF ALUMINUM CONSTRUCTION WITH NATURAL SATIN ANODIZED ALUMINUM EXTERIOR SURFACES. OVERALL HEIGHT SHALL BE 90" INCLUDING ROOF.

PARK-KING, PARK-HUT, OR AN APPROVED EQUAL MAY BE USED AS ALTERNATES. HOWEVER, PRIOR APPROVAL MUST BE OBTAINED FROM THE ENGINEER.

COMPUTED BY: *[Signature]*
CHECKED BY: *[Signature]*

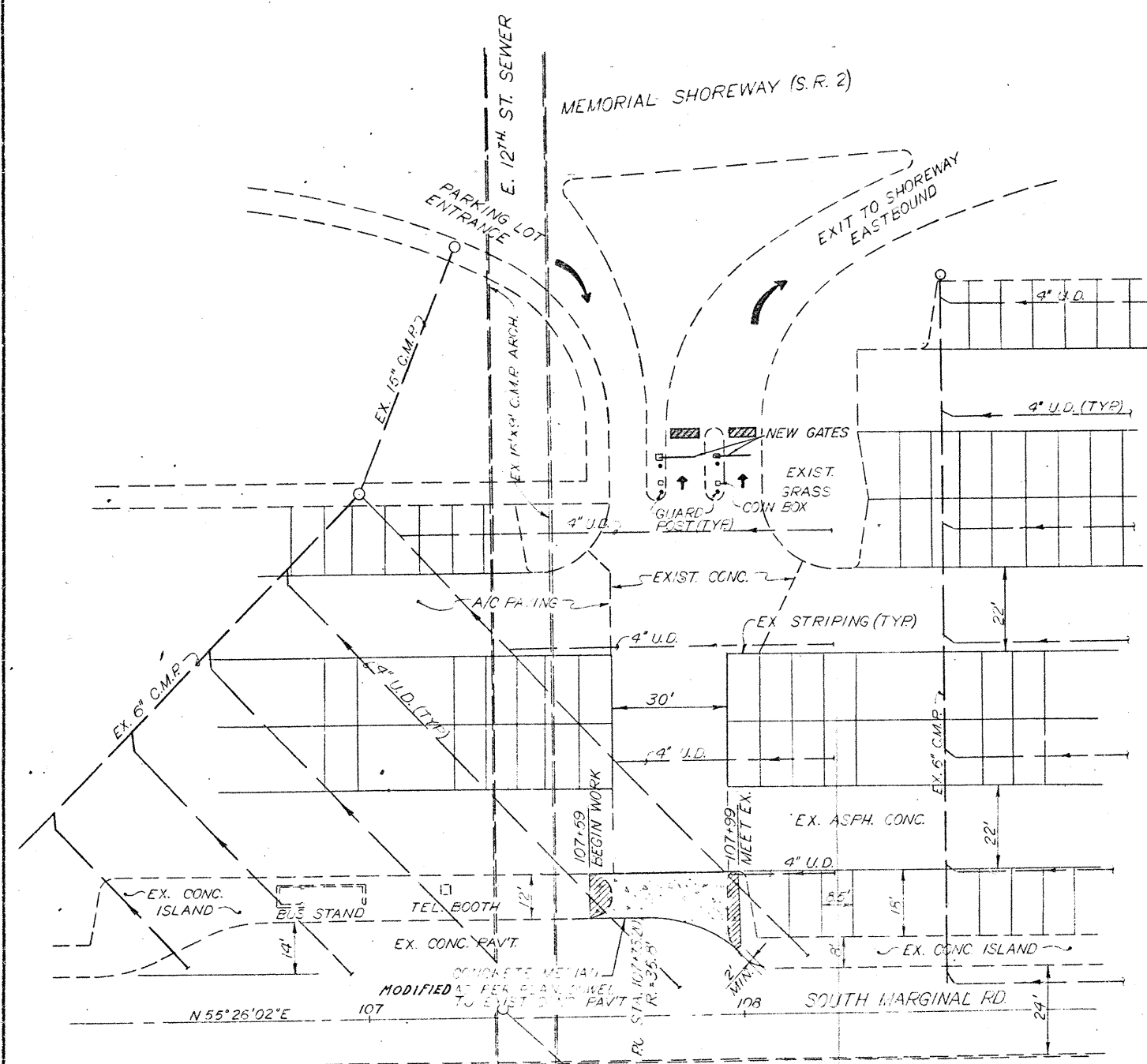
* 100% CITY OF CLEVELAND

ITEM	DESCRIPTION	UNIT	GATE 'A'	GATE 'B'	TOTAL
202	PAVEMENT REMOVAL	SQ. YD.	3	4*	53
203	EXCAVATION - EXCLUSIVE OF EMBANKMENT	CU. YD.			26
209	EMBANKMENT	CU. YD.			47
606	GUARD POST, AS PER PLAN	EACH	4*	2	4*
609	CURB, TYPE 6	LN. FT.			333
612	4" CONC. TRAFFIC ISLAND	SQ. YD.			196
612	6" CONC. MEDIAN, MODIFIED AS PER PLAN	SQ. YD.	62	11	73
451	9" REINF. P.C. CONC. PAVT	SQ. YD.	4*		4*

CUYAHOGA COUNTY
CIV. AVIATION STATION ACCESS RD.

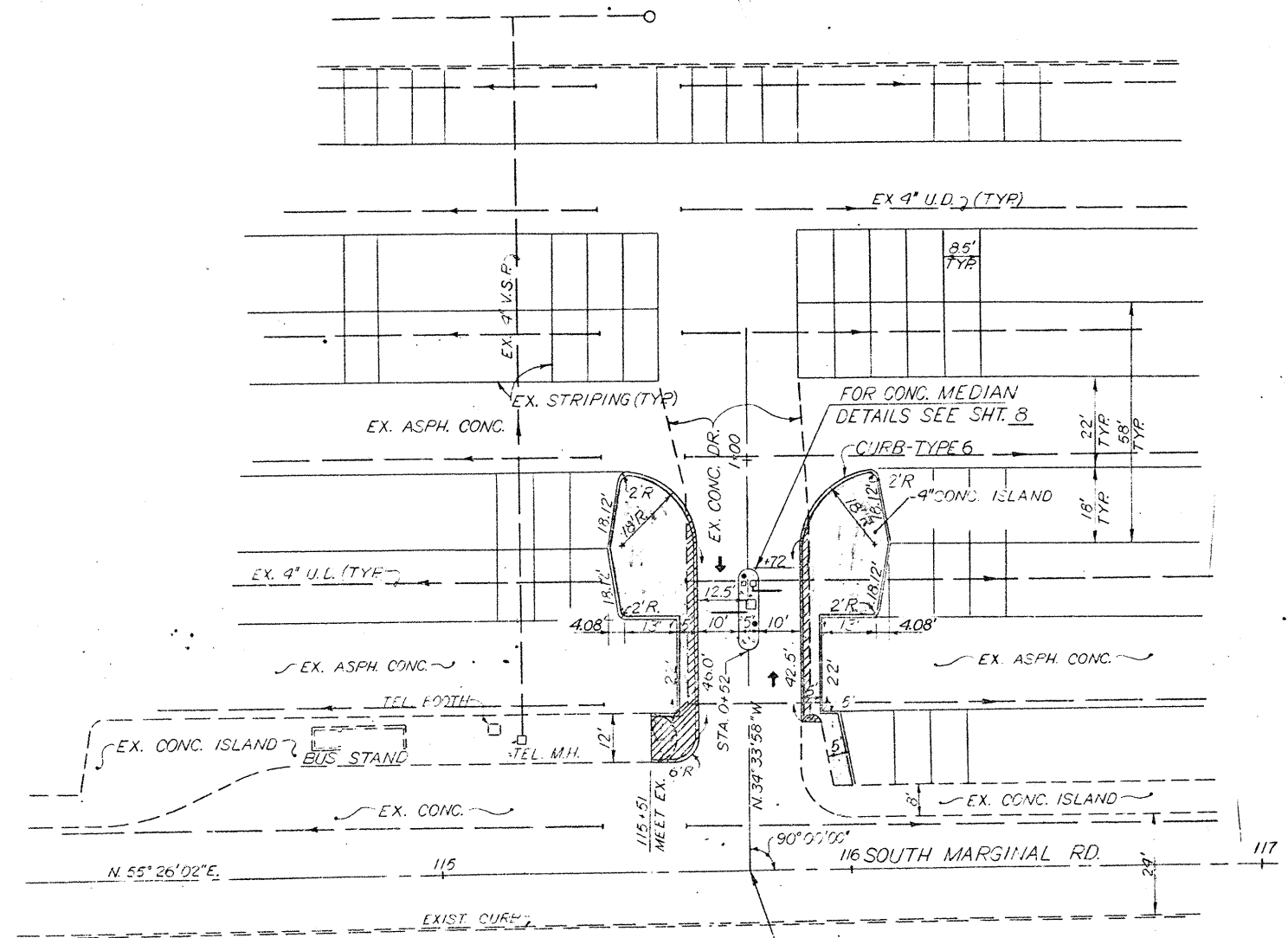
COMPUTED BY: ALS 9-29-77
CHECKED BY: HA

NOTE:
EXISTING UTILITIES SHOWN HERE TAKEN FROM RECORD, HOWEVER, COMPLETE ACCURACY CANNOT BE GUARANTEED. CONTRACTOR SHALL VERIFY LOCATIONS IN FIELD.



NOTE:
PROPOSED CONCRETE MEDIAN
SHALL BE TYPE 6 PER PLAN
FOR PAVEMENT REMOVAL
SEE PLAN SHEET FOR DETAILS
REF. SHT. 9

ENTRANCE & EXIT GATE 'A'



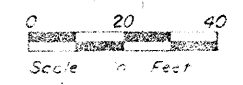
LEGEND

- CONCRETE MEDIAN
- PAVEMENT REMOVAL
- PROPOSED CONCRETE ISLAND
- EXIST. DRAINAGE STRUCTURE
- PROPOSED DRAINAGE STRUCTURE
- EXIST. SEWER

NOTE:
FOR DETAIL OF PROPOSED
CONC. ISLAND SETTING EXIST.
ISLAND SEE SHT. 9

NOTE: DIMENSIONS SHOWN
SHALL BE TO FACE OF CURB.

INNER ENTRANCE & EXIT GATE 'B'

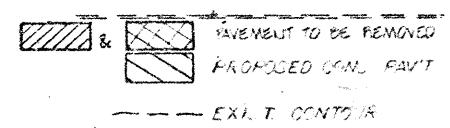
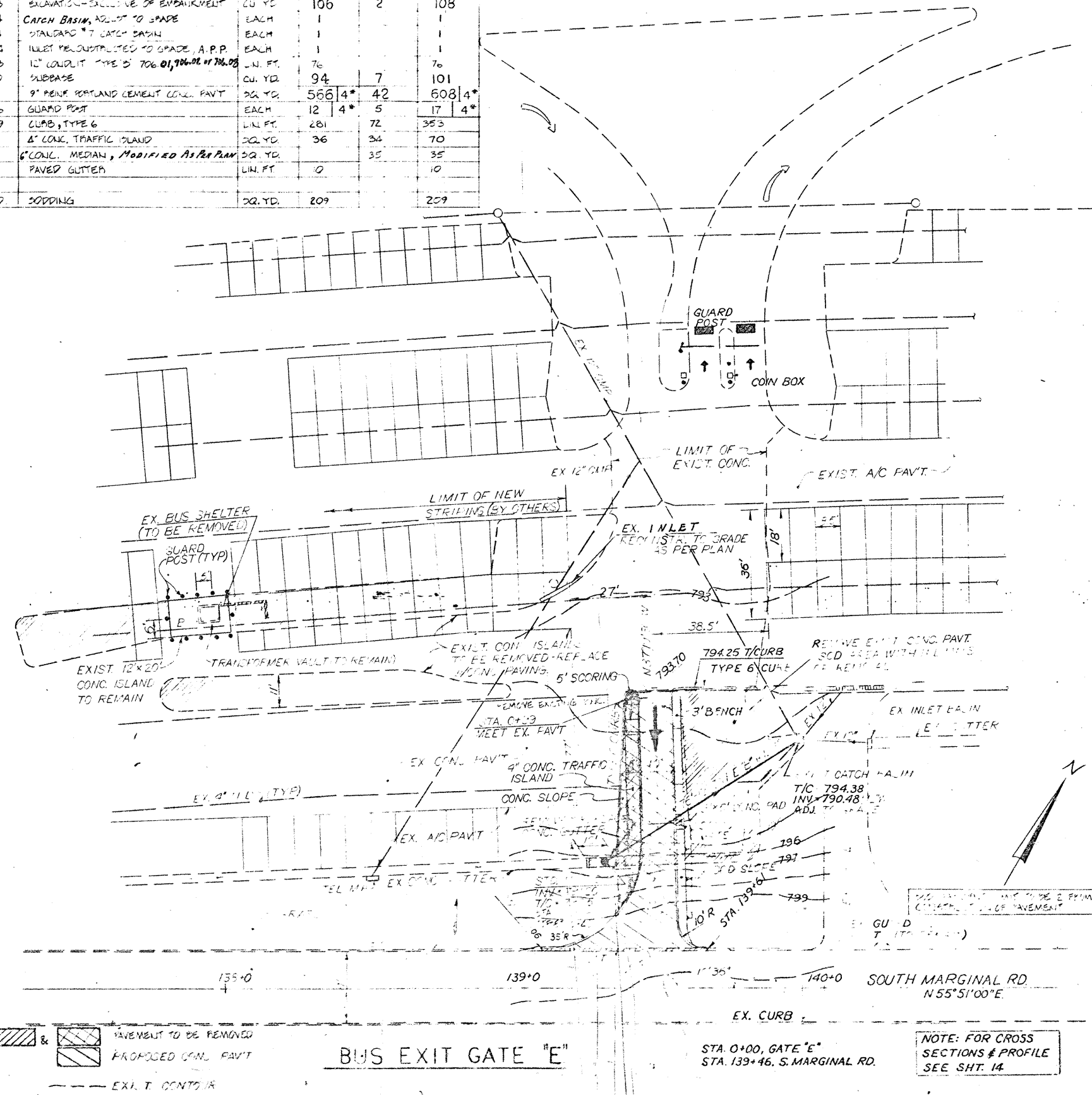


GATE DETAILS - GATES 'A' & 'B'

ITEM	DESCRIPTION	UNIT	QTY	DATE E	DATE F	QTY	DATE E	DATE F
22	PAVEMENT REMOVAL	SQ. YD.	762	4*		626	4*	
202	GUARD RAIL REMOVAL	LN. FT.	3			3		
202	PORTIONS OF STRUCTURE REMOVED	LN. FT.	LN. FT.			LN. FT.		
209	EMBANKMENT	CU. YD.	132	9		141		
203	EXCAVATION-EXCLUSIVE OF EMBANKMENT	CU. YD.	106	2		108		
604	CATCH BASIN, ADJUST TO GRADE	EACH	1			1		
604	STANDARD "7" CATCH BASIN	EACH	1			1		
604	INLET RECONSTRUCTED TO GRADE, A.P.P.	EACH	1			1		
603	12" CONDUIT TYPE "S" 706.01, 706.02 or 706.03	LN. FT.	76			76		
310	SUBBASE	CU. YD.	94	7		101		
451	9" PORTLAND CEMENT CONC. PAVT.	SQ. YD.	556	4*	42	608	4*	
606	GUARD POST	EACH	12	4*	5	17	4*	
609	CURB, TYPE 6	LN. FT.	281	72		353		
612	6" CONC. TRAFFIC ISLAND	SQ. YD.	36	34		70		
612	6" CONC. MEDIAN, Modified As Per Plan	SQ. YD.	35	35		35		
601	PAVED GUTTER	LN. FT.	0			10		
660	SODDING	SQ. YD.	209			209		

* 100% CITY OF CLEVELAND

EASTBOUND SHOULDER S.R. 2



BUS EXIT GATE "E"

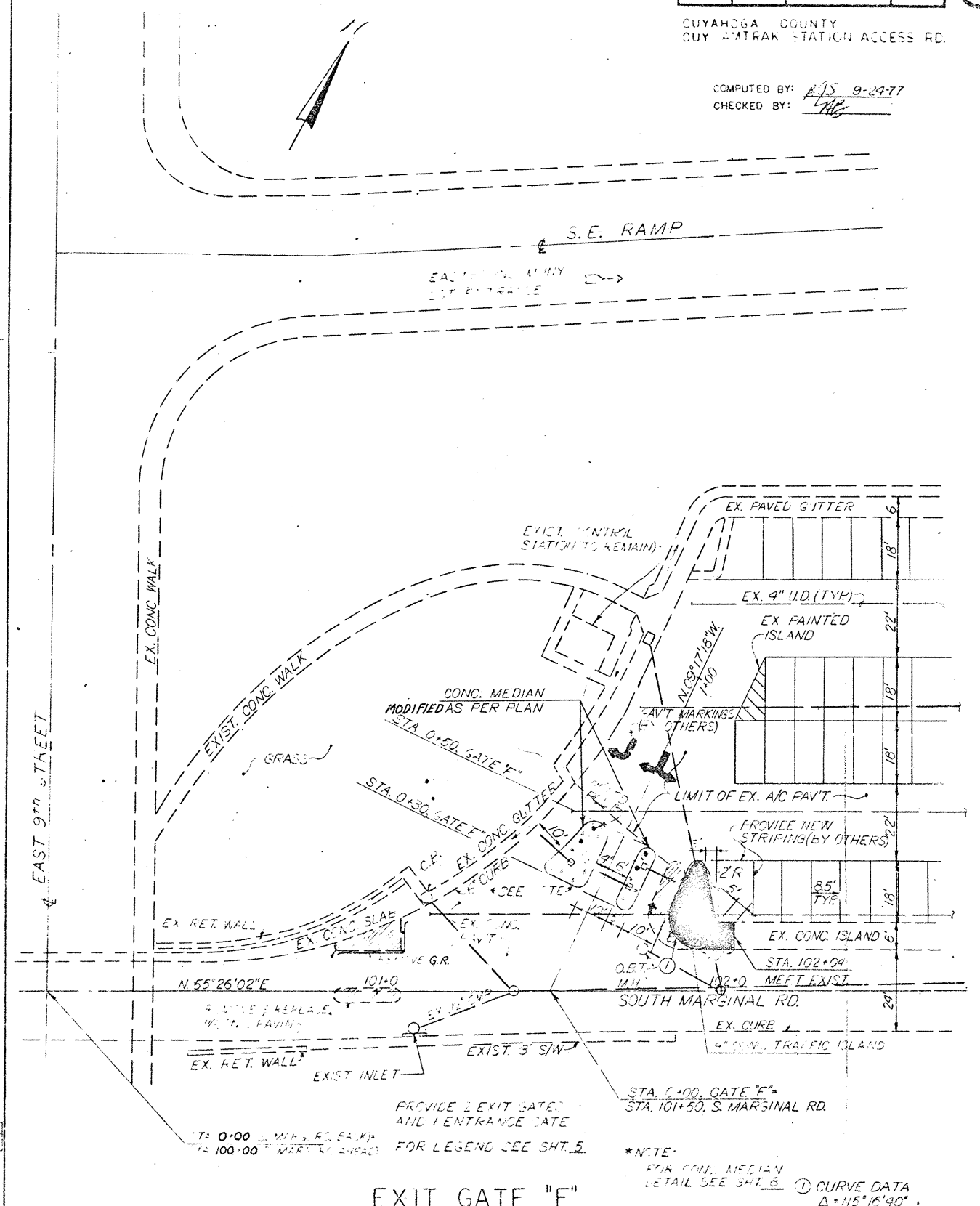
STA. 0+00, GATE "E"
STA. 139+46, S. MARGINAL RD.

NOTE: FOR CROSS SECTIONS & PROFILE SEE SHT. 14

FEDERAL REGION	STATE	PROJECT
5	OHIO	

CUYAHOGA COUNTY
CUYAHOGA STATION ACCESS RD.

COMPUTED BY: *ADS* 9-29-77
CHECKED BY: *HLG*

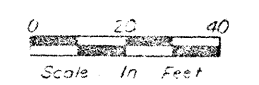


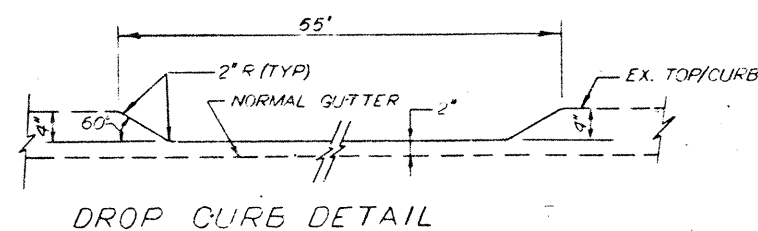
EXIT GATE "F"

NOTE:
EXISTING UTILITIES SHOWN WERE TAKEN FROM RECORD, HOWEVER, COMPLETE ACCURACY CANNOT BE GUARANTEED. CONTRACTOR SHALL VERIFY LOCATIONS IN FIELD.

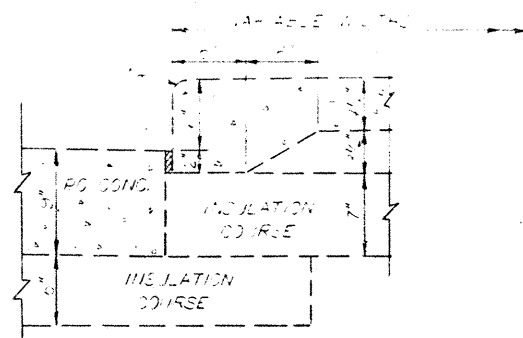
NOTE:
CONC. MEDIAN SHALL BE DOWELED TO EXIST. CONC. PAVT.

*NOTE:
FOR CONC. MEDIAN DETAIL SEE SHT. 3
① CURVE DATA
Δ = 115°16'40"
R = 10.00
ARC = 23.12
CHD = 16.89
T = 15.73

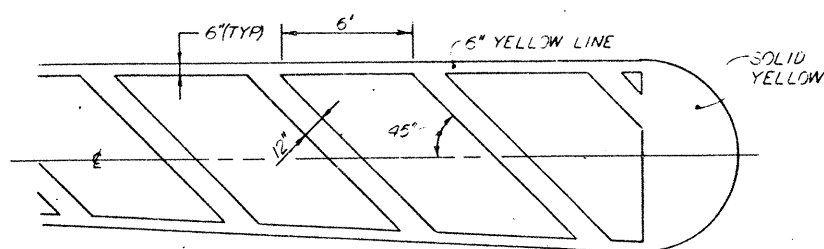




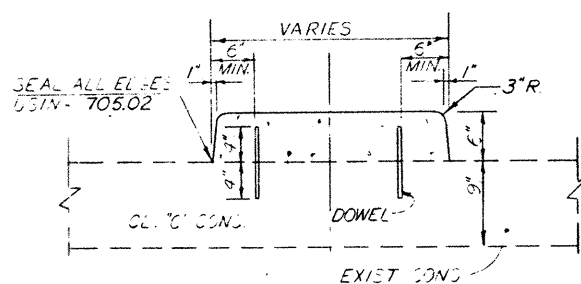
DROP CURB DETAIL



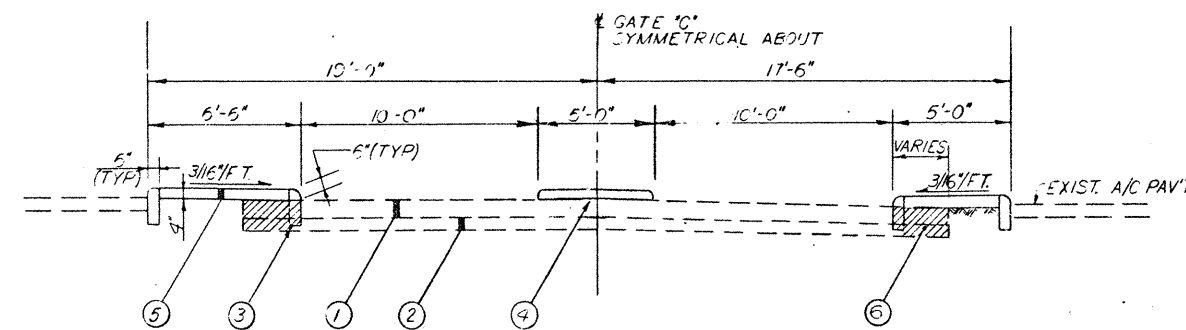
EXISTING CONCRETE TRAFFIC ISLAND



PAINTED ISLAND DETAIL



TYPICAL MELIAN DOWELING DETAIL

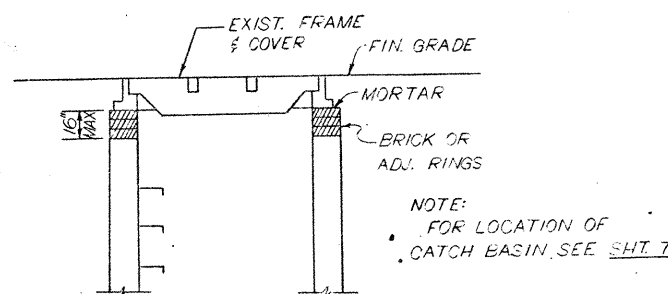


TYPICAL SECTION - GATE "C"

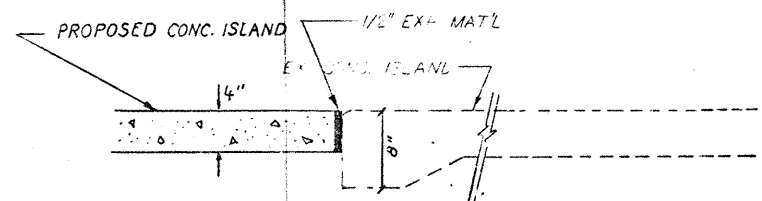
LEGEND

- ① ITEM 451 - 3" REINFORCED PORTLAND CEMENT CONC.
- ② ITEM 310 - 6" SUBBASE
- ③ ITEM 609 - CURB, TYPE 5
- ④ ITEM 612 - CONCRETE MELIAN, ^{MODIFIED} AS PER PLAN, 6"
- ⑤ ITEM 612 - 4" CONCRETE TRAFFIC ISLAND
- ⑥ ITEM 202 - PAVEMENT REMOVED

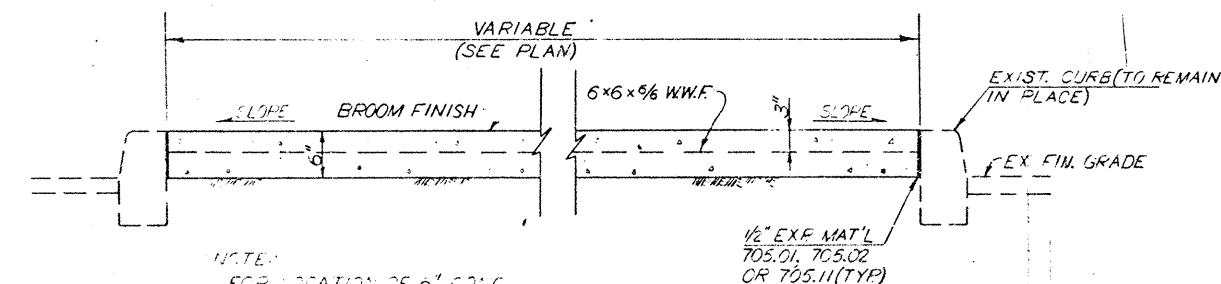
NOTE: DRILLED HOLES FOR DOWELS SHALL BE PARTIALLY FILLED WITH EPOXY GROUT AND HELD IN PLACE UNTIL SETTING. DOWELS TO BE 5/8" DIA AND SPACED AT 30" CTR.



CATCH BASIN ADJUST DETAIL



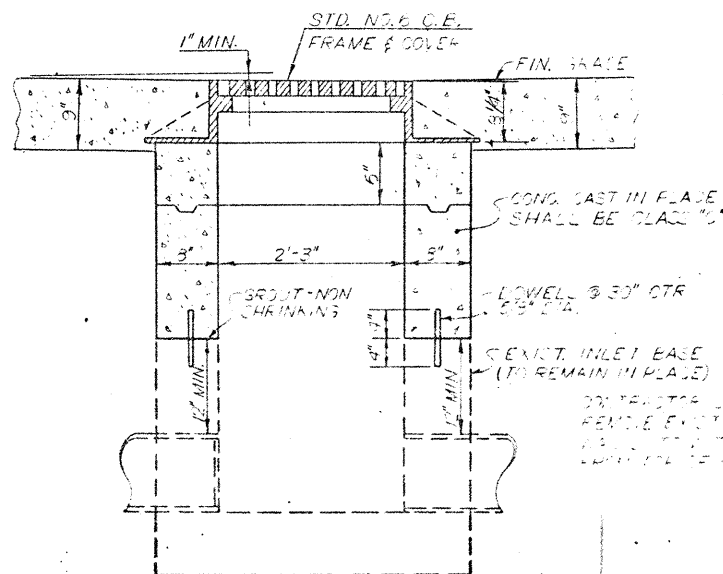
CONCRETE ISLAND ABUTTING DETAIL



6" CONCRETE TRAFFIC ISLAND

NOTE: FOR LOCATION OF 6" CONG. TRAFFIC ISLAND SEE SHT. 5.

1/2" EXF MAT'L
705.01, 705.02
OR 705.11(TYP)



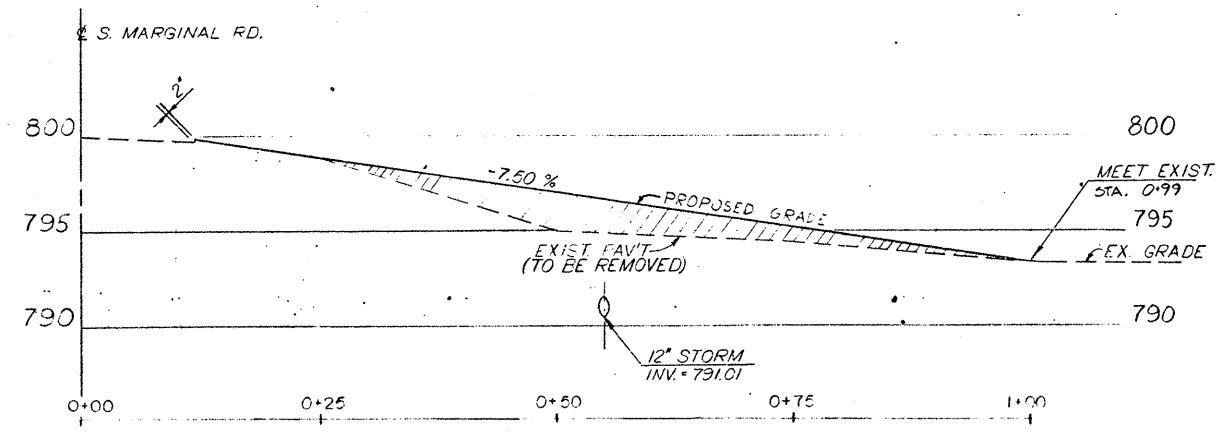
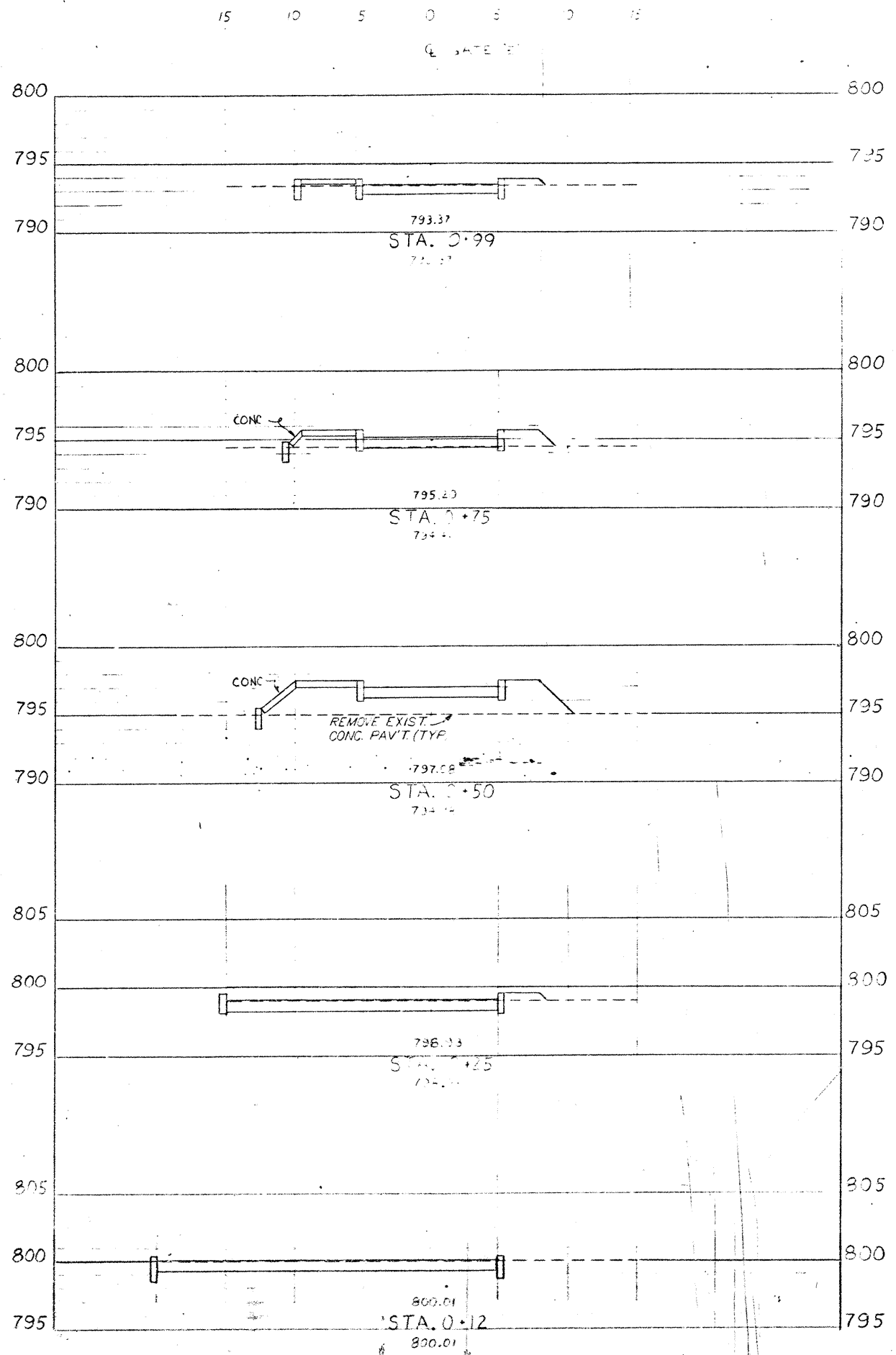
DETAIL, INLET RECONSTRUCTED TO GRADE AS PER PLAN

CONG. CAST IN PLACE SHALL BE CLASS "C"
DOWEL @ 30" CTR
EXIST. INLET BASE (TO REMAIN IN PLACE)
REMOVE EXIST. CURB (TO REMAIN IN PLACE)
REMOVE EXIST. SIDEWALK
REMOVE EXIST. SIDEWALK

AREA	STATE	PROJECT
5	OHIO	

17

CUYAHOGA COUNTY
CUY. PATRAK STATION ACCESS RD.



PROFILE GATE "E"

GATE "E" CROSS-SECTIONS

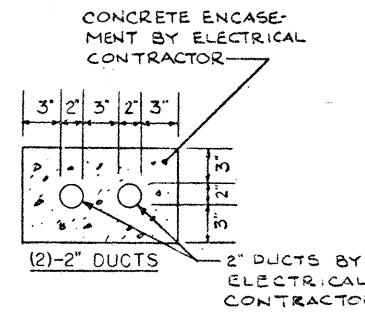
HORIZONTAL SCALE 1" = 5'
VERTICAL SCALE 1" = 5'

GENERAL SUMMARY (FEDERAL PARTICIPATION)

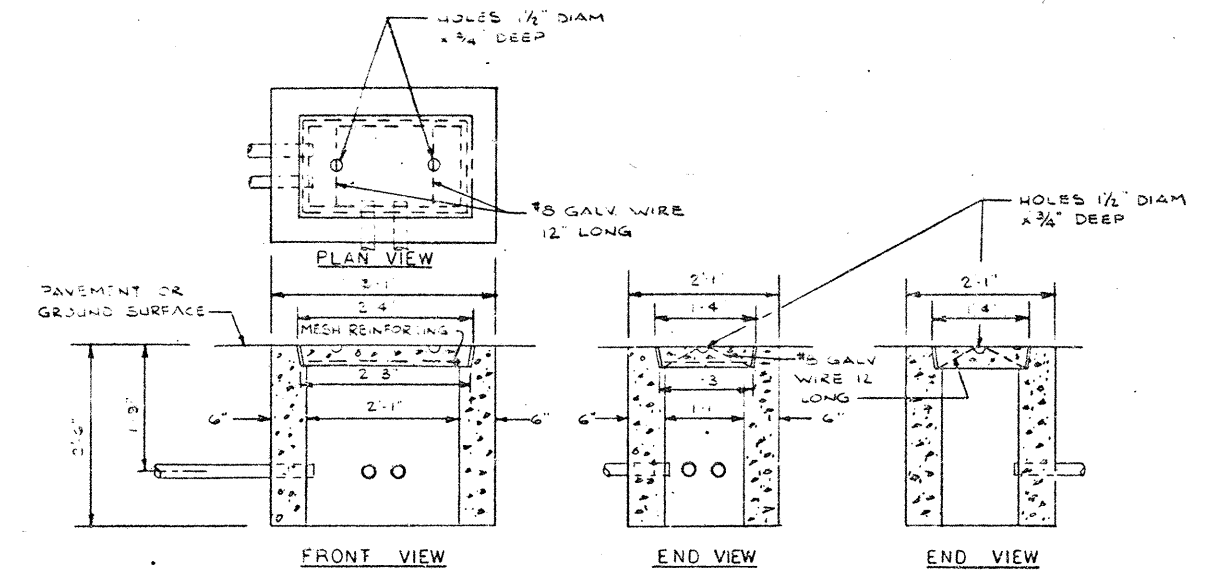
LINE	ITEM	SHT. NO.				QUANT	UNIT	DESCRIPTION	SUPP SPEC AMTRAK
		12	13	14	15				
SPECIAL	2	2	5	2	11	EA.	PARKING GATE REMOVED	GS 09	
SPECIAL	2	2	4	2	10	EA.	COIN COLLECTOR REMOVED	GS 09	
SPECIAL	1	1			2	EA.	ENTRANCE GATE, TYPE 1	PG 01 TO PG 08	
SPECIAL	1	1	1	1	3	EA.	ENTRANCE GATE, TYPE 2	" "	
SPECIAL	2	1	2	1	8	EA.	EXIT GATE, TYPE 1	" "	
SPECIAL					1	EA.	EXIT GATE, TYPE 2	" "	
SPECIAL					1	EA.	EXIT GATE, TYPE 3	" "	
625		2	2	4	8	EA.	STD. PULLBOX NO.1	PG.11	
SPECIAL		1	1	1	3	EA.	PULLBOX NO.2	PG.11	
SPECIAL		1	1	1	1	EA.	60A 2P BREAKER	PG.10	
SPECIAL					1	EA.	15A 1P BREAKER	PG.10	
625			25		25	LIN. FT.	1" CONDUIT, 713.04 TYPE 1		
625		4	4	4	12	LIN. FT.	3" CONDUIT, 713.04 TYPE 1		
625		65	60	40	185	LIN. FT.	2-2" CONDUIT, ENCASED AS PER PLAN		
625		478	422	508	2008	LIN. FT.	#6 AWG 600V DISTRIBUTION CABLE		
SPECIAL					1	EA.	SONIC DEVICE & POLE REMOVED FOR RE-USE		
SPECIAL					1	EA.	SONIC DEVICE & POLE REBUILT		
625		65	105	40	210	LIN. FT.	TRENCH 24" DEEP		

LEGEND

SYMBOL	DESCRIPTION
(---)(EXISTING)	INDICATES PVC SCHEDULE 40 CONDUIT RUN IN CONCRETE ENVELOPE A MINIMUM OF 1" BELOW GRADE
■	INDICATES STANDARD PULLBOX NO. 1 CONSTRUCTED ACCORDING TO DETAIL AT RIGHT
①	INDICATES ENTRANCE OR EXIT LANE NUMBER



2-2" CONDUIT ENCASED AS PER PLAN



SCALE ~ 3/4" = 1'-0"

NOTES:

- MESH REINFORCING TO HAVE AREA OF 12 SQ INCHES PER FOOT OF WIDTH WIRE SPACING 4 MAX.
- THE DETAIL ABOVE IS FOR (2) 2" DUCTS WHEN THERE IS ONLY (1) 2" DUCT CENTER TO CENTER BETWEEN THE SIDES OF THE PULLBOX AT THE STANDARD DEPTH OF 1'9".

ITEM SPECIAL - SONIC DEVICE & POLE REMOVED FOR RE-USE

ITEM SPECIAL - SONIC DEVICE & POLE REBUILT

THE EXISTING SONIC DEVICE & POLE HAS BEEN FIELD CHECKED TO DETERMINE THAT THE SAID EQUIPMENT IS SUITABLE FOR SALVAGE. HOWEVER, THE EXISTING SONIC DEVICE & POLE MAY PROVE TO BE UNSUITABLE AS DETERMINED BY THE ENGINEER DURING THE CONSTRUCTION OF THIS PROJECT. TO PROVIDE FOR THIS CONTINGENCY THE CITY OF CLEVELAND WILL FURNISH A SALVAGEABLE SONIC DEVICE AND/OR POLE TO THE CONTRACTOR.

ALL INCIDENTALS INCLUDING CONDUIT, WIRE, AND HARDWARE SHALL BE FURNISHED BY THE CONTRACTOR. ALL COSTS INCLUDING LABOR, MATERIALS, EQUIPMENT, TESTING AND INSPECTIONS FOR THE ABOVE MENTIONED WORK SHALL BE PAID FOR UNDER THE UNIT PRICE BID FOR ITEM SPECIAL-SONIC DEVICE AND POLE REMOVED FOR RE-USE AND ITEM SPECIAL-SONIC DEVICE AND POLE REBUILT.

ITEM SPECIAL - EXIT GATE, TYPE 2

THIS ITEM SHALL CONSIST OF THE FOLLOWING PARKING EQUIPMENT UNITS AS DESCRIBED ELSEWHERE IN THESE SPECIFICATIONS:

- 1- PARKING GATE UNIT
- 2- LANE TOTALIZER UNIT
- 2- LOOP DETECTOR UNIT
- 1- SONIC DEVICE & POLE

THE WORK DESCRIBED ABOVE AND THE CONTRACT UNIT PRICE BID FOR EACH ITEM SPECIAL EXIT GATE, TYPE 2, IN PLACE, COMPLETED & ACCEPTED SHALL FORM THE BASIS OF PAYMENT AND SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING MATERIAL & FOR ALL LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS INCLUDING ALL CONDUIT & WIRE NECESSARY TO COMPLETE THIS ITEM.

ITEM SPECIAL - EXIT GATE, TYPE 3

THIS ITEM SHALL BE THE SAME AS ITEM SPECIAL - EXIT GATE, TYPE 1 WITH THE ADDITION OF A MANUAL OVER-RIDE SWITCH FROM THE EXISTING GUARDHOUSE.

THE WORK DESCRIBED ABOVE AND THE CONTRACT UNIT PRICE BID FOR EACH ITEM SPECIAL EXIT GATE, TYPE 3, IN PLACE, COMPLETED & ACCEPTED SHALL FORM THE BASIS OF PAYMENT AND SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING MATERIAL & FOR ALL LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS INCLUDING ALL CONDUIT & WIRE NECESSARY TO COMPLETE THIS ITEM.

GENERAL NOTES

- These notes are supplemental to items 5625 and 5713 of the State of Ohio Department of Transportation construction and material specifications. Reference shall be made to standard construction drawings listed on the title sheet of these plans.
- REFERENCES TO ITEMS 615 AND 73 IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 625 AND 570.
- 5713 OF ELECTRIC CABLES IN LIEU OF THE REQUIREMENTS LISTED UNDER 5713.02, PARAGRAPHS 2(a) AND 2(b), ALL CABLES TO BE USED FOR 300 AND 600 VOLT SERVICES SHALL BE UL TYPE RHH, OR RHW, OR RHH/RHW AND FURTHER MEET THE REQUIREMENTS OF UL TYPE USE. ALL SINGLE CONDUCTOR CABLES TO BE USED FOR 300 AND 600 VOLT SERVICE SHALL NOT HAVE A SEPARATE OUTER COVERING.
- UNLESS OTHERWISE CALLED FOR ON THE PLANS, THE CONTRACTOR SHALL REPLACE ALL PAVEMENT, SIDEWALKS, SOD, OR OTHER SURFACES DISTURBED DUE TO THE INSTALLATION OF TRENCHES, PULLBOXES, OR OTHER ELECTRICAL MATERIAL TO A CONDITION EQUAL TO THAT EXISTING BEFORE THE WORK WAS STARTED, FURNISHING ALL MATERIALS, LABOR, EQUIPMENT, ET CETERA, AT NO ADDITIONAL COST TO THE STATE.

ITEM SPECIAL - ENTRANCE GATE, TYPE 1

THIS ITEM SHALL CONSIST OF THE FOLLOWING PARKING EQUIPMENT UNITS AS DESCRIBED ELSEWHERE IN THESE SPECIFICATIONS:

- 1- LOOP DETECTOR UNIT
- 1- LANE TOTALIZER UNIT

BOTH UNITS ARE TO BE MOUNTED IN A WEATHERPROOF HOUSING IN NEARBY ISLAND. THE WORK DESCRIBED ABOVE AND THE CONTRACT UNIT PRICE BID FOR EACH ITEM SPECIAL-ENTRANCE GATE, TYPE 1, IN PLACE, COMPLETED & ACCEPTED SHALL FORM THE BASIS OF PAYMENT AND SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING MATERIAL & FOR ALL LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS INCLUDING ALL CONDUIT AND WIRE NECESSARY TO COMPLETE THIS ITEM.

ITEM SPECIAL - ENTRANCE GATE, TYPE 2

THIS ITEM SHALL CONSIST OF THE FOLLOWING PARKING EQUIPMENT UNITS AS DESCRIBED ELSEWHERE IN THESE SPECIFICATIONS:

- 1- PARKING GATE UNIT
- 4- LANE TOTALIZER UNIT
- 2- LOOP DETECTOR UNIT

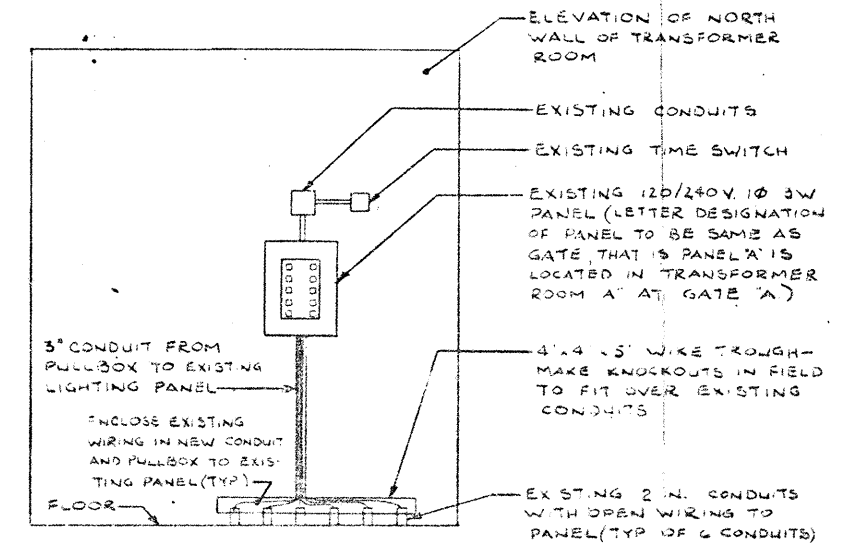
THE WORK DESCRIBED ABOVE AND THE CONTRACT UNIT PRICE BID FOR EACH ITEM SPECIAL-ENTRANCE GATE, TYPE 2 IN PLACE, COMPLETED & ACCEPTED SHALL FORM THE BASIS OF PAYMENT AND SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING MATERIAL & FOR ALL LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS INCLUDING ALL CONDUIT & WIRE NECESSARY TO COMPLETE THIS ITEM.

ITEM SPECIAL - EXIT GATE, TYPE 1

THIS ITEM SHALL CONSIST OF THE FOLLOWING PARKING EQUIPMENT UNITS AS DESCRIBED ELSEWHERE IN THESE SPECIFICATIONS:

- 1- PARKING GATE UNIT
- 5- LANE TOTALIZER UNIT
- 1- COIN COLLECTOR UNIT
- 2- LOOP DETECTOR UNIT

ONE (1) OF THE LANE TOTALIZERS SHALL BE LOCATED INSIDE THE COIN COLLECTOR UNIT. THE WORK DESCRIBED ABOVE AND THE CONTRACT UNIT PRICE BID FOR EACH ITEM SPECIAL-EXIT GATE, TYPE 1, IN PLACE, COMPLETED & ACCEPTED SHALL FORM THE BASIS OF PAYMENT AND SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING MATERIAL & FOR ALL LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS INCLUDING ALL CONDUIT & WIRE NECESSARY TO COMPLETE THIS ITEM.



DETAIL OF PULLBOX NO. 2

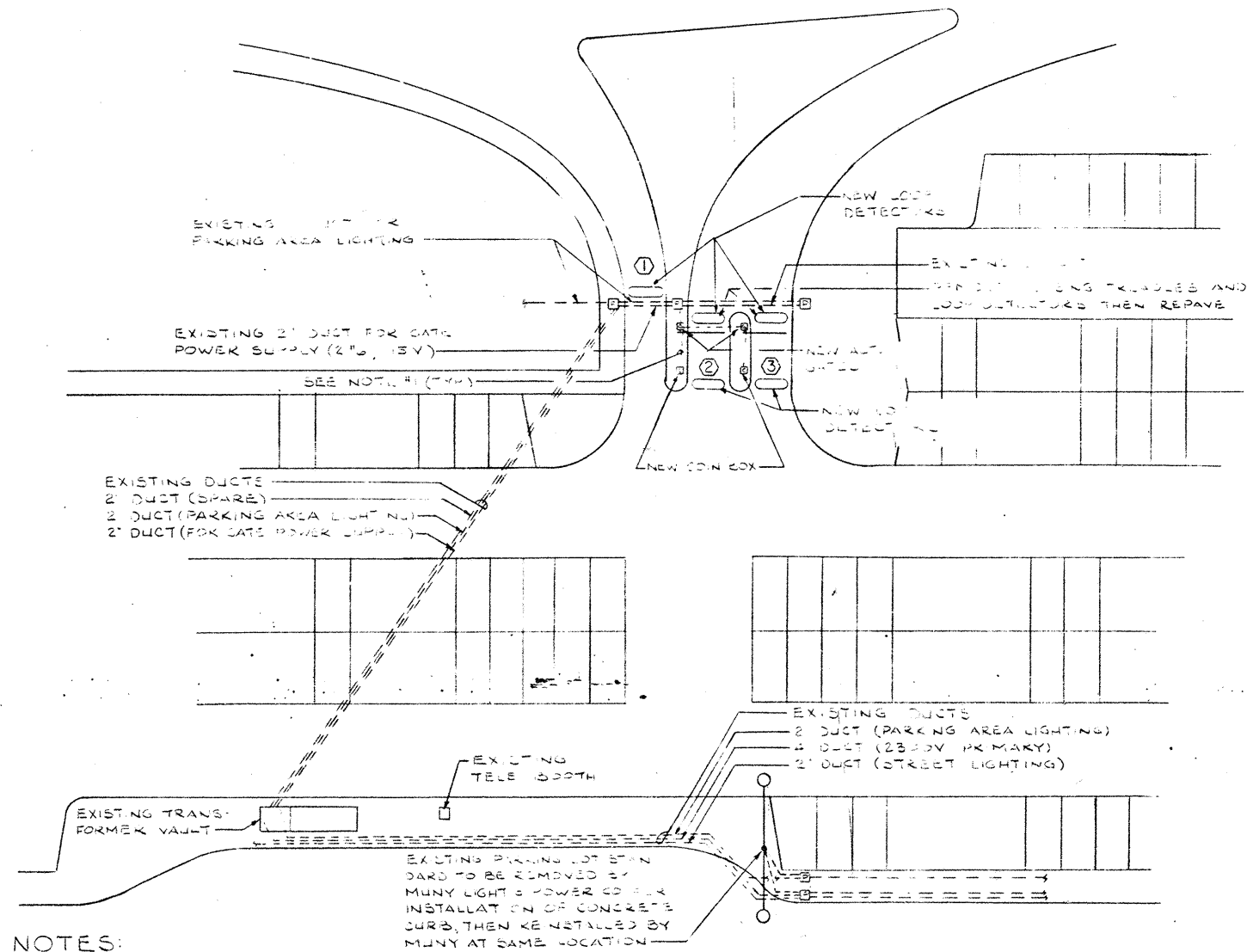
NOTES:

- DISCONNECT EXISTING CABLES AND RECONNECT AFTER ENCASED IN CONDUIT. RUN CONDUITS TO SUIT FIELD CONDITIONS. COST FOR CONNECTING TO EXISTING PANEL TO BE INCLUDED WITH PULLBOX.
- INSTALL 4'x4' PULLBOX AROUND EXISTING CONDUITS IN ORDER TO ENCLOSE OPEN WIRING.

COMPUTED BY: RJO 7-6-77
CHECKED BY: GAC 7-15-77

LANE NUMBERS	GATE QUANTITIES		
	SPECIAL	SPECIAL	SPECIAL
	ENTRANCE GATE TYPE,1	ENTRANCE GATE TYPE,2	EXIT GATE TYPE,1
1	EA		
2	1*		
3			1*
4		1	
5			1
TOTAL (CLEVE)	1		2
TOTAL (FED)		1	1

*100% CITY OF CLEVELAND



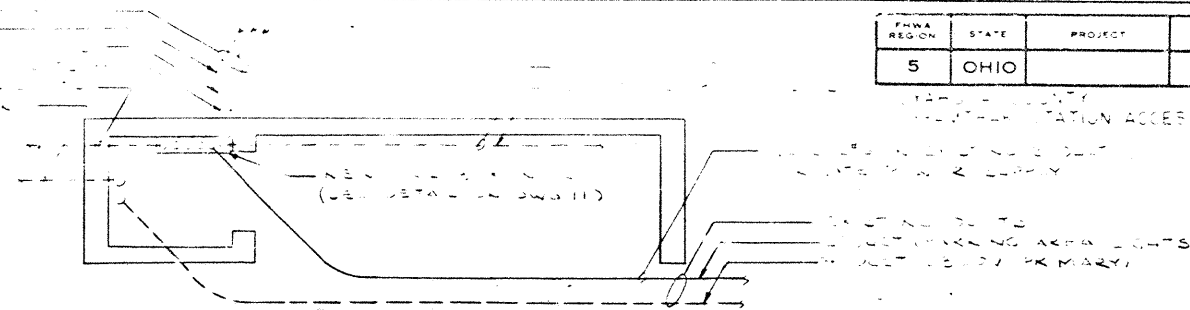
NOTES:

1. REMOVE TWO EXISTING GATES AND TWO EXISTING COIN BOXES. INSTALL TWO NEW EXIT GATES TYPE 1 AND ONE NEW ENTRANCE GATE TYPE 1. REUSE EXISTING UNDERGROUND DUCTS.
2. REMOVE TWO EXISTING TREADLES AND LOOP DETECTORS. LEAVE IN PLACE THREE LOOP DETECTORS. INSTALL FIVE NEW LOOP DETECTORS AT THE SAME LOCATION AS THE EXISTING DETECTORS.
3. RETAIL THE SIGN FOR THE LOOP DETECTOR FOR ENTRANCE LANE #1 IN THE EXIT GATE #2 AREA LANE #2.

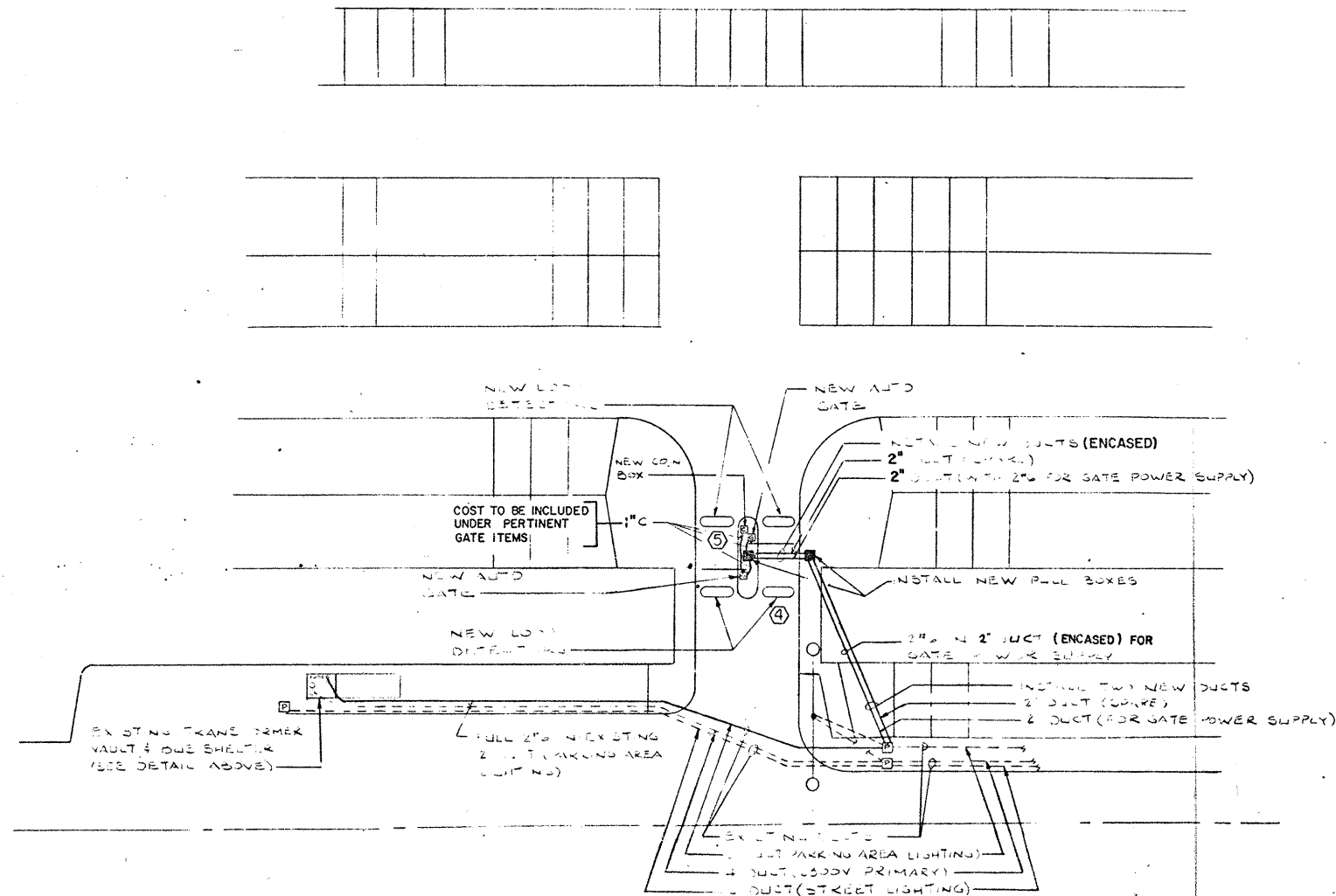
ENTRANCE & EXIT GATE A

SCALE ~1"=20'-0"

FHWA REGION	STATE	PROJECT
5	OHIO	



DETAIL PLAN OF TRANSFORMER VAULT AND BUS SHELTER AT INNER ENTRANCE "B"
SCALE ~1/4"=1'-0"

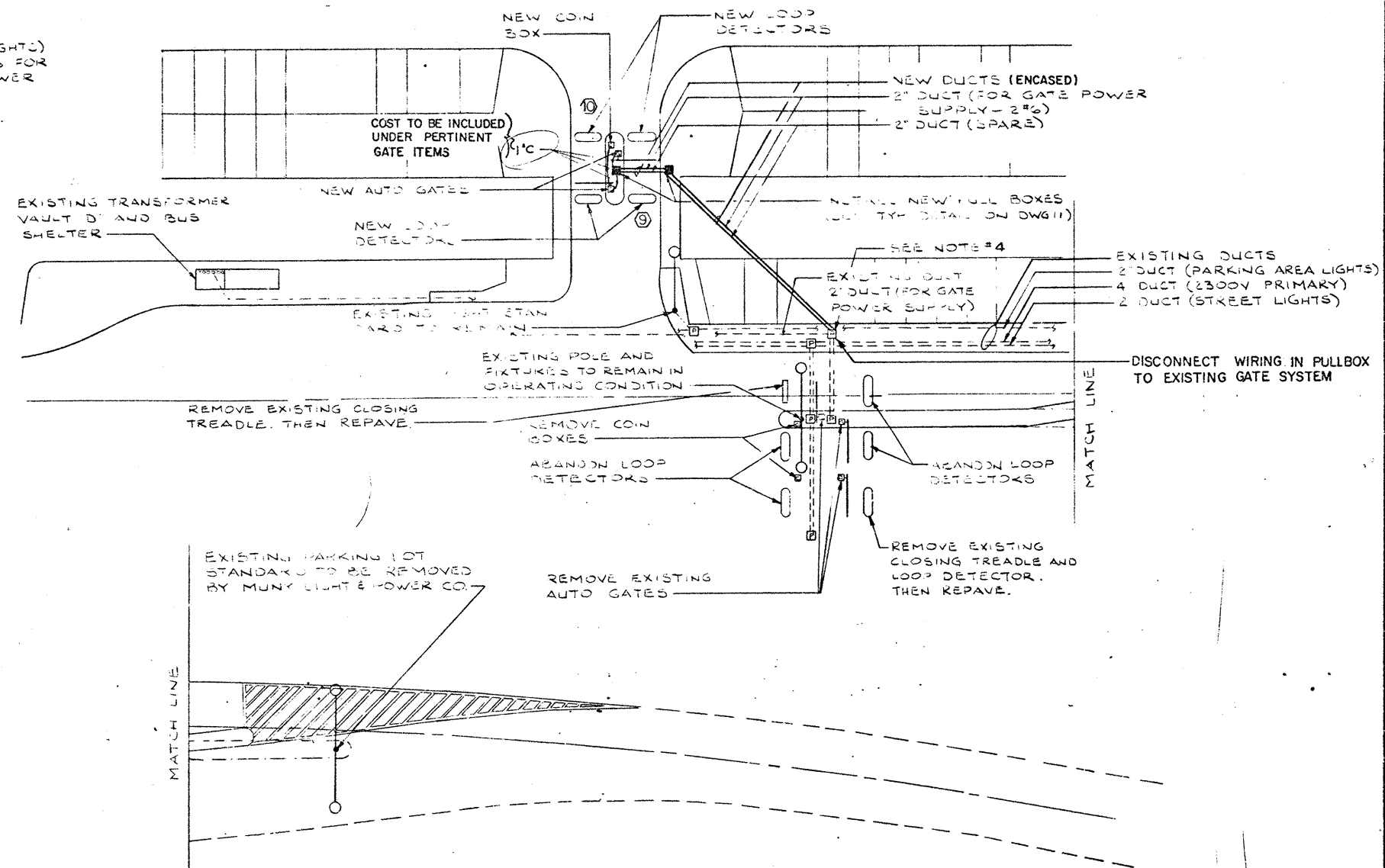
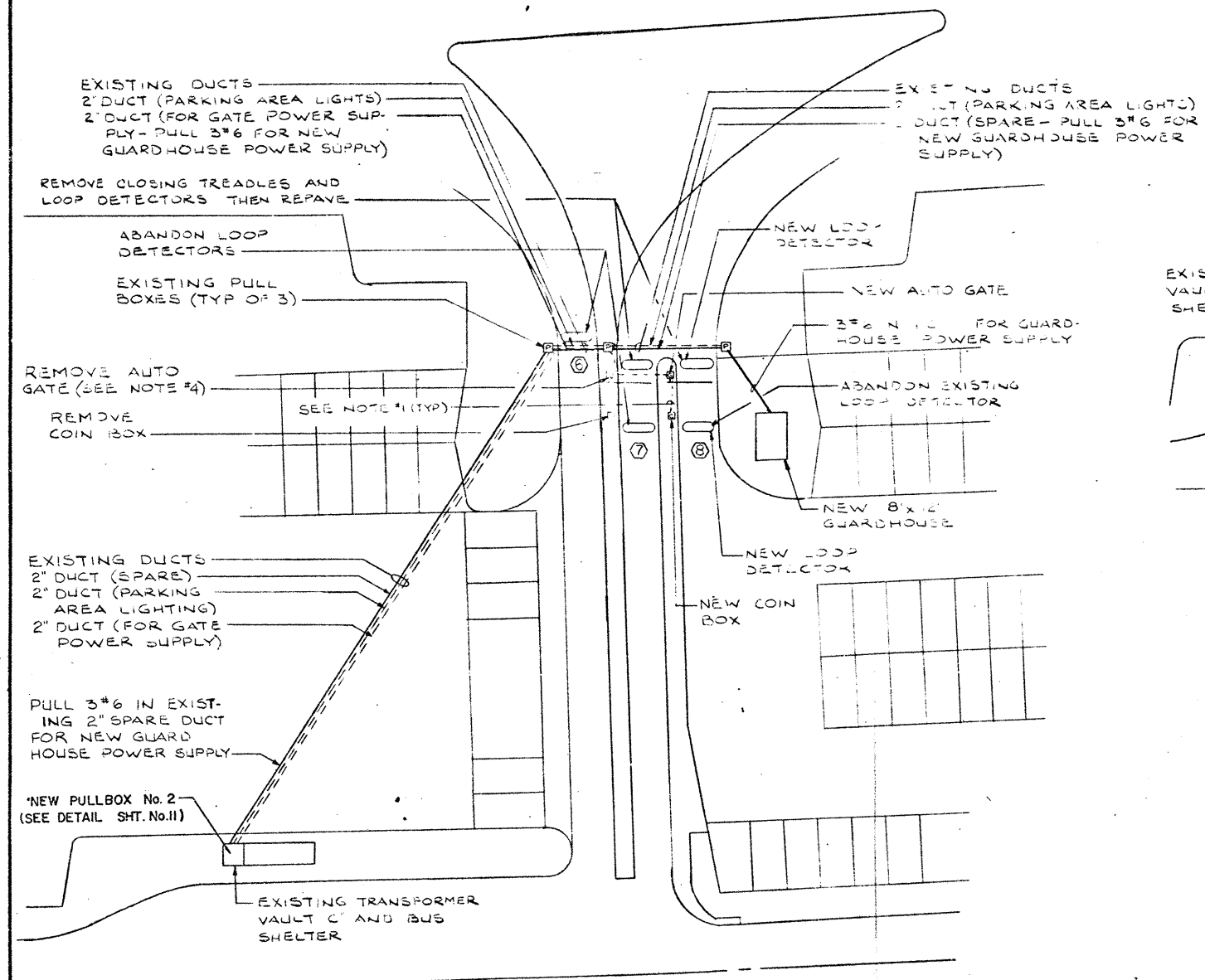


NOTES:

1. INSTALL NEW ENTRANCE GATE TYPE 2, NEW EXIT GATE TYPE 1 AND ASSOCIATED CONDUIT AND WIRE.
2. INSTALL TWO NEW PULLBOXES TYPE NO. 1.
3. INSTALL (2) 2" DUCTS ENCASED IN CONCRETE - LENGTH OF RUN 66 FT.
4. PULL 2# WIRE IN EXISTING DUCT - LENGTH OF RUN 150 FT. (CONTINUE THIS RUN IN NEW DUCT TO THE EQUIPMENT).
5. INSTALL NEW PULL BOX TYPE NO. 2 IN TRANSFORMER VAULT.
6. INSTALL 3" CONDUIT FROM NEW PULLBOX TO EXISTING PANEL - LENGTH OF RUN 4 FT.
7. CONNECT POWER WIRING FOR NEW GATES TO EXISTING 30A 1P BREAKER.

INNER ENTRANCE & EXIT GATE B

SCALE ~1"=20'-0"



NOTES:

1. REMOVE TWO EXISTING GATES AND TWO EXISTING COIN COLLECTORS. INSTALL ONE NEW EXIT GATE TYPE I.
REUSE EXISTING UNDERGROUND DUCTS AND CABLES FOR POWER
2. DISCONNECT POWER FOR EXISTING GATE AT LANE #7 RECONNECT CABLES TO MAKE CONTINUOUS CIRCUIT FOR POWER SUPPLY TO NEW GATE AT EXIT #8
3. REMOVE TWO EXISTING CLOSING TREADLES AND LOOP DETECTORS. ABANDON THREE LOOP DETECTORS. INSTALL TWO NEW LOOP DETECTORS IN EXIT LANE #8.
4. REPLACE 30A 2P BREAKER IN PANEL 'C' WITH A 60A 2P FOR POWER TO NEW GUARDHOUSE. DISCONNECT WIRING TO 30A 2P BREAKER AND ABANDON.
5. INSTALL NEW PULLBOX TYPE NO 2 IN TRANSFORMER ROOM 'C'.
6. INSTALL 3\"/>

EASTBOUND ENTRANCE AND EXIT GATE "C"
SCALE ~ 1" = 20'-0"

NOTES:

1. REMOVE THREE EXISTING GATES AND TWO EXISTING COIN COLLECTORS. CAP CONDUITS FLUSH WITH GRADE.
2. REMOVE TWO EXISTING CLOSING TREADLES AND ONE LOOP DETECTOR. ABANDON FOUR LOOP DETECTORS.
3. INSTALL FOUR NEW LOOP DETECTORS
4. DISCONNECT WIRE TO EXISTING GATES. SPLICE NEW WIRE INTO EXISTING 15Y CIRCUIT FOR POWER TO NEW GATES VIA NEW 2\"/>

INNER ENTRANCE AND EXIT GATE "D"
SCALE ~ 1" = 20'-0"

GATE NUMBERS	GATE QUANTITIES	
	SPECIAL ENTRANCE GATE, TYPE 2	SPECIAL EXIT GATE, TYPE 1
	EA.	EA.
8		1
9	1	
10		1
TOTALS (FED)	1	2

NOTES:

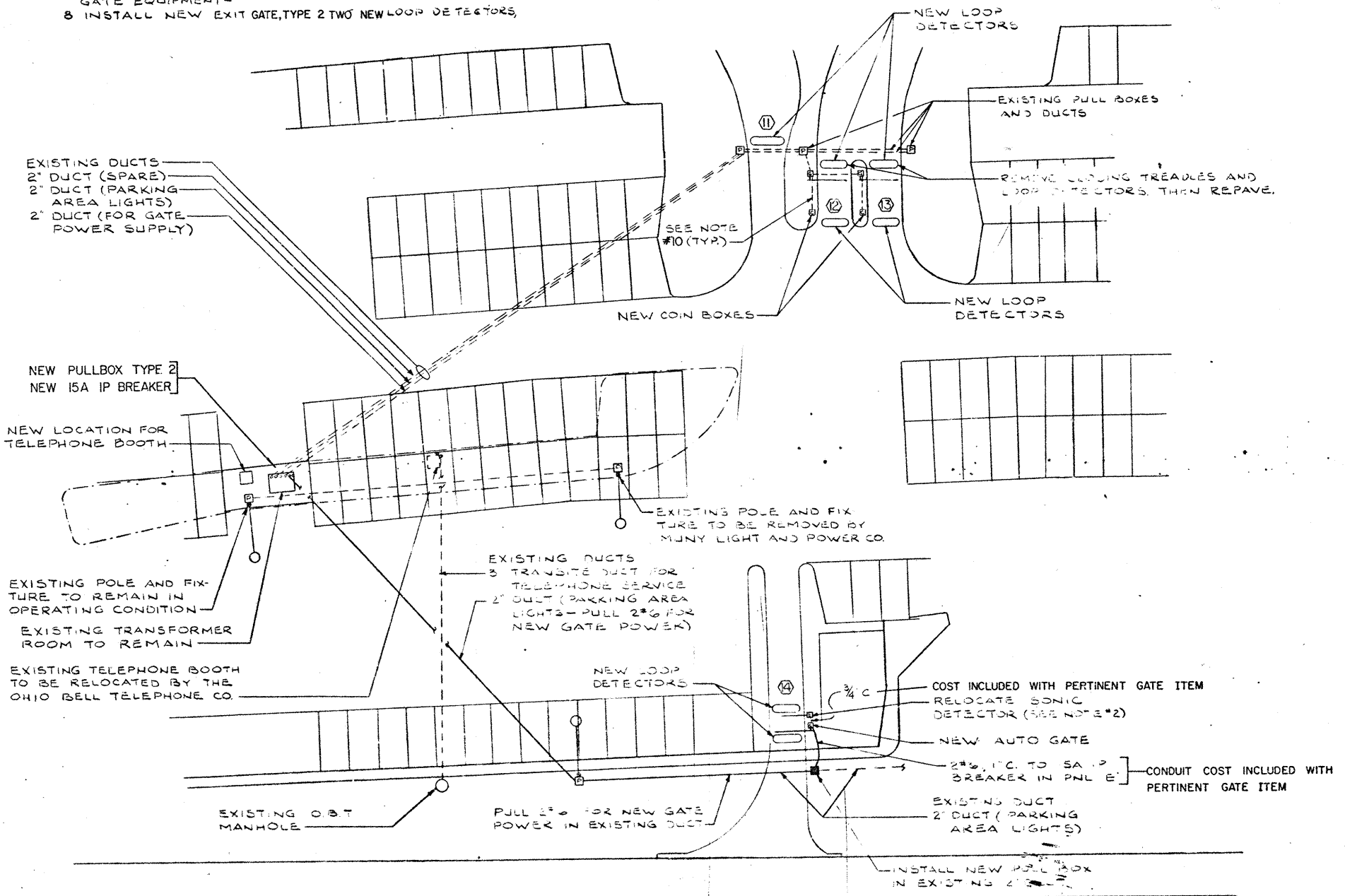
1. ALL WORK ASSOCIATED WITH LANE #14 IS LISTED IN THE GENERAL SUMMARY AS FEDERAL PARTICIPATION WORK, WORK ASSOCIATED WITH LANES #11, #12, & #13 IS LISTED IN THE GENERAL SUMMARY AS NON-FEDERAL PARTICIPATION.
2. IF THE EXISTING SONIC DETECTOR AT GATE #16 IS NOT IN OPERATING CONDITION THE OWNER SHALL FURNISH A NEW SONIC DETECTOR TO THE CONTRACTOR FOR INSTALLATION AT GATE #16.
3. FURNISH AND INSTALL A NEW 15A 1P BREAKER IN EXISTING 120/240V 1Ø PANEL IN TRANSFORMER ROOM E FOR POWER TO NEW GATE AT LANE #4.
4. INSTALL NEW PULLBOX TYPE NO. 2 IN TRANSFORMER ROOM E.
5. INSTALL 3" CONDUIT FROM NEW PULLBOX TO EXISTING PANEL - LENGTH OF RUN 4 FT.
6. PULL 2# WIRE IN EXISTING DUCT LENGTH OF RUN 195 FT (CONTINUE THIS RUN IN NEW CONDUIT TO GATE EQUIPMENT).
7. INSTALL 1" C FROM NEW PULLBOX TO NEW GATE EQUIPMENT.
8. INSTALL NEW EXIT GATE, TYPE 2 TWO NEW LOOP DETECTORS,

- AND RELOCATED SONIC DETECTOR
9. RECONNECT SONIC DETECTOR TO NEW GATE THROUGH 3/4" C
 10. FOR NON-FEDERAL PARTICIPATION WORK REMOVE TWO EXISTING GATES AND TWO EXISTING COIN BOXES. INSTALL TWO NEW EXIT GATES TYPE 1 AND REUSE EXISTING UNDERGROUND DUCTS.
 11. REMOVE TWO EXISTING TREADLES AND LOOP DETECTORS. ABANDON THREE LOOP DETECTORS. INSTALL FIVE NEW LOOP DETECTORS AT THE SAME LOCATION AS THE EXISTING DETECTORS.
 12. INSTALL THE LANE TOTALIZER FOR THE LOOP DETECTOR FOR ENTRANCE LANE #11 IN THE AUTO GATE FOR EXIT LANE #12.

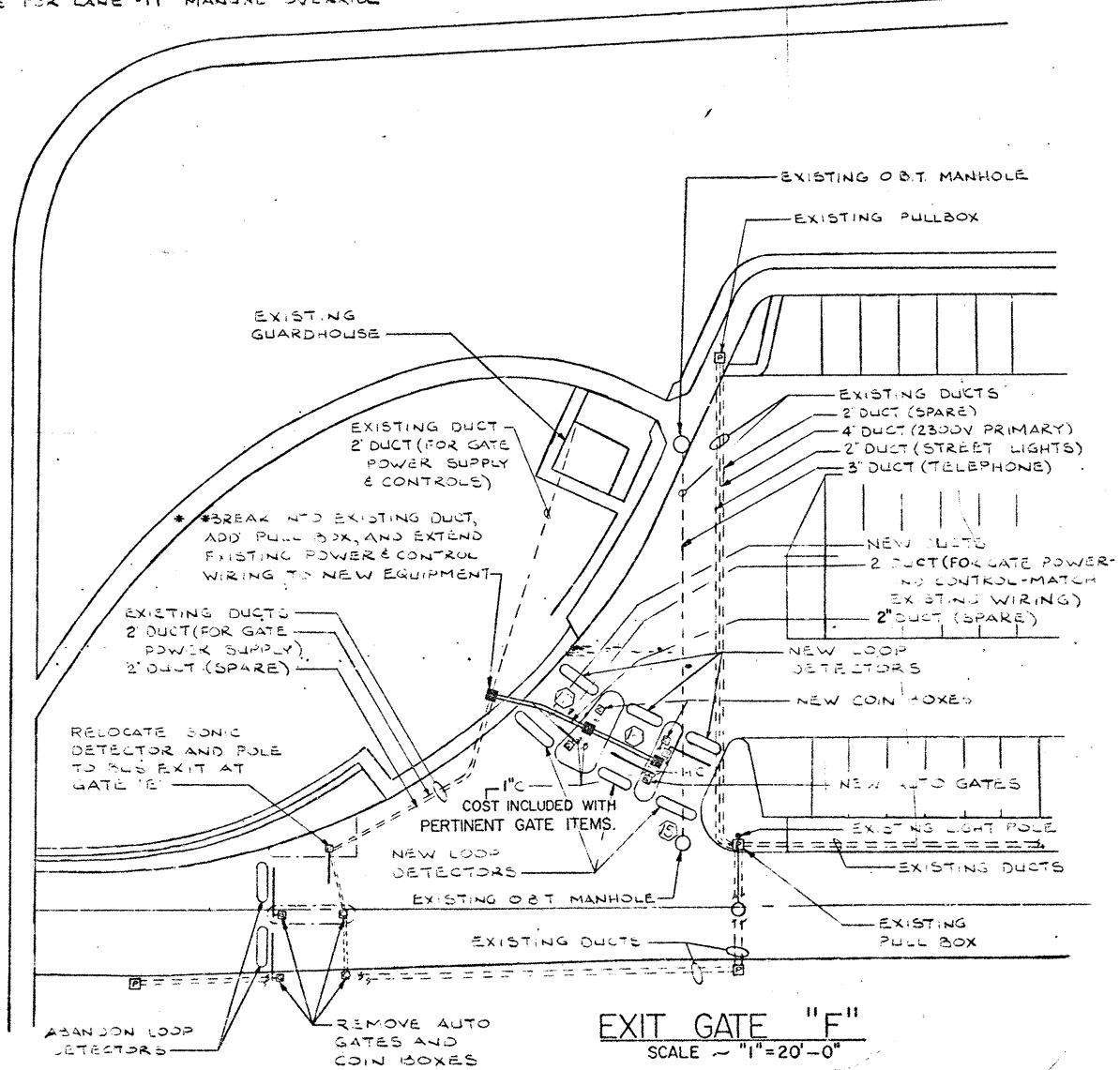
NOTES:

1. REMOVE TWO EXISTING GATES AND TWO EXISTING COIN COLLECTORS CAP CONDUITS FLUSH WITH GRADE.
2. ABANDON TWO LOOP DETECTORS.
3. INSTALL THREE NEW PULLBOXES TYPE NO. 1. DISCONNECT WIRE FROM NEW PULLBOX TO THE EXISTING EQUIPMENT AND REUSE THE WIRE IN NEW DUCT SYSTEM FOR THE GATES FOR LANES #15 & #17. ABANDON EXISTING DUCT FROM NEW PULLBOX TO EXISTING EQUIPMENT.
4. INSTALL ONE NEW ENTRANCE GATE, TYPE 1 ONE NEW EXIT GATE, TYPE 1 ONE NEW EXIT GATE, TYPE 3 AND ALL ASSOCIATED CONDUITS AND WIRING.
5. INSTALL TWO 2" DUCTS ENCASED IN CONCRETE - LENGTH OF RUN 40 FT.
6. EXTEND EXISTING POWER WIRING FOR NEW AUTO GATES FROM NEW PULLBOX TO NEW EQUIPMENT.
7. EXTEND EXISTING CONTROL WIRING FOR MANUAL OVERRIDE OF EXIT GATE #17 FROM NEW PULLBOX TO AUTO GATE FOR LANE #17. MANUAL OVERRIDE.

CUYAHOGA COUNTY
CUY-AMTRAK STATION ACCESS ROAD
SWITCH IS IN EXISTING GUARDHOUSE.
8. INSTALL SIX NEW LOOP DETECTORS



BUS EXIT GATE "E"
SCALE ~ 1" = 20'-0"



EXIT GATE "F"
SCALE ~ 1" = 20'-0"

GATE NUMBERS	GATE QUANTITIES				
	SPECIAL ENTRANCE GATE TYPE 1	SPECIAL ENTRANCE GATE TYPE 2	SPECIAL EXIT GATE TYPE 1	SPECIAL EXIT GATE TYPE 2	SPECIAL EXIT GATE TYPE 3
11	1*				
12			1*		
13			1*		
14				1	
15		1			
16			1		
17					1
TOTAL (CLEV.)	1		2	1	1
TOTAL (FED.)			1	1	1

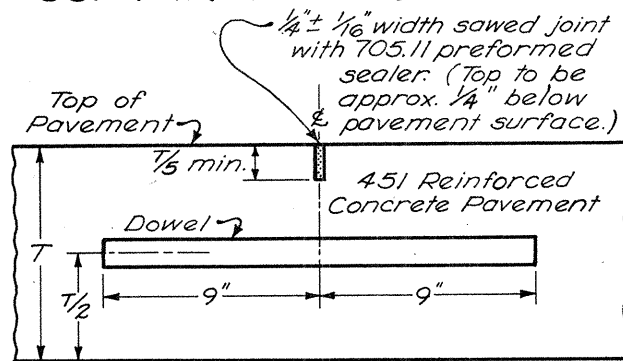
* 100% CITY OF CLEVELAND

** NOTE: ALL COSTS FOR RELOCATING EXISTING POWER AND CONTROL WIRING IN NEW DUCTS SHALL BE INCLUDED UNDER THE UNIT PRICE BID FOR ITEM 625-2-2" CONDUIT ENCASED, AS PER PLAN.

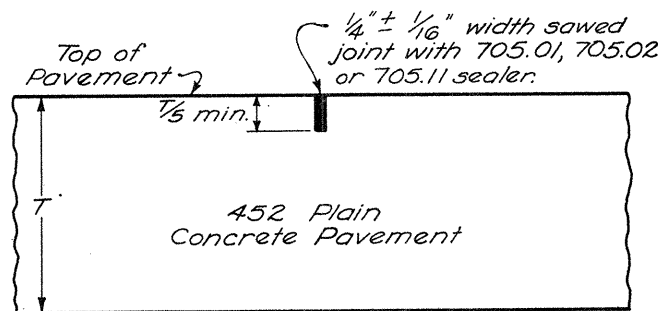
GATE DETAILS GATES 'E' & 'F'

TRANSVERSE JOINTS

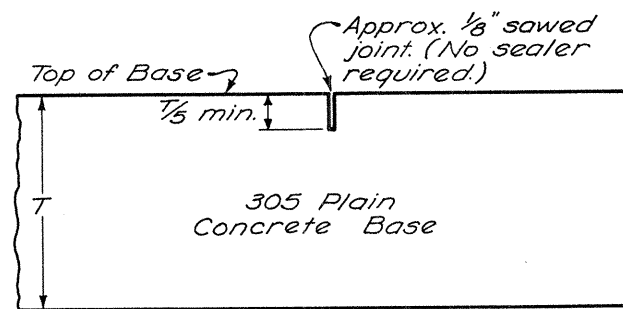
CONTRACTION JOINTS



SECTION ~ 451 PAVEMENT

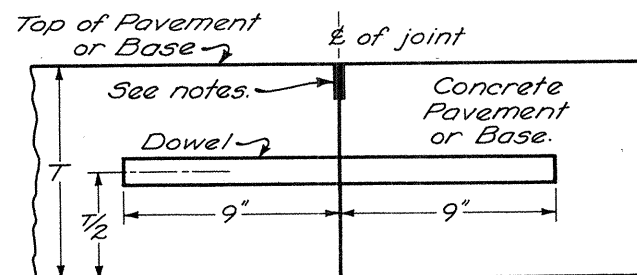


SECTION ~ 452 PAVEMENT



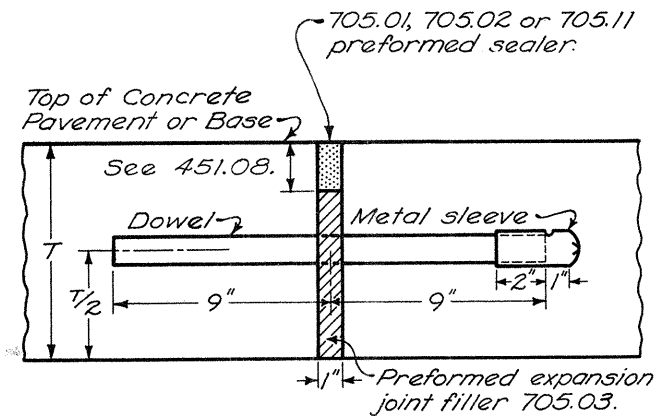
SECTION ~ 305 BASE

CONSTRUCTION JOINT

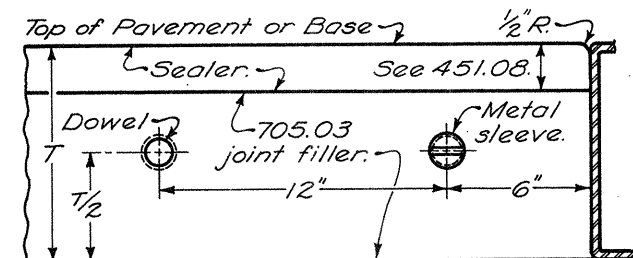


SECTION THROUGH CONSTRUCTION JOINT

EXPANSION JOINT



SECTION THROUGH EXPANSION JOINT



SIDE ELEVATION OF EXPANSION JOINT

GENERAL: Notes and details shown on this drawing shall be considered in conjunction with and supplemental to the pertinent specifications for portland cement concrete pavements and bases, and incidentals related thereto.

All joints shall be constructed normal to the centerline of the pavement lane unless otherwise directed.

Where dowels are specified, they shall be round, straight steel bars of the size indicated in the following table, and shall be shop coated with a suitable rust inhibitor. Dowels shall be spaced at 12" centers, beginning 6" from the longitudinal joint.

DOWEL SIZE	
THICKNESS OF PAVEMENT	DIAMETER OF DOWEL
8.5" or less	1"
8.6" to 10"	1 1/4"
over 10"	1 1/4" or as shown on plan

ASSEMBLY: Each joint assembly used to hold dowels in position shall be continuous between longitudinal joints or between longitudinal joint and pavement edge. The assembly shall be firmly held in proper position by at least eight 1/2" steel pins driven at an angle to brace the assembly from lateral and vertical displacement during the placing of the concrete. These pins shall be at least 18" in length. Two of these pins shall be driven opposite each other at each end

of the assembly and the remaining pins shall be driven in staggered positions on each side of the assembly. In exceptional cases where it is impractical to use the 18" length pins, such as where hardpan or rock is encountered, the Engineer may authorize use of shorter pins provided the assembly is held firmly. Where the assembly is placed on granular material which may allow settlement or distortion of the assembly, a minimum of 6 steel plates, each having a bearing area of approximately 25 square inches and a cross-section which will not bend under the imposed load, shall be placed under the assembly. One plate shall be used at each of the four end pins. The remaining plates shall be spaced uniformly on each side of the assembly. The method of staking and placing bearing plates shall be approved by the Engineer.

Dowel spacing is shown for pavement lanes of even foot widths. Where other widths are specified, standard cages may be used with dowel spacings adjusted as follows:

The 6" dowel spacing shall be maintained at the longitudinal joint. The spacing at the outer edge of the lane may be increased up to 12". Where an odd width of lane occurs, a dowel shall be placed 6" from the outer edge of the lane if the standard cage would provide for a space exceeding 12". Such a dowel shall be held rigidly in proper position by a method satisfactory to the Engineer, or a dowel cage of greater length than required may be used by cutting the assembly and splicing to attain the required length.

This drawing is intended for use with a uniform depth pavement. When the project involves the placing of variable depth pavement, the joint components shall be held in place in accordance with the method shown in the plan or as approved by the Engineer.

EXPANSION JOINTS: Expansion joint filler shall be placed at 90° to the dowels, both horizontally and vertically, and shall be held rigidly in position. Joint filler shall be continuous for the full width of each lane.

Smooth dowels shall be used, and free movement shall be provided by applying a coating of an oil such as S.A.E. 140 or other "bond-breaking" material just prior to placing the concrete. One free end of each dowel shall be equipped, after coating, with a metal sleeve approximately 3" long, designed with crimped end and overlapping seams, fitting closely around the dowel. Each sleeve shall be provided with a depression or interior projection to act as a stop for the dowel, sufficiently distant from the crimped end to allow 1" for longitudinal dowel movement with pavement expansion. In lieu of this requirement, any other means may be used if approved by the Director.

Proper size dowel holes shall be punched or drilled into the preformed expansion joint filler in order to insure tight fitting dowels.

CONTRACTION JOINTS: Dowels shall be used in contraction joints in 451 reinforced concrete pavement. They shall be smooth bars, and free movement shall be provided by applying a coating of an oil such as S.A.E. 140 or other "bond-breaking" material just prior to placing the concrete.

Contraction joints of the type specified shall

be spaced in accordance with the following table:

CONTRACTION JOINT SPACING	
TYPES OF PAVEMENT OR BASE	MAXIMUM SPACING BETWEEN JOINTS
451 Reinforced Concrete Pavement	40 lin. ft.
452 Plain Concrete Pavement	17 lin. ft.
305 Plain Concrete Base	17 lin. ft.

CONSTRUCTION JOINTS: Smooth dowels shall be used in transverse construction joints in all portland cement concrete pavement and base. The joint shall be formed by using an adequate bulkhead that will provide a straight joint. The bulkhead shall have openings provided for dowel bars spaced as outlined under "ASSEMBLY." The bulkhead shall be shaped to fit the typical section of the pavement or base. Dowels shall be held rigidly in position during the placing of the concrete.

Construction joints in reinforced concrete pavement may be located at a contraction joint or between contraction joints, provided they are not closer than 10 feet to another parallel joint. In plain concrete pavement or concrete base a construction joint shall not be located closer than 5 feet to another parallel joint.

Kerf and seal conforming in all respects to details shown for contraction joints shall be provided at each construction joint in 451 and 452 pavements.

*Dowel coatings conforming to the requirements of supplemental specification 94B, Type A do not require a bond breaker.

BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
TRANSVERSE PAVEMENT JOINTS	
DATE 6-1-65 12-10-67 1-1-69 12-6-76	
STANDARD CONSTRUCTION DRAWING	BP-4
APPROVED <i>M. G. Cunningham</i> ENGR., L. & D.	

STANDARD CONCRETE CURBS AND COMBINED CURB AND GUTTER

NOTES

GENERAL: This drawing shows alternate types of curb that may be used on various types of pavement. Typical section of project shows the type to be used, also the thickness of the edge of the pavement or the edge of the curb and gutter section.

JOINTS: One inch expansion joints shall extend up to the top of the curb and shall be constructed in the curb and gutter section in such a manner that the joint seal will extend the full width of the gutter and into the curb face a sufficient distance to seal the joint to an elevation of at least two (2) inches above the flow line of the gutter. Dowel bars shall be used in the curb and gutter section at expansion joints which are identical with the joints in the pavement.

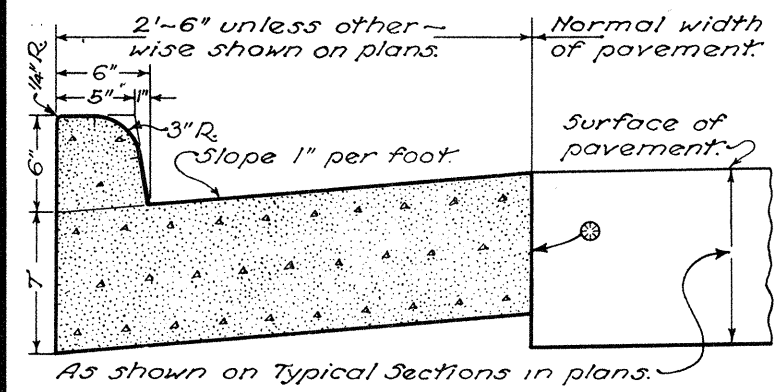
All joints shall be constructed perpendicular to the edge of the curb and to the surface of the pavement.

Transverse expansion joint material shall meet the requirements of 705.03.

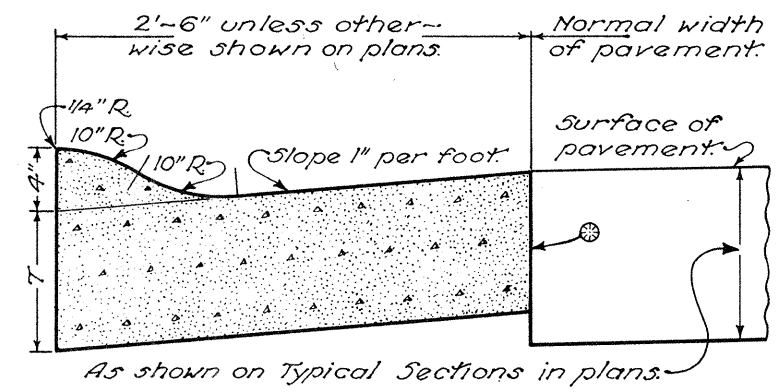
*Expansion joint material and joint sealer is not required when curb is adjacent to flexible type pavement

⊗ Butt joints shall be provided between combined curb-and-gutter and new rigid pavements, with tie bars or hook bolts provided at five foot intervals. Combined curb-and-gutter shall be tied to existing rigid pavements with expansion hook bolts spaced at five foot intervals. If the combined curb-and-gutter adjoins a new rigid base or an existing rigid base or pavement that is to be surfaced with bituminous material, a butt joint shall be provided and tie bars, hook bolts or expansion hook bolts shall be omitted.

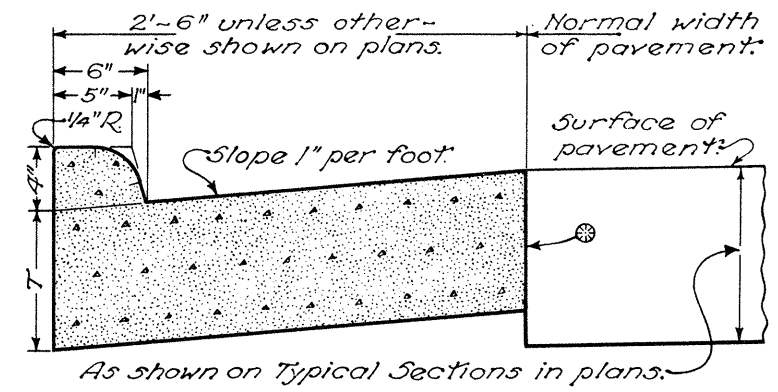
Thickness of gutter plate "T" shall be 9 inches unless otherwise shown on the plans.



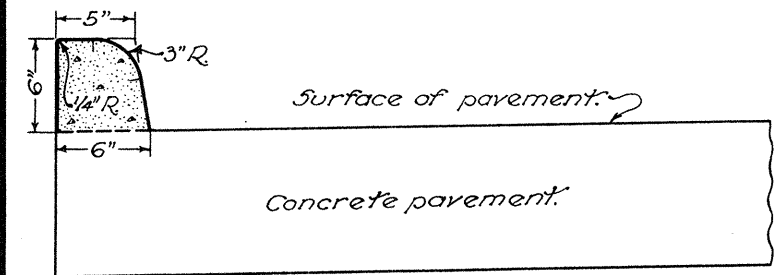
TYPE 2



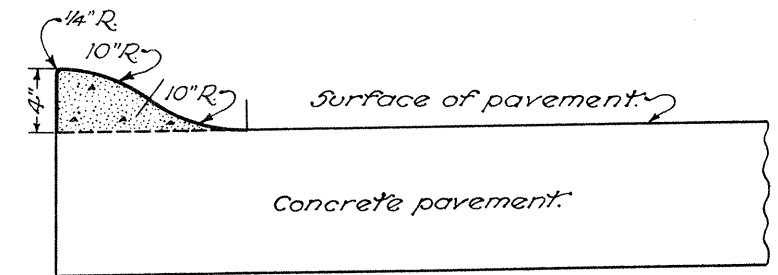
TYPE 3



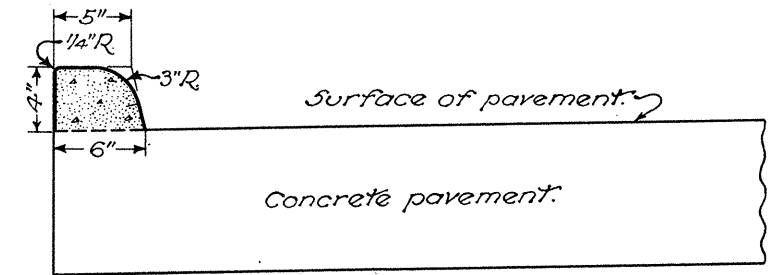
TYPE 4



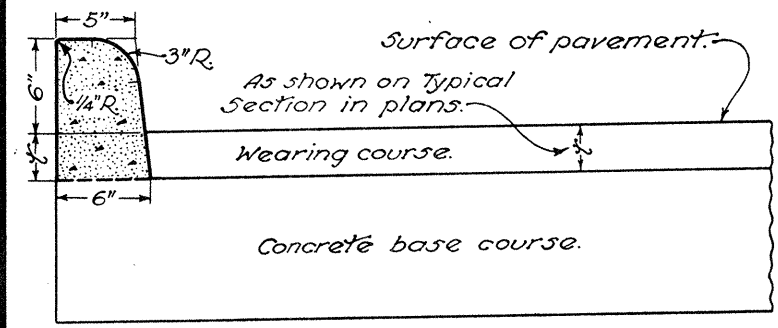
TYPE 2-A



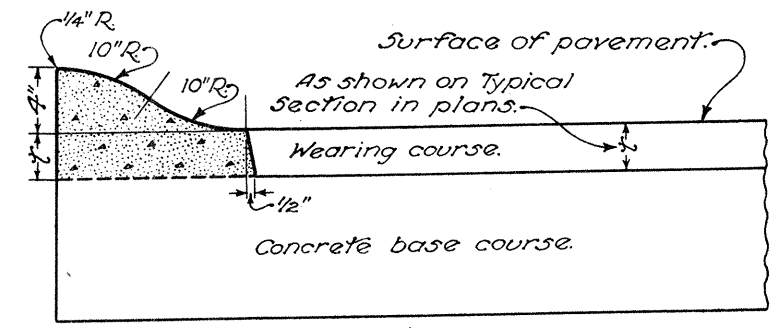
TYPE 3-A



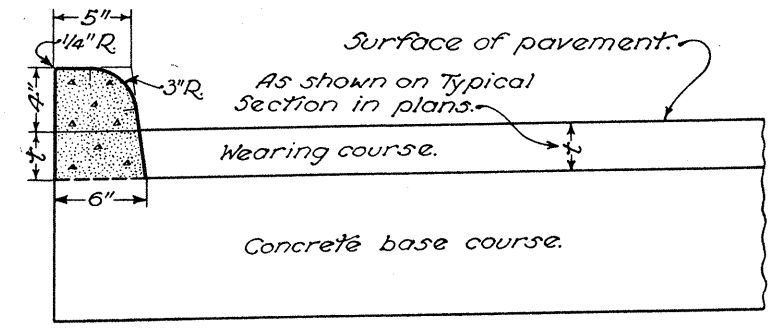
TYPE 4-A



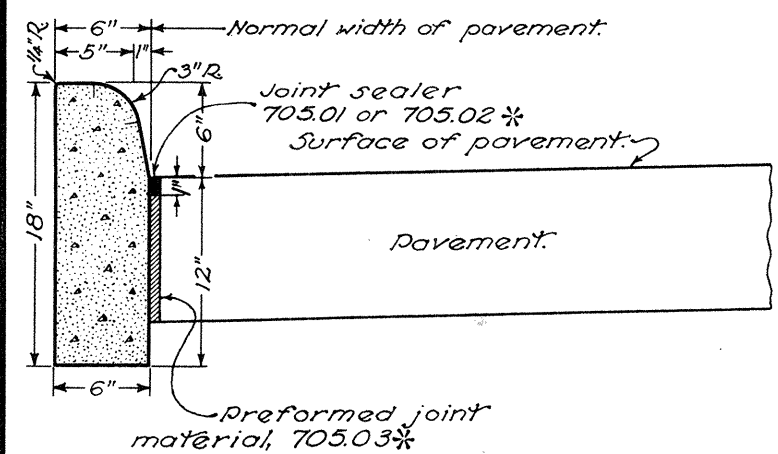
TYPE 2-B



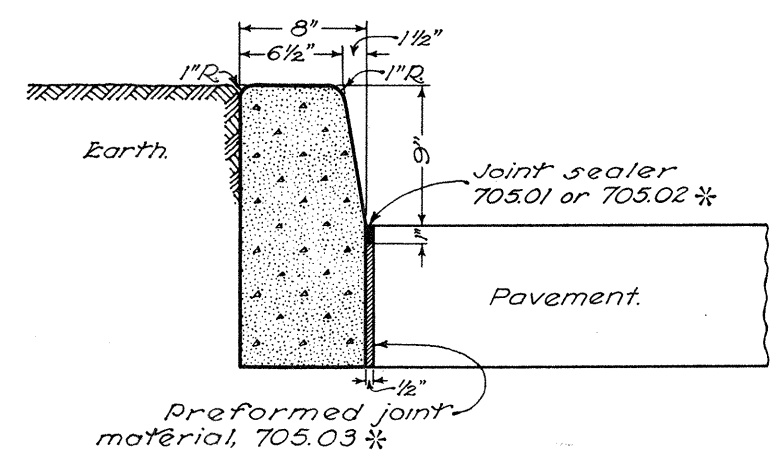
TYPE 3-B



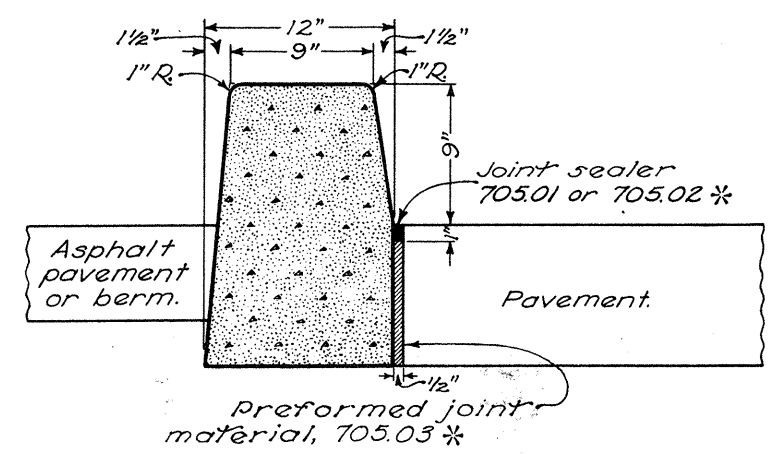
TYPE 4-B



TYPE 6



TYPE 7

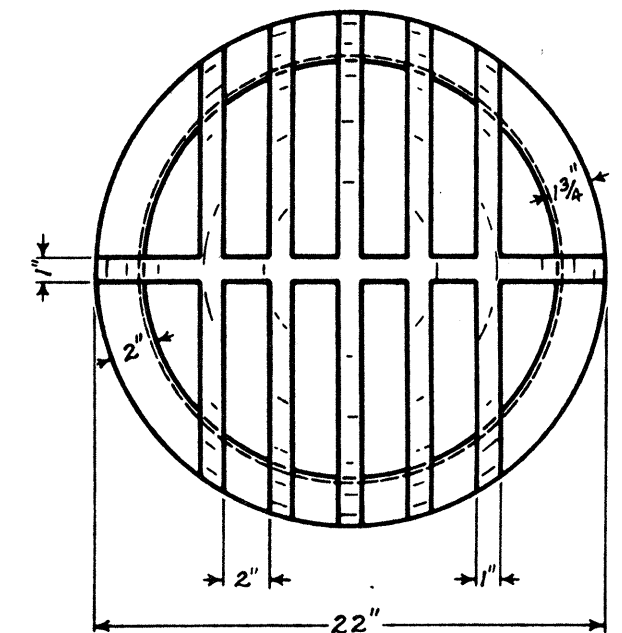
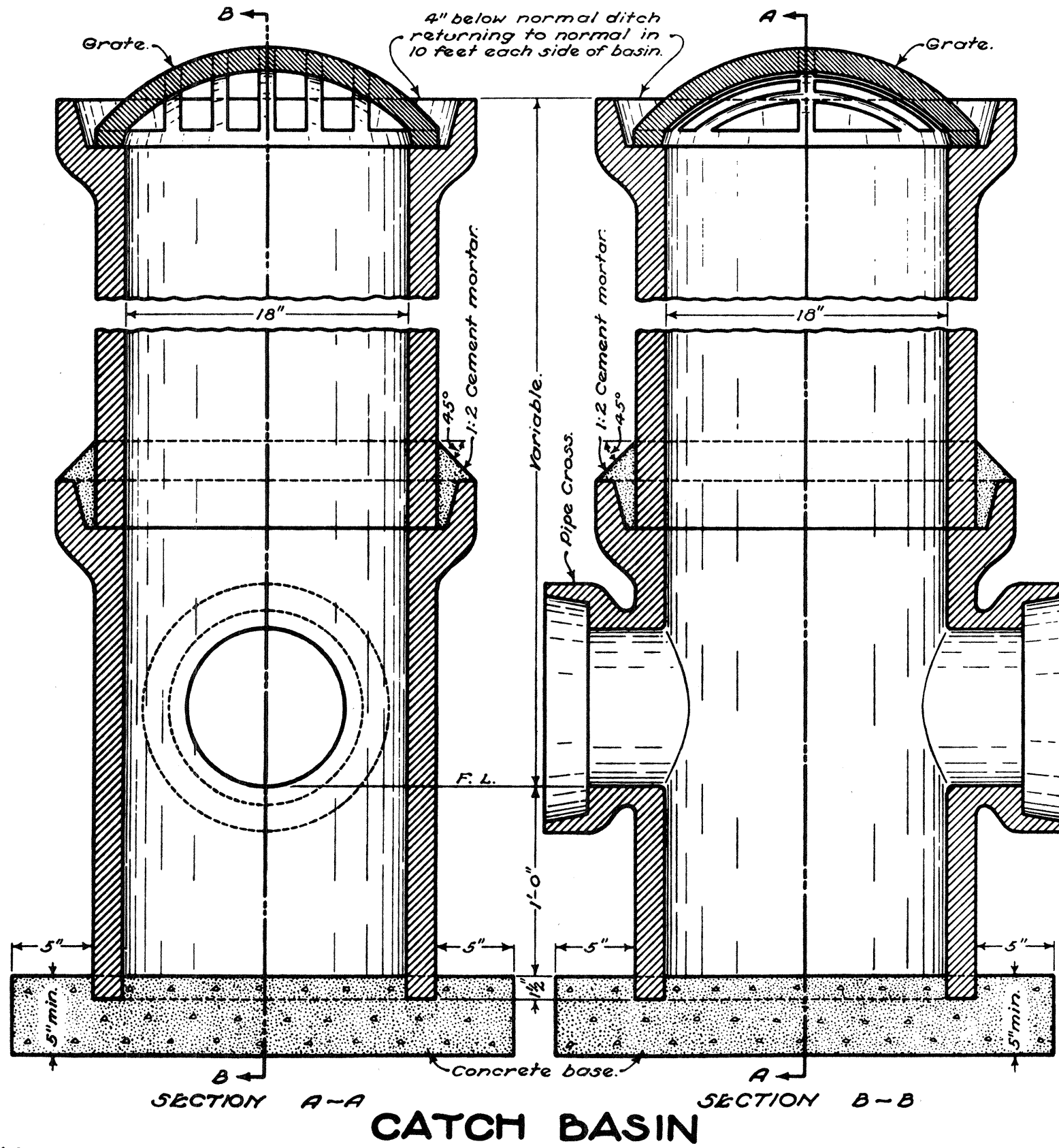


TYPE 8

BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
CONCRETE CURBS AND COMBINED CURB AND GUTTER	
STANDARD CONSTRUCTION DRAWING	BP-7
APPROVED <i>M. Cunningham</i>	ENGR., L. & D.

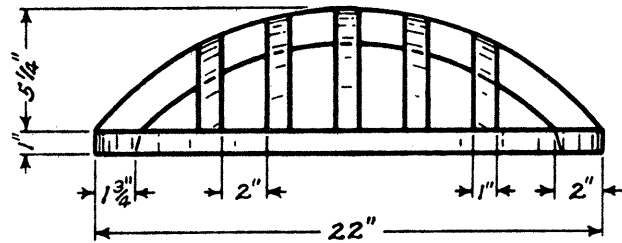
DATE
6-1-65
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12-6-76

STANDARD NO. 7 SIDE DITCH CATCH BASIN



PLAN

All edges to be rounded 1/4 inch radius.



ELEVATION

GRATE

NOTES

GENERAL: Care shall be taken by the field engineer in the placing of this type catch basin. Special note shall be given to the grade elevation of drain pipe and when finished the catch basin shall stand in a true vertical position. No cutting of holes in side of pipe will be permitted.

CASTING shall meet the requirements of 604. The design shall be essentially the same and equally as strong as the one shown hereon.

Weight, minimum, 70 pounds.

RISER PIPE in all cases shall be 18 inches in diameter regardless of size of carrying line.

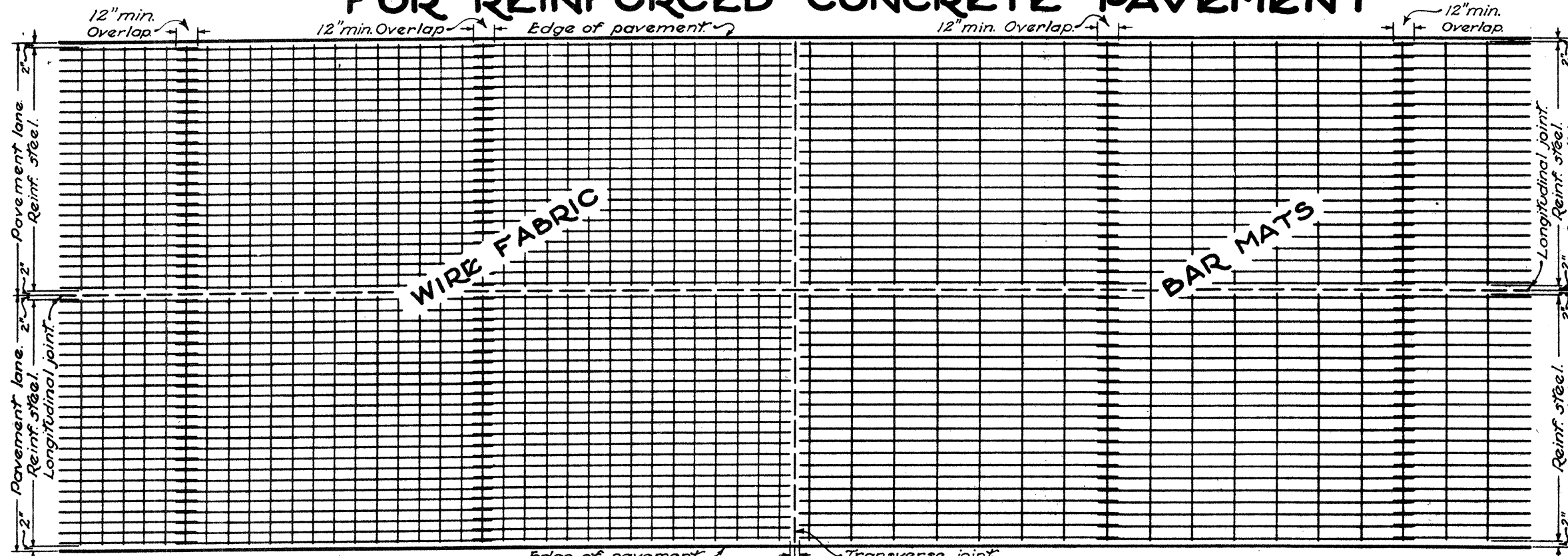
CROSS: Where carrying line is not continuous thru catch basin the upstream opening of the cross shall be properly plugged using vitrified or concrete stopper and sealed joint.

RISER AND CROSS shall be constructed of standard strength vitrified clay pipe or standard strength non-reinforced concrete pipe, bell and spigot pipe only.

CONCRETE BASE to be Class "C".

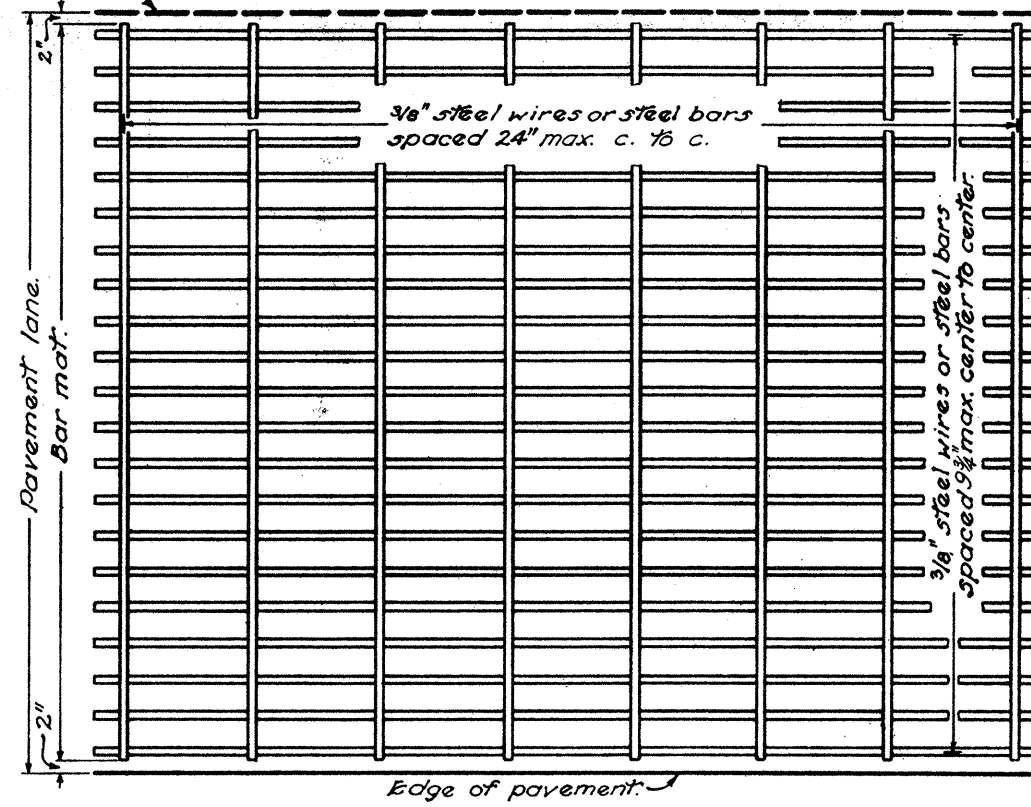
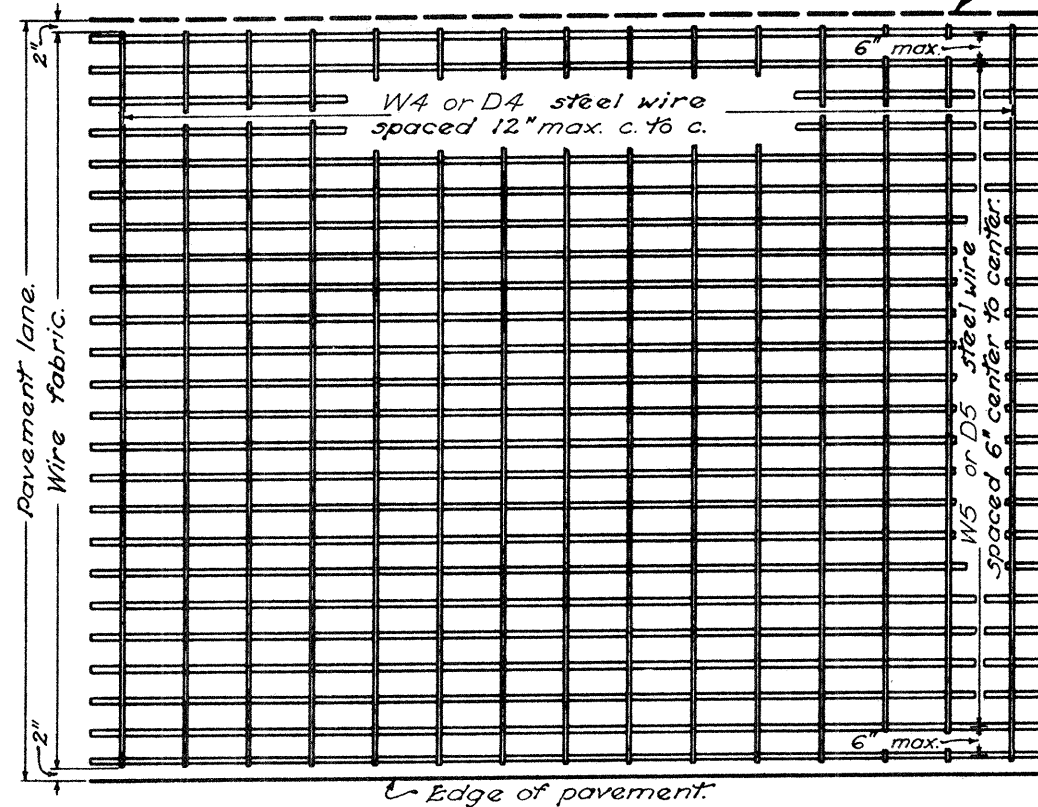
BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF HIGHWAYS	
CATCH BASINS	
STANDARD CONSTRUCTION DRAWING	CB-7
APPROVED <i>[Signature]</i> ENGR. L. & D.	
DATE: 6-1-65	

STEEL REINFORCING FOR REINFORCED CONCRETE PAVEMENT



WIRE FABRIC

BAR MATS



NOTES

Steel reinforcing in normal or wider lane widths may consist of two units with an approved longitudinal hinge. The hinge shall consist of W4 or D4 steel wires connecting the two units such that the longitudinal members on either side of the hinge will be properly spaced when the reinforcing is in final position.

The distance from the top of the concrete pavement to the reinforcing steel may vary from 2 1/2 inches to T + 1 inch, where T = thickness of the concrete pavement.

The requirement for clearance between the transverse joints and the ends of wire or bar reinforcing is modified to the extent that the clearance may be 12" plus or minus 2" if the Contractor installs the dowel bars by using a dowel installing machine.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

PAVEMENT REINFORCING

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12-6-76

STANDARD
CONSTRUCTION
DRAWING

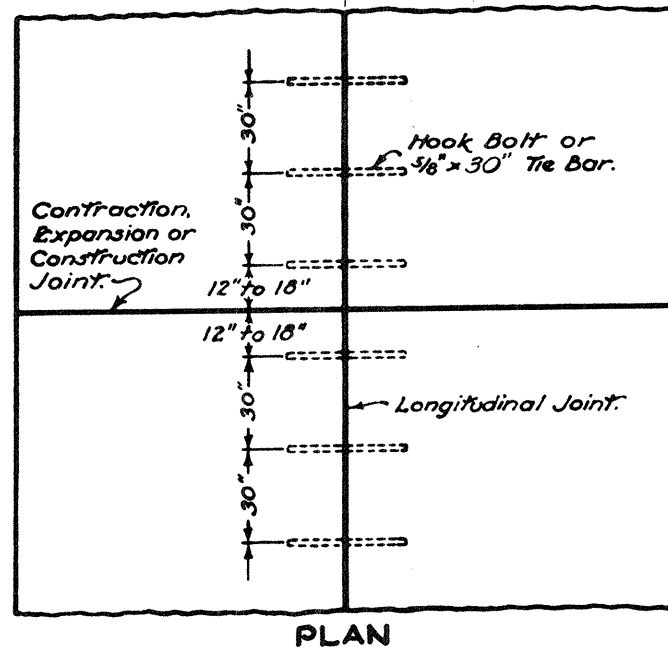
BP-2

APPROVED *M. J. Cunningham* ENGR., L. & D.

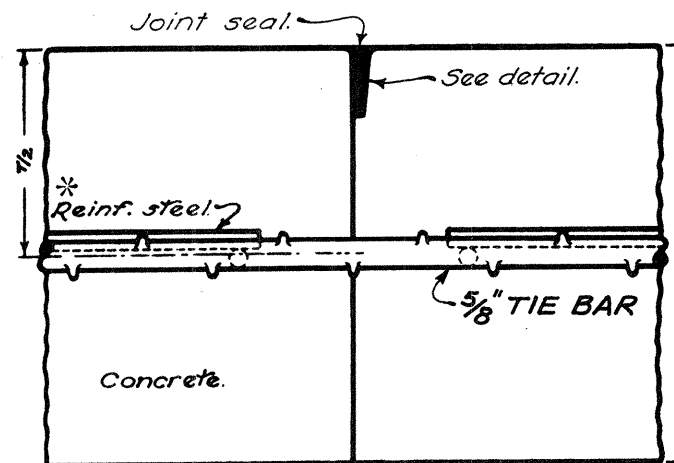
LONGITUDINAL JOINTS

NOTES

TIE BAR OR HOOK BOLT SPACING

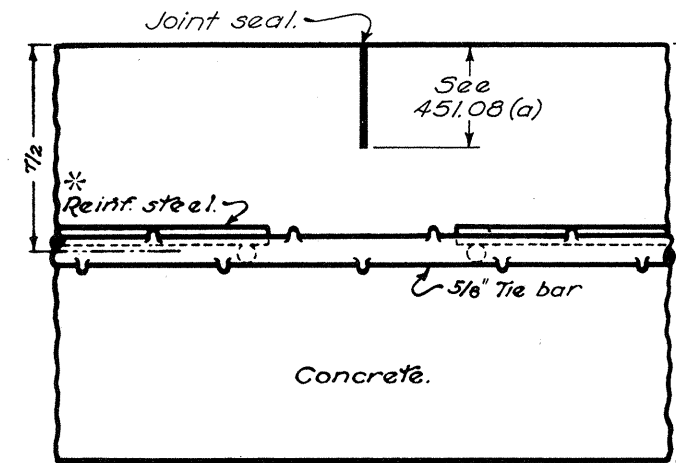


BUTT JOINT



DETAIL OF JOINT

SAWED JOINT



DETAIL OF JOINT

* For 451 only.

GENERAL: Longitudinal joints shall be used when called for on the typical section and shall be constructed as shown on this drawing in 451 and 452 pavement and 305 base. The joint shall be on the centerline of the pavement unless otherwise shown on the plans. Tie bars shall be 3/8 inch round, deformed bars. A satisfactory device shall be used to hold the tie bars in proper position or they may be installed by a mechanical installing device.

BUTT JOINT: The longitudinal joint between adjoining slabs poured in separate operations shall be a butt joint with hook bolts or tie bars, unless otherwise shown on plans. If tie bars are to be bent they shall be of billet grade steel and no part of the bend shall extend into the first slab poured.

Aluminum couplings for hook bolts may be substituted for steel, provided that the specified strength requirements for metal assemblies are met.

EXPANSION BOLT JOINT: Self-drilling anchors may be of the flush-end type or of the snap-off chuck-end type conforming to Federal Specification No. FF-5-325, Group III, Type 1(a) or (c) except for the outside diameter of the anchor. The hook bolt or alternate may be used to complete the assembly. Unless otherwise required by the plans expansion anchors and bolts shall be spaced at 30 inches where pavement widening is 6 feet or less in width and at 60 inches where widening exceeds 6 feet in width. Cost of expansion bolt joint shall be included in the unit price bid for new pavement and no separate payment will be made.

GROOVES: Grooves for sealing expansion bolt or butt joints in 451 or 452 pavements shall be formed by impressing a device or bar into the newly deposited concrete adjacent to the existing or previously poured lane. The device or bar shall be removed as soon as the concrete is in such condition as to preclude distortion of the concrete.

Adjoining slabs adjacent to grooved joints shall be edged with a thin metal edger having a radius of 1/8 inch. Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated.

In lieu of the above method the longitudinal joint may be sawed to a depth of one inch and an approximate width of 1/8 inch.

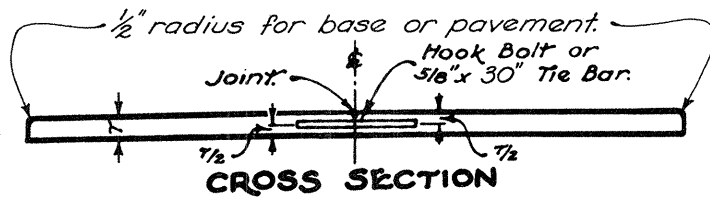
After the joint is formed it shall be protected from dirt and foreign matter until the joint seal is placed.

SEALING JOINTS: Sawed joints may be sealed with 705.01, 705.02 or 705.11 joint sealer.

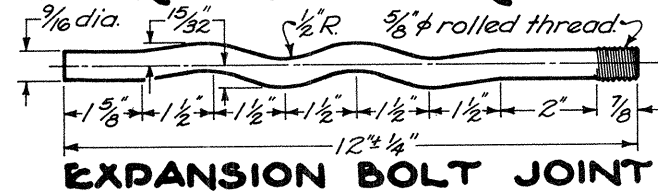
Sealing of longitudinal joints in 305 base is not required.

HOOK BOLTS: Hook bolt inserts shall be turned to a tight fit when installed in threaded anchor shields, hook bolts or coupling.

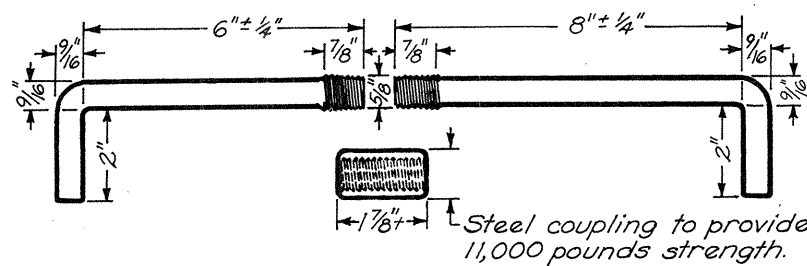
METAL STRENGTH: Tie bars, hook bolt assemblies and hook bolt alternate shall have a minimum strength of 11,000 pounds.



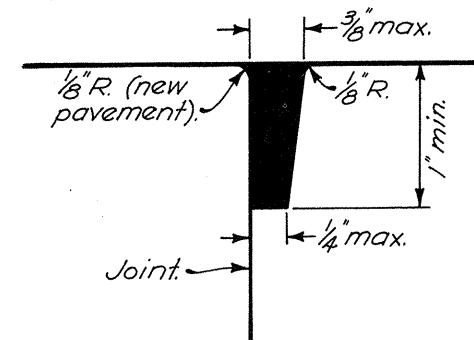
HOOK BOLT ALTERNATE



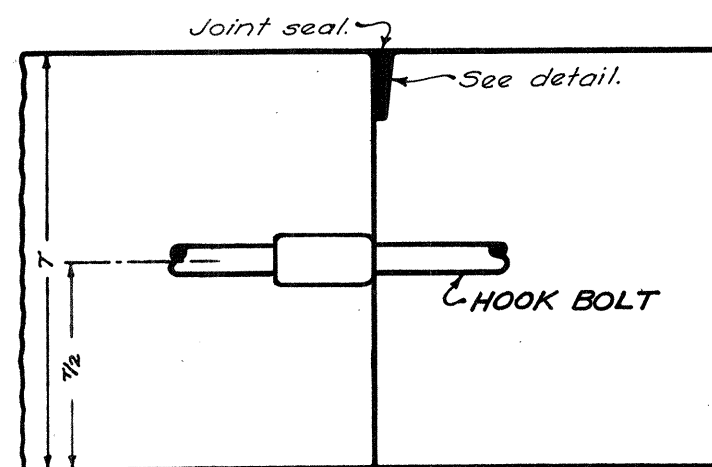
HOOK BOLT



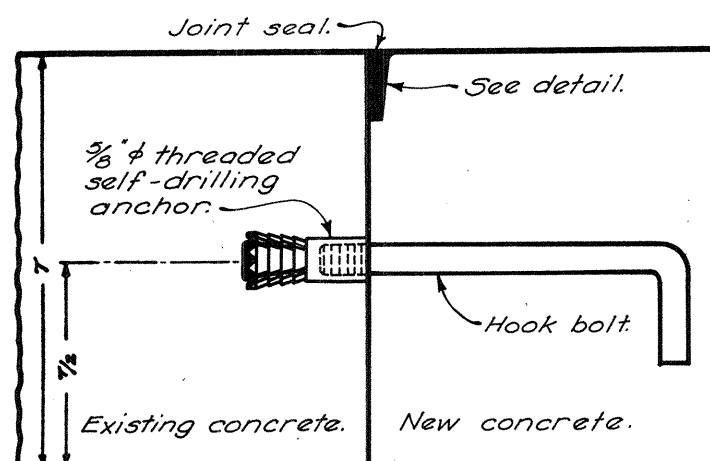
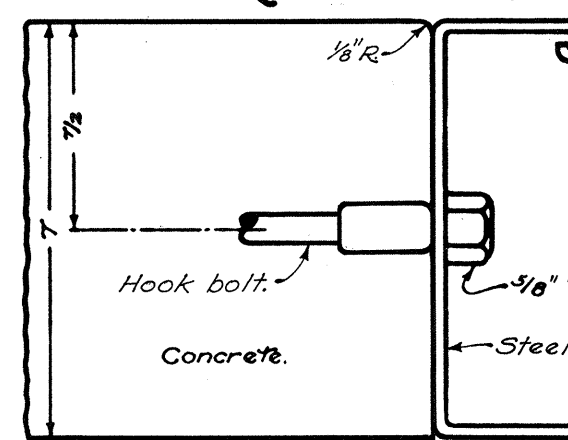
GROOVE AND SEAL DETAIL



BUTT JOINT



ACCEPTABLE METHOD OF FORMING JOINT



BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

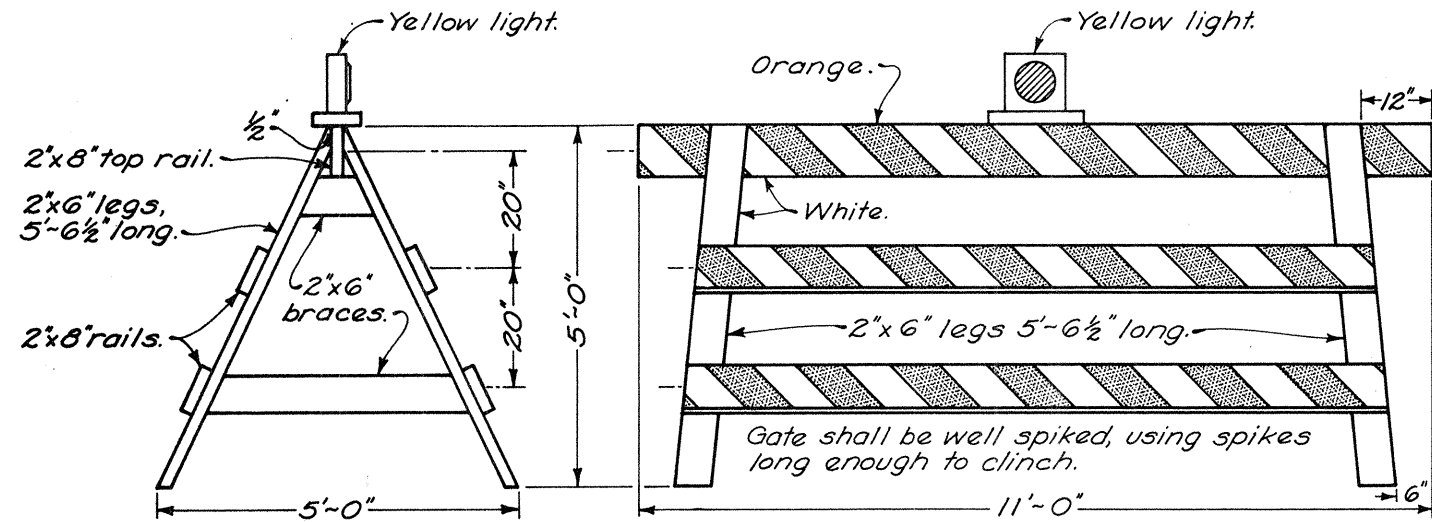
LONGITUDINAL PAVEMENT JOINTS

STANDARD CONSTRUCTION DRAWING BP-3

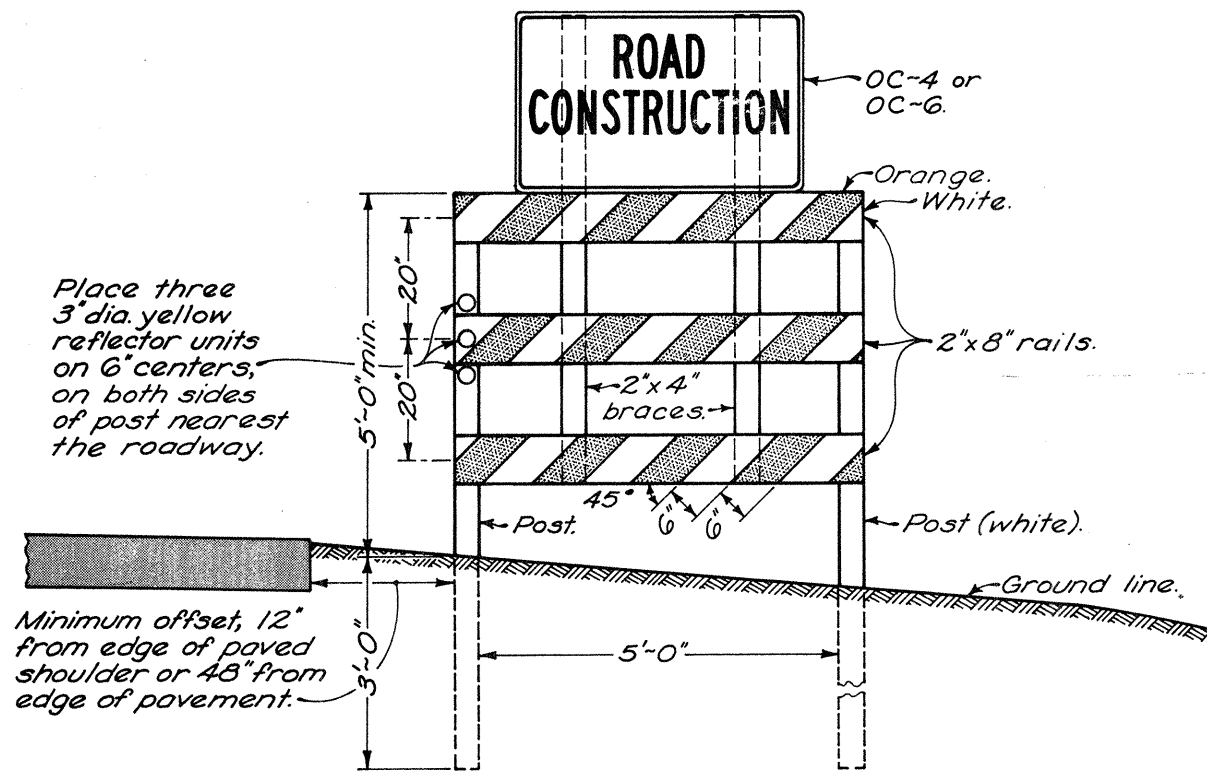
APPROVED *M. J. Cunningham* ENGR., L. & D.

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MOVABLE GATE



**ROAD
CONSTRUCTION**



WING BARRICADE

NOTES

BARRICADES shall be constructed according to details shown. Where traffic is maintained during construction, wing barricades shall be used on each shoulder: (1) at both ends of the project, (2) on all interchange entrance ramps or on the cross road preceding the entrance ramp, (3) on all other major approach roads as directed by the Engineer. When the road is closed to traffic, barricades and gates shall be used to effectively close the entire roadway including the median of divided highways. In urban areas and at locations where it is impracticable to extend the barricade to the right-of-way line because of a sidewalk or other obstruction, the ends of the barricade shall be located as directed by the Engineer to effect the desired closing of the highway.

PAINTING AND REFLECTORIZATION: All rails of the barricades and gates shall be reflectorized with orange and white reflectorized sheeting in 6" wide alternate stripes which slope downward toward the center line of the road at an angle of 45%. All three rails of the Road Closed barricade shall be striped on the side facing traffic. All three rails of the wing barricade and all gate rails shall be striped on both sides. All posts, braces, gate legs and any unstriped rails shall be painted white.

GATES: One gate shall be erected for each traffic lane. Gates shall be chained and padlocked to one another and to adjacent posts of the barricades. Chains shall be 1/4" stock or larger with welded links.

A hinged gate may be used and shall be an approved 12' by 4' steel frame farm type, or a type approved by the Engineer. The gate shall be hung on hinge screw hooks, or as otherwise approved. Striping similar to that used on the movable gate shall be accomplished with 1"x8" lumber or with metal strips fastened to the gate. The gate shall be supported at the center in an approved manner.

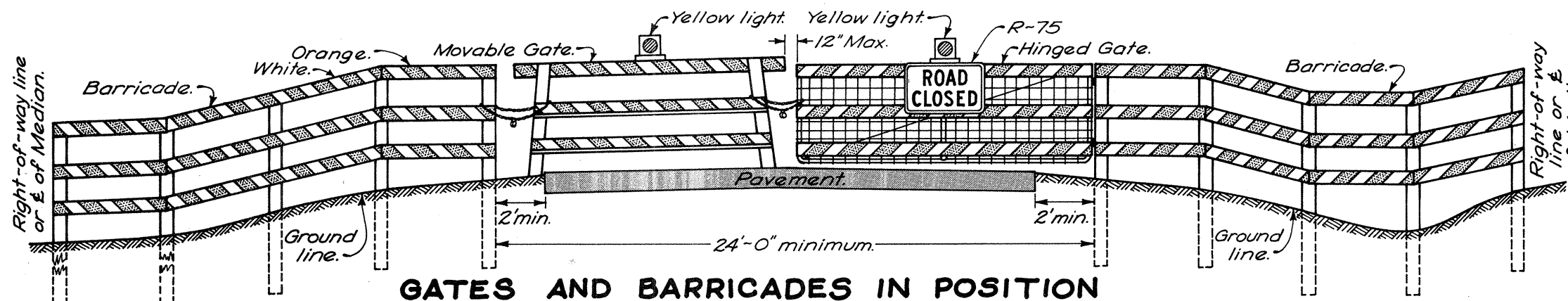
YELLOW LIGHT: Each gate shall be equipped with a steady burning yellow light, conspicuously visible at all distances up to 1000' under normal atmospheric conditions. The light, operated by battery, electric generator, commercial power or propane gas, shall be in operation at all times between sunset and sunrise during the period the highway is closed.

SIGNS: Where the road is closed to traffic by the erection of gates and barricades, a **ROAD CLOSED** sign (R-75) shall be mounted on the gate as shown. On three-lane pavement, the sign shall be mounted on the middle gate facing traffic.

Where traffic is maintained, a **ROAD CONSTRUCTION TRAFFIC MAINTAINED** sign (OC-4) shall be used on the right shoulder wing barricade on the approaches to major construction or maintenance jobs less than 2 miles in length. A **ROAD CONSTRUCTION NEXT MILES** sign (OC-6) shall be used on the right shoulder wing barricade on the approaches to any major construction or maintenance job of 2 miles or more in length. An **END CONSTRUCTION** sign (OC-8) shall be erected above the right hand wing barricade facing traffic leaving the construction section. The signs on the wing barricades shall be erected above the top rail of the wing barricade on braces, as detailed hereon.

LUMBER used in the construction of the gates and barricades shall be No. 1 common yellow pine or No. 1 common Douglas fir, surfaced on four sides standard, or other materials approved by the Engineer. All sizes are nominal.

POSTS shall be sound 4"x4" sawed or 4 1/2" round. Rails of the barricade shall be bolted to the posts with 5/8" bolts.

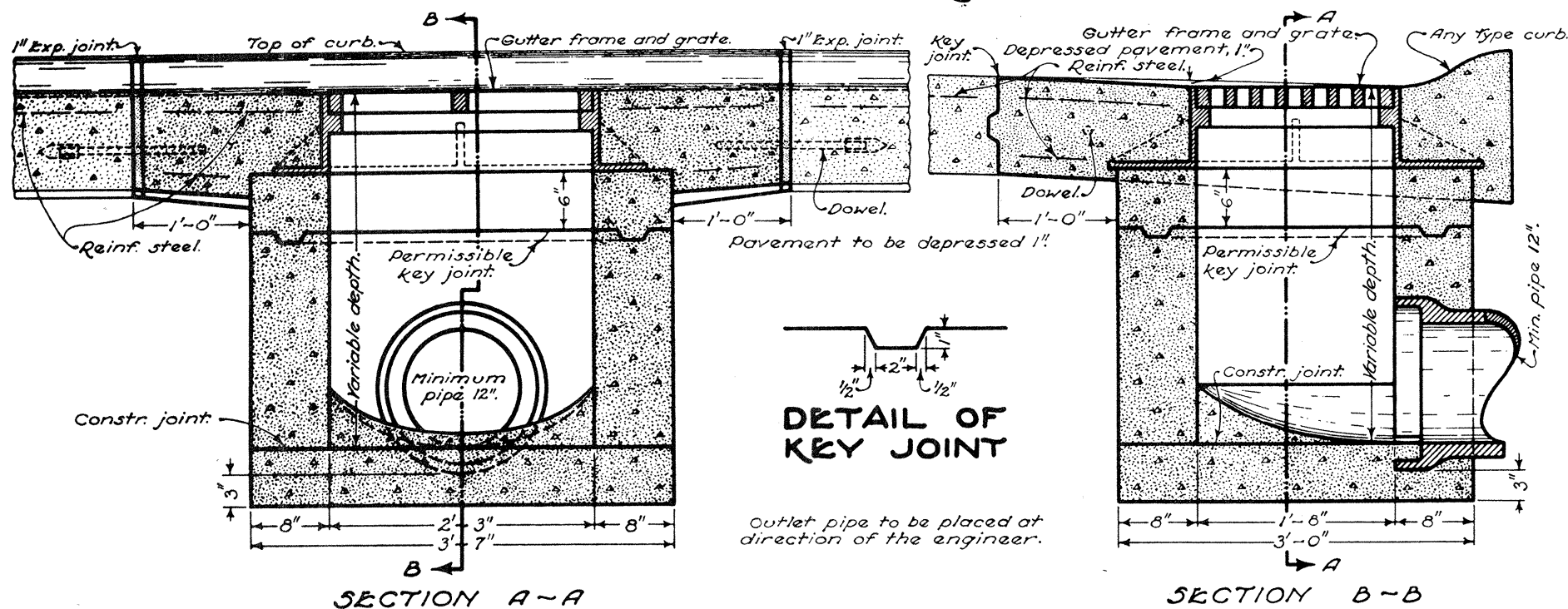


GATES AND BARRICADES IN POSITION

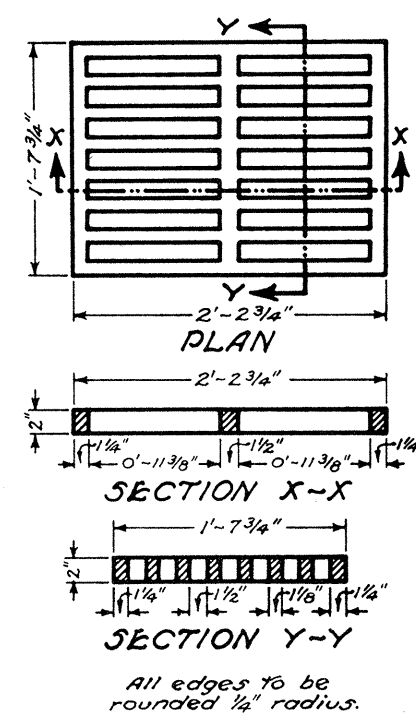
BUREAU OF ROADWAY DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
BARRICADES AND GATES	
STANDARD CONSTRUCTION DRAWING	
MC-3	
APPROVED <i>E. J. Schaefer</i> ENGR., R. D.	

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STANDARD NO. 6 CATCH BASIN



CATCH BASIN



GRATE

NOTES

CASTINGS shall meet the requirements of 604. The design shall be essentially the same and equally as strong as those shown hereon.

WEIGHT of castings, minimum—
 Grate 144 pounds.
 Frame 270 pounds.

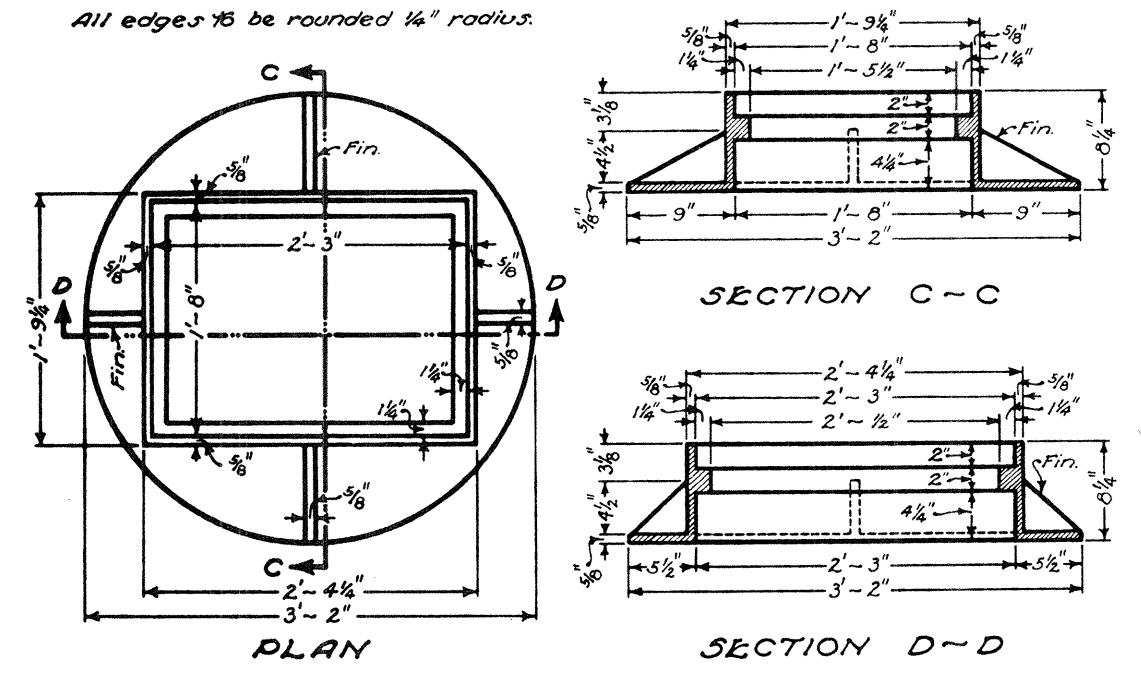
BEARING AREAS of frame and grate shall be so fitted and finished as to provide a firm and even seat for all portions of the grate in the frame. No projections shall exist on bearing areas of either casting and the grate shall seat in its frame without rocking. Frame and grate shall be fitted, matched and marked before delivery to the project.

DOWELS to be 1 inch round, smooth bars 18 inches long spaced as shown hereon and greased.

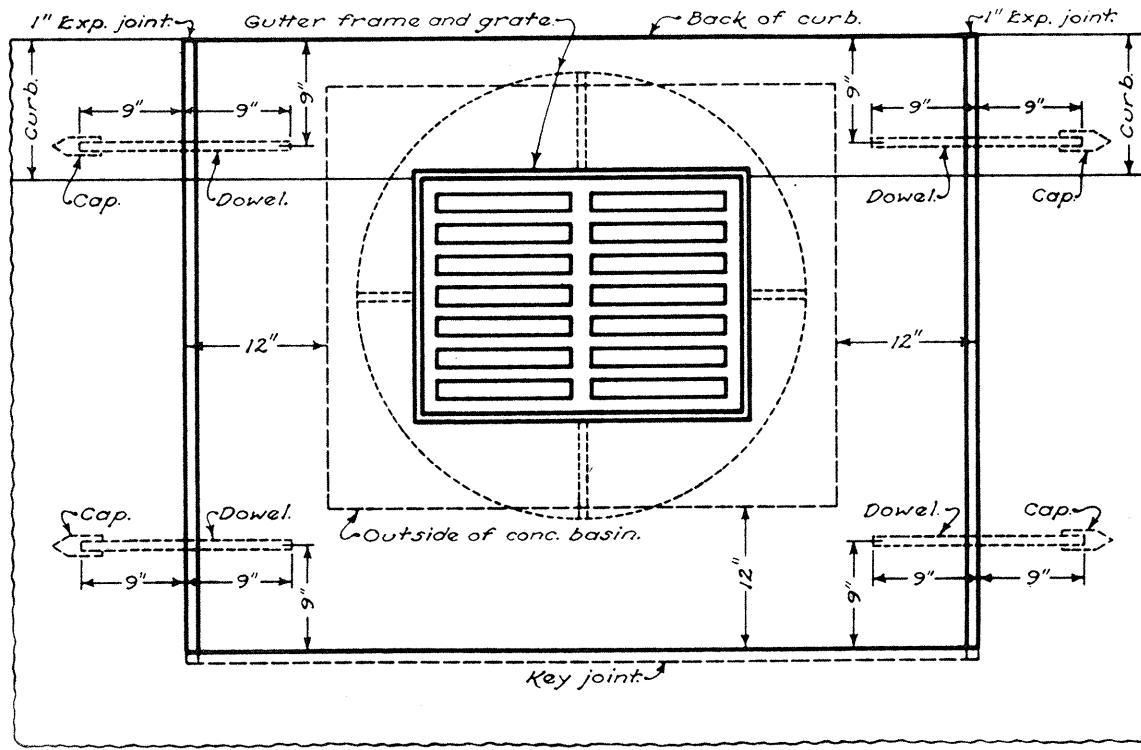
CONCRETE cast in place to be Class "C".

BRICK OR CONCRETE BLOCK, side walls, when used in place of concrete, shall be 8 inches nominal thickness.

PAVEMENT:—The portion blocked out of the pavement shall be placed after the casting has been set but shall be paid for as part of the pavement. No deduction shall be made in pavement quantities because of castings.



GUTTER FRAME

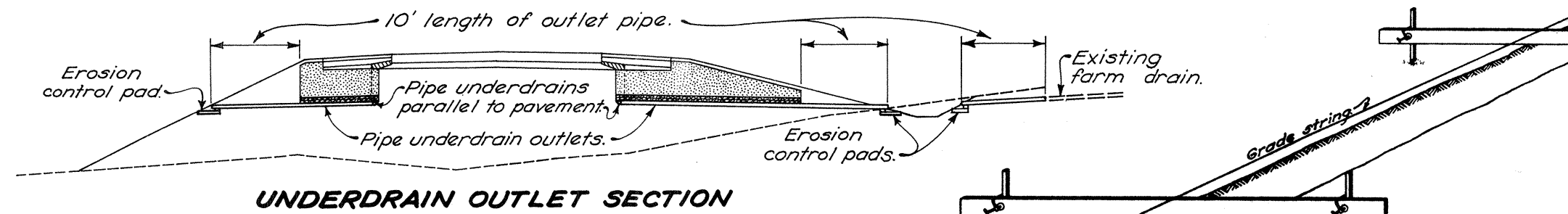


PLAN OF CATCH BASIN AND PAVEMENT JOINTS

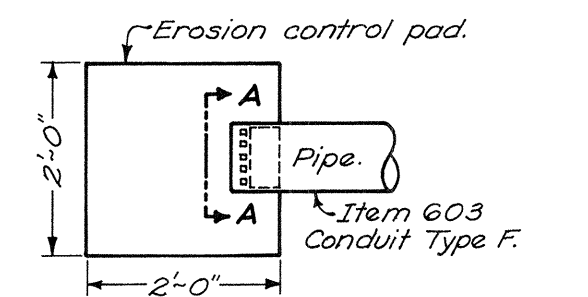
BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF HIGHWAYS	
CATCH BASINS	
STANDARD CONSTRUCTION DRAWING	CB-6
APPROVED <i>[Signature]</i> ENGR. L. & D.	
DATE 6-1-65	

CONSTRUCTION METHODS

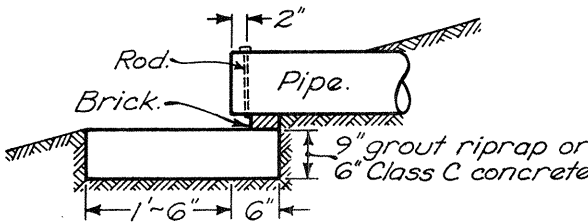
NOTES



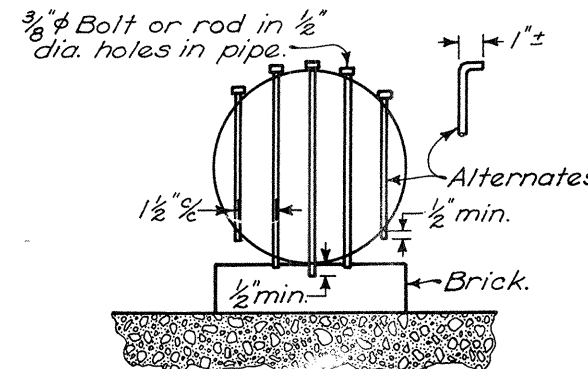
UNDERDRAIN OUTLET SECTION



PLAN



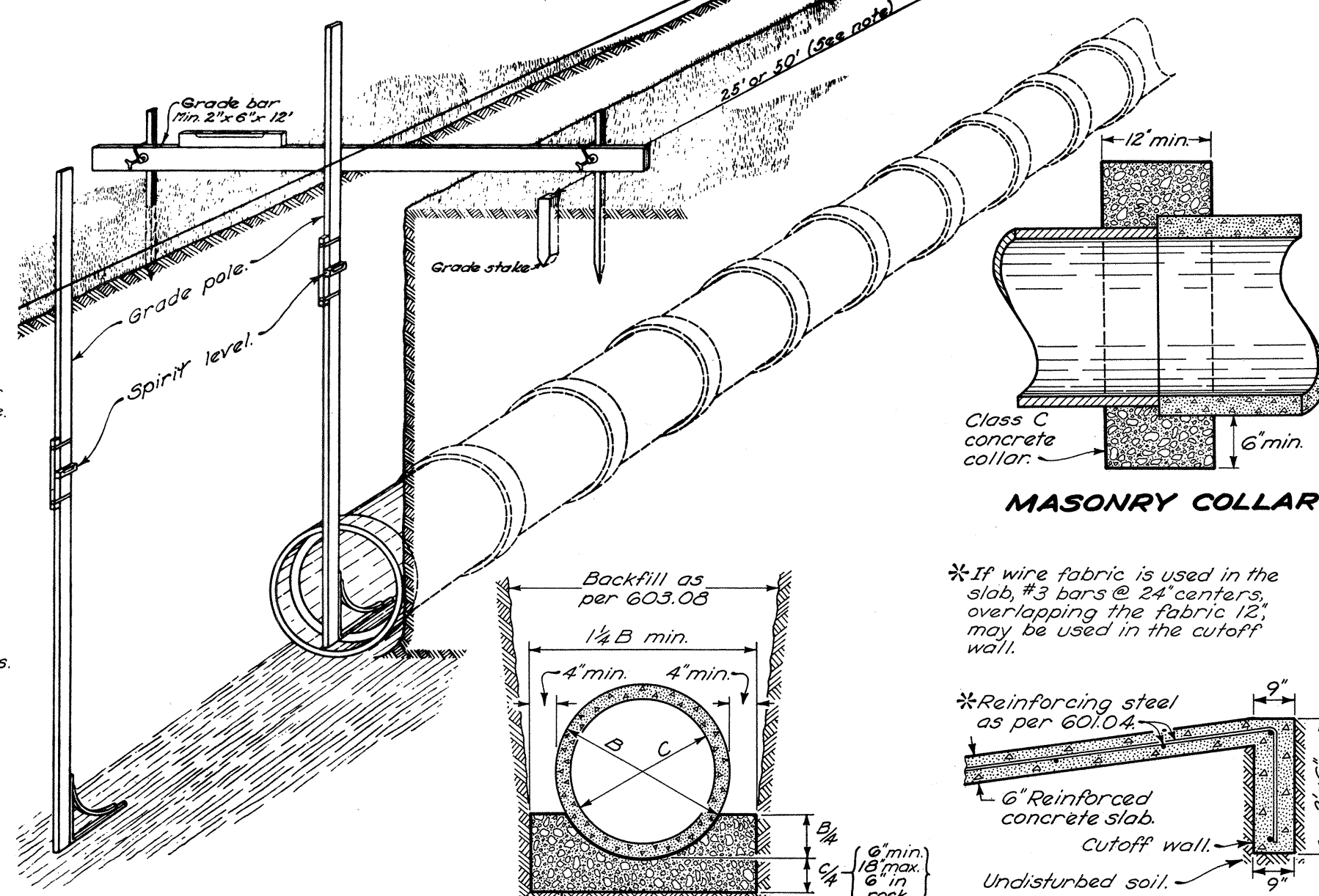
PROFILE



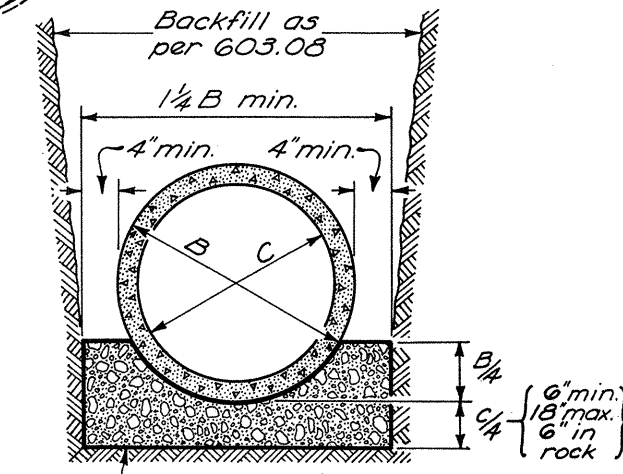
SECTION A-A

Conduit Size	4"	6"	8"	10"	12"	15"	18"
No. of Bolts	2	3	5	6	7	9	11

ANIMAL GUARD AND EROSION CONTROL PAD FOR OUTLET PIPE

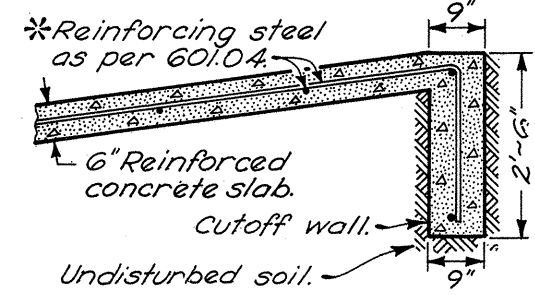


LAYING PIPE



CONCRETE CRADLE CLASS A BEDDING

*If wire fabric is used in the slab, #3 bars @ 24" centers, overlapping the fabric 12", may be used in the cutoff wall.



RIPRAP CUTOFF WALL
Cutoff wall shall be included in the price bid for Item 601 Riprap-6" Reinforced Concrete Slab.

GRADE STAKES shall be set at the following intervals:
For grades less than 0.70% ~ 25 ft.
For grades of 0.70% and over ~ 50 ft.

GRADE POLE shall be a straight pole dressed with corners rounded, size depending on length but approximately 1" x 2". The pole shall be equipped with a metal bracket on the bottom with a projecting length of 12". Notches shall be cut on the pole for the depth of the flowline below the grade string and for the depth of trench. A spirit level shall be used on the pole to determine when the pole is vertical.

ALTERNATE METHODS: The Engineer may approve other methods of determining alignment and gradient of pipe lines if the Contractor can demonstrate that the same degree of accuracy can be obtained as can be obtained by use of the method shown on this drawing.

MASONRY COLLARS: Where plans require that a pipe extension be joined to the end of an existing pipe with a butt joint, a collar shall be provided and the cost shall be included in the price bid for new conduit.

EROSION CONTROL PADS AND ANIMAL GUARDS shall be provided at the outlet end of all pipe underdrains and farm drains except when they outlet into a drainage structure.

The steel bolts or rods for the animal guard shall be galvanized per 710.10. In lieu of drilling or punching the 1/2" diameter holes into the pipe, a metal collar meeting all of the above requirements, may be clamped on the end of the pipe, if approved by the Engineer.

Payment for the erosion control pads and the animal guards shall be included in the price bid for Item 603 - "Conduit, Type F."

BUREAU OF ROADWAY DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

DRAINS AND SEWERS

STANDARD CONSTRUCTION DRAWING
APPROVED *E. J. Schaefer* ENGR., R.D.

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MC-4