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37.	E-8	APPROACH SIGNS, MAJOR MAINTENANCE	2-3-86R
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Date SEP 10 1987

PIKE INDUSTRIES INC.
Contractor

Roger D. Martin
Signature

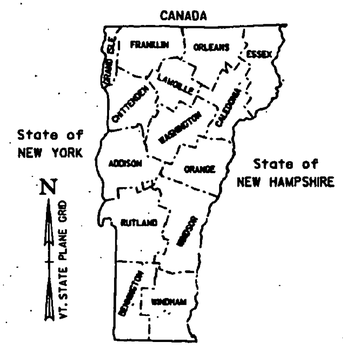
VICE PRESIDENT
Title

ACTING Arthur G. Hull
Transportation Secretary's Signature

STATE OF VERMONT
AGENCY OF TRANSPORTATION

CONTRACT PLANS

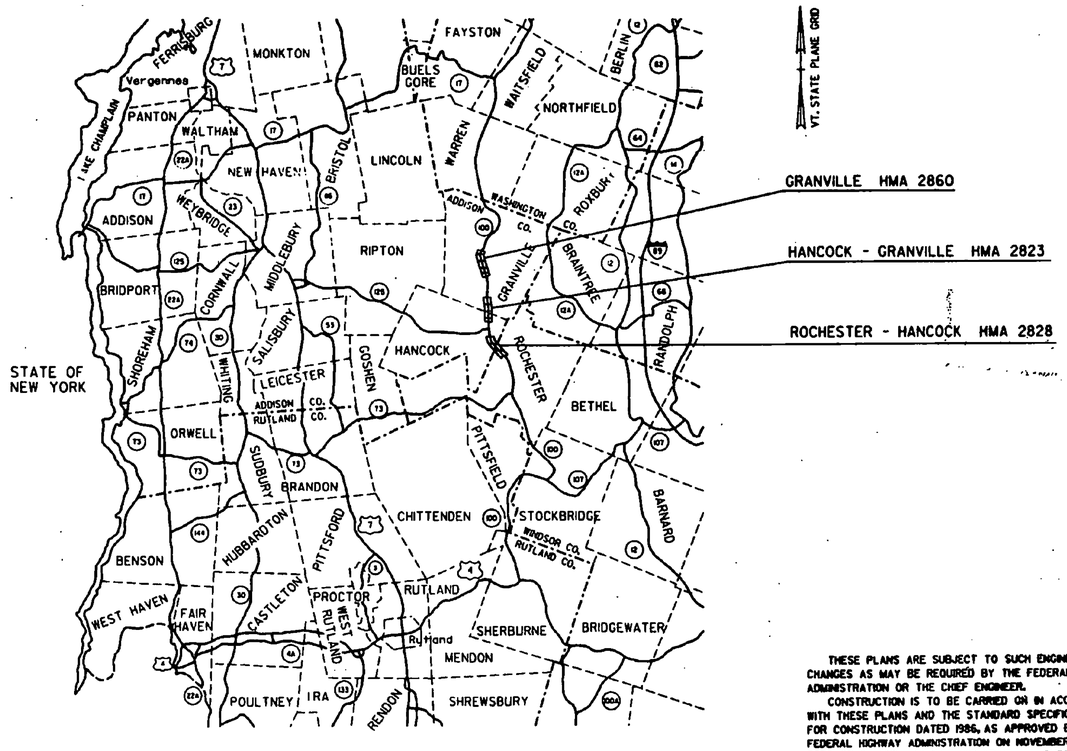
THESE PLANS DO NOT REFLECT CHANGES MADE ON THE PROJECT.



PROPOSED IMPROVEMENT
TOWNS OF
GRANVILLE, HANCOCK & ROCHESTER

RESURFACING PROJECTS

WORK PERFORMED UNDER THIS PROJECT SHALL CONSIST OF RESURFACING THE HIGHWAY, INCLUDING SHOULDERS AND NEW PAVEMENT MARKINGS.



PROJECT	NUMBER	ROUTE	LOCATION	LENGTH
GRANVILLE	HMA 2860	VT. 100	MM 0.570 TO MM 2.971	2.401 MILES
HANCOCK-GRANVILLE	HMA 2823	VT. 100	MM 1.320 TO MM 2.511 MM 0.000 TO MM 0.110	1.300 MILES
ROCHESTER-HANCOCK	HMA 2828	VT. 100	MM 7.273 TO MM 8.353 MM 0.000 TO MM 0.650	1.730 MILES
TOTALS				5.431 MILES

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1986, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON NOVEMBER 21, 1985 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

SUBMITTED BY ORDER OF THE STATE TRANSPORTATION BOARD

APPROVED David B Kelley CHIEF ENGINEER DATE 7/1/87

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DIVISION ADMINISTRATOR DATE _____

PROJECT RESURFACING PROJECTS

SHEET 1 OF 38 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

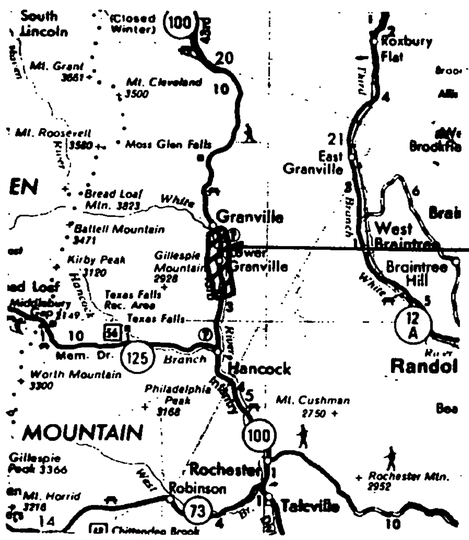
PROPOSED IMPROVEMENT

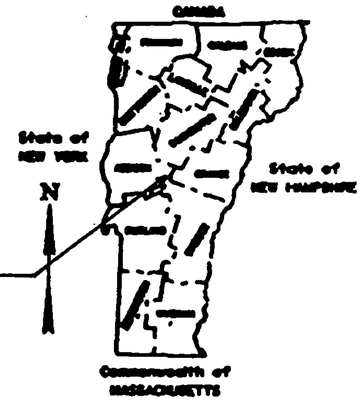
TOWN OF Granville

COUNTY OF Addison

ROUTE NO. VT 100

ROUTE CLASS FAP





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SUBMITTED BY ORDER OF THE STATE TRANSPORTATION BOARD

APPROVED _____ DATE _____
CHIEF ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE _____
DIVISION ADMINISTRATOR

Granville
PROJECT HMA no. 2860

SHEET 1 OF 10 SHEETS

See Sheet 1 For Index

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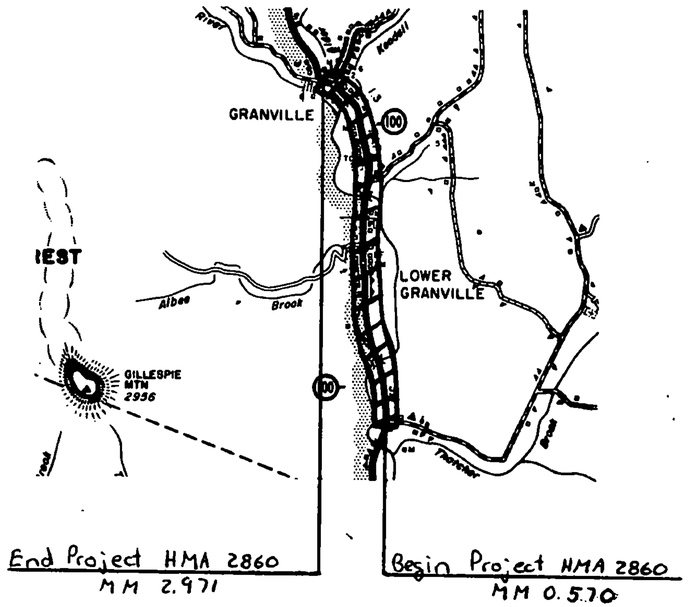
PROJECT Granville

NO. HMA 2860

SHEET 2 OF 10 SHEETS

DESCRIPTION AND LOCATION



Scale: 1" = 1 mile

Beginning on VT 100, 0.570 miles northerly of the Hancock - Granville town line and extending northerly 2.401 miles to MM 2.971

Work consists of resurfacing of the highway, including shoulders and pavement markings

1986 ADT 1410

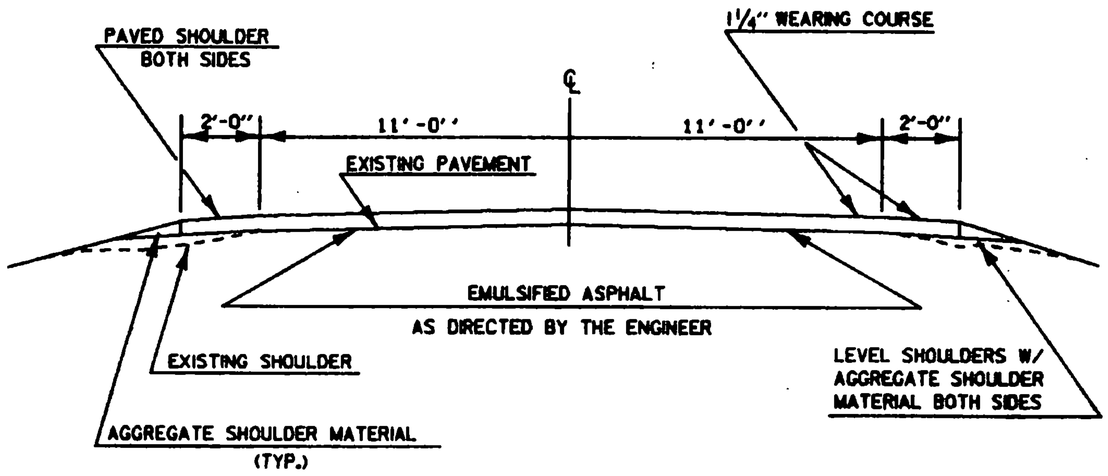
Length Of Project 2.401 miles
12677 feet

PROJECT Granville

NO. HMA 2860
SHEET 3 OF 10 SHEETS

TYPICAL SECTIONS & DESIGN DATA

BITUMINOUS CONCRETE PAVEMENT
LEVELING COURSE TYPE IV (414 TONS/MILE)
AS DIRECTED BY THE ENGINEER.
1 1/4" WEARING COURSE TYPE III (± 1/4" THICKNESS TOLERANCE)



VT. 100 MM 0.570 ~ MM 2.971

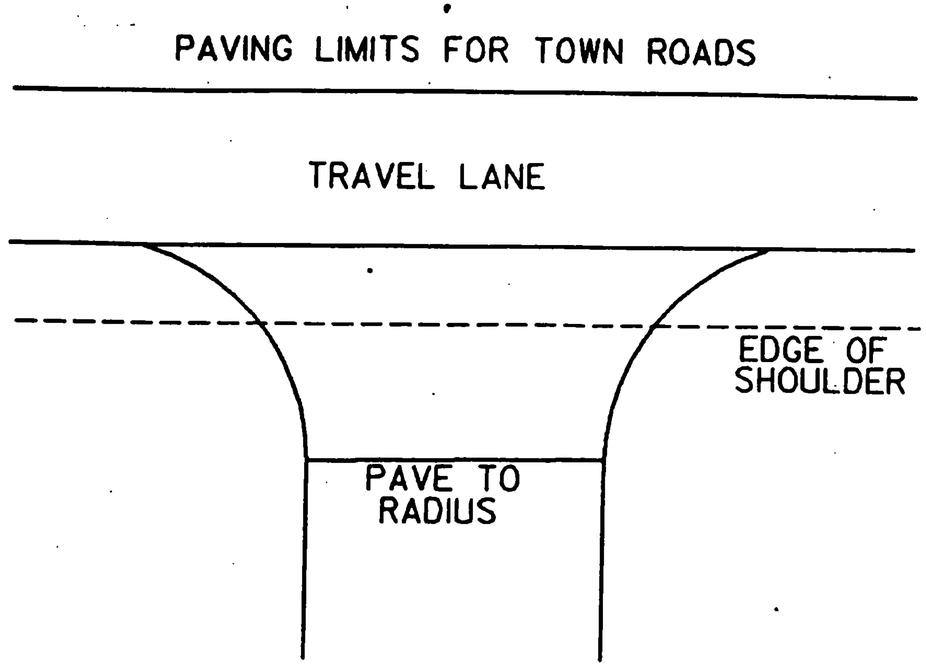
NOTE : BRIDGES AT MM 2.07 AND MM 2.74 ARE NOT TO BE PAVED.

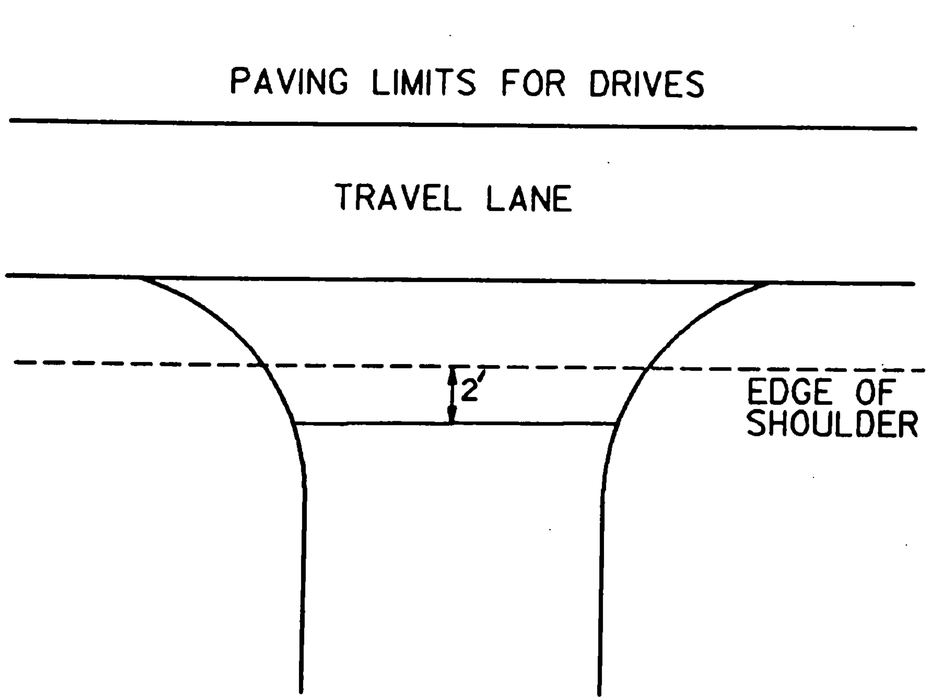
NOTE : WHEN ENCOUNTERING VEGETATION OR POOR MATERIAL IN THE SHOULDER AREA, REMOVE 2" BELOW EXISTING PAVEMENT LEVEL AND REPLACE WITH AGGREGATE SHOULDER MATERIAL. REMOVAL OF THIS MATERIAL WILL BE PAID FOR UNDER THE ITEM 'ALL PURPOSE EXCAVATOR RENTAL' OR 'GRADER RENTAL'.

PROJECT GRANVILLE

NO. HMA 2860
SHEET 4 OF 10 SHEETS
SHEET 6 OF 38 SHEETS

PAVING LIMITS FOR DRIVES & TOWN ROADS





PROJECT Granville

NO. HMA 2860

SHEET 5 OF 10 SHEETS

TEMPORARY 4" YELLOW LINE

	MILE	MILE	LT	RT		QUANTITY LT	QUANTITY ℄	QUANTITY RT		TOTALS
	0.57	0.59	Solid	Solid		106		106		212
	0.59	0.68	Solid	Dash		475		119 •		594
	0.68	0.82	Dash	Dash			185			185
	0.82	0.94	Dash	Solid		158		634		792
	0.94	1.86	Solid	Solid		4858		4858		9716
	1.86	2.00	Dash	Solid		185		739		924
	2.00	2.15	Solid	Solid		792		792		1584
	2.15	2.29	Solid	Dash		739		185		924
	2.29	2.43	Solid	Solid		739		739		1478
	2.43	2.56	Solid	Dash		686		172		858
	2.56	2.68	Dash	Solid		158		634		792
	2.68	2.97	Solid	Solid		1531		1531		3062
								Subtotal		21 121
					Assume 100% Loss Due To Level					21 121
					Minus 6 Rdwy Openings @ 80' Ea					- 960
					× 2 courses of pavement					
								TOTAL		41282

TEMPORARY 4" WHITE LINE

	0.570	2.971	Solid	Solid		12677		12677		25354

PROJECT Granville

NO. HMA 2860
SHEET 6 OF 10 SHEETS
SHEET 8 OF 36 SHEETS

GUIDELINES FOR MINIMUM INTERIM PAVEMENT MARKINGS IN CONSTRUCTION ZONES

A. CENTERLINE AND GORE AREA MARKINGS SHALL BE APPLIED AT THE END OF EACH WORKING DAY. THE FOLLOWING LAYOUT REQUIREMENTS SHALL BE MET:

NO PASSING BARRIER
SOLID STRIPES.

DASHED LINE
10-FOOT SOLID LINE WITH 30-FOOT GAP.

GORE AREA
(GORE AREAS TO INCLUDE 8' CHANNELIZING LINE AND DASHED LINE)
PER STANDARD SHEET E-50

B. EDGE LINES
WHEN SPECIFIED, EDGE LINES ARE NOT REQUIRED UNTIL COMPLETION OF THE PROJECT. ON INTERSTATE PROJECTS, TEMPORARY EDGE LINES SHOULD BE APPLIED WHERE TRAFFIC VOLUMES AND SPEEDS ARE HIGH AND DELAY OF SEVERAL DAYS IS ANTICIPATED.

C. TEMPORARY MARKINGS MAY CONSIST OF PAINT, TAPE OR RAISED PAVEMENT MARKERS (RPM'S). THE TAPE SHALL BE A RETRO-REFLECTIVE FILM ON A CONFORMABLE METALLIC BACKING THAT CAN BE PAVED OVER. TAPE MAY BE USED ON THE FINAL SURFACE COURSE IF IT WILL NOT INTERFERE WITH THE FINAL MARKING APPLICATION. TEMPORARY TAPE MARKINGS WILL BE OFFSET AND REMOVED WHEN PROJECT IS FINISHED AND FINAL CENTERLINE PAINTED. THE TAPE SHALL BE THE TYPE THAT IS REMOVABLE INTACT AND NOT SEPERATE AT ANY TIME. THE RPM'S SHALL HAVE A SELF-ADHESIVE BACKING EASILY REMOVED BEFORE PAVING AND SHALL CONFORM TO THE FOLLOWING LAYOUT PATTERN:

NO PASSING BARRIER
NO RPM'S ALLOWED.

DASHED LINE
FOUR RETRO-REFLECTIVE RPM'S ON 3 1/2 FOOT CENTERS WITH A 30' GAP.

SOLID LINE - EDGE LINES
INTERSTATE MEDIAN SIDE-RETRO-REFLECTIVE RPM'S ON 4 TO 5 FOOT CENTER.
DRIVERS RIGHT SIDE-RPM'S NOT ALLOWED.

D. WHEN PAINT IS USED FOR TEMPORARY MARKING, AN ALTERNATE MATERIAL SUCH AS TAPE OR RPM'S SHALL BE ON HAND IN THE EVENT RAIN PREVENTS THE PAINT APPLICATION FROM BEING COMPLETED. ALL PAINT SHALL BE REFLECTORIZED.

E. PAYMENT FOR PAINT AND TAPE SHALL BE COMPUTED ON A LINEAR FOOT BASIS AS IF PAINT WAS USED. PAYMENT FOR THE RPM'S SHALL BE COMPUTED AS IF AN EQUIVALENT PAINT LINE WAS USED. (FOR EXAMPLE, DASHED LINE PAID AS 10 FEET OF PAINT, SOLI LINE PAID AS THE TOTAL DISTANCE COVERED WITH THE MARKERS).

F. PRIOR TO ACCEPTANCE, THE PAVEMENT MARKINGS SHALL BE COMPLETED FOR THE ENTIRE PROJECT BY THE CONTRACTOR AS DETAILED ON THE PLANS OR DIRECTED BY THE RESIDENT ENGINEER.

REVISED
02/11/85

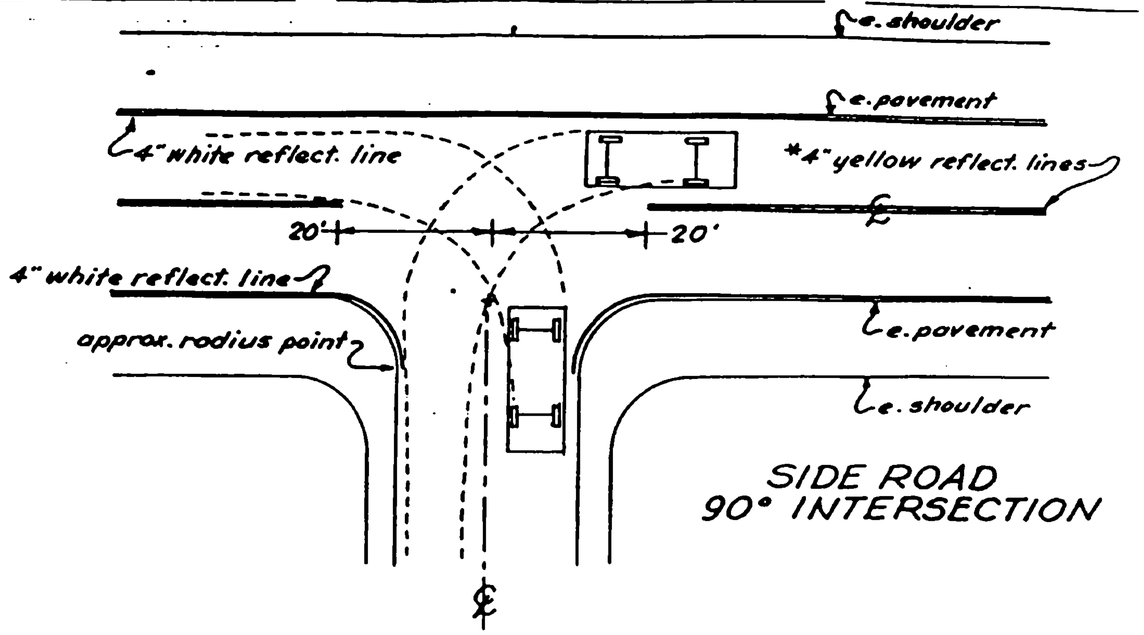
HMA 2860
Sheet 7 of 10 Sheets
Sheet 9 of 38 Sheets

Granville

CHKD. BY____ DATE____

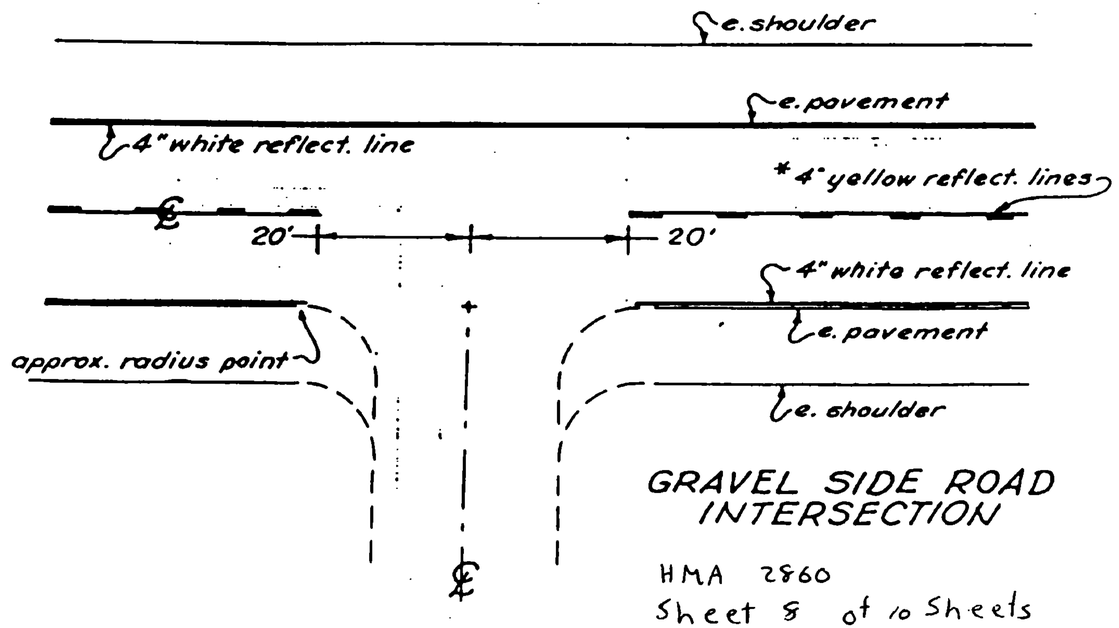
MARKING AT INTERSECTING SIDE ROAD

JOB NO.____



SIDE ROAD
90° INTERSECTION

* Centerline treatment shall consist of a minimum of 400 feet of solid line in advance of the intersection and shall be paired with either a solid or dashed line depending on sight distance availability in the opposing lane.



GRAVEL SIDE ROAD
INTERSECTION

Granville

HMA 2860
Sheet 8 of 10 Sheets
Sheet 10 of 38 Sheets

PROJECT LENGTHS AND ITEM QUANTITIES

ITEM DESCRIPTION	Length	Width	Overlay Depth		Aggregate Shoulders	Aggregate Shoulders	Emulsified Asphalt	Bituminous Concrete Pavement	Power Grader Rental	All Purpose Excavator Rental	Power Broom Rental	Truck Rental	Uniformed Traffic Officers	Flaggers	Mobilization	
				Option												
ITEM NO.					402.10	402.12	404.65	406.25	608.15	608.25	608.30	608.37	630.10	630.15	635.10	
UNIT	FT	FT	IN		CY	TON	CWT	TON	HR	HR	HR	HR	HR	HR	LS	
MM 0.570	12677	26	1¼		1056	1848	45	2543	24	24	19	24	304	352	0.44	Includes Shoulders
2.971								994								Level Course
Drives + Approaches					152	266		95								
Rounding					2	6	-	8	-	-	1	-	1	3	-	
TOTAL					1210	2120	45	3640	24	24	20	24	305	355	0.44	

PROJECT Granville NO. HMA 2860

PROJECT LENGTHS AND ITEM QUANTITIES

ITEM DESCRIPTION	Temporary 4" White Line	Temporary 4" Yellow Line
ITEM NO.	646.50	646.51
UNIT	LF	LF
MM 0.570 2.971	25354	41282
Rounding	46	18
TOTALS	25400	41300

PROJECT Granville

NO. HMA 2860

SHEET 10 OF 10 SHEETS

SHEET 12 OF 38 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

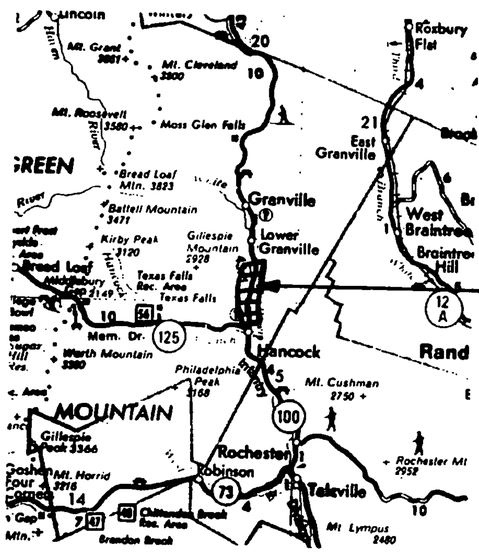
PROPOSED IMPROVEMENT

TOWN OF Hancock - Granville

COUNTY OF Addison

ROUTE NO. VT 100

ROUTE CLASS FAP



THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER. CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1996, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON NOVEMBER 21, 1995 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

SUBMITTED BY ORDER OF THE STATE TRANSPORTATION BOARD

APPROVED _____ DATE _____
CHIEF ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE _____
DIVISION ADMINISTRATOR

Hancock - Granville
PROJECT HMA no. 2823

SHEET 1 OF 10 SHEETS

See Sheet 1 For Index

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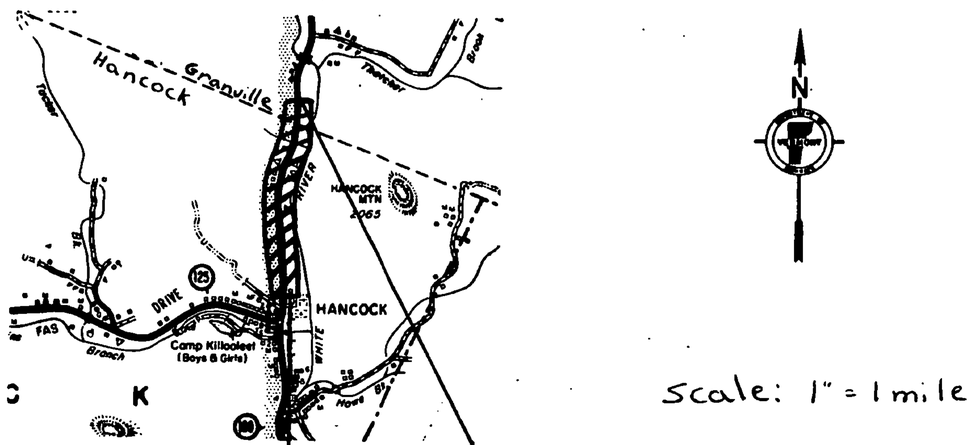
PROJECT Hancock-Granville

NO. HMA 2823

SHEET 2 OF 10 SHEETS

DESCRIPTION AND LOCATION



Scale: 1" = 1 mile

End Project HMA 2823
MM 0.110

Begin Project HMA 2823
MM 1.320

Beginning at a point on UT 100, 1.320 miles northerly of the Rochester - Hancock town line and extending 1.300 miles northerly to MM 0.110 in the town of Granville

Work consists of resurfacing of the highway, including shoulders and new pavement markings

1986 ADT 1810 Length of Project 1.300 miles
6864 feet

PROJECT Hancock - Granville

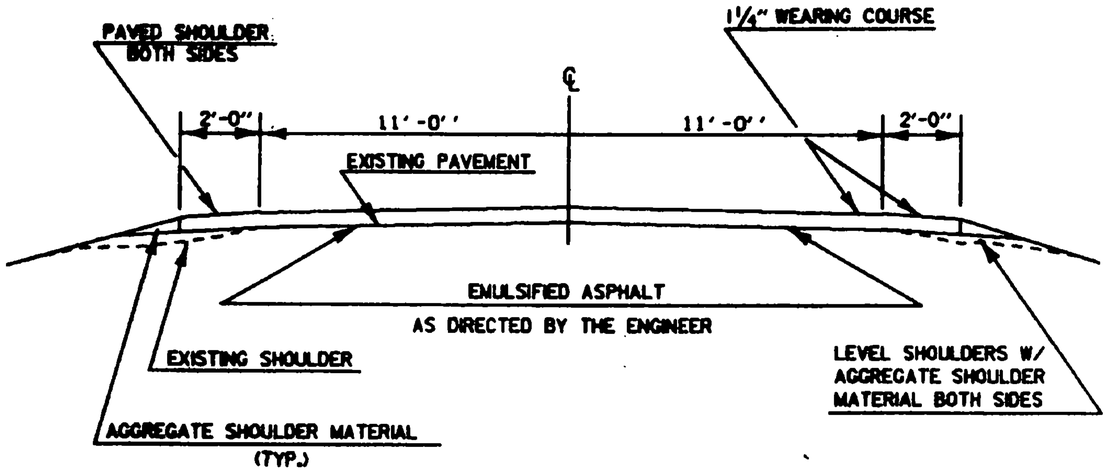
NO. HMA 2823

SHEET 3 OF 10 SHEETS

SHEET 15 OF 38 SHEETS

TYPICAL SECTIONS & DESIGN DATA

BITUMINOUS CONCRETE PAVEMENT
LEVELING COURSE TYPE IV (532 TONS/MILE)
AS DIRECTED BY THE ENGINEER.
1 1/4" WEARING COURSE TYPE III (± 1/4" THICKNESS TOLERANCE)



HANCOCK GRANVILLE
VT. 100 MM 1.320 ~ MM 0.110

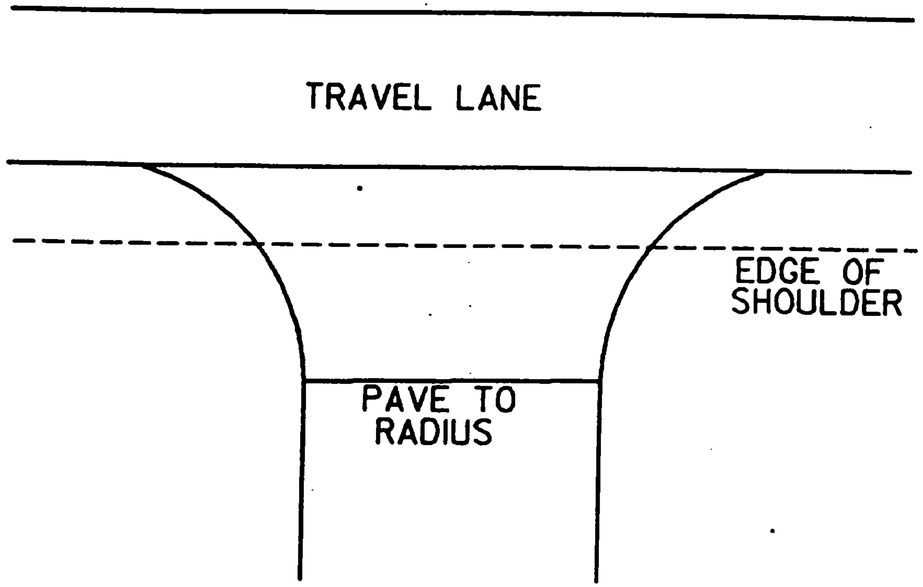
NOTE : WHEN ENCOUNTERING VEGETATION OR POOR MATERIAL IN THE SHOULDER AREA, REMOVE 2" BELOW EXISTING PAVEMENT LEVEL AND REPLACE WITH AGGREGATE SHOULDER MATERIAL. REMOVAL OF THIS MATERIAL WILL BE PAID FOR UNDER THE ITEM 'ALL PURPOSE EXCAVATOR RENTAL' OR 'GRADER RENTAL'.

PROJECT HANCOCK-GRANVILLE

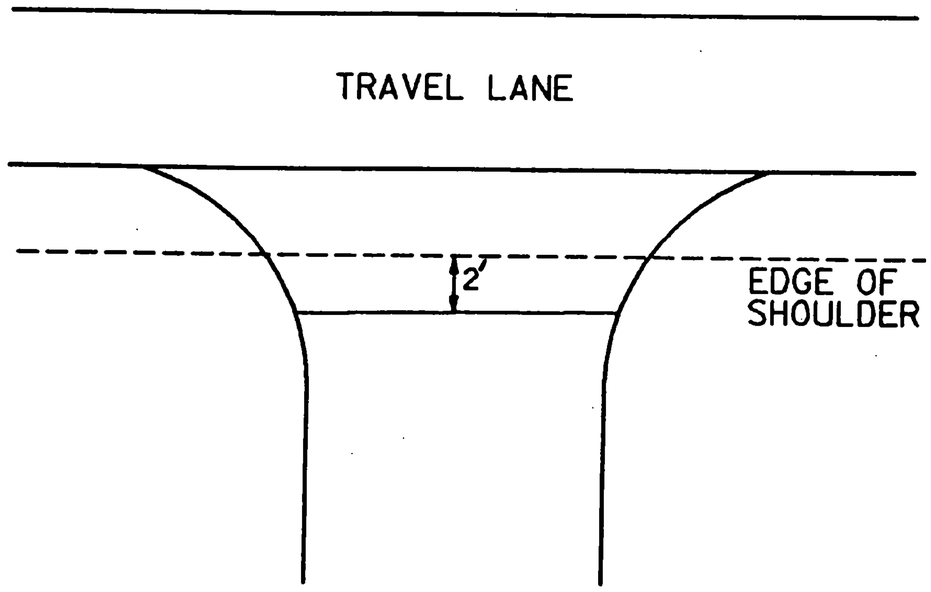
NO. HMA 2823
SHEET 4 OF 10 SHEETS
SHEET 16 OF 38 SHEETS

PAVING LIMITS FOR DRIVES & TOWN ROADS

PAVING LIMITS FOR TOWN ROADS



PAVING LIMITS FOR DRIVES



PROJECT Hancock - Granville

NO. HMA 2823

SHEET 5 OF 10 SHEETS

SHEET 17 OF 31 SHEETS

TEMPORARY 4" YELLOW LINE

	MILE	MILE	LT	RT		QUANTITY LT	QUANTITY ℄	QUANTITY RT		TOTALS
	1.320	1.43	Solid	Solid		581		581		1162
	1.43	1.55	Dash	Solid		158		634		792
	1.55	1.56	Solid	Solid		53		53		106
	1.56	1.67	Solid	Dash		581		145		726
	1.67	1.75	Dash	Dash			106			106
	1.75	1.83	Dash	Solid		106		422		528
	1.83	2.51	Solid	Solid		3590		3590		71
	0.00	0.110	Solid	Solid		581		581		1162
								Subtotal		11762
					Assume 100% Loss Due to Leveling					11762
					Minus 1 Rdwy opening @ 80' Ea					-160
					x 2 courses of pavement					
								TOTAL		23364

TEMPORARY 4" WHITE LINE

	1.320	0.110	Solid	Solid		6864		6864		13728

PROJECT Hancock - Granville

NO. HMA 2823
SHEET 6 OF 10 SHEETS
SHEET 18 OF 38 SHEETS

GUIDELINES FOR MINIMUM INTERIM PAVEMENT MARKINGS IN CONSTRUCTION ZONES

A. CENTERLINE AND GORE AREA MARKINGS SHALL BE APPLIED AT THE END OF EACH WORKING DAY. THE FOLLOWING LAYOUT REQUIREMENTS SHALL BE MET:

NO PASSING BARRIER
SOLID STRIPES.

DASHED LINE
10-FOOT SOLID LINE WITH 30-FOOT GAP.

GORE AREA
(GORE AREAS TO INCLUDE 8" CHANNELIZING LINE AND DASHED LINE)
PER STANDARD SHEET E-50

B. EDGE LINES
WHEN SPECIFIED, EDGE LINES ARE NOT REQUIRED UNTIL COMPLETION OF THE PROJECT. ON INTERSTATE PROJECTS, TEMPORARY EDGE LINES SHOULD BE APPLIED WHERE TRAFFIC VOLUMES AND SPEEDS ARE HIGH AND DELAY OF SEVERAL DAYS IS ANTICIPATED.

C. TEMPORARY MARKINGS MAY CONSIST OF PAINT, TAPE OR RAISED PAVEMENT MARKERS (RPM'S). THE TAPE SHALL BE A RETRO-REFLECTIVE FILM ON A CONFORMABLE METALLIC BACKING THAT CAN BE PAVED OVER. TAPE MAY BE USED ON THE FINAL SURFACE COURSE IF IT WILL NOT INTERFERE WITH THE FINAL MARKING APPLICATION. TEMPORARY TAPE MARKINGS WILL BE OFFSET AND REMOVED WHEN PROJECT IS FINISHED AND FINAL CENTERLINE PAINTED. THE TAPE SHALL BE THE TYPE THAT IS REMOVABLE INTACT AND NOT SEPERATE AT ANY TIME. THE RPM'S SHALL HAVE A SELF-ADHESIVE BACKING EASILY REMOVED BEFORE PAVING AND SHALL CONFORM TO THE FOLLOWING LAYOUT PATTERN:

NO PASSING BARRIER
NO RPM'S ALLOWED.

DASHED LINE
FOUR RETRO-REFLECTIVE RPM'S ON 3 1/2 FOOT CENTERS WITH A 30' GAP.

SOLID LINE - EDGE LINES
INTERSTATE MEDIAN SIDE-RETRO-REFLECTIVE RPM'S ON 4 TO 5 FOOT CENTER.
DRIVERS RIGHT SIDE-RPM'S NOT ALLOWED.

D. WHEN PAINT IS USED FOR TEMPORARY MARKING, AN ALTERNATE MATERIAL SUCH AS TAPE OR RPM'S SHALL BE ON HAND IN THE EVENT RAIN PREVENTS THE PAINT APPLICATION FROM BEING COMPLETED. ALL PAINT SHALL BE REFLECTORIZED.

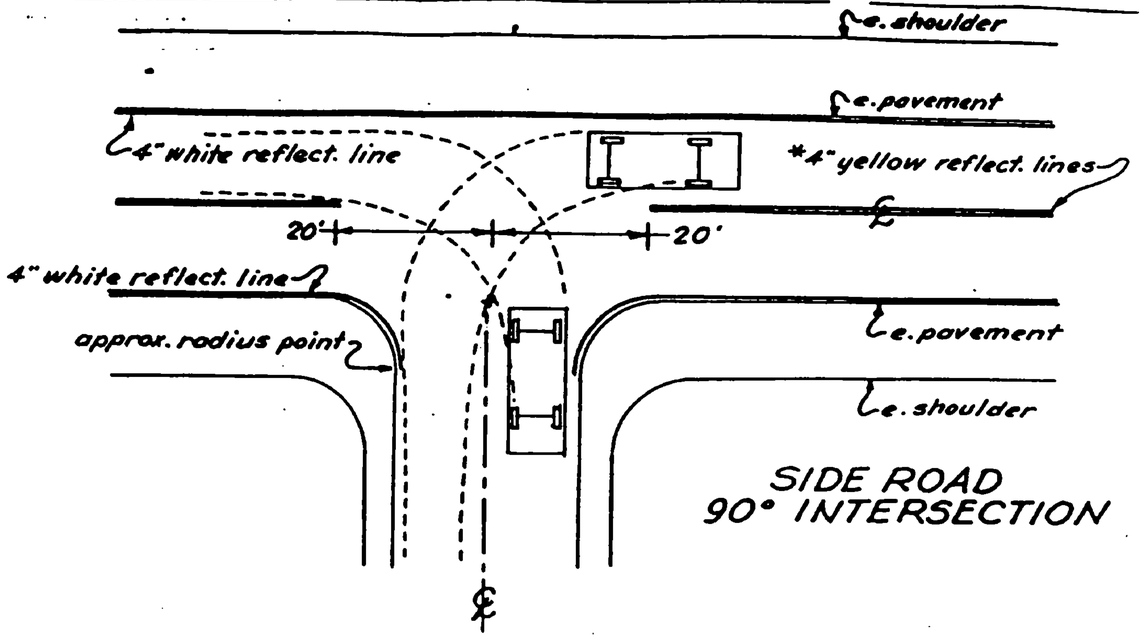
E. PAYMENT FOR PAINT AND TAPE SHALL BE COMPUTED ON A LINEAR FOOT BASIS AS IF PAINT WAS USED. PAYMENT FOR THE RPM'S SHALL BE COMPUTED AS IF AN EQUIVALENT PAINT LINE WAS USED. (FOR EXAMPLE, DASHED LINE PAID AS 10 FEET OF PAINT, SOLI LINE PAID AS THE TOTAL DISTANCE COVERED WITH THE MARKERS).

F. PRIOR TO ACCEPTANCE, THE PAVEMENT MARKINGS SHALL BE COMPLETED FOR THE ENTIRE PROJECT BY THE CONTRACTOR AS DETAILED ON THE PLANS OR DIRECTED BY THE RESIDENT ENGINEER.

CHKD. BY____ DATE____

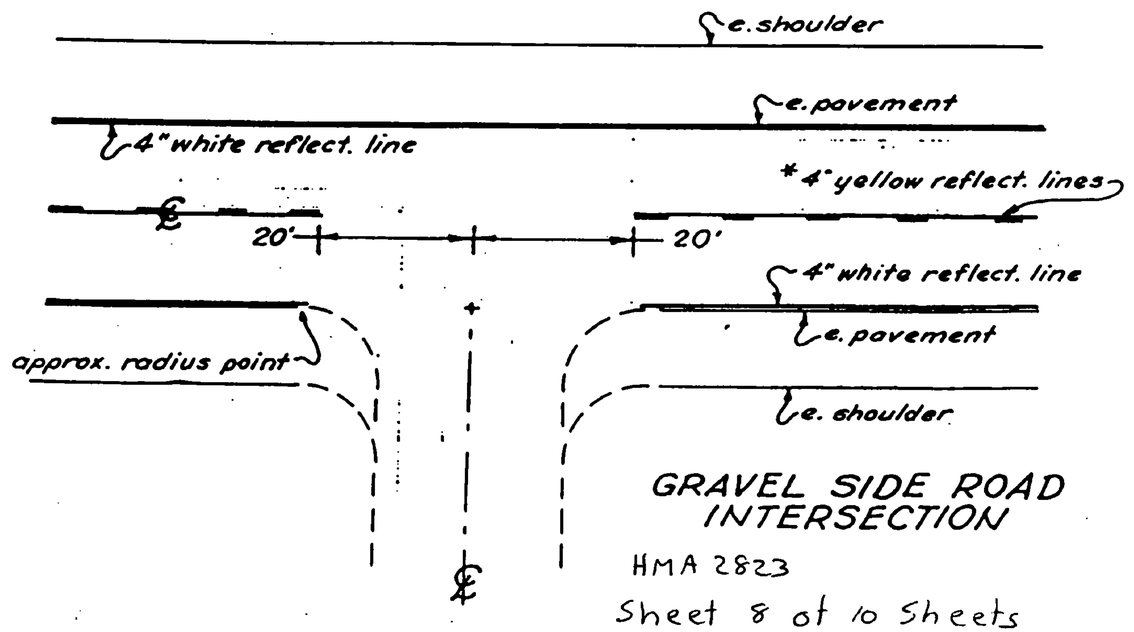
MARKING AT INTERSECTING SIDE ROAD

JOB NO.____



SIDE ROAD
90° INTERSECTION

* Centerline treatment shall consist of a minimum of 400 feet of solid line in advance of the intersection and shall be paired with either a solid or dashed line depending on sight distance availability in the opposing lane.



GRAVEL SIDE ROAD
INTERSECTION

HMA 2823

Sheet 8 of 10 Sheets

Sheet 20 of 38 Sheets

Hancock- Granville

PROJECT LENGTHS AND ITEM QUANTITIES

ITEM DESCRIPTION	Length	Width	Overlay Depth		Aggregate Shoulders	Aggregate Shoulders	Emulsified Asphalt	Bituminous Concrete Pavement	Power Grader Rental	All Purpose Excavator Rental	Power Broom Rental	Truck Rental	Uniformed Traffic Officers	Flaggers	Mobilization	
				Option												
ITEM NO.					402.10	402.12	404 65	406. 25	608.15	608.25	608.30	608.37	630.10	630.15	635.10	
UNIT	FT	FT	IN		CY	TON	CWT	TON	HR	HR	HR	HR	HR	HR	LS	
MM 1.320	6864	26	1¼		477	835	21	1377	13	13	11	13	175	195	0.24	Includes Shoulders
0.110								692								Level Course
Drives + Approaches					141	247		28								
Rounding					2	3	4	3	-	-	-	-	-	5	-	
TOTAL					620	1085	25	2100	13	13	11	13	175	200	0.24	

PROJECT Hancock · Granville NO. HMA 2823

SHEET 9 OF 10 SHEETS
SHEET 21 OF 36 SHEETS

PROJECT LENGTHS AND ITEM QUANTITIES

ITEM DESCRIPTION	Temporary 4" White Line	Temporary 4" Yellow Line
ITEM NO.	646.50	646.51
UNIT	LF	LF
MM 1.320	13728	23364
0.110		
Roundings	22	36
TOTALS	13750	23400

PROJECT Hancock - Granville

NO. HMA 2823

SHEET 10 OF 10 SHEETS

SHEET 22 OF 38 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

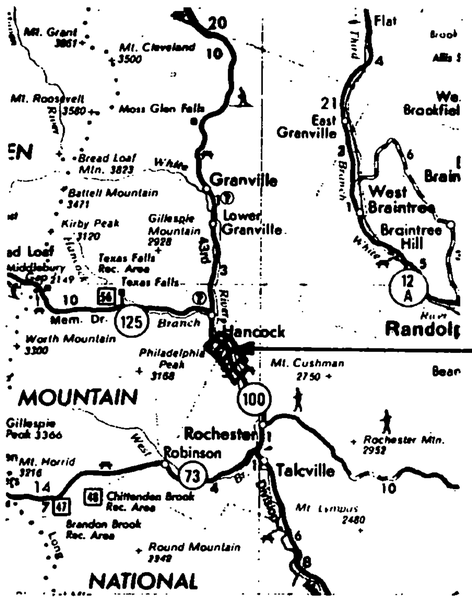
PROPOSED IMPROVEMENT

TOWN OF Rochester - Hancock

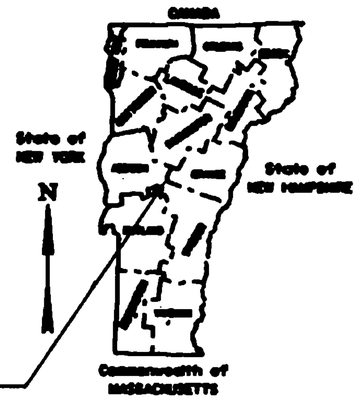
COUNTY OF Windsor - Addison

ROUTE NO. VT 100

ROUTE CLASS FAP



PROJECT
HMA 2828



THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER. CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1996, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON NOVEMBER 8, 1995 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

SUBMITTED BY ORDER OF THE STATE TRANSPORTATION BOARD

APPROVED _____ DATE _____
CHIEF ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE _____
DIVISION ADMINISTRATOR

Rochester - Hancock
PROJECT HMA 2828

SHEET 1 OF 10 SHEETS

See Sheet 1 For Index

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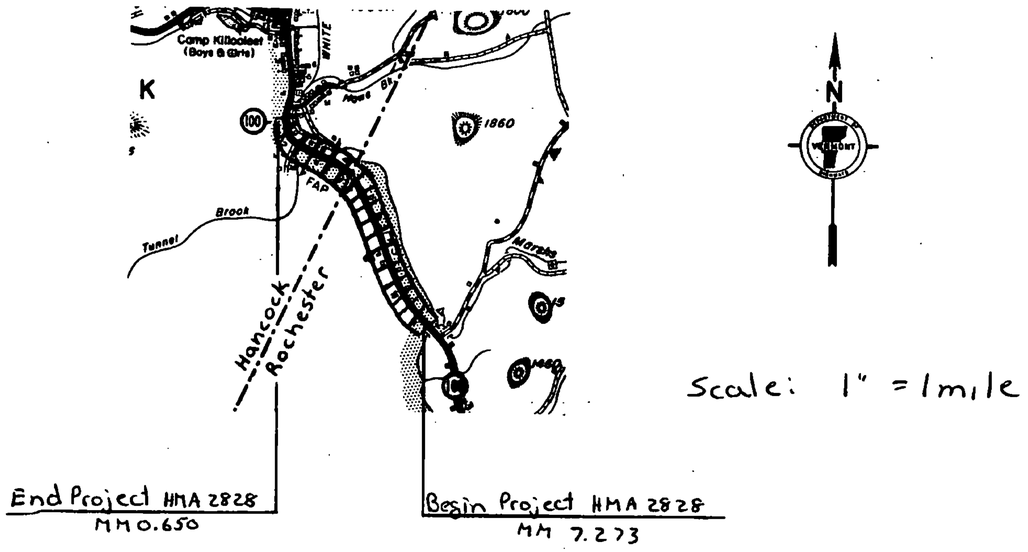
PROJECT Rochester-Hancock

NO. HMA 2828

SHEET 2 OF 10 SHEETS

DESCRIPTION AND LOCATION



Scale: 1" = 1 mile

Beginning at a point on VT 100, 1.080 miles southerly of the Rochester-Hancock town line and extending northerly 1.730 miles to MM 0.650 in the town of Hancock

Work consists of resurfacing of the highway, including shoulders, and new pavement markings.

1986 ADT 2410 Length Of Project 1.730 miles
9134 feet

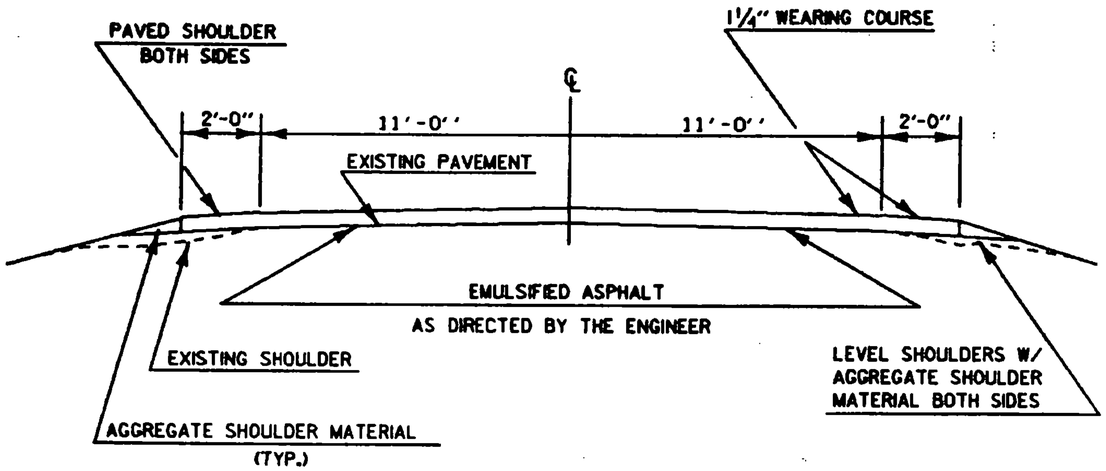
PROJECT Rochester-Hancock

NO. HMA 2828

SHEET 3 OF 10 SHEETS

TYPICAL SECTIONS & DESIGN DATA

BITUMINOUS CONCRETE PAVEMENT
LEVELING COURSE TYPE IV (295 TONS/MILE)
AS DIRECTED BY THE ENGINEER.
1¼" WEARING COURSE TYPE III (±¼" THICKNESS TOLERANCE)



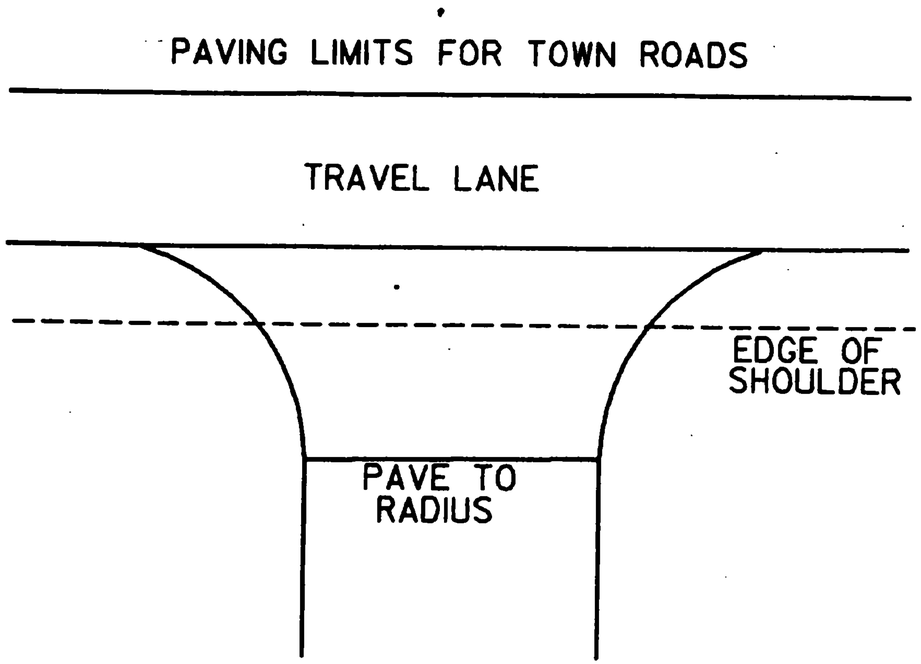
ROCHESTER HANCOCK
VT. 100 MM 7.273 ~ MM 0.650

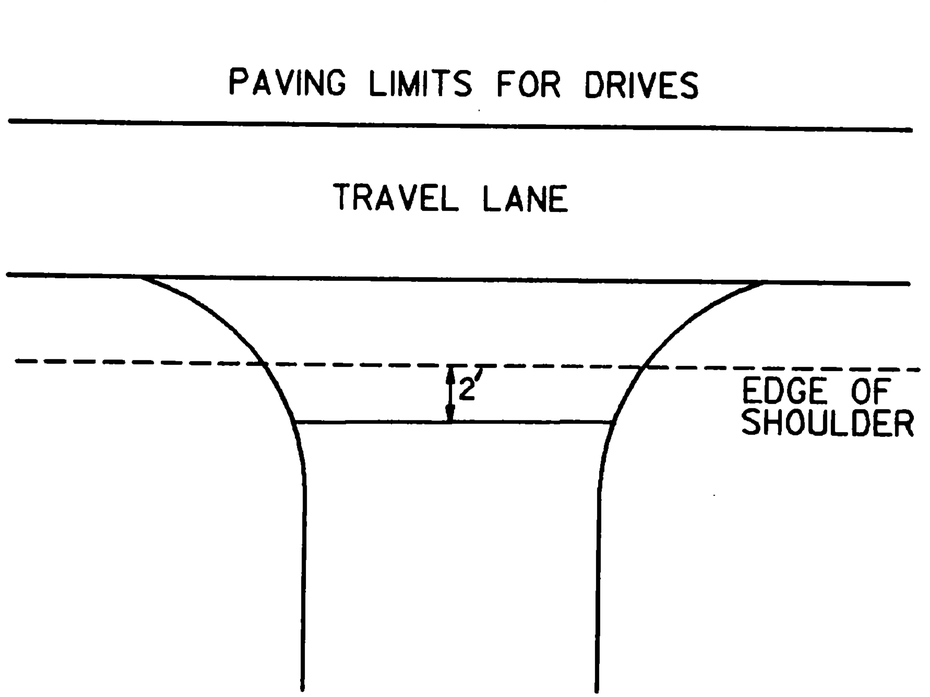
NOTE : WHEN ENCOUNTERING VEGETATION OR POOR MATERIAL IN THE SHOULDER AREA, REMOVE 2" BELOW EXISTING PAVEMENT LEVEL AND REPLACE WITH AGGREGATE SHOULDER MATERIAL. REMOVAL OF THIS MATERIAL WILL BE PAID FOR UNDER THE ITEM 'ALL PURPOSE EXCAVATOR RENTAL' OR 'GRADER RENTAL'.

PROJECT ROCHESTER-HANCOCK

NO. HMA 2828
SHEET 4 OF 10 SHEETS
SHEET 26 OF 38 SHEETS

PAVING LIMITS FOR DRIVES & TOWN ROADS





PROJECT Rochester - Hancock

NO. HMA 2828

SHEET 5 OF 10 SHEETS

TEMPORARY 4" YELLOW LINE

	MILE	MILE	LT	RT		QUANTITY LT	QUANTITY ℄	QUANTITY RT		TOTALS
	7.273	7.59	Solid	Solid		1674		1674		3348
	7.59	7.65	Solid	Dash		317		79 •		396
	7.65	8.12	Dash	Dash			620			620
	8.12	8.26	Dash	Solid		185		739		924
	8.26	8.35	Solid	Solid		475		475		950
	8.35	0650	Solid	Solid	.	3432		3432		6864
								Subtotal		13102
					Assume 100% Loss Due To Leveling					13102
					Minus 1 Rdwy Opening @ 80'					-160
					x2 courses of pavement					
								TOTAL		26044

TEMPORARY 4" WHITE LINE

	7.273	0.650	Solid	Solid		9134		9134		18268

PROJECT Rochester - Hancock

NO. HMA 2828
SHEET 6 OF 10 SHEETS
SHEET 28 OF 38 SHEETS

GUIDELINES FOR MINIMUM INTERIM PAVEMENT MARKINGS IN CONSTRUCTION ZONES

A. CENTERLINE AND GORE AREA MARKINGS SHALL BE APPLIED AT THE END OF EACH WORKING DAY. THE FOLLOWING LAYOUT REQUIREMENTS SHALL BE MET:

NO PASSING BARRIER
SOLID STRIPES.

DASHED LINE
10-FOOT SOLID LINE WITH 30-FOOT GAP.

GORE AREA
(GORE AREAS TO INCLUDE 8" CHANNELIZING LINE AND DASHED LINE)
PER STANDARD SHEET E-50

B. EDGE LINES
WHEN SPECIFIED, EDGE LINES ARE NOT REQUIRED UNTIL COMPLETION OF THE PROJECT. ON INTERSTATE PROJECTS, TEMPORARY EDGE LINES SHOULD BE APPLIED WHERE TRAFFIC VOLUMES AND SPEEDS ARE HIGH AND DELAY OF SEVERAL DAYS IS ANTICIPATED.

C. TEMPORARY MARKINGS MAY CONSIST OF PAINT, TAPE OR RAISED PAVEMENT MARKERS (RPM'S). THE TAPE SHALL BE A RETRO-REFLECTIVE FILM ON A CONFORMABLE METALLIC BACKING THAT CAN BE PAVED OVER. TAPE MAY BE USED ON THE FINAL SURFACE COURSE IF IT WILL NOT INTERFERE WITH THE FINAL MARKING APPLICATION. TEMPORARY TAPE MARKINGS WILL BE OFFSET AND REMOVED WHEN PROJECT IS FINISHED AND FINAL CENTERLINE PAINTED. THE TAPE SHALL BE THE TYPE THAT IS REMOVABLE INTACT AND NOT SEPERATE AT ANY TIME. THE RPM'S SHALL HAVE A SELF-ADHESIVE BACKING EASILY REMOVED BEFORE PAVING AND SHALL CONFORM TO THE FOLLOWING LAYOUT PATTERN:

NO PASSING BARRIER
NO RPM'S ALLOWED.

DASHED LINE
FOUR RETRO-REFLECTIVE RPM'S ON 3 1/2 FOOT CENTERS WITH A 30' GAP.

SOLID LINE - EDGE LINES
INTERSTATE MEDIAN SIDE-RETRO-REFLECTIVE RPM'S ON 4 TO 5 FOOT CENTER.
DRIVERS RIGHT SIDE-RPM'S NOT ALLOWED.

D. WHEN PAINT IS USED FOR TEMPORARY MARKING, AN ALTERNATE MATERIAL SUCH AS TAPE OR RPM'S SHALL BE ON HAND IN THE EVENT RAIN PREVENTS THE PAINT APPLICATION FROM BEING COMPLETED. ALL PAINT SHALL BE REFLECTORIZED.

E. PAYMENT FOR PAINT AND TAPE SHALL BE COMPUTED ON A LINEAR FOOT BASIS AS IF PAINT WAS USED. PAYMENT FOR THE RPM'S SHALL BE COMPUTED AS IF AN EQUIVALENT PAINT LINE WAS USED. (FOR EXAMPLE, DASHED LINE PAID AS 10 FEET OF PAINT, SOLID LINE PAID AS THE TOTAL DISTANCE COVERED WITH THE MARKERS).

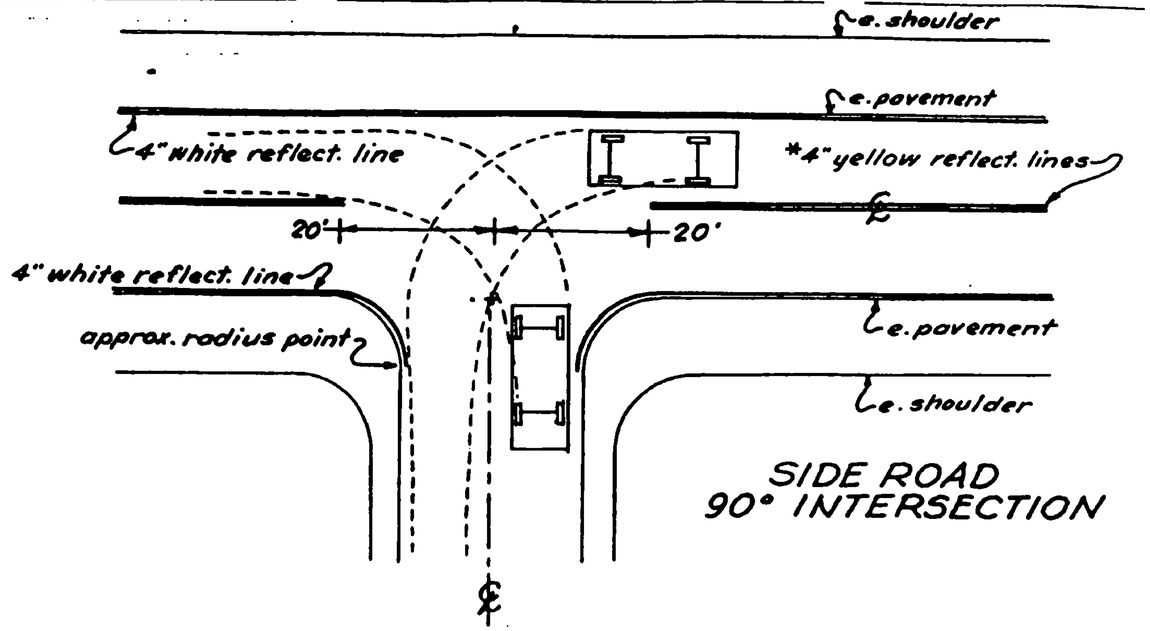
F. PRIOR TO ACCEPTANCE, THE PAVEMENT MARKINGS SHALL BE COMPLETED FOR THE ENTIRE PROJECT BY THE CONTRACTOR AS DETAILED ON THE PLANS OR DIRECTED BY THE RESIDENT ENGINEER.

REVISED
02/11/85

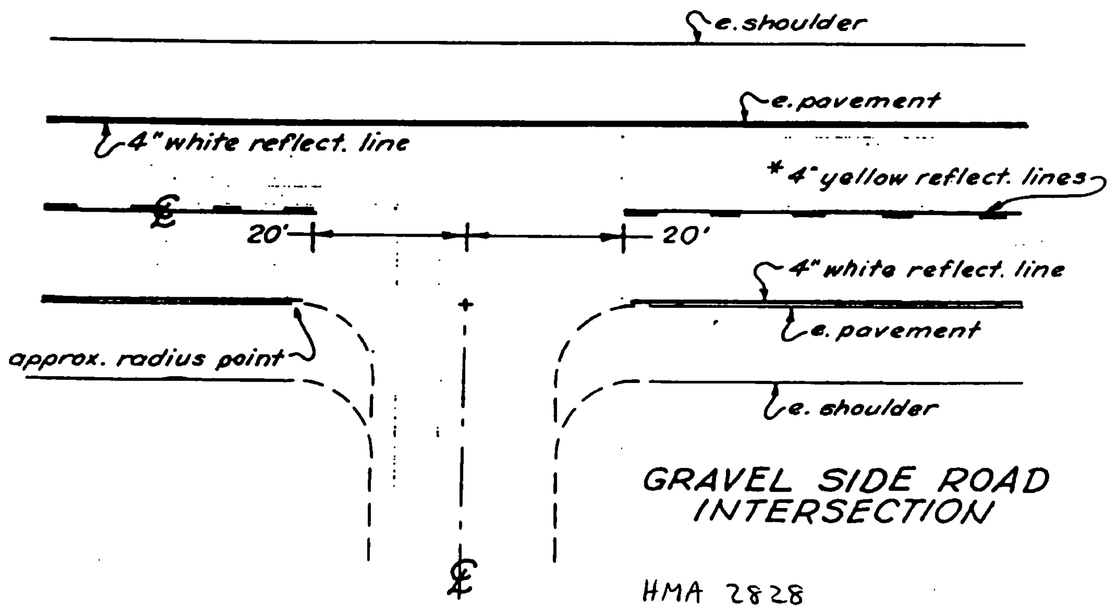
CHKD. BY____ DATE____

MARKING AT INTERSECTING SIDE ROAD

JOB NO.____



* Centerline treatment shall consist of a minimum of 400 feet of solid line in advance of the intersection and shall be paired with either a solid or dashed line depending on sight distance availability in the opposing lane.



Rochester - Hancock

HMA 2828
Sheet 8 of 10 Sheets
Sheet 30 of 38 Sheets

PROJECT LENGTHS AND ITEM QUANTITIES

ITEM DESCRIPTION	Length	Width	Overlay Depth	Option	Aggregate Shoulders	Aggregate Shoulders	Emulsified Asphalt	Bituminous Concrete Pavement	Power Grader Rental	All Purpose Excavator Rental	Power Broom Rental	Truck Rental	Uniformed Traffic Officers	Flaggers	Mobilization	
ITEM NO.					402.10	402.12	404 65	406. 25	608.15	608.25	608.30	608.37	630.10	630.15	635.10	
UNIT	FT	FT	IN		CY	TON	CWT	TON	HR	HR	HR	HR	HR	HR	LS	
MM 7.273	9134	26	1¼		691	1209	28	1832	18	18	14	18	200	230	0.32	Includes Shoulders
0.650								518								Level Course
Drives + Approaches					47	82		49								
Rounding					12	9	2	9	-	-	1	-	-	-	-	
TOTAL					750	1320	30	2400	18	18	15	18	200	230	0.32	

PROJECT Rochester - Hancock NO. HMA 2828

PROJECT LENGTHS AND ITEM QUANTITIES

ITEM DESCRIPTION	Temporary 4" White Line	Temporary 4" Yellow Line														
ITEM NO.	646.50	646.51														
UNIT	LF	LF														
MM 7.273 0.650	18268	26044														
Roundings	32	56														
TOTALS	18300	26100														

PROJECT Rochester - Hancock NO. HMA 2828

SHEET 10 OF 10 SHEETS
SHEET 32 OF 35 SHEETS

INDEX OF SHEETS

STANDARDS

33.	E-2	APPROACH SIGNS, ROAD CONSTRUCTION	2-3-86R
34.	E-6	CONSTRUCTION SIGNS, ON PROJECT	2-3-86R
35.	E-7	DELINEATION, BARRICADES & DETOURS	2-3-86R
36.	E-7A	BREAKAWAY BARRICADE DETAILS	2-3-86R
37.	E-8	APPROACH SIGNS, MAJOR MAINTENANCE	2-3-86R
38.	E-10	APPROACH SIGNS, MINOR MAINTENANCE	2-3-86R

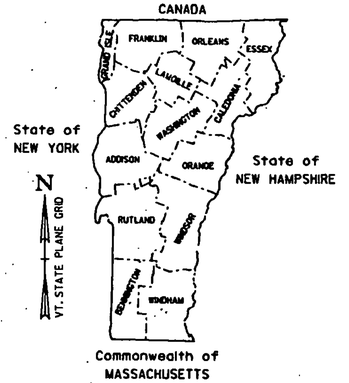
STATE OF VERMONT

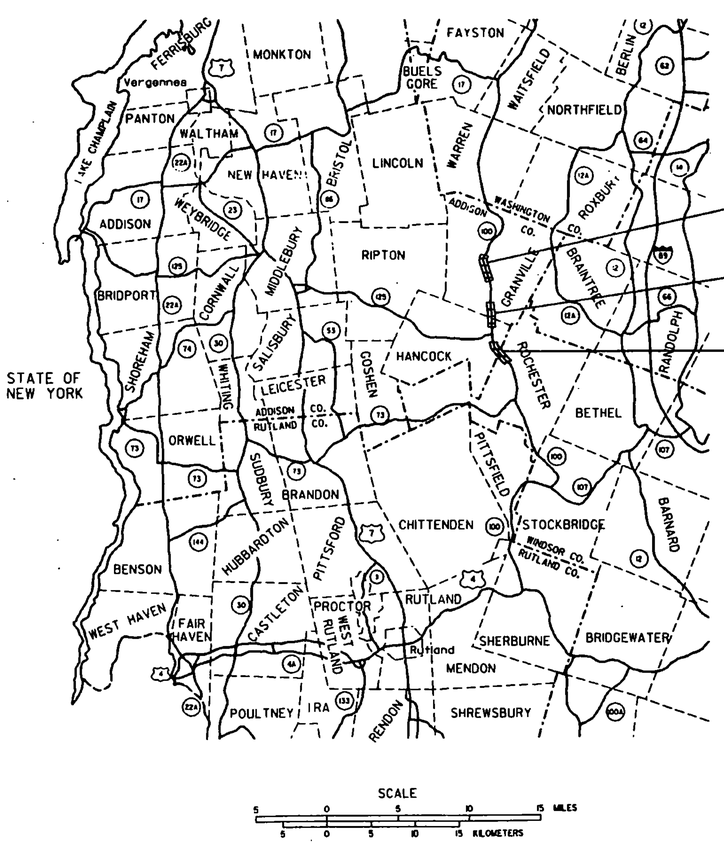
AGENCY OF TRANSPORTATION

PROPOSED IMPROVEMENT
TOWNS OF
GRANVILLE, HANCOCK & ROCHESTER

RESURFACING PROJECTS

WORK PERFORMED UNDER THIS PROJECT SHALL CONSIST OF RESURFACING THE HIGHWAY, INCLUDING SHOULDERS AND NEW PAVEMENT MARKINGS.





GRANVILLE HMA 2860

HANCOCK - GRANVILLE HMA 2823

ROCHESTER - HANCOCK HMA 2828

PROJECT	NUMBER	ROUTE	LOCATION	LENGTH
GRANVILLE	HMA 2860	VT. 100	MM 0.570 TO MM 2.971	2.401 MILES
HANCOCK-GRANVILLE	HMA 2823	VT. 100	MM 1.320 TO MM 2.511 MM 0.000 TO MM 0.110	1.300 MILES
ROCHESTER-HANCOCK	HMA 2828	VT. 100	MM 7.273 TO MM 8.353 MM 0.000 TO MM 0.650	1.730 MILES
TOTALS				5.431 MILES

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER. CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1986, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON NOVEMBER 24, 1985 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

SUBMITTED BY ORDER OF THE STATE TRANSPORTATION BOARD

APPROVED David B Kelley CHIEF ENGINEER DATE 7/1/87

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DIVISION ADMINISTRATOR DATE _____

PROJECT RESURFACING PROJECTS

SHEET 1 OF 38 SHEETS

QUANTITY SHEET

STATE OF VERMONT
AGENCY OF TRANSPORTATION

APPROXIMATE SUMMARY OF QUANTITIES

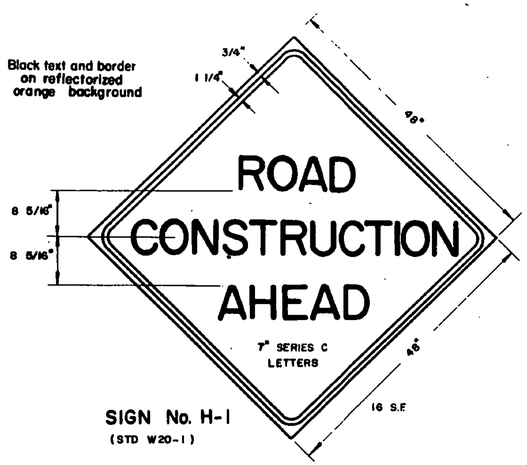
GRANVILLE MMA 2880	HANCOCK-GRANVILLE MMA 2823	ROCHESTER-HANCOCK MMA 2820	QUANTITIES GRAND TOTAL	UNIT	ITEMS	ITEM NO.	ROUNDING
					BEGIN OPTION ITEMS		
1210	620	750	2580	C.Y.	AGGREGATE SHOULDERS	402.10	
2120	1085	1320	4525	TON	AGGREGATE SHOULDERS	402.12	
					END OPTION ITEMS		
45	25	30	100	CWT	EMULSIFIED ASPHALT	404.65	
3640	2,100	2400	8140	TON	BITUMINOUS CONCRETE PAVEMENT	406.25	
24	13	18	55	HR	POWER GRADER RENTAL	608.15	
24	13	18	55	HR	ALL PURPOSE EXCAVATOR RENTAL	608.25	
20	11	15	46	HR	POWER BROOM RENTAL	608.30	
24	13	18	55	HR	TRUCK RENTAL	608.37	
305	175	200	680	HR	UNIFORMED TRAFFIC OFFICERS	630.10	
355	200	230	785	HR	FLAGGERS	630.15	
0.44	0.24	0.32	1	L.S.	MOBILIZATION	635.10	
25,400	13,750	18,300	57,450	L.F.	TEMPORARY 4" WHITE LINE	646.50	
41,300	23,400	26,100	90,800	L.F.	TEMPORARY 4" YELLOW LINE	646.51	

PROJECT NAME RESURFACING PROJECTS

SIGN H-3 IS TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES, OR AS REQUESTED BY THE RESIDENT ENGINEER. THE TEXT MAY BE AS SHOWN OR MAY READ AS FOLLOWS "CONSTRUCTION AREA NEXT __ MILES"

* Show mileage to nearest 1/4 mile

Black text and border on reflectorized orange background



SIGN No. H-1
(STD W20-1)

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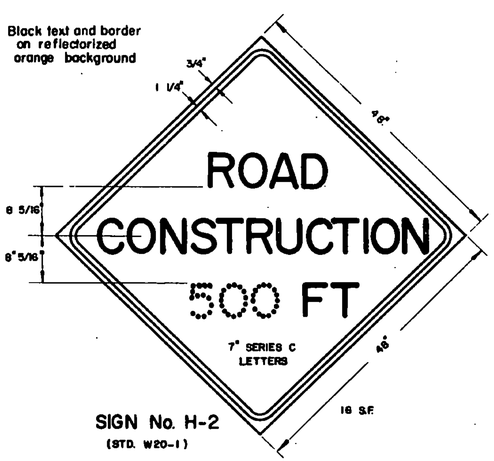

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(STD. W20-1)

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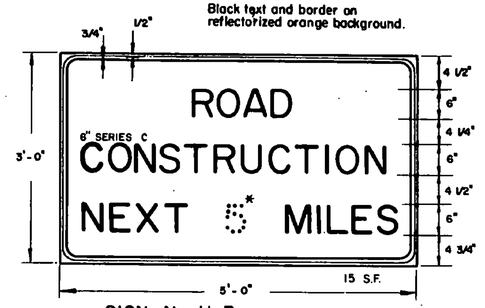

SIGN No. H-3 (STD. G20-1)

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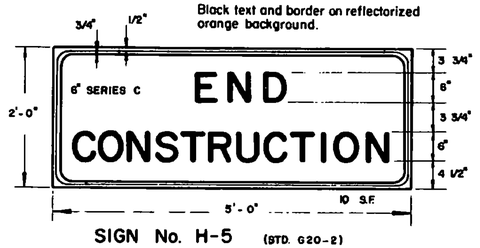
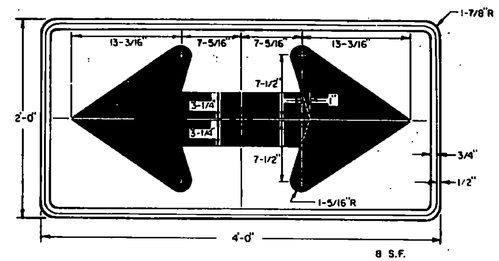


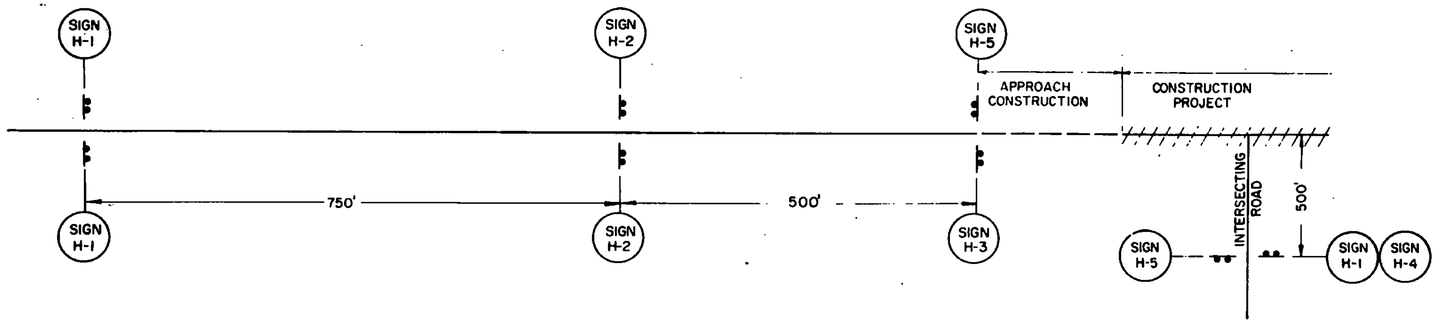
SIGN No. H-5 (STD. G20-2)

Black arrow and border on reflectorized orange background.



SIGN No. H-4 (STD. W1-7)

The road construction approach signs shown on this sheet are intended for use in providing advance warning and information on construction projects over which traffic will be maintained. When additional approach signs or other types of advance signing or control are necessary, the Plans and/or the Specifications for that project will give the details of the signs and devices required.



NOTES

LOCATION

Construction approach signs shall be located as detailed on this sheet or otherwise shown on the Plans. They shall appear at each end of the highway under construction, and on all intersecting public highways. The exact placement of any sign will depend upon the alignment of the highway and the character of the roadsides. The location measurements on this sheet are intended to indicate the sequence to be followed, and the minimum spacing to be observed by the Engineer in determining exact locations.

DESIGN

The designs of the signs shall conform with the details shown on this sheet and with the standards prescribed in the Manual on Uniform Traffic Control Devices prepared by National Joint Committee on Uniform Traffic Control Devices.

MATERIALS

The signs shall be of metal, wood, plywood, hardboard or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION

All reflectorized material shall consist of encapsulated lens reflective sheeting.

INSTALLATION

The signs shall be in place at the time the project officially commences. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground. The bottom of a sign shall be at least 5 feet above road level, and the nearest edge of a sign shall be at least 6 feet outside the shoulder point or 2 feet outside guard rail, curbing or sidewalk. Posts and signs shall be braced or reinforced in back as necessary. The installation of signs shall be subject to approval of the Engineer. In urban areas, the bottom of the sign shall be at least 7' above the sidewalk.

MAINTENANCE

Signs shall be maintained in a clean and legible condition satisfactory to the Engineer. They shall be completely visible to approaching traffic at all times. They shall be kept plumb and level, and always present a neat appearance. Damaged, defaced or dirty signs shall be repaired, cleaned or replaced as ordered by the Engineer.

GENERAL

The cost of furnishing, erecting, maintaining and removing all construction approach signs will be considered subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract. In all phases of construction of approach signing, the requirements set forth in the Manual on Uniform Traffic Control Devices shall be met (See Standard Specifications, Section 107, Article 107.08 Traffic Control Devices.

When project is closed down for temporary periods the signs shall be covered in a workmanlike manner.

REVISIONS AND CORRECTIONS

SEPT. 11, 1973 – REVISED PER ORDER OF FHWA, SEPT. 11, 1973
OCT. 19, 1973 – SIGN H-4 REMOVED.
MAY 14, 1974 – REFLECTIVE MATERIAL CHANGE
JUNE 7, 1977 – REFLECTIVE MATERIAL NOTE CHANGED.
DEC. 15, 1978 – ILLUMINATION DELETED.
DEC. 17, 1979 – SIGN H-3 REVISED, SIGN H-4 ADDED.
MAR. 4, 1981 – SIGN H-3 TEXT CHANGED, NOTE ADDED.
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED
Dec. 14 1971 DATE
R. H. Arnold CHIEF ENGINEER
E. W. Stickney ASST. CHIEF ENGINEER
G. M. Lane HIGHWAY ENGINEER

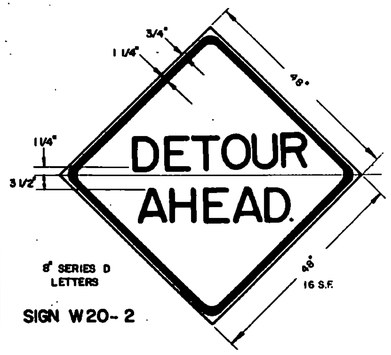
TRAFFIC SIGNS

ROAD CONSTRUCTION APPROACH SIGNS

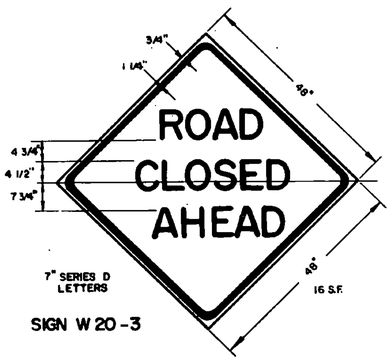
VERMONT AGENCY OF TRANSPORTATION

STANDARD

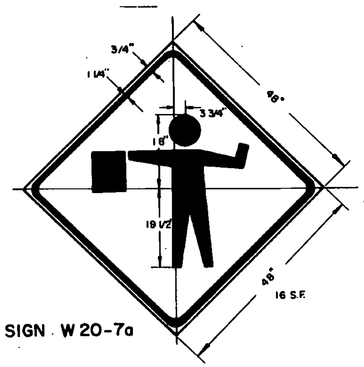
E-2



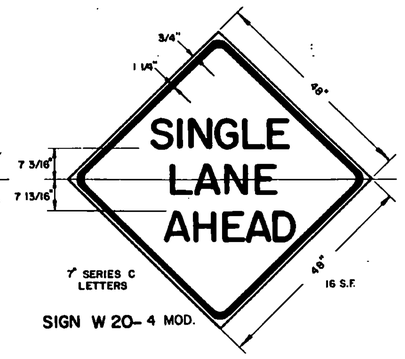
SIGN W20-2



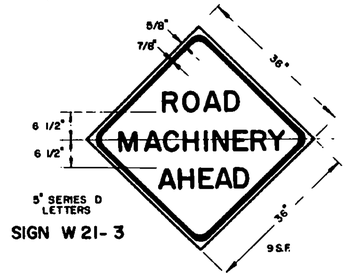
SIGN W20-3



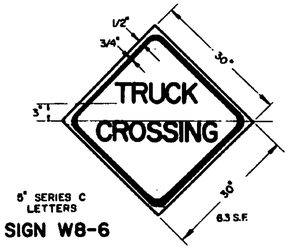
SIGN W20-7a



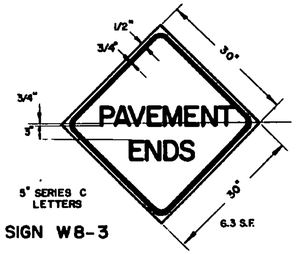
SIGN W20-4 MOD.



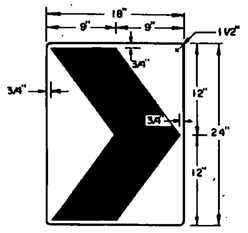
SIGN W21-3



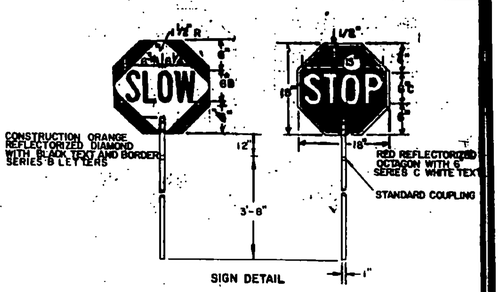
SIGN W8-6



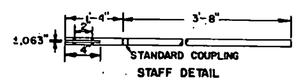
SIGN W8-3



SIGN W1-8



SIGN DETAIL



STAFF DETAIL

MATERIALS

The sign materials shall be 0.063 aluminum with colors as indicated on details.

The staff shall be 1" ridged aluminum conduit or tubing with a wall thickness of 1/8 inch.

COLORS

The colors shall conform with the standard colors adopted by the American Association Of State Highway and Transportation Officials and approved by the U.S. Department Of Transportation, Federal Highway Administration.

MOUNTING

The staff shall be mounted with either 2-1/4" aluminum bolts or 2-1/4" aluminum rivets.

SIGN PADDLE FOR FLAGPERSON

NOTES

APPLICATION OF STANDARDS

Since it is not possible to prescribe detailed standards of application for all of the situations that may conceivably arise on a construction project, reference must be made to the Manual on Uniform Traffic Control Devices for the principles, procedures and and standards that will be required in connection with on-project construction signs and barricades. The signs here shown represent a sample of those that probably will be most used.

DESIGN

The designs of the signs and barricades shall conform with the details shown on this sheet and with the standards prescribed in the Manual. Deviations will not be permitted.

MATERIALS

The signs shall be of metal, wood, plywood, hardwood or any other material satisfactory to the Engineer. No material will be approved that will deteriorate by exposure to the weather during the required life of the sign.

REFLECTORIZATION AND COLORS

All signs except sign R11-2 and the sign paddle shall have black texts and borders on an encapsulated lens reflective orange background. Sign R11-2 shall have black text and border on an encapsulated lens reflective white background.

INSTALLATION

Signs and barricades shall be in place prior to the start of the construction operation to which they apply, and shall be removed promptly when the need no longer exists. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, or on portable supports for temporary use, or on barricades when appropriate. As a general rule, roadside signs shall be 5 feet above road level with the nearest edge at least 6 feet outside the shoulder point. The installation of all signs and barricades shall be subject to the approval of the Engineer.

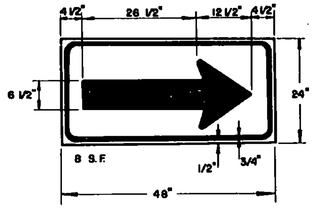
MAINTENANCE

Signs shall be kept in a clean and legible condition at all times with the reflective quality completely unimpaired. Signs, sign supports, and barricades shall be repaired, cleaned, repainted or replaced whenever necessary.

Weeds, shrubbery, construction materials, equipment, and snow shall not be allowed to obscure any sign or barricade.

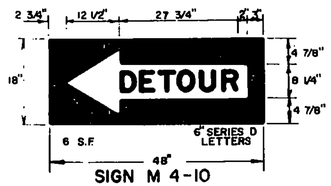
The maintenance of all traffic control devices shall be subject to the orders of the Engineer.

SIGN R11-2



SIGN W1-6

ARROW RIGHT OR LEFT AS REQUIRED



SIGN M4-10

ARROW LEFT OR RIGHT AS REQUIRED.

The on-project construction signs covered by this sheet are intended to be used as the situations apply within normal two-lane highway construction areas, for the protection of the public and workmen and for the guidance of traffic through or around construction operations. When messages other than those shown here are needed, the signs and their applications shall conform with the standards set forth in the Manual on Uniform Traffic Control Devices.

The cost of furnishing, erecting, maintaining and removing all construction approach signs shall be considered as subsidiary work pertaining to the project as a whole and shall be included in the contract unit price bid for various items involved in the contract.

REVISIONS AND CORRECTIONS

DEC. 14, 1973 – BEADS ON PAINT FOR BACKGROUND MATERIAL REMOVED.
MAY 14, 1974 – REFLECTIVE MATERIAL CHANGE.
JUNE 7, 1977 – REFLECTIVE MATERIAL NOTE CHANGED.
JUNE 7, 1977 – SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
APR. 20, 1978 – FLAGPERSON SIGN CHANGED TO SYMBOL.
DEC. 15, 1978 – ILLUMINATION DELETED.
FEB. 27, 1980 – SIGN W1-6 AND SIGN PADDLE ADDED. SIGN DETAILS REVISED.
APR. 1, 1980 – SIGN PADDLE SIGN REVISED.
FEB. 3, 1986 – UPDATED TO 1986 SPECIFICATIONS

APPROVED

Dec. 14, 1971 — DATE

R. H. Arnold — CHIEF ENGINEER

E. W. Stickney — ASST. CHIEF ENGINEER

G. M. Lane — HIGHWAY ENGINEER

TRAFFIC SIGNS

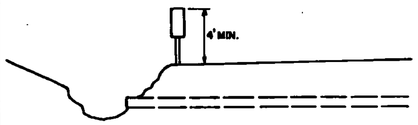
ON-PROJECT CONSTRUCTION SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

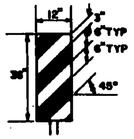
E-6

DELINEATOR AND HAZARD MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED



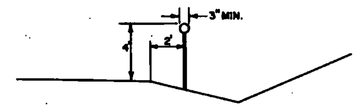
HAZARD MARKER TYPICAL

OBJECTS ADJACENT TO THE ROADWAY SHALL REQUIRE A HAZARD MARKER TO MARK THE OBSTRUCTION. IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED BUT OTHER ROADSIDE CONDITONS SUCH AS NARROW SHOULDER DROP-OFFS, GORES, D.I. EXCAVATIONS OR ABRUPT CHANGE IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE HAZARD MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE.



VERTICAL PANEL

VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPS (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION OR SHOULDER BARRICADING WHERE SPACE IS AT A MINIMUM.

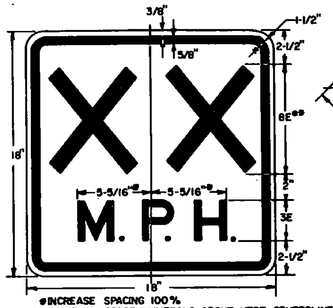


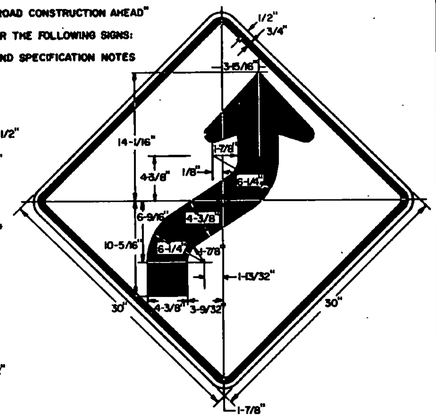
DELINEATOR TYPICAL

DELINEATORS SHALL BE OF A REFLECTORIZED WHITE COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG. THEY SHALL BE OF THE FOLLOWING:

1- REFLECTORIZED TAPE WITH METAL BACKING.
2-REFLECTORIZED TAPE APPLIED DIRECTLY TO POSTS.
3-REFLECTORIZED PAINT APPLIED DIRECTLY TO POSTS WHEN PAINT OR TAPE IS APPLIED DIRECTLY TO POST, A SURFACE OF 3' MINIMUM WIDTH FACING TRAFFIC IS REQUIRED.

SEE STANDARD SHEET E-2 FOR SIGN DETAILS FOR "ROAD CONSTRUCTION AHEAD" AND "END CONSTRUCTION" SIGNS.
SEE STANDARD SHEET E-6 FOR SIGN DETAILS FOR THE FOLLOWING SIGNS: "DETOUR AHEAD," ROAD CLOSED," DETOUR" ARROW.
SEE STANDARD SHEET E-6 FOR SIGN MATERIAL AND SPECIFICATION NOTES FOR ALL SIGNS DETAILED ON THIS SHEET.





#INCREASE SPACING 100%.
*#OPTICALLY SPACE NUMERALS ABOUT VERT. CENTERLINE.

BARRICADES

APPLICATION NOTES

TYPE I BARRICADES ARE TO BE USED ON CONVENTIONAL ROADS OR URBAN STREET AND ARTERIALS TO MARK A SPECIFIC HAZARD TO CHANNELIZE TRAFFIC.

TYPE II BARRICADES ARE TO BE USED ON EXPRESSWAYS AND FREEWAYS, SERVING THE SAME FUNCTIONS AS THE TYPE I BARRICADES.

TYPE III (SEE STANDARD E-7A) SHALL ONLY BE USED WHEN A ROAD SECTION IS CLOSED TO TRAFFIC TO BE ERECTED AT THE POINT OF CLOSURE.

MATERIALS

THE BARRICADES SHOWN ON THIS SHEET NORMALLY WILL BE OF LIGHTWEIGHT MATERIAL. IF WOOD IS USED THE FOLLOWING CONDITIONS SHALL APPLY.

1. WOODEN BARRICADES (TYPES I AND II)
   A. SHALL NOT BE USED TO CHANNELIZE OR DELINEATE WORK AREAS WITHIN THE CLEAR ZONE OF ANY HIGHWAY WHERE OPERATING SPEEDS IN EXCESS OF 20 MILES PER HOUR ARE EXPECTED UNLESS INSTALLED FOR PEDESTRIAN CONTROL BEHIND APPROVED POSITIVE BARRIERS.
   B. MAY BE USED IF OPERATING SPEEDS OF 20 M.P.H. OR LESS ARE EXPECTED.
2. TYPE III WOODEN BARRICADES SHALL NOT BE USED WITHIN THE CLEAR ZONE OF ANY HIGHWAY REGARDLESS OF THE TRAFFIC OPERATING SPEED.

DESIGN

THE DESIGN OF THE BARRICADES SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND THE MARKINGS ON THE BARRICADES SHALL BE ALTERNATE ORANGE AND WHITE STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45° IN THE DIRECTION TRAFFIC IS TO PASS.

COLORS

THE BARRICADES PANELS SHOWN ON THIS SHEET SHALL HAVE ALTERNATING REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE EXCEPT THAT UNPAINTED METAL OR ALUMINUM MAY BE USED.

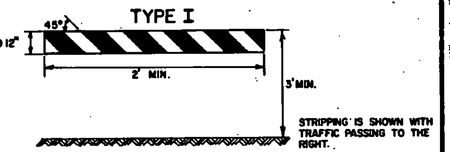
REFLECTORIZATION

THE BARRICADES SHALL BE REFLECTORIZED WITH REFLECTIVE SHEETING.

LOCATION

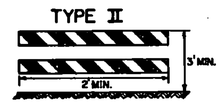
THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE ENGINEER IN THE FIELD OR AS SHOWN ON THE PLANS. THE LOCATION OF THE BARRICADES SHALL FOLLOW THE PROCEDURES SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, OR AS OTHERWISE NOTED.

TYPE I

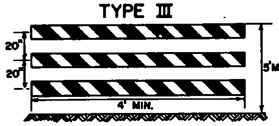


STRIPPING IS SHOWN WITH TRAFFIC PASSING TO THE RIGHT.

TYPE II



TYPE III



BARRICADE CHARACTERISTICS	I	II
WIDTH OF RAIL	6" MIN. 12" MAX.	6" MIN. 12" MAX.
LENGTH OF RAIL	2' MIN.	2' MIN.
WIDTH OF STRIPS*	6"	6"
HEIGHT	3' MIN.	3' MIN.
TYPE OF FRAME	DEMOUNTABLE OR A FRAME	LIGHT A FRAME NO STAY BRACE
FLEXIBILITY	ESSENTIALLY MOVEABLE	PORTABLE
ANGLE OF STRIPE	45°	45°
COLOR OF STRIPS	ORANGE AND WHITE	ORANGE AND WHITE

* FOR RAILS LESS THAN 3 FEET LONG, 4" WIDE STRIPS SHALL BE USED.

MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED, OR REPLACED AS ORDERED BY THE ENGINEER.

LIGHTING

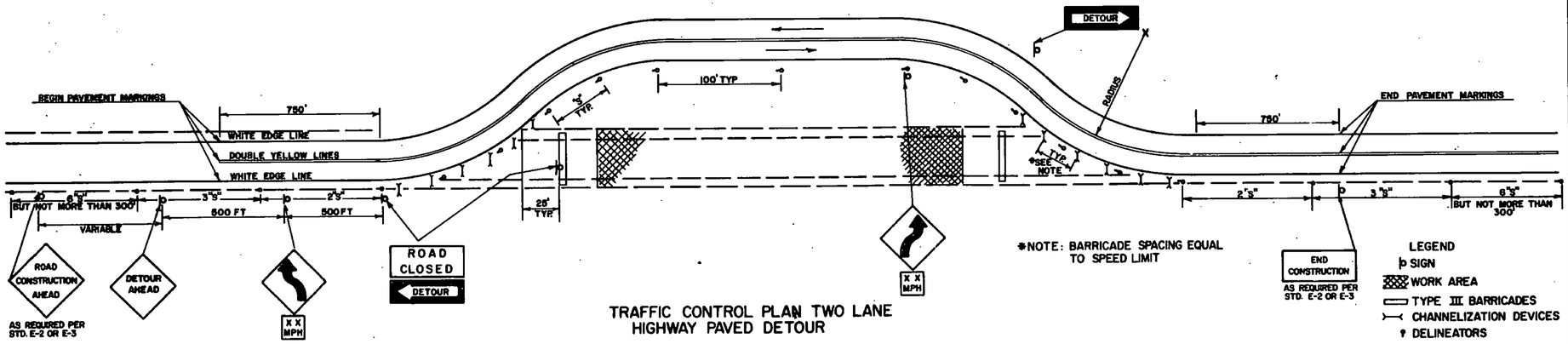
FOR NIGHTTIME USE ADD FLASHING WARNING LIGHTS WHEN BARRICADES ARE USED SINGLY AND STEADY BURN LIGHTS WHEN BARRICADES ARE USED IN A SERIES FOR CHANNELIZATION. THE LIGHTING DEVICES SHALL CONFORM TO THOSE SPECIFIED IN THE MUTCD.

DELINEATOR SPACING

DESIGN SPEED MPH	REQUIRED RADIUS FT	SPACING - "S" FT
25	150	30
30	250	40
40	460	60
50	760	75

NOTES

1. SIGNS & DELINEATION SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. CHANNELIZING DEVICES SHALL CONSIST OF TYPE II BARRICADES WITH STEADY BURN LIGHTS EXCEPT ON THE FIRST AND LAST BARRICADES WHICH SHALL HAVE A FLASHING LIGHT.
3. FLASHING WARNING LIGHTS MAY BE USED TO CALL ATTENTION TO THE EARLY WARNING SIGNS.
4. CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.
5. ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
6. UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS ON EXISTING PAVEMENT.



TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR

*NOTE: BARRICADE SPACING EQUAL TO SPEED LIMIT

LEGEND
- SIGN
- WORK AREA
- TYPE III BARRICADES
- CHANNELIZATION DEVICES
- DELINEATORS

REVISIONS AND CORRECTIONS

FEB. 12, 1982 MATERIALS NOTE CLARIFIED, SIGN ADDITIONS.
FEB. 2, 1983 NOTE # 6 RE: UNPAVED DETOURS ADDED.

FEB. 8, 1986 UPDATED TO 1986 SPECIFICATIONS

APPROVED:

SEPT. 22, 1981
DATE

DIRECTOR OF ENGINEERING AND CONSTRUCTION

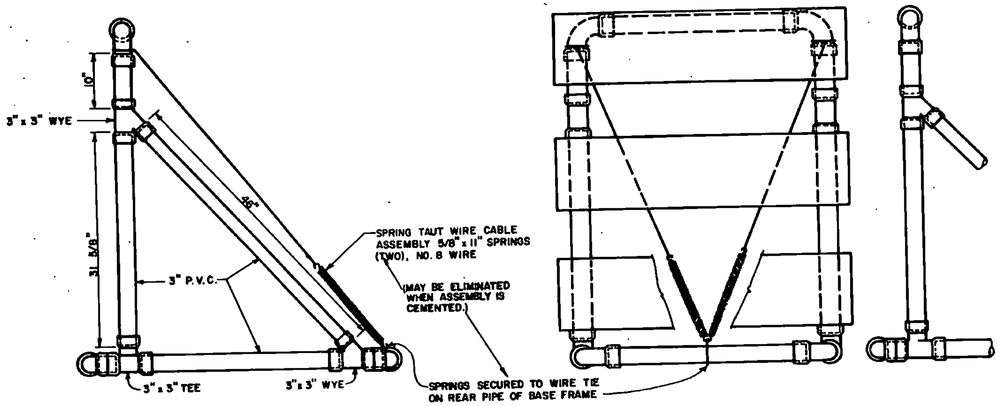
CHIEF OF DESIGN

TRANSPORTATION DESIGN ENGINEER

DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

VERMONT AGENCY OF TRANSPORTATION

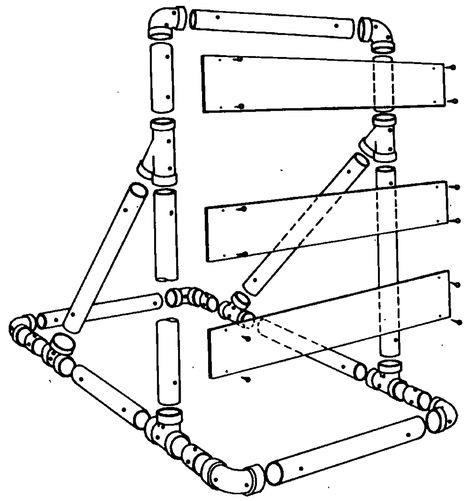
STANDARD
E-7



SIDE VIEW

BARRICADES SHALL BE STABILIZED WITH SAND BAGS OF MINIMUM WEIGHT WHICH WILL NOT CONSTITUTE A HAZARD WHEN BARRICADE IS HIT. THEY SHALL BE PLACED ONLY ON THE BASE FRAME OF THE BARRICADE. STABILIZERS SHALL BE SO PLACED AS NOT TO BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE.

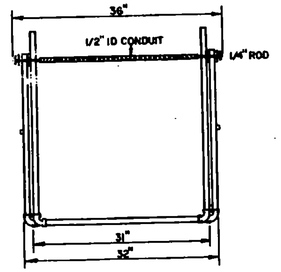
IF BARRICADE REPLACEMENT COSTS CAN BE CONSIDERED NEGLIGIBLE, GLUED JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.



BARRICADE ASSEMBLY

MATERIALS LIST
FOR ONE BARRICADE

3" Diameter Pipe	30 LF
3" 1/4 Bend Elbow	6 EA
3" Tees	2 EA
3" Wyes	4 EA
8" x 48" x.0 25 Barricade Panels	2 EA
5/8" x 11" No. 8 Spring	2 EA
1" No. 14 Pan Head Metal Screws	12 EA
No. 14 Black Annealed Tie Wire	15 LF



MATERIALS

The pipe, wyes, tees and elbows used to construct Barricades shall conform to the requirements of ASTM designation D 2241 for P.V.C. 1120 or 1220 SDR-21, pressure rating 200 p.s.i. The Wyes, tees and elbows shall conform to the requirements of ASTM Designation D 2466, Type II, Grade 1. All joints shall be slip-fit and may be lightly cemented.

The 8" x 48" barricade rails shall be fabricated from 0.025" anodized aluminum and shall have reflectorized alternating, orange and white stripes (sloping downward at an angle of 45 degrees in the direction traffic is to pass).

COLORS

The barricades shown on the sheet shall have reflectorized orange and white stripes.
The orange shall conform with the standard color adopted by by the American Association of State Highway And Transportation Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

LOCATION

The barricades shown on this sheet will be located by the Engineer in the field or as shown on the plans. The locations of the barricades shall follow the procedures set forth in the Manual on Uniform Traffic Control Devices.

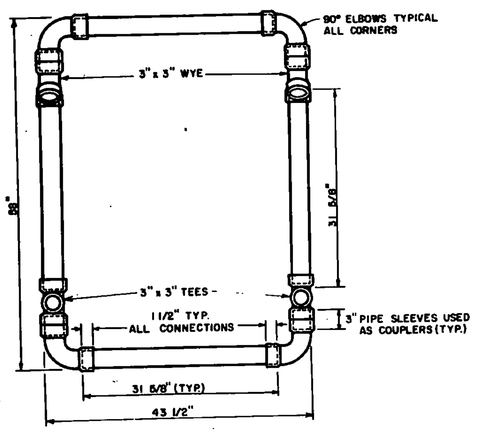
MAINTENANCE

Barricades shall be maintained in clean and legible conditions satisfactory to the Engineer.
They shall be completely visible to approaching traffic at all times. Damaged, defaced, or dirty barricades shall be repaired cleaned or replaced as ordered by the Engineer.

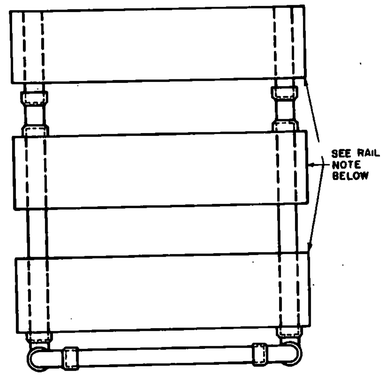
The P.V.C.Pipe and fittings shall be white in color If the fittings are not available, other colors may be substituded.
At least two (2) holes shall be drilled (3/16" to 1/4") in each section of pipe and fittings if the assembly is not cemented.

MATERIALS FOR TYPE I & II BARRICADES

20'-1" PVC
4-1" PVC 90° ELBOWS
30'-1/2" ID THINWALL CONDUIT
36"-1/4" STEEL ROD
4-1" WASHERS
24"-LIGHT DUTY CHAIN
4-METAL SCREWS
2-3/4" COTTER PINS



TOP VIEW OF BASE

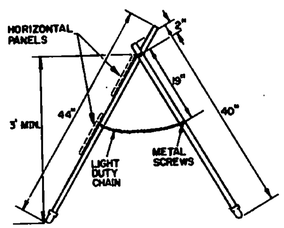


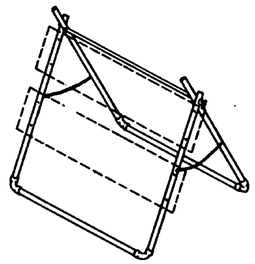
SEE STANDARD E-7 FOR RAIL DETAILS.
RAILS ATTACHED WITH 1" NO. 14 PAN HEAD METAL SCREW.

FRONT VIEW

WARNING LIGHTS

WARNING LIGHTS, IF REQUIRED BY THE PLANS OR RESIDENT ENGINEER, SHALL BE AFFIXED TO THE TOP OF THESE BREAKAWAY BARRICADES WITH A MINIMUM MOUNTING HEIGHT OF 36 INCHES TO THE BOTTOM OF THE LENS. A FLASHING WARNING LIGHT SHOULD BE PLACED ON BARRICADES USED SINGLY AND STEADY BURN WARNING LIGHTS SHOULD BE PLACED ON BARRICADES USED IN A SERIES FOR TRAFFIC CHANNELIZATION THE WARNING LIGHTS SHALL CONFORM TO THE REQUIREMENTS FOUND IN THE M.U.T.C.D. WHEN THE INTEGRAL WARNING LIGHT UNIT IS USED, THE BATTERY PACK SHALL CONTAIN A LIGHT WEIGHT DRY CELL BATTERY AND THE UNIT SHALL BE RESTRAINED WITH A TETHER CABLE OR WIRE (12" LENGTH) SECURELY FASTENED TO THE BARRICADES SO AS TO AVOID HAVING THE UNIT BECOME A DANGEROUS FLYING OBJECT IF THE BARRICADE IS HIT.





TYPE I & II BARRICADE DETAILS

TYPE I BARRICADES SHALL CONSIST OF ONE HORIZONTAL PANEL.

TYPE II BARRICADES SHALL CONSIST OF AN ADDITIONAL HORIZONTAL PANEL MOUNTED BELOW THE OTHER.

SEE STD E-7 FOR USE REQUIREMENTS.

REVISIONS & CORRECTIONS

JAN. 11, 1977 - REVISED ACCORDING TO FHWA REQUIREMENTS.
JUNE 6, 1977 - MATERIALS LIST ADDED.
APR. 8, 1982 - CEMENTING NOTE AND BARRICADES TYPE I & II ADDED.
JUNE 13, 1984 - RAILS CHANGED FROM 9" TO 8".
JAN. 3, 1985 - SAND AND WARNING LIGHT NOTE ADDED.
FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS

APPROVED

Dec 30, 1976
DATE

E. H. Stickney
CHIEF ENGINEER

R O Munn
ASST. CHIEF ENGINEER

Loren C Jones
HIGHWAY ENGINEER

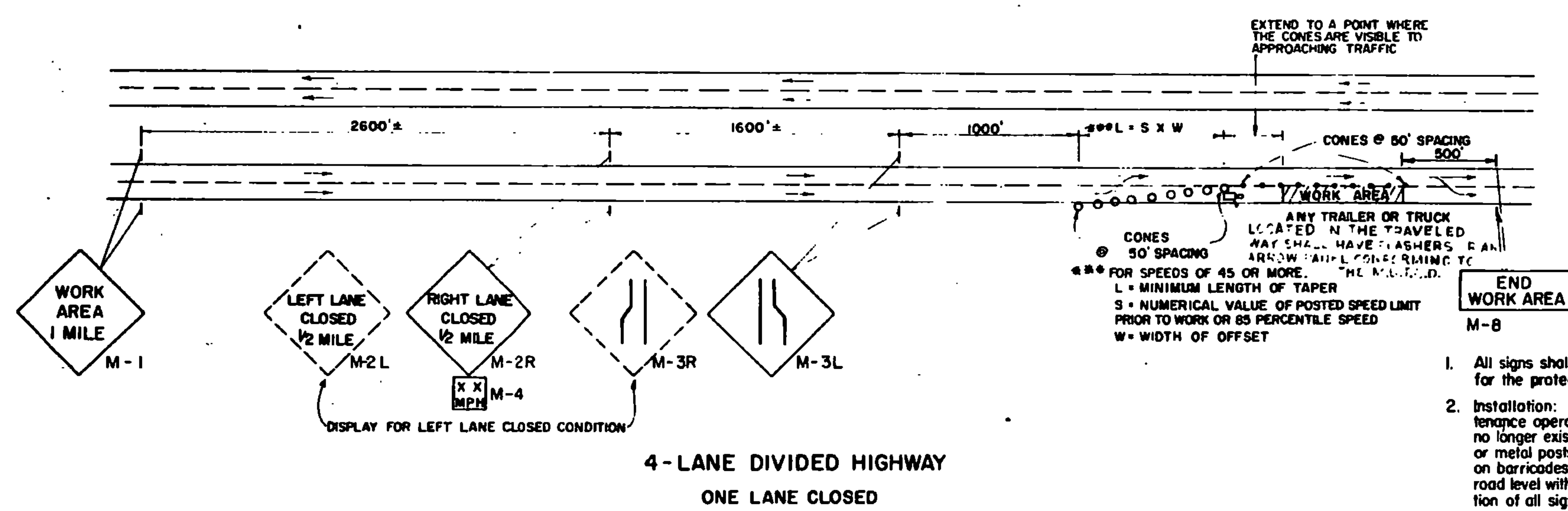
TRAFFIC SIGNS

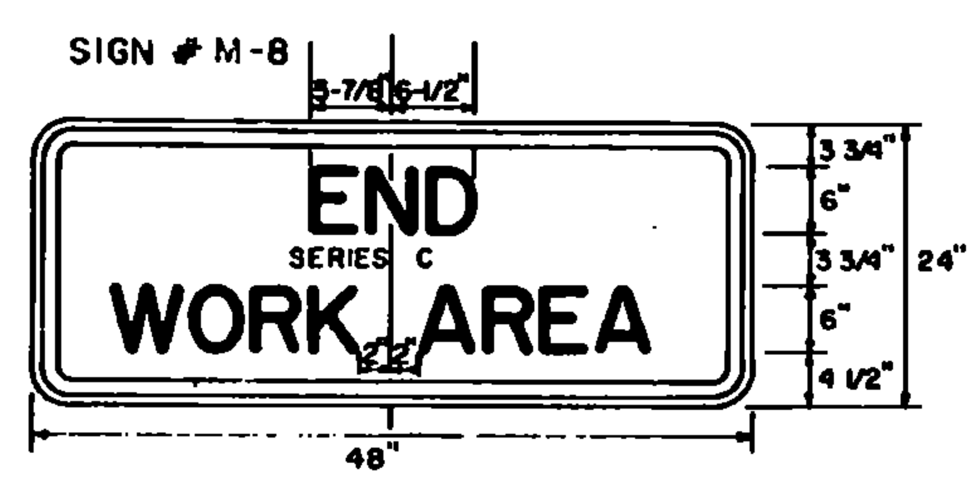
BREAKAWAY BARRICADE DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

E-7a





NOTES

1. All signs shall be covered or removed at the end of the working day unless required for the protection and safety of the traveling public.
2. Installation: Signs and barricades shall be in place prior to the start of the maintenance operation to which they apply and shall be removed promptly when the need no longer exists. Each sign shall be erected in a neat and workmanlike manner on wood or metal posts set securely in the ground, or on portable supports for temporary use, or on barricades when appropriate. As a general rule, roadside signs shall be 5 feet above road level with the nearest edge at least 6 feet outside the shoulder point. The installation of all signs and barricades shall be subject to the approval of the Engineer.
3. Numbers in parenthesis indicate M.U.T.C.D. sign designations.
4. "ROAD WORK" or "BRIDGE WORK" may be substituded as the appropiate legend for signs # M-1 or M-5.

Reflectorization
All reflectorized material shall consist of encapsolated lens reflective sheeting.
The text and borders may be screened, lettering film, or hand painted.
Cones used for traffic control at night shall have a minimum 6" wide reflectorized material.

Colors
The warning signs shown on this sheet shall have black text, border, and symbols on a reflectorized orange background. The orange shall conform with the standard colors adopted by the American Association of State Highway and Transportation Officials and approved by the U.S. Department of Transportation, Federal Highway Administration.

Text Design
Letters, digits, spacing, and text dimensions shall conform with the standard alphabets and design prescribed in the manual on Uniform Traffic Control Devices.

Specifications
Warning signs shall meet the standard state specifications for traffic signs.

Sign Base Material
The sign base material used for the warning signs on this sheet may be of any of the following, with minimum thickness as noted:

Flat sheet aluminum	0.125	Inches
High density overlayed plywood	3/4	Inches
Galvanized sheet steel	12	Gage

5. ON TOWN, CITY AND INCORPORATED VILLAGE HIGHWAY SYSTEMS THE MINIMUM NUMBER OF SIGNS IS AS FOLLOWS:
MINIMUM NUMBER OF SIGNS REQUIRED ARE M-6 AND M-7.
MINIMUM SIZE OF THE SIGNS SHALL BE 36"x36".
THIS SIGN SIZE REDUCTION IS FOR DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION.

REVISIONS & CORRECTIONS

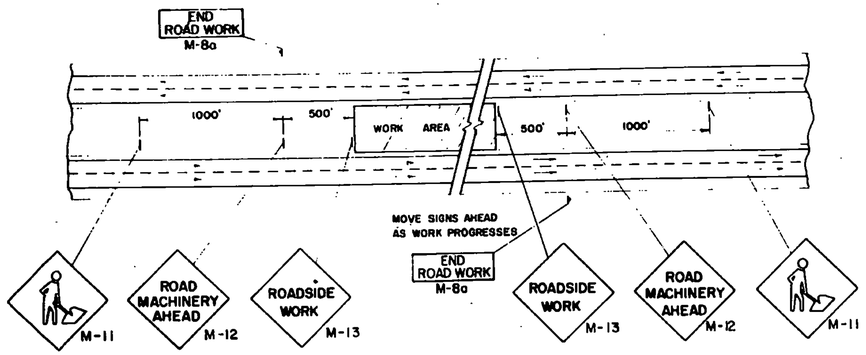
FEB. 29, 1972: SIGN ADDED UNDER DIRECTION OF FEDERAL HIGHWAY ADMINISTRATION
MAY 14, 1974 REFLECTIVE MATERIAL CHANGE.
JUNE 8, 1977 - REFLECTIVE MATERIAL NOTE CHANGED. SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D. SIGNS NUMBERED.
AUG. 4, 1977 FLAGPERSON SIGN CHANGED TO SYMBOL.
SEPT. 12, 1977 NOTE ADDED FOR REDUCED NUMBER AND SIZE OF SIGNS.
JUNE 8, 1978 REVISED REDUCED SPEED SIGN PER FHWA
NOV. 23, 1981 "WORK AREA" LEGEND AND NOTES ADDED, GENERAL SIGN - REVISIONS.
JUNE 15, 1983 TRUCK/TRAILER W/ FLASHER [illegible] CLARIFIED
FEB. 3, 1986 - UPDATED TO 1986 SPECIFICATIONS

APPROVED: Jan. 26, 1972
DATE
R. H. Arnold
CHIEF ENGINEER
E. H. Stickney
ASST. CHIEF ENGINEER
G. M. Lane
HIGHWAY ENGINEER

TYPICAL MAJOR MAINTENANCE OPERATION
(BRIDGE AND ROADWAY) APPROACH SIGNS

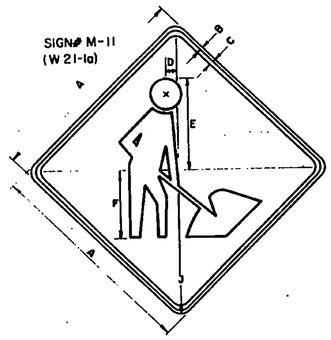
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-8



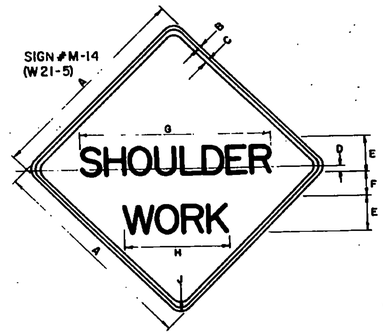
4-LANE DIVIDED HIGHWAY
MEDIAN MAINTENANCE

SIGN# M-11 (W 21-1a)



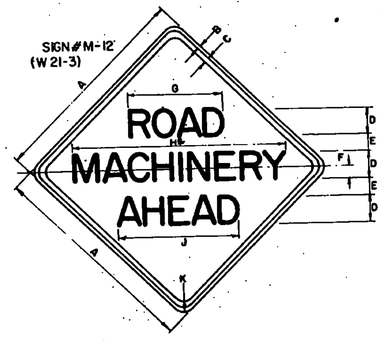
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F			J
2 LANE	36	5/8	7/8	2-1/4	16-7/8	12			2 1/4
4 LANE	48	3/4	1 1/4	3	22-3/8	16			3

SIGN# M-14 (W21-5)



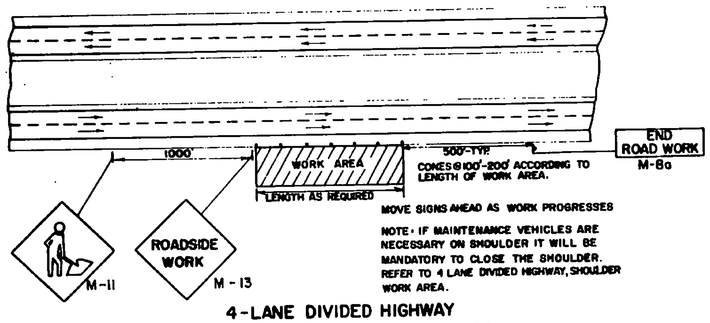
SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
2 LANE	36	5/8	7/8	1	5-0	3 1/2	34 5/16	17 5/32	2 1/4
4 LANE	48	3/4	1 1/4	1	7-0	4	36 25/32	20 1/8	3

SIGN# M-12 (W 21-3)

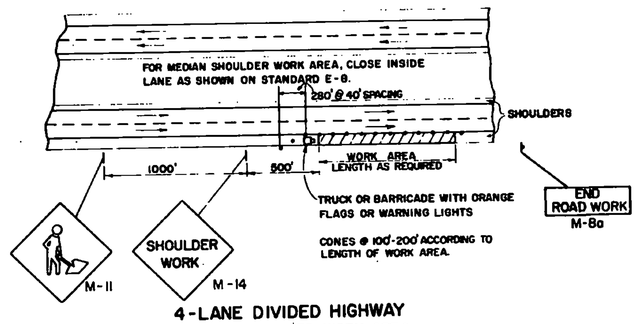


*REDUCE SPACING BY 40%

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
2 LANE	36	5/8	7/8	5-0	4	2-1/2	17-1/4	34 5/16	29 3/4	2 1/4
4 LANE	48	3/4	1 1/4	7-0	5	3-1/2	24	48 7/16	31	3

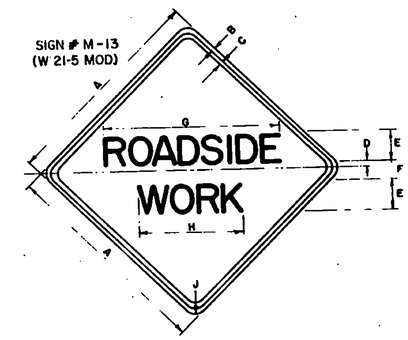


4-LANE DIVIDED HIGHWAY
MAINTENANCE OUTSIDE RIGHT SHOULDER

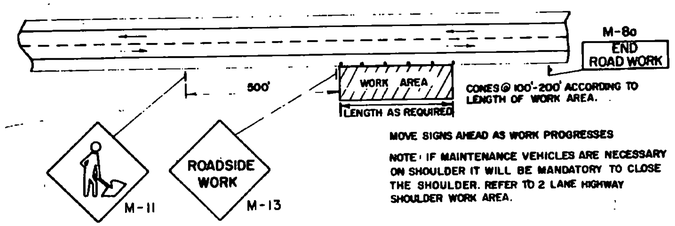


4-LANE DIVIDED HIGHWAY
SHOULDER WORK AREA

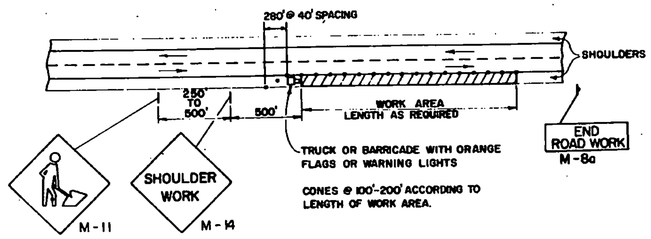
SIGN# M-13 (W 21-5 MOD)



SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
2 LANE	36	5/8	7/8	1/2	5-0	3 1/2	34 5/16	17 5/32	2 1/4
4 LANE	48	3/4	1 1/4	1	7-0	4	36 25/32	20 1/8	3

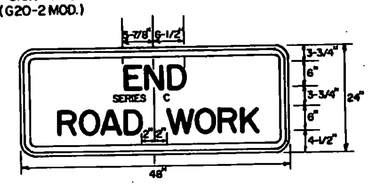


2-LANE HIGHWAY
MAINTENANCE OUTSIDE SHOULDER



2-LANE HIGHWAY
SHOULDER WORK AREA

SIGN# M-8a (G20-2 MOD.)



Reflectorization
All reflective material shall consist of encapsolated lens reflective sheeting. The text and borders may be screened, lettering film, or hand painted.

Colors
The warning signs shown on this sheet shall have a black text and border on a reflectorized orange background. The orange shall conform with the standard colors adopted by the American Association of State Highway and Transportation Officials and approved by the U.S. Dept. of Transportation, Federal Highway Administration.

Text Design
Letters, spacing, and text dimensions shall conform with the standard alphabets and design prescribed in the Manual on Uniform Traffic Control Devices.

Specifications
Warning signs shall meet the standard state specifications for traffic signs.

Sign Base Material
The sign base material used for the warning signs shown on this sheet may be of any of the following, with minimum thickness as noted:

	36x36	48x48	Inches
(1) Flat Sheet Aluminum	0.100	0.125	inches
(2) High Density Overlayed Plywood	5/8	3/4	inches
(3) Galvanized Sheet Steel	14	12	gage

REVISIONS & CORRECTIONS
FEB. 29, 1972: REVISED PER DIRECTION OF THE FEDERAL HIGHWAY ADMINISTRATION.
MAY 14, 1976 - REFLECTIVE MATERIAL CHANGE.
JUNE 8, 1977 - REFLECTIVE MATERIAL NOTE CHANGED. SIGNS REFERENCED TO NUMBERS IN M.U.T.C.D.
AUG. 10, 1977 - PERSON WORKING SIGN CHANGED TO SYMBOL.
DEC. 9, 1981 - MINOR SIGN DIMENSION CHANGES.
FEB. 8, 1988 - UPDATED TO 1986 SPECIFICATIONS

APPROVED
DATE Jan 26, 1972
CHIEF ENGINEER
ASST. CHIEF ENGINEER
HIGHWAY ENGINEER

TRAFFIC SIGNS
TYPICAL MINOR MAINTENANCE OPERATION
APPROACH SIGNS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-10