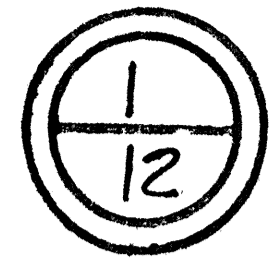


# OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

FHWA REGION	STATE	FEDERAL PROJECT	
5	OHIO		



L/D  
COPY

PLAN NO. **44**

125-88

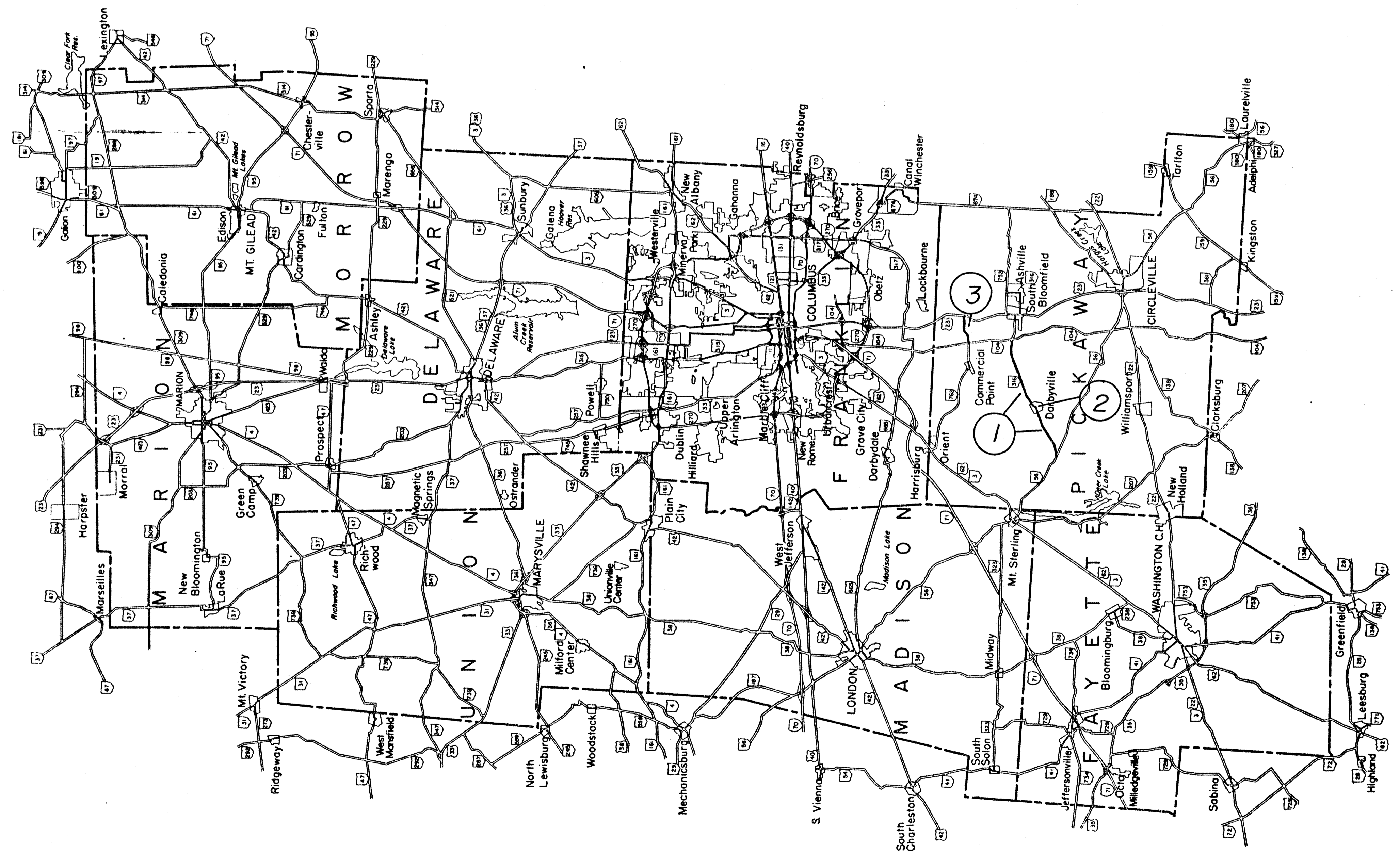
PART	COUNTY	ROUTE	SECTIONS	PROJECT TERMINII		NET LENGTH MILES	TOWNSHIP	CITY	VILLAGE
				BEGIN	END				
1	PIC	316	(0.00) (4.31)	0.00	9.48	8.82			
2	PIC	316	(3.65)	3.65	4.31	0.66			Darbyville
3	PIC	762	(9.23-10.41)	9.23	11.31	2.08			

The Standard 1987 Specifications of the State of Ohio, Department of Transportation, including changes and Supplemental Specifications listed in the plans and proposal shall govern these improvements.

I hereby approve these plans and declare that the making of these improvements will require the closing of the highways to traffic on Parts No. \_\_\_\_\_ and that detours will be provided by State forces. The closing to traffic of the highways will not be required on Parts No. 1, 2, & 3 and provisions for the maintenance and safety of traffic will be as indicated in the proposal.

- Approved Date 4-29-87 George E. Downing  
District Deputy Director of Transportation
- Approved Date 5-21-87 Walter J. Justice  
Engineer of Bridges
- Approved Date \_\_\_\_\_  
Engineer of Maintenance
- Approved Date 12-10-87 James E. Longenecker  
Deputy Director, Operations
- Approved Date \_\_\_\_\_  
Assistant Deputy Director, Program Development
- Approved Date \_\_\_\_\_  
Chief Engineer, Construction
- Approved Date \_\_\_\_\_  
Chief Engineer, Design
- Approved Date \_\_\_\_\_  
Assistant Director, Department of Transportation
- Approved Date 12-11-87 Warren J. Smith  
Director, Department of Transportation

## LOCATION MAP



— PORTION TO BE IMPROVED

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:  
  
DIVISION ADMINISTRATOR      DATE

STANDARD DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	
BP-5	1-11-85	847	10-17-83
		947	10-17-83
MT-99.10	11-14-86		
MT-99.20	11-14-86		

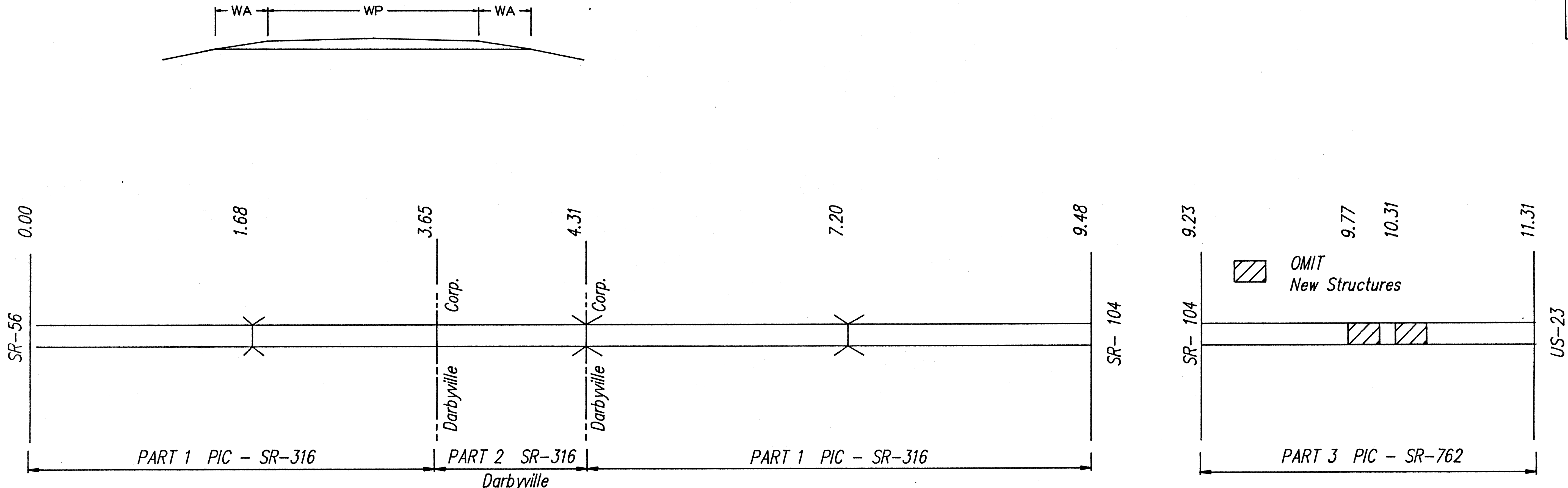
# ASPHALT CONCRETE

FHWA REGION	STATE	PROJECT
5	OHIO	

2  
12

PLAN NO.  
44

TYPICAL 1



## PAVEMENT DATA

PART	ROUTE	LOG POINT TO LOG POINT	LENGTH		WP FEET	TYPICAL	EXISTING TYPE PAVEMENT	PAVEMENT AREA SQ. YDS.	PROPOSED PAVEMENT						202	614
			MILES	LIN. FT.					407		ASPHALT CONCRETE		407 ②			
									TACK COAT @ .08 gal./s.y. GALS.	COVER AGGR. @ lbs./s.y. TONS	ITEM 403 THICK INCHES MIN. CU.YDS.	ITEM 404 THICK INCHES AVE. CU.YDS.	TACK COAT @ .05 gal./s.y. GALS.	COVER AGGR. @ lbs./s.y. TONS		
1	SR-316	0.00-3.65	3.65	19,272	19	1	404									
		4.31-5.00	0.69	3,643	20	1										
		5.00-9.48	4.48	23,654	19	1										
		Extra Areas from Page 3						569								
1	SR-316	TOTAL	8.82	46,569				99,286	7943	1	2,758	1	2,758	4,964	643 *17.64	
2	SR-316	3.65-4.31	0.66	3,485	20	1	404	7,744								
		Extra Areas from Page 3						630								
2	SR-316	TOTAL	0.66	3,485				8,374	670	1	233	1	233	419	*1.32	
3	SR-762	9.23-9.68	0.45	2,376	19	1	404	5,016	401	1	139	1.5	209	251	*0.90	
		9.68-10.76	1.08	③ 4,550	24	1		12,133	② .971			1.5	506		1.08	
		10.76-11.31	0.55	2,904	18	1		5,808	465	1	161	1.5	242	290	*1.10	
		Extra Areas from Page 3						455	36	1	13	1.5	19	23		
3	SR-762	TOTAL	2.08	9,830				23,412	1,873		313		976	564	3.08	

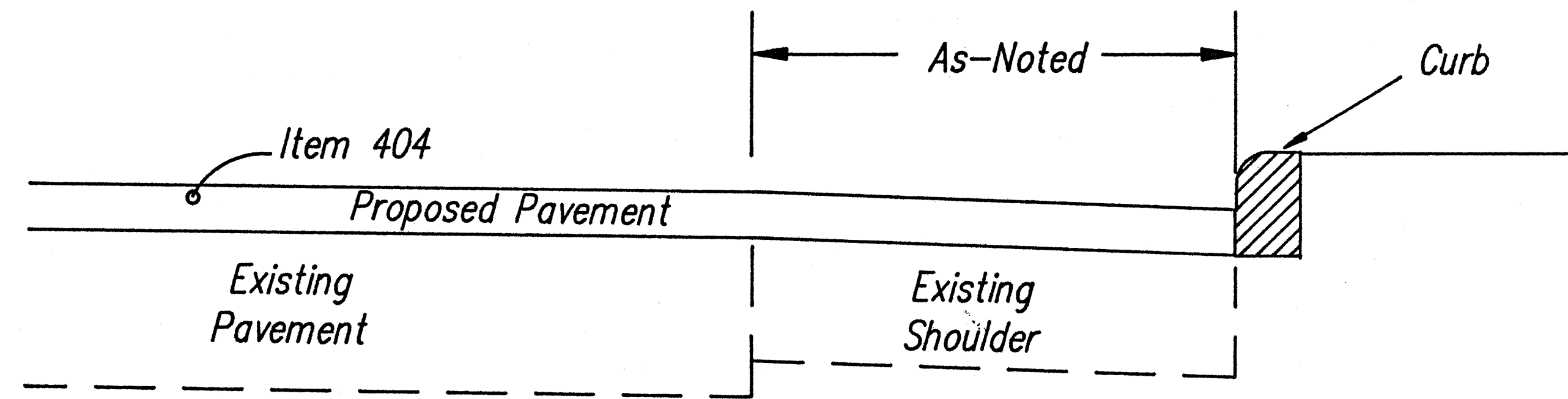
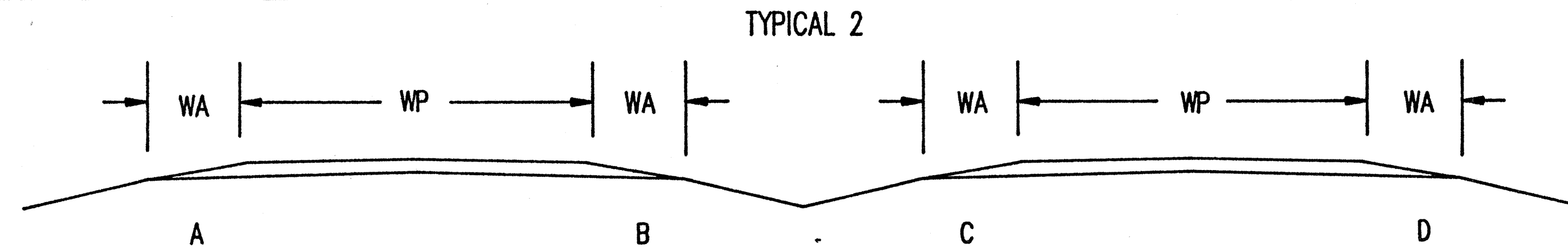
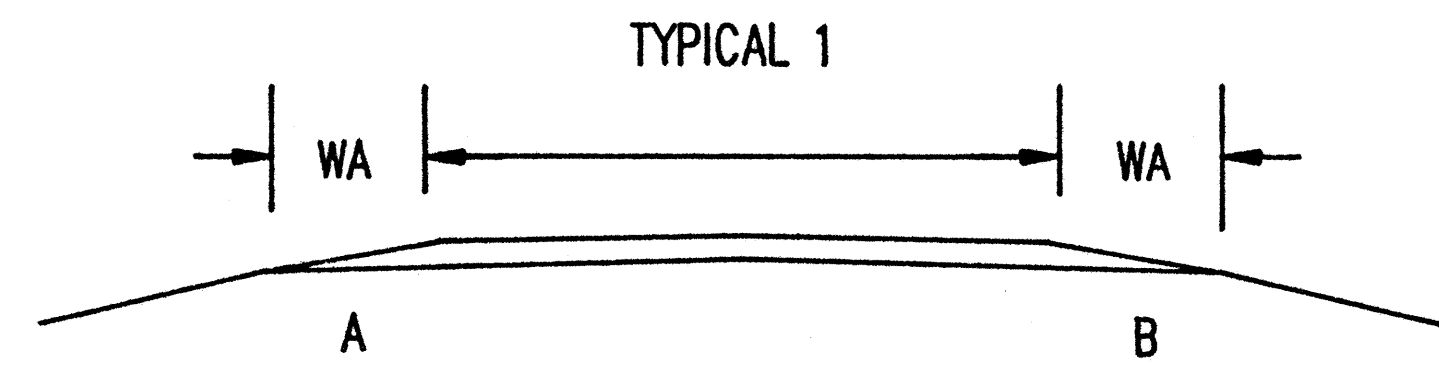
- NOTES:
- ① Apply immediately prior to the 403
  - ② Apply immediately prior to the 404
  - ③ 5,702  
- 102 Structure 0977+ Approach Slabs  
- 1050 Structure 1031+ Approach Slabs  
4,550 Lin. Ft.
  - ④ Raised Pavement Markers Removed for Storage.
- \* Two Courses.



# SHOULDER TREATMENT

PLAN NO.  
**44**

4  
12



\* Extra 617 to repair existing 617 drives and other 617 areas.

① Apply immediately prior to the 403

② Apply immediately prior to the 404

PART 2 SLM 3.74-4.00

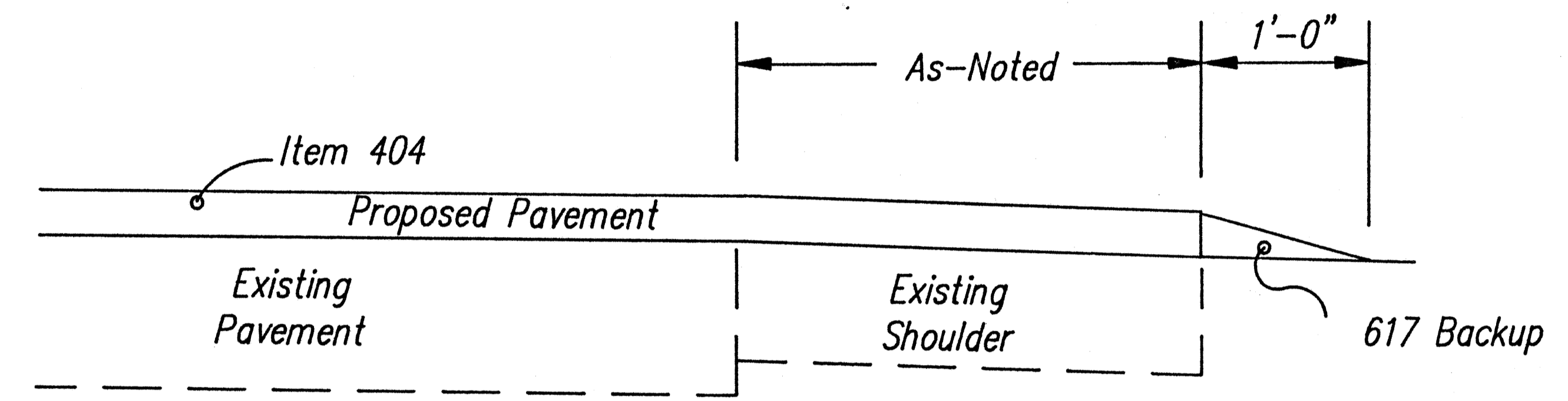
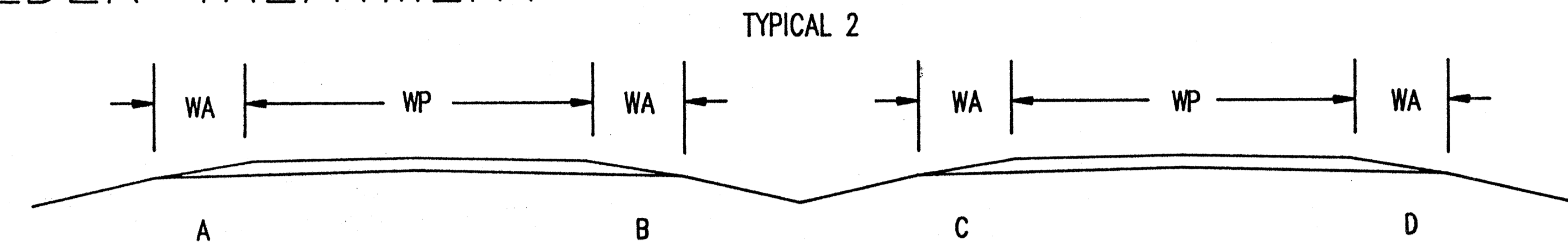
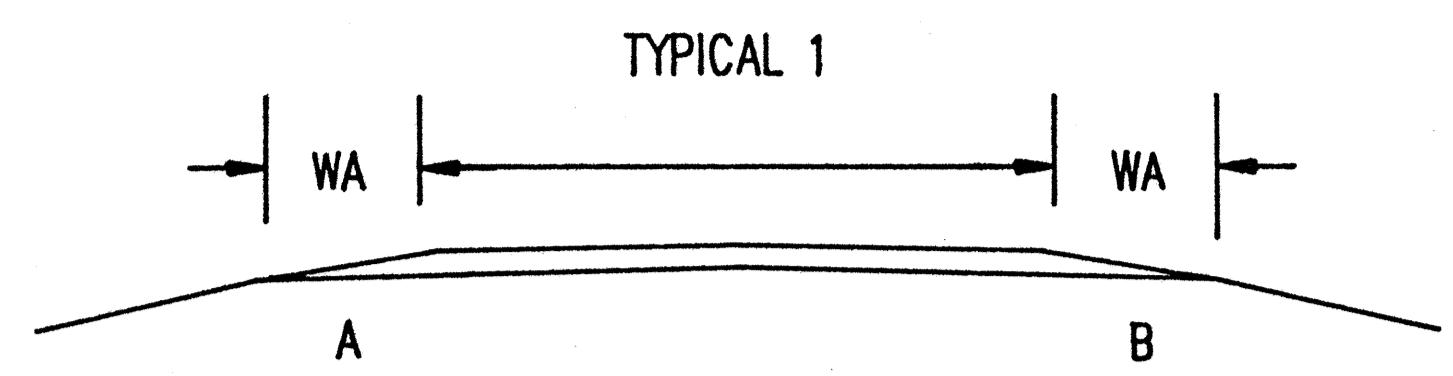
## SHOULDER DATA

PART	ROUTE	LOG POINT TO LOG POINT	LENGTH		TYPICAL	EXISTING - WIDTH (FT.)								404 AREA SQ.YDS.	407 ①		ASPHALT CONCRETE				407 ②		617					
						TYPE A				TYPE B					TYPE C				TACK		403		404		TACK		AREA SQ.YDS.	Compacted Aggregate ① 1 1/2" per S.Y. Average CU.YDS.
						TYP	WID	TH	TYPE	TYP	WID	TH	TYPE		TYP	WID	TH	TYPE	Bit. Matl.	Cover Aggr.	Thick Inches	CU.YDS.	Thick Inches	CU.YDS.	Bit. Matl.	Cover Aggr.		
						E	H			E	H				E	H			.08 gal./s.y. GALS.	lbs./s.y. TONS					② 0.5 gal./s.y. GAL.	② c.y./s.y. CU.YDS.		
1	SR-316	0.00-3.65	3.65	19,272	1	617	2	617	2													8,565	357					
		4.31-9.48	5.17	27,297	1	617	2	617	2													12,132	506					
1	SR-316	TOTAL	8.82	46,569																			* 16 879					
2	SR-316	3.65-3.74	0.09	475	1	617	2	617	2													211	9					
		3.74-4.00	0.26	1,373	1	409	8	409	8			2,441	195		1	68	1	68	122									
		4.00-4.31	0.31	1,637	1	617	2	617	2													728	30					
2	SR-316	TOTAL	0.66	3,485									195			68		68	122				* 2 41					

# SHOULDER TREATMENT

PLAN NO.  
**44**

5  
12



PART 3 SLM 9.68-10.76

② Apply immediately prior to the 404.

③ 5,702  
 - 102 Structure 0977 + Approach Slabs  
 - 1050 Structure 1031 + Approach Slabs  
 4,550 Lin. Ft.

\* Extra 617 to repair existing 617 drives and other 617 areas.

## SHOULDER DATA

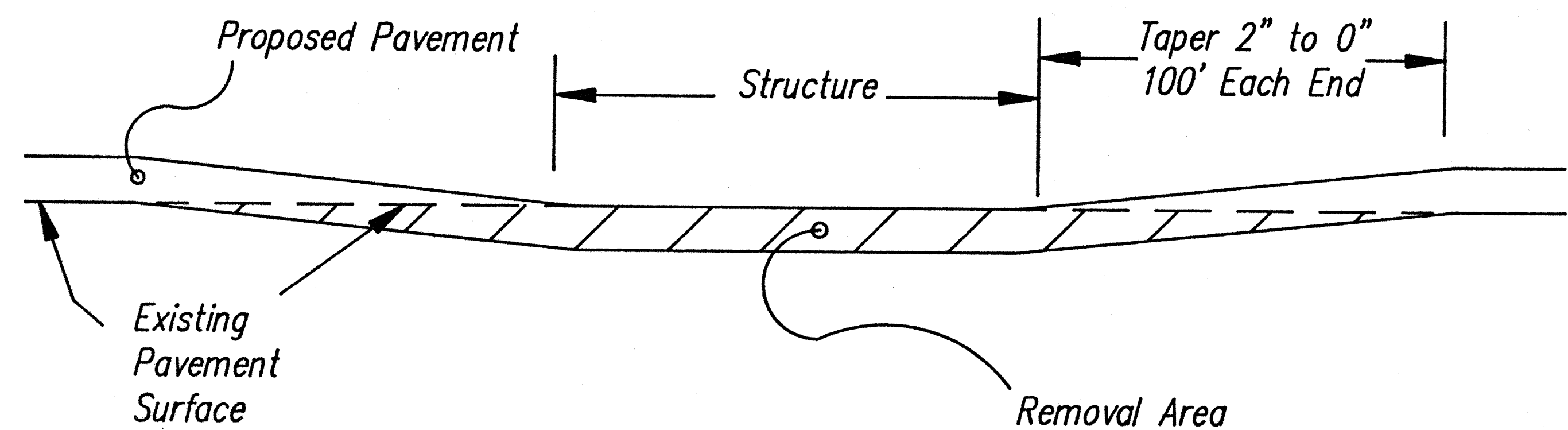
PART	ROUTE	LOG POINT TO LOG POINT	LENGTH		TYPICAL	EXISTING TYPE - WIDTH (FT.)								404 AREA SQ.YDS.	407 TACK ②		ASPHALT CONCRETE				617	
						A		B		C		D			Bit. Matl. gal./s.y. GALS.	Cover Aggr. lbs./s.y. TONS	404		TACK		AREA SQ.YDS.	Compacted Aggregate CU.YDS.
						Type	Width	Type	Width	Type	Width	Type	Width				Thick Inches	CU.YDS.	Bit. Matl. gal./s.y. GAL.	c.y./s.y. CU.YDS.		
																	CU.YDS.					
3	SR-762	9.23-9.68	0.45	2,376	1	617	2	617	2										1056	44		
		9.68-10.76	1.08	③ 4,550	1	404	4	404	4			4,044	324			1 1/2	169		1,011	42		
		10.76-11.31	0.55	2,904	1	617	2	617	2										1291	54		
		TOTAL	2.08	9,830									324				169			* 2	142	



FHWA REGION	STATE	PROJECT	
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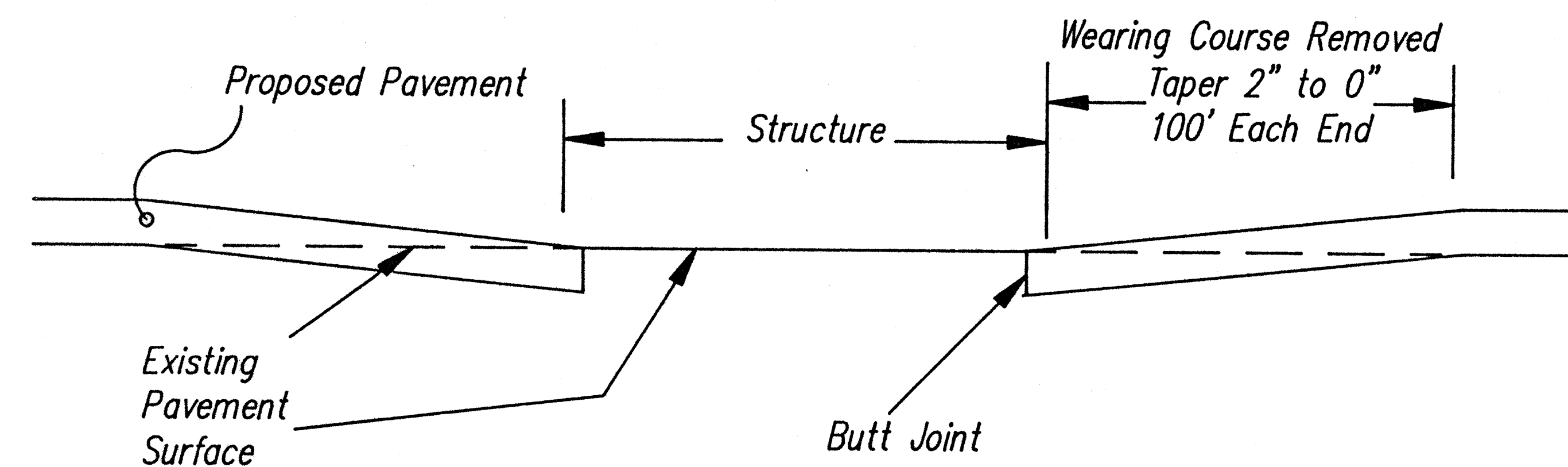
PLAN NO.  
44



ITEM 202 WEARING COURSE REMOVED

The existing wearing course shall be removed to a depth equal to the thickness of the proposed pavement courses and tapered as shown.

<u>PIC SR-316</u>	0168	Structure	38' x 21' ÷ 9 =	89 Sq.Yd.
		2 Tapers	19' X 100' ÷ 9 =	422 Sq.Yd.
	0244	Structure	16' X 22' ÷ 9 =	39 Sq.Yd.
		2 Tapers	19' X 100' ÷ 9 =	422 Sq.Yd.
	0431	2 Tapers	20' X 100' ÷ 9 =	444 Sq.Yd.
	0720	Structure	12' X 40' ÷ 9 =	53 Sq.Yd.
		2 Tapers	19' X 100' ÷ 9 =	422 Sq.Yd.
	<u>TOTAL</u>			<u>1891 Sq.Yd.</u>



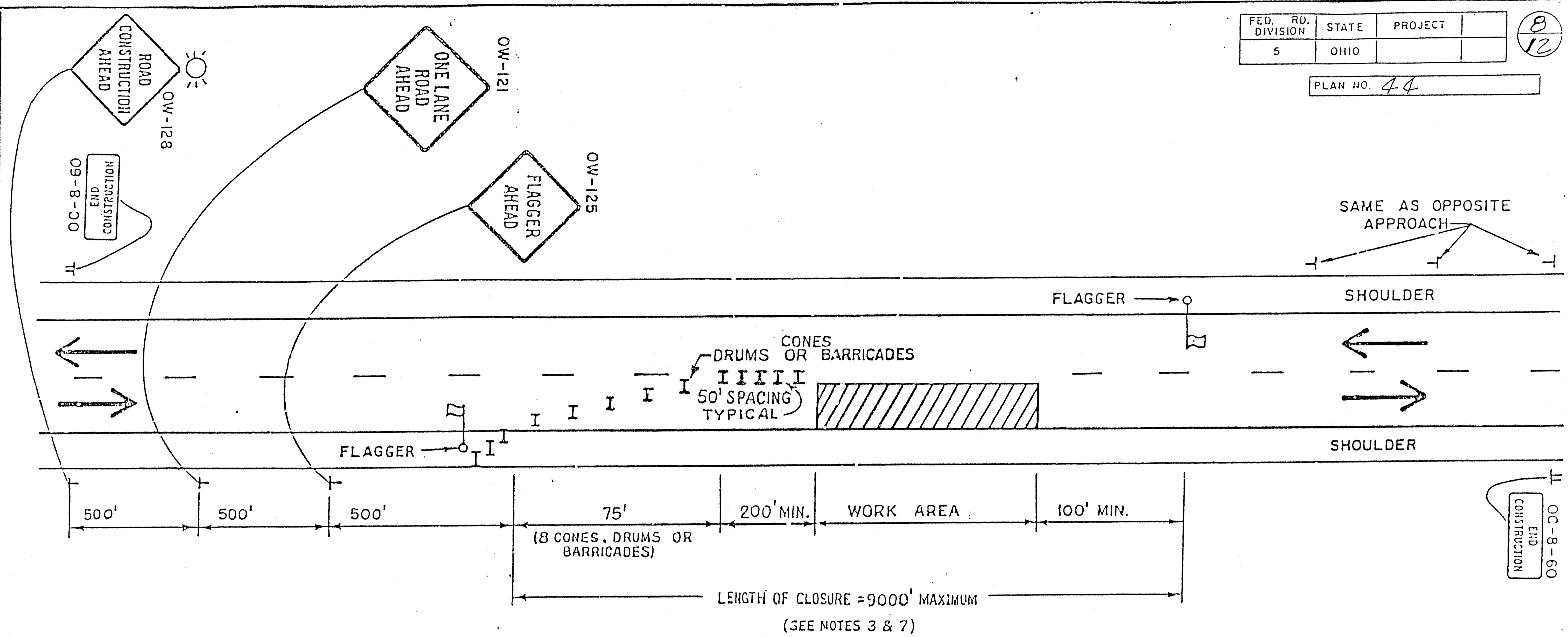
ITEM 614 WORK ZONE MARKING SIGNS

	OW - 167 - 36	OW - 168 - 36
PART 1	16	16
PART 2	3	3
PART 3	4	4

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

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PLAN NO. 44



GENERAL NOTES

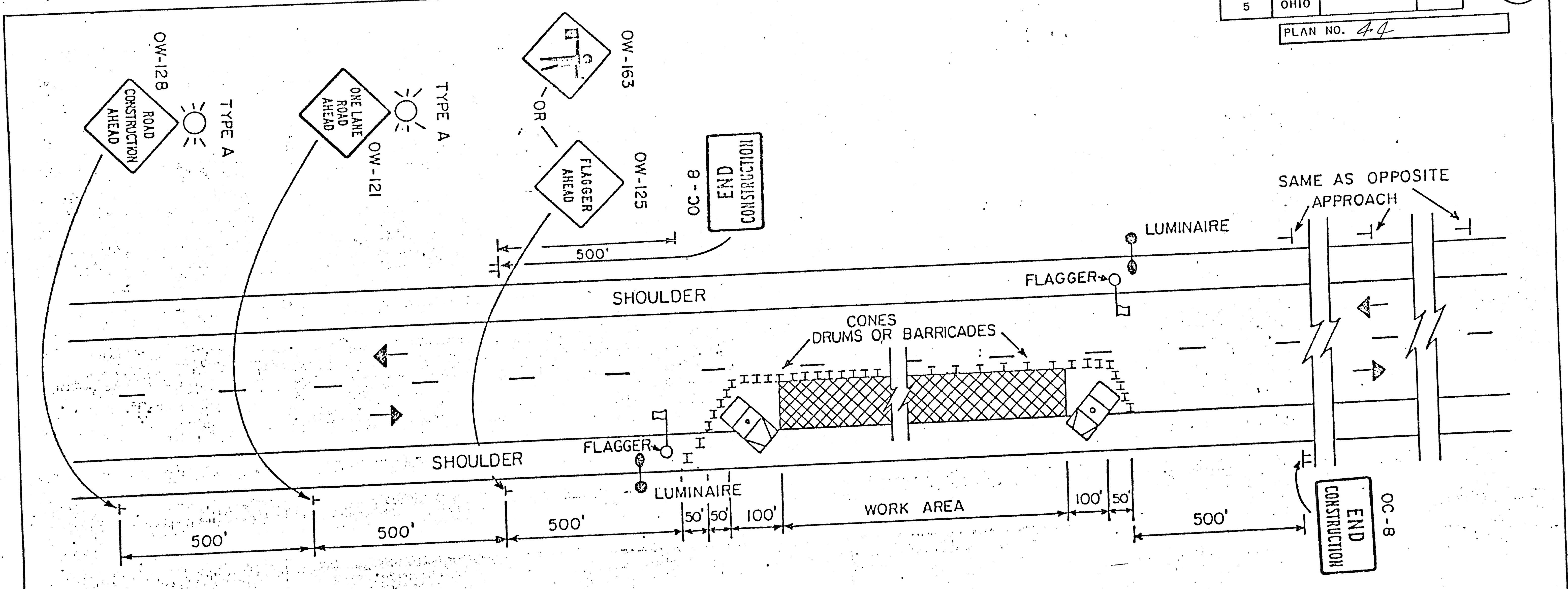
1. FLAGGERS SHALL BE USED TO CONTROL TRAFFIC CONTINUOUSLY FOR AS LONG AS ONE LANE OPERATION IS IN EFFECT. FLAGGERS SHALL BE ABLE TO COMMUNICATE WITH EACH OTHER AT ALL TIMES EITHER VERBALLY OR BY MEANS OF RADIO OR FIELD TELEPHONES. FLAGGER STATIONS SHALL BE ADEQUATELY ILLUMINATED FOR NIGHT TIME OPERATIONS BY USE OF A 175 WATT MINIMUM LUMINAIRE.
2. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS FOR THE LANE CLOSURES DURING DAYLIGHT HOURS ONLY.
3. WHEN THE AMBIENT TEMPERATURE EXCEEDS 80 DEGREES F, THE ENGINEER MAY INCREASE THE LENGTH OF CLOSURE TO ALLOW FOR SUFFICIENT COOLING OF THE NEW PAVEMENT.  
  
THE ENGINEER MAY SHORTEN THE MAXIMUM ALLOWABLE LENGTH OF CLOSURE TO RELIEVE EXCESSIVE TRAFFIC BACKUPS.
4. THE TYPE B HIGH INTENSITY BARRICADE WARNING LIGHT SHOWN ON THE ROAD CONSTRUCTION AHEAD SIGN IS REQUIRED WHENEVER NIGHT LANE CLOSURE IS NECESSARY.
5. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED OR DRUMS OR BARRICADES FOR NIGHT LANE CLOSURES.
6. THE ADVANCE WARNING SIGNS "OW-128" "OW-121" AND "OW-125" SHALL BE MOVED BACK AS REQUIRED BY THE QUEUING OF STOPPED VEHICLES.
7. WITHIN THE LENGTH OF CLOSURE, PROVISION SHALL BE MADE TO CONTROL TRAFFIC ENTERING FROM INTERSECTING STREETS AND MAJOR DRIVES AS NECESSARY TO PREVENT WRONG WAY MOVEMENTS AND TO KEEP VEHICLES OFF OF NEW PAVEMENT NOT READY FOR TRAFFIC.

ALL TRAFFIC CONTROL SIGNS, CHANNELIZING DEVICES, AND FLAGGERS SHALL BE MOVED FORWARD BEFORE THE CLOSURE REACHES THE MAXIMUM ALLOWABLE LENGTH. ONLY ONE SIDE OF THE ROAD SHALL BE CLOSED AT ANY TIME IN A WORK AREA.

OHIO DEPARTMENT OF TRANSPORTATION	
FLAGGERS CLOSING 1 LANE OF A 2 LANE HIGHWAY	DATE 12/80
PAYING OPERATIONS	
OR	CK.

REV. 4/87





**GENERAL NOTES.**

- The location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment. The distances shown are minimums.
- Flaggers shall be used to control traffic continuously for as long as a one lane operation is in effect. The flaggers shall communicate with each other at all times as described in the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) in Section 7H: Control of Traffic Through Work Areas.
- Cones drums or barricades shall be spaced at approximately 50' to 60' center to center for the first 1000 feet of the work area and at a maximum of 100' to 120' center to center for the balance of the work area. Cones, drums or barricades on the advance and return tapers shall be spaced at 10' center to center. Cones may be substituted for barricades or drums for the lane closures during daylight hours only.
- Several small work sites close together shall be combined into one work area to make a closure not more than 2000 feet long including tapers. Closures of more than 2000 feet may be approved by the Engineer. The minimum length between closures shall be 2000 feet. Only one side of the road shall be closed in any one work area.
- The work vehicles shown at the beginning and end of the work area shall be in place and unoccupied whenever workers are in the work area. These work vehicles 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 vehicles shown when approved by the Engineer. The vehicles shall be equipped with a 360° rotating or flashing amber beacon clearly visible a minimum of a 1 mile.
- The Type A flashing barricade warning lights shown on the "Road Construction Ahead" and the "One Lane Road Ahead" signs are required whenever a night lane closure is necessary.
- 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 3.
- Adequate area illumination to clearly identify the flagger station at night for long term operations shall be provided by using 150 watt minimum high pressure sodium luminaires or 250 watt minimum mercury luminaires. Luminaires shall be located adjacent to one flagger station for each direction of traffic as shown above. The mounting height for temporary luminaires shall be a minimum of 27 feet above the pavement and the overhead conductor clearance shall be 20 feet above the pavement.

OHIO DEPARTMENT OF TRANSPORTATION  
**FLAGGERS CLOSING  
 1 LANE OF A 2 LANE  
 HIGHWAY**

DATE  
 12/82

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

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12

INITIAL PAVEMENT MARKINGS FOR RESURFACED SECTIONS

GENERAL NOTES

PLAN NO. 44

In addition to the requirements of 621 and 847 the following shall apply:

621 Materials

Glass beads shall be kept dry during storage and prior to use.

621 SPECIAL EQUIPMENT

The Contractor's striper shall be equipped with an odometer graduated to 1/100 of a mile. The Engineer will determine the degree of accuracy of the Contractor's odometer and establish an adjustment factor as may be required to accurately determine the pay item quantities. The Engineer will periodically check the odometer's operation to assure maintenance of accurate measurements.

Failure of the odometer to function properly shall be cause to stop the work until the odometer is made to function properly. On short projects the Engineer may approve alternate methods to accurately measure the length of the various types of markings applied. If measurement of the work has to be done by the Department, the cost of the Department labor and equipment plus 10 percent shall be deducted from payment due the Contractor for the work. When measuring lane, edge and center line marking the odometer shall be started at the first marked line and remain in operation, until the end of the section being marked, where it shall be shut off and the reading of the odometer recorded.

Electrical foot counters shall be provided and installed in the striper. The counters shall individually tabulate the amount of footage applied by each striping gun on the center line carriage and lane line carriage, whether solid or dashed. The counters shall be 6 digit type with a reset feature.

The pavement marking equipment shall be equipped with a pressure regulated air jet which shall remove all debris from the pavement in advance of the applicator gun. The air jet shall operate when marking material is being applied and shall be synchronized with marking material application or remain "on" at all times.

The Contractor shall use an accurate dashing mechanism, capable of being easily adjusted

Provision for the above special equipment by the Contractor shall be incidental to the application.

847 LAYOUT AND PREMARKING

In addition to the requirements of 847 premarking for auxiliary markings shall be located from schematic forms provided at the pre-construction conference.

621 MATERIAL QUANTITY MEASUREMENT

The quantity of marking material or glass beads per unit of measurement will be computed by the Engineer at the end of each day's work. A day's applied mileage of less than 2 miles may be included in the next day's applied markings for the purpose of computing marking material and bead application rates.

The Contractor shall provide a calibrated measuring device acceptable to the Engineer for measuring material in the striper tanks.

The quantity of marking material used shall be determined by measuring the marking material in the tanks before and after marking material is applied. The Contractor shall cooperate with the Engineer in providing measurements whenever requested. The marking material application rate shall be determined by dividing the total gallons used by the appropriate marking length as determined from the foot counter as described within the Special Equipment Section of these notes. Any determination of pay deduction resulting from shortages in marking quantities shall be based on the measurements obtained by this method. The amount of glass beads applied will be ascertained by the Engineer by observation and from information supplied by the Contractor as to quantity used.

847. AUXILIARY PAVEMENT MARKING

For this project auxiliary markings shall be defined as: stop lines, crosswalk lines, transverse lines, railroad symbol markings, lane arrows, word on pavement and dotted lines except when used to extend edge lines.

STANDARD CONSTRUCTION DRAWING TC 71.10

The dimensions shown on Standard Construction Drawing TC 71.10 are nominal. Letters, numerals and symbols conforming to the requirements of section 3B-17 of the 1978 National Manual On Uniform Traffic Control Devices may also be used. Any of the following standards for letters, numeral or symbol dimensioning may be used; A.) Standard dimensions shown on this detail or B.) Standard dimensions (either metric or their hard converted English unit equivalents) in accord with the 1977 Metric Edition Standard Alphabets For Highway Signs and Pavement Marking with Errata or C.) Standard dimensions shown in figures 3-17, 3-18, 7-2, 7-3, 8-2 or 9-6 of the 1978 National Manual On Uniform Traffic Control Devices.

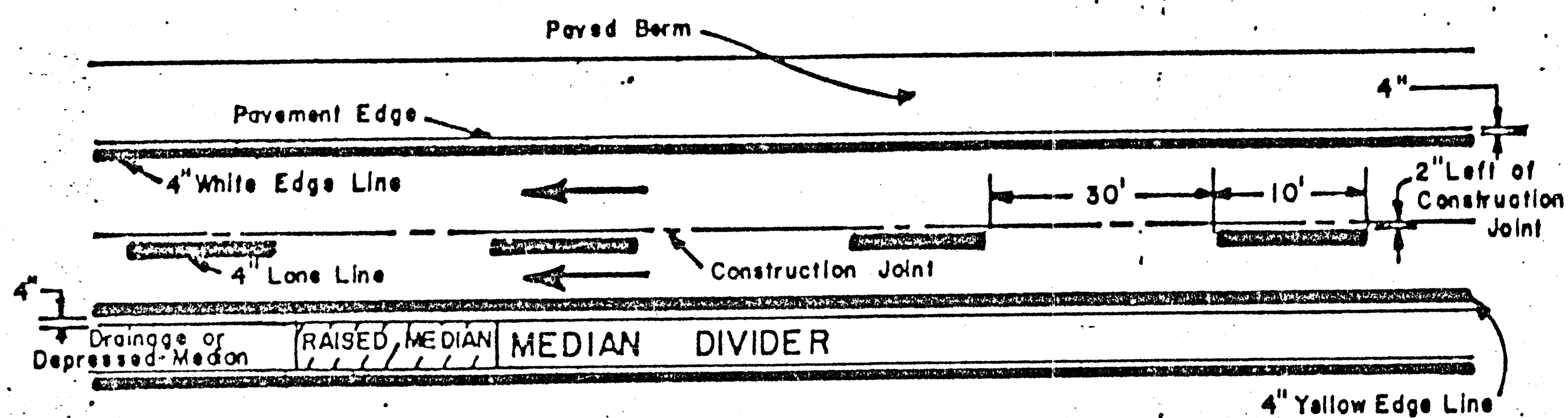
# PAVEMENT MARKING TYPICAL DETAILS

FED. RD DIV.	STATE	PROJECT	
5	OHIO		

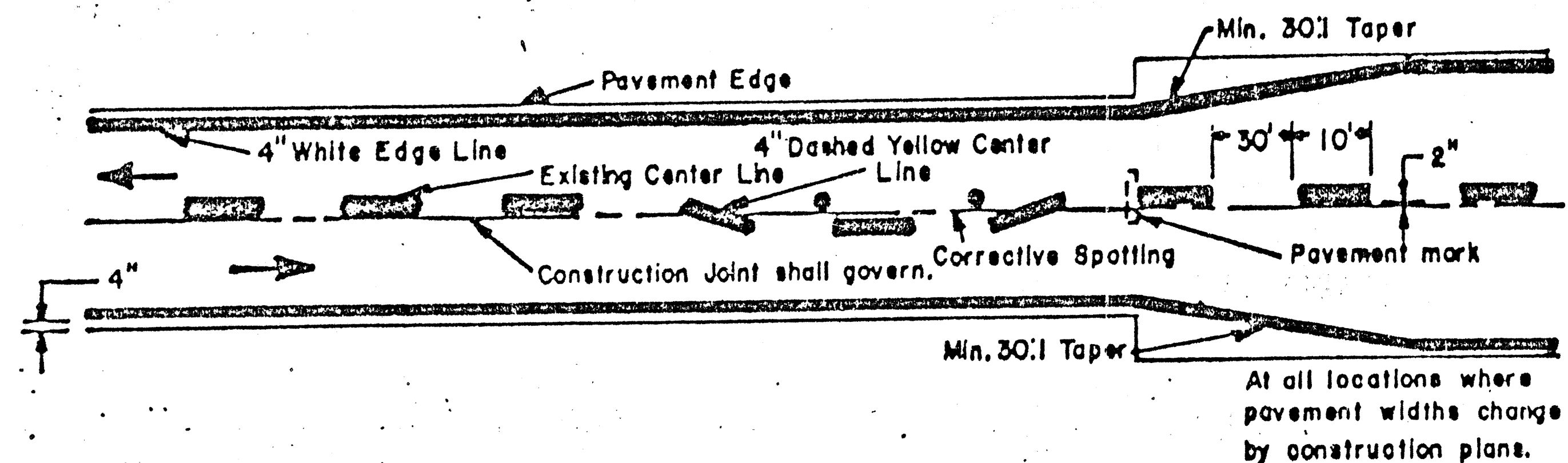
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PLAN NO. 44

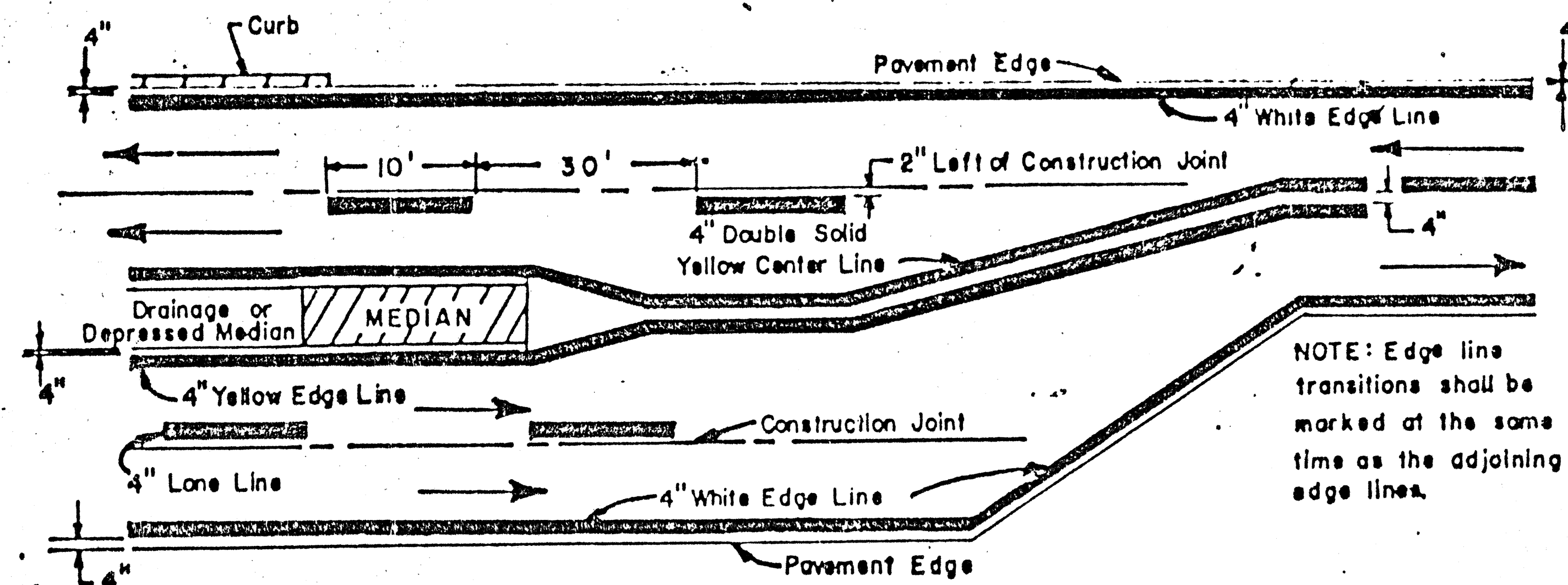
## FREEWAY & EXPRESSWAY MAINLINE MARKINGS



## TWO LANE MARKINGS



## MULTILANE DIVIDED & UNDIVIDED HIGHWAY MARKINGS



### NOTES:

1. THE DISTANCE FROM THE PAVEMENT EDGE TO THE NEAR SIDE EDGE OF THE EDGELINE MAY BE INCREASED WITH THE APPROVAL OF THE ENGINEER IN ORDER TO MAINTAIN UNIFORM LANE WIDTH.
2. SEE TC 72.20 FOR PAVEMENT ENTRANCE AND EXIT RAMP TERMINALS.

OHIO DEPARTMENT OF TRANSPORTATION	
PAVEMENT MARKING TYPICAL DETAILS	DATE 11/80
JDL: CDR	

12/81

GENERAL SUMMARY

ITEM	TOTAL PART 1	TOTAL PART 2	TOTAL PARTS 1-2	TOTAL PART 3					GRAND TOTAL PARTS 1-3	UNIT	DESCRIPTION
407	12,907	1,406	14,313	2,761					17,074	Gal.	Tack Coat, as per plan
403	2,758	301	3,059	313					3,372	Cu.Yd.	Asphalt Concrete AC-20
404	2,758	301	3,059	1,145					4,204	Cu.Yd.	Asphalt Concrete AC-20, as per plan.
202	643		643						643	Each	Raised Pavement Markers Removed for Storage
202	1,891		1,891						1,891	Sq.Yds.	Wearing Course Removed
614	32	6	38	8					46	Each	Work Zone Marking Signs
621	8.82	0.66	9.48	2.08					11.56	Mile	Center Line
621	17.64	1.32	18.96	4.16					23.12	Mile	Edge Line
847	42		42	41					83	Lin.Ft.	Stop Lines, '947.03, Type A; Inlaid
614	17.64	1.32	18.96	3.08					22.04	Mile	Temporary Center Lines, Class II
624	Lump	Lump	Lump	Lump					Lump	Lump	Mobilization
617	1		1	1					2	M.Gal.	Water
617	879	41	920	142					1,062	Cu.Yd.	Compacted Aggregate, Type A
614	Lump	Lump	Lump	Lump					Lump	Lump	Maintaining Traffic

GENERAL NOTES

TRAFFIC:

TRAFFIC SHALL BE MAINTAINED AT ALL TIMES. THE LENGTH OF RESTRICTED TRAFFIC ZONES SHALL BE KEPT TO A MINIMUM CONSISTENT WITH THE SPECIFICATION REQUIREMENTS FOR PROTECTION OF COMPLETED COURSES.

RAILROAD CROSSINGS:

THE NEW SURFACE COURSE SHALL BE FEATHERED OR BUTT JOINTED TO MEET THE RAIL GRADES AS SPECIFIED.

ALIGNMENT AND PROFILE:

THE WORK PROPOSED BY THIS PROJECT IS FOR THE RESURFACING OF THE EXISTING PAVEMENT. THE ALIGNMENT OF THE EXISTING PAVEMENT WILL NOT BE CHANGED, AND THE PROFILE OF THE PROPOSED SURFACE WILL BE SIMILAR TO THAT OF THE EXISTING PAVEMENT EXCEPT THAT IT WILL BE RAISED AN AMOUNT EQUAL TO THE THICKNESS OF THE RESURFACING COURSE OR COURSES SPECIFIED IN THESE PLANS.

INTERMEDIATE COURSE, SPOT LEVELING AND PATCHING:

THIS MATERIAL SHALL BE PLACED IN A SEPERATE OPERATION WHERE AND AS DIRECTED BY THE ENGINEER.

TACK COAT:

THE TACK COAT OPERATION SHALL BE AS DETERMINED AT A PRECONSTRUCTION CONFERENCE AS PER 407.05, AND APPLICATION RATES SHALL NOT EXCEED 0.10 GAL. PER SQ. YD.

COVER AGGREGATE:

COVER AGGREGATE SHALL CONFORM TO 703.06.

TACK COAT:

*On this project, all cover aggregate required, in accordance with 407.06, shall be included in the unit bid price for 407 TACK COAT, as per plan.*

ITEM 404 ASPHALT CONCRETE, AC-20, as per plan

The top surface of the longitudinal and transverse joints shall be painted six (6) inches wide with the same bituminous material used in the 404 mixture as directed. Application rate shall be at least 0.25 gal./s.y. The cost of the operation to be included in the cost of the 404 Asphalt Concrete, Ac-20 as per plan.

FRESH TAR SIGNS

The Contractor shall provide, erect and remove "Fresh Tar" signs in accordance with the O.M.U.T.C.D. Payment for the above to be included in the Unit Price Bid for Maintaining Traffic.