SCHULTZ

August 7, 2014

State of Vermont Agency of Transportation
Southwest Regional Construction Office
61 Valley View
Mendon, VT 05701

Attn: Chris Williams, R.E.

Re: ***Rochester STP BRF 0162(19)***
Traffic Control Plan

Dear Mr. Williams:

During the course of construction for Bridge 13 on Route 73 traffic control will be necessary. W.M. Schultz Construction Inc. (WMSCI) intends to limit our impact on the public as much as possible. To help with this WMSCI will utilize daily temporary traffic setups for initial site work. Once the bridge closure period begins the contract plan detour will be implemented as it was previously for the other shutdowns. Following the BCP single lane closures with flaggers during working hours and traffic signals for night time may be necessary. At a minimum traffic will remain open to alternating one lane of traffic in each direction prior to and following the BCP. While traffic control is utilized proper traffic control devices along with flaggers as needed will be used. Traffic setups will comply with the contract plans, standards, VTRANS section 641 and the MUTCD.

- Attached are drawings of our proposed traffic setup, along with applicable standard & plan sheets.
- Message boards will be deployed prior to the plan detour.
- Sign location, layout and setup are complete. Signs just need to be uncovered prior to our initiation of closures.
- All driveways will be maintained.
- Flaggers will be used as needed and communicate with two way radios.
- All TCP devices such as signs, cones, barrels, signals and message boards will comply with VTRANS standard sheets and the MUTCD.
- Initially temporary lane closure will be utilized until the BCP.
- During the BCP the plan detour will be implemented.
- Following the BCP single lane traffic control will be necessary to complete some items of work.

PO Box 2620 · Ballston Spa, NY 12020 · Ph 518.885.0060 · Fx 518.885.0744 · www.wmschultz.com

Phase 1 – Daily Closures, Single Lane Alternating Traffic with Flaggers

- Initial site mobilization will use temporary daily single lane closures.
- Also during this time initial site layout, access and staging will require daily closures.
- Pre-setup for the contract plan detour will occur.

Phase 2 – Initiate Detour, BCP, Road Closed

- Adjust messages on boards and uncover all signs.
- Demo. and remove existing bridge.
- Complete new bridge installation and items necessary to open to one lane traffic.

Phase 3 – Single Lane Alternating Traffic with Flaggers & Signals

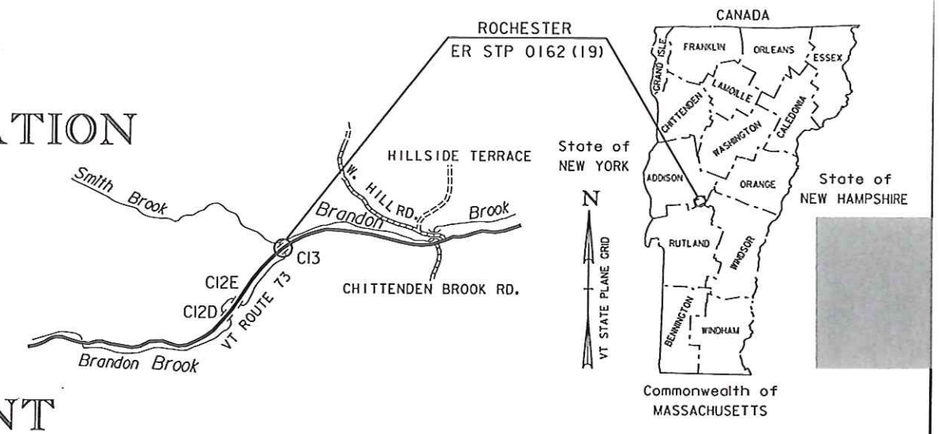
- Setup single lane alternating traffic & signals.
- During working hours traffic will be controlled with flaggers.
- During non-working hours traffic will be controlled with signals.
- Complete remaining items of work.

This proposed plan is meant to apply to most regular daily operations for bridge 13 on route 73. During the BCP and following the BCP this plan will be implemented along with our previously approved Night Time Operations Plan for night work. Special or unique situations are to be expected and this traffic plan can be adapted with the approval from the resident engineer. WMSCI will address changes that may arise from actual field conditions while still complying with the plans, standards, VTRANS section 641, and the MUTCD. Please advise of any additional information or changes that the agency may require.

Sincerely,
WM Schultz Construction, Inc.

Michael D Garn
Asst. Project Manager

STATE OF VERMONT
AGENCY OF TRANSPORTATION



LOCATION MAP
NOT TO SCALE

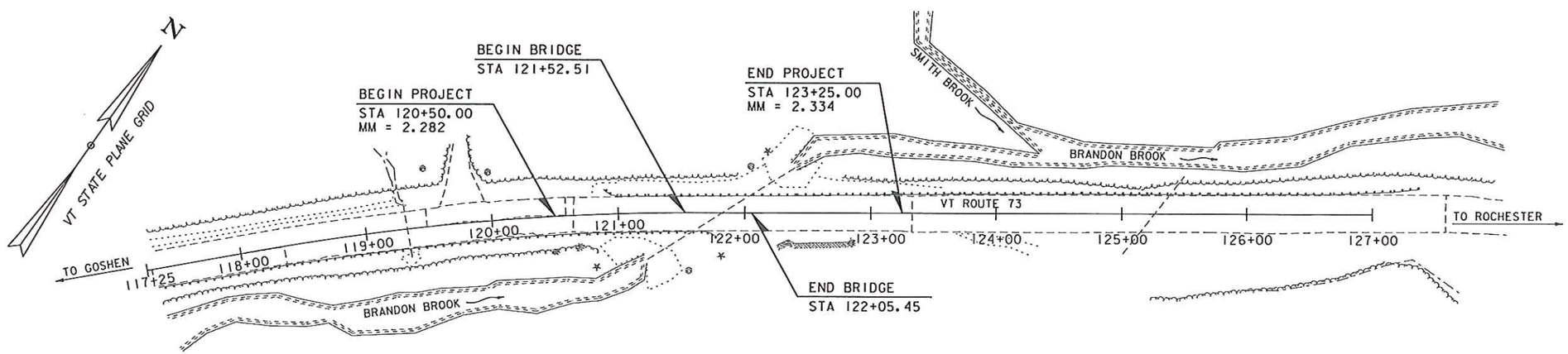
PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF ROCHESTER
COUNTY OF WINDSOR
VT ROUTE 73 (RURAL MAJOR COLLECTOR), BRIDGE NO 13

PROJECT LOCATION: LOCATED IN THE COUNTY OF WINDSOR, TOWN OF ROCHESTER, ON VT 73; BRIDGE NO 13 OVER BRANDON BROOK, APPROXIMATELY 2.43 MILES EAST OF THE GOSHEN/ROCHESTER TOWN LINE.

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES THE REMOVAL AND REPLACEMENT OF THE EXISTING 10' CMP ON THE EXISTING ALIGNMENT, WITH ASSOCIATED ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE: 52.94 FT
LENGTH OF ROADWAY: 222.06 FT
LENGTH OF PROJECT: 275.00 FT



QUALITY ASSURANCE PROGRAM: LEVEL 2

CONVENTIONAL SYMBOLS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS
TOP OF CUT
TOE OF SLOPE

SURVEYED BY : VHB
SURVEYED DATE : JANUARY 2012

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (07)

SCALE 1" = 50'-0"
50 0 50

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

VHB Vanasse Hangen Brustlin, Inc.

PROJECT MANAGER : JENNIFER M.V. FITCH, P.E.

PROJECT NAME : ROCHESTER
PROJECT NUMBER : ER STP 0162 (19)

SHEET 13 OF 238 SHEETS

57518

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION, AND ITS LATEST REVISIONS.

2. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.

3. ALL WORK AND ANY ASSOCIATED ACTIVITY ON THIS PROJECT SHALL BE PERFORMED WITHIN THE EXISTING RIGHT-OF-WAY LIMITS.

4. ALL PRECAST CONCRETE ELEMENTS TO BE FABRICATED TO THE SPECIFIED DIMENSIONS WITHIN THE TOLERANCES DICTATED IN THE PRECAST/PRESTRESSED CONCRETE INSTITUTE TOLERANCE MANUAL FOR PRECAST AND PRESTRESSED CONCRETE CONSTRUCTION, MNL 135-00, AND ITS LATEST REVISIONS.

5. NO SUBSTITUTION FOR PRECAST CONCRETE WILL BE PERMITTED.

TRAFFIC CONTROL

6. THE CONTRACTOR SHALL IMPLEMENT THE ROAD CLOSURE, TRAFFIC CONTROL, AND DETOUR AS SHOWN ON THE PLANS.

7. THE CONTRACTOR SHALL NOTIFY THE TOWN A MINIMUM OF TWO (2) WEEKS PRIOR TO CLOSING THE ROAD.

8. UNLESS COVERED UNDER INDIVIDUAL PAY ITEMS OR NOTED OTHERWISE, ALL COSTS FOR WORK SHOWN ON THE TRAFFIC CONTROL SHEETS AND FOR TEMPORARY TRAFFIC CONTROL DEVICES WILL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR ITEM 641.10, "TRAFFIC CONTROL". THIS INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING ITEMS:

   TEMPORARY TRAFFIC BARRIERS
   RETROREFLECTIVE DRUMS
   SIGNS
   SIGN POSTS

   TEMPORARY TRAFFIC BARRIER SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 621.

9. THE CONTRACTOR SHALL HAVE THE OPTION OF ALLOWING ALTERNATING ONE-WAY TRAFFIC ON THE CULVERT PRIOR TO COMPLETING THE FULL INSTALLATION OF THE PRECAST CONCRETE ARCH SEGMENTS, PRECAST CONCRETE WINGWALLS AND/OR CONCRETE MEDIAN BARRIER IN ORDER TO MINIMIZE THE BRIDGE CLOSURE TIME. PRIOR TO OPENING VT 73 TO ALTERNATING ONE-WAY TRAFFIC THE GROUT FOR THE INSTALLED PRECAST ARCH SEGMENTS SHALL BE FULLY CURED PER THE MANUFACTURER'S SPECIFICATIONS. THE ALTERNATING ONE-WAY TRAFFIC SHALL BE MAINTAINED ON THE PRECAST CONCRETE ARCH WITH CONCRETE MEDIAN BARRIER (CMB) PLACED ON EACH SIDE OF THE SINGLE TRAFFIC LANE TO PROVIDE A MINIMUM CLEAR DISTANCE/LANE WIDTH OF 12'-0". THE CMB SHALL BE LOCATED A MINIMUM CLEAR DISTANCE OF 3'-0" FROM THE NON-TRAFFIC SIDE OF THE CMB TO THE EDGE (FASCIA) OF THE PRECAST CONCRETE ARCH. THE CMB SHALL BE FLARED AT A RATE OF 1:9 ON THE APPROACHES. IF IT IS NOT POSSIBLE TO PROPERLY FLARE THE CMB AT THE APPROACHES, AN ENERGY ABSORPTION ATTENUATOR SHALL BE PLACED AT THE ENDS OF THE CMB. ALL COSTS ASSOCIATED WITH THE CMB AND ENERGY ABSORPTION ATTENUATORS SHALL BE INCLUDED IN ITEM 641.10, "TRAFFIC CONTROL (ER STP 0162(19))". ENERGY ABSORPTION ATTENUATORS SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 621.

10. IF THE CONTRACTOR CHOOSES TO OPEN THE BRIDGE TO ALTERNATING ONE-WAY TRAFFIC, THE CONTRACTOR SHALL SUBMIT A TEMPORARY TRAFFIC CONTROL PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL FOUR WEEKS PRIOR TO CLOSING THE ROADWAY. THE TEMPORARY TRAFFIC CONTROL PLAN SHALL SHOW THE LOCATIONS OF THE TEMPORARY TRAFFIC CONTROL SIGNALS, PORTABLE LIGHT TOWERS, TRAFFIC CONTROL SIGNS, CONCRETE MEDIAN BARRIER (CMB), AND IF NECESSARY PHASING OF THE ALTERNATING ONE-WAY TRAFFIC ON THE CULVERT TO ALLOW FOR THE INSTALLATION OF THE PRECAST CONCRETE ARCH SEGMENTS, PRECAST CONCRETE WINGWALLS, AND THE MEDIAN BARRIER. ALL COSTS ASSOCIATED WITH PROVIDING A TEMPORARY TRAFFIC CONTROL PLAN, IMPLEMENTING THE TEMPORARY TRAFFIC CONTROL PLAN, INCLUDING THE COSTS OF FURNISHING, INSTALLING AND REMOVING THE TEMPORARY TRAFFIC CONTROL SIGNALS, PORTABLE LIGHT TOWERS, SIGNS, SIGN POSTS, CMB, REMOVING AND RESETTING THE CMB, ETC. SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 641.10, "TRAFFIC CONTROL". TEMPORARY SIGNAL SYSTEMS SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 678.

11. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).

12. DURING CONSTRUCTION, TRAFFIC SHALL BE MAINTAINED ON A REGIONAL DETOUR. MAINTENANCE OF THE REGIONAL DETOUR WILL BE PAID FOR UNDER ITEM 641.10, "TRAFFIC CONTROL (DETOUR)".

13. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL (ER STP 0162(19))".

EARTHWORK

14. ITEM 529.15 "REMOVAL OF STRUCTURE" IS FOR THE COMPLETE REMOVAL AND DISPOSAL OF THE EXISTING 10' DIA. CMP.

15. THE "STONE FILL, TYPE IV" AND "SPECIAL PROVISION (STONE FILL, CULVERT LINING)" SHALL BE PLACED BEFORE THE PRECAST CONCRETE ARCH IS SET.

16. THE HEIGHT OF FILL BEHIND ABUTMENTS WILL BE LIMITED TO THE PEDESTAL ELEVATION UNTIL THE PRECAST ARCH HAS BEEN SET AND THE GROUT CURING PERIOD IS UP.

17. TEMPORARY CONSTRUCTION FILLS WITHIN THE WATERCOURSE FOR ANY PURPOSE SHALL CONSIST OF CLEAN STONE FILL ONLY. NO OTHER FILLING IN THE STREAM SHALL OCCUR WITHOUT THE APPROVAL OF THE STREAM ALTERATION ENGINEER.

18. IN ACCORDANCE WITH SUBSECTION 204.01(b), TEMPORARY BRACING, SHEETING OR OTHER MEANS OF SUPPORTING THE EXCAVATION MAY BE REQUIRED FOR THE CONSTRUCTION OF WINGWALLS NO. 2 AND 3. THE COSTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 204.25, "STRUCTURE EXCAVATION".

19. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SUBSECTION 301.06 REGARDING THE COMPACTION OF THE SUBBASE MATERIAL.

CONCRETE

20. ITEM 514.10, "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE PRECAST CONCRETE ARCH.

21. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).

22. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:

SPACING	± 1"
CLEARANCE	± ¼"

23. ALL SUBFOOTING CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B.

24. ALL SUBFOOTING CONCRETE SHALL BE PLACED IN THE DRY. DEWATERING SHALL BE CONTINUOUS UNTIL THE FOOTINGS ARE BACKFILLED TO THE ELEVATION OF THE WATER. SUMPS AND TRENCHES THAT DIRECT WATER SHALL BE LOCATED TO PREVENT THE REMOVAL OF FINES BELOW THE FOOTINGS.

SUBSTRUCTURE ON LEDGE

25. THE SUBFOOTINGS SHALL BE FOUNDED ON LEDGE WHICH HAS BEEN CLEANED OF ALL LOOSE ROCK AND DEBRIS TO ENSURE THAT SUBSTRUCTURES ARE PLACED ON COMPETENT ROCK.

26. THE ENGINEER SHALL NOTIFY THE PROJECT MANAGER AND THE VTRANS STATE GEOLOGIST UPON COMPLETION OF THE EXCAVATION FOR SUBSTRUCTURES FOUNDED ON BEDROCK AND PRIOR TO PLACING FORMWORK. THE GEOLOGIST WILL DETERMINE IF THE BEDROCK IS COMPETENT TO OBTAIN THE NOMINAL BEARING RESISTANCE AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE GEOLOGIST 72 HOURS PRIOR TO WHEN THE ANALYSIS WILL BE NEEDED.

27. LEDGE THAT IS EXCAVATED FOR PLACEMENT OF FOOTINGS SHALL BE EXCAVATED TO PROVIDE A LEVEL SURFACE IN THE TRANSVERSE DIRECTION AND MATCH THE SLOPE SHOWN ON THE PLANS IN THE LONGITUDINAL DIRECTION, OR AS DIRECTED BY THE ENGINEER.

28. A MAXIMUM OF 6" OVER BREAKAGE WILL BE REPLACED WITH "HIGH PERFORMANCE CLASS B CONCRETE". OVER BREAKAGE BEYOND 6" SHALL BE REPLACED WITH HIGH PERFORMANCE CLASS B CONCRETE" AT THE EXPENSE OF THE CONTRACTOR.

29. THE LIMITS OF THE SUBFOOTING SHALL BE 1'-0" OUTSIDE THE LIMITS OF THE FOOTING.

30. THE SUBSTRUCTURE UNITS HAVE BEEN DESIGNED FOR THE ELEVATIONS SHOWN ON THE PLANS. FOR ALL SUBSTRUCTURE UNITS, LEDGE SHALL BE EXCAVATED DOWN TO ALLOW FOR THE INDICATED SUBFOOTING TO BE POURED USING "CONCRETE, HIGH PERFORMANCE CLASS B" AND HAVING A MINIMUM THICKNESS OF 1'-0" AND A MAXIMUM THICKNESS OF 5'-0" TO LEDGE.

31. IF LEDGE IS ABOVE THE DESIGN TOP OF FOOTING, THE FOOTING MAY BE RAISED. BEFORE ANY UPWARD ADJUSTMENT IS MADE IN FOOTING ELEVATION, THE PROJECT MANAGER SHALL BE CONTACTED AND PROVIDED WITH A LEDGE PROFILE. NO FURTHER WORK SHALL BE DONE UNTIL APPROVAL OF THE CONFIGURATION IS RECEIVED.

32. #8 DOWELS SHALL BE DRILLED AND GROUTED INTO THE LEDGE AS SHOWN ON THE PLANS. THE DOWELS SHALL HAVE A 2'-0" EMBEDMENT INTO THE LEDGE AND SHALL EXTEND INTO THE SUBFOOTING A MINIMUM OF 9" AND A MAXIMUM OF 2'-0" DEPENDING ON THE SUBFOOTING DEPTH. #8 DOWELS WILL ALSO BE USED AT THE INTERFACE BETWEEN THE SUBFOOTING AND THE PRECAST CONCRETE FOOTING AS SHOWN ON THE PLANS. THE DRILLING AND GROUTING OF THESE DOWELS SHALL BE PAID FOR UNDER THE ITEM 507.16, "DRILLING AND GROUTING DOWELS".

PRECAST CONCRETE STRUCTURE

33. THE DESIGN, CONSTRUCTION, HANDLING, AND ASSEMBLY OF THE PRECAST UNITS SHALL BE IN ACCORDANCE WITH SECTION 540 AND THE SPECIAL PROVISIONS. HANDLING AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AS APPLICABLE.

34. THE PRECAST CONCRETE STRUCTURE SHALL BE DESIGNED TO SUPPORT CONSTRUCTION AND HL-93 LIVE LOADS DIRECTLY ON TOP OF THE CONCRETE ARCH WITHOUT ANY FILL OVER THE CONCRETE ARCH.

35. IF VERTICAL CONSTRUCTION JOINTS ARE REQUIRED BY THE CONTRACTOR FOR SHIPMENT OF THE ABUTMENTS, THEN THE SECTIONS SHALL BE KEYED AND MATCH CAST. THE JOINT DETAIL SHALL BE AS SHOWN ON THE PLANS. THE FABRICATOR MAY SUBMIT AN ALTERNATIVE JOINT FOR REVIEW BY THE ENGINEER. THE JOINT DETAIL SHALL BE SHOWN ON THE FABRICATION DRAWINGS.

36. REINFORCING STEEL SHALL CONFORM TO THE FOLLOWING:
    A. THE REINFORCING STEEL IN THE HEADWALLS SHALL BE "LEVEL II" OR HIGHER.
    B. THE REINFORCING STEEL IN ALL OTHER PRECAST UNITS AND FOOTINGS SHALL BE "LEVEL I, EPOXY COATED REINFORCING STEEL" OR HIGHER.

37. DESIGN VALUES

DESIGN LIVE LOAD:	HL-93
DESIGN FILL OVER THE STRUCTURE:	2 FEET ACTUAL FILL (MIN=1'-4"±, MAX=1'-9"±)
RETAINED SOIL PARAMETERS	
UNIT WEIGHT:	140 PCF
FRICTION ANGLE:	34°

UNFACTORED LOADS AT TOP OF PRECAST CONCRETE PEDESTAL:
VERTICAL LOAD (PER PEDESTAL)
DL = 10.3 KLF
LL = 4.8 KLF
HORIZONTAL LOAD (PER PEDESTAL)
DL = 4.1 KLF
LL = 4.0 KLF
FACTORED BEARING RESISTANCE (FOOTING WIDTH):
14.1 KSF (6 FEET)

38. THE PRECAST CONCRETE STRUCTURE SHALL HAVE A MINIMUM CLEAR SPAN OF 28 FEET AND VERTICAL CLEAR HEIGHT OF 7'-7 1/8" MEASURED FROM CENTER OF THE SPAN TO THE TOP OF THE KEY IN THE PEDESTAL. THE LUMP SUM COST FOR ITEM 540.10 (FRAME OR ARCH TYPE) SHALL INCLUDE THE PRECAST ARCH UNIT, PRECAST HEADWALLS, PRECAST WINGWALLS, SHEET MEMBRANE WATERPROOFING, AND MECHANICAL CONNECTIONS. THE LUMP SUM COST FOR ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT NO.1) OR (ABUTMENT NO. 2)" SHALL INCLUDE THE PRECAST FOOTINGS AND PRECAST PEDESTALS FOR EACH RESPECTIVE ABUTMENT.

39. PRECAST CONCRETE FOOTING AND PRECAST STEMWALL SHALL BE PAID FOR UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT NO.1)" OR "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)".

40. THE PRECAST WINGWALLS SHALL BE SELECTED FROM THE LIST OF WALLS ON THE APPROVED RETAINING WALL DOCUMENT AVAILABLE FROM VAOT MATERIALS AND RESEARCH WEB SITE (http://vtransengineering.vermont.gov/sites/aot_program_development/files/documents/materialsandresearch/MandRSoilAPPROVED_Retaining_Walls_8-2012_Final.pdf).

41. THE USE OF EQUIPMENT AND THE METHOD OF BACKFILLING AROUND THE BURIED STRUCTURE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CARE SHALL BE TAKEN WHEN BACKFILLING AGAINST JOINT SEALING MATERIALS.

42. FABRICATION DRAWINGS FOR THE PRECAST CONCRETE UNIT SECTIONS SHALL INCLUDE A PLAN FOR SHIPPING AND LEVELING THE PRECAST CONCRETE ARCH AND WINGWALL SECTIONS.

43. THE CONTRACTOR IS RESPONSIBLE FOR PROPER FIT-UP OF THE PRECAST AND ANY CAST-IN-PLACE ELEMENTS, PER THE FABRICATOR'S RECOMMENDATIONS, APPROVED FABRICATION AND ENGINEERING DRAWINGS, AND TO THE SATISFACTION OF THE ENGINEER.

44. ALL PRECAST UNITS INCLUDING THE HEADWALLS AND FOOTINGS SHALL BE DESIGNED BY THE FABRICATOR AND DESIGN CALCULATIONS SUBMITTED WITH FABRICATION DRAWINGS STAMPED BY AN ENGINEER REGISTERED IN THE STATE OF VERMONT.

45. TEMPORARY SUPPORTS SHALL BE REQUIRED IF THE STRUCTURE IS BACKFILLED PRIOR TO ACHIEVING FULL MOMENT CAPACITY BETWEEN ALL CONNECTED ELEMENTS. ALL DETAILS SHALL BE INCLUDED IN THE FABRICATION DRAWINGS AND ASSEMBLY PLAN.

46. INSTALL SHEET MEMBRANE, WATERPROOFING, TORCH APPLIED OVER THE TOP AND DOWN THE EXTERIOR SIDES OF THE PRECAST UNITS TO THE TOP OF THE FOOTING AND ALONG THE ENTIRE LENGTH. SHEET MEMBRANE WATERPROOFING SHALL ALSO BE INSTALLED ON THE EXTERIOR SIDE OF THE VERTICAL JOINT IN THE PRECAST PEDESTAL. COST OF MEMBRANE WATERPROOFING IS INCIDENTAL TO THE PRECAST UNITS. TAKE CARE DURING BACKFILL OPERATIONS TO AVOID DAMAGE TO THE SHEET MEMBRANE WATERPROOFING.

47. THE INLET/OUTLET STATIONS ARE APPROXIMATE, AND MAY CHANGE BASED ON THE MANUFACTURER'S DESIGN DIMENSIONS. THE BEGIN AND END BRIDGE STATIONS ALONG THE VT 73 CENTERLINE SHALL BE AS SHOWN ON THESE PLANS.

GENERAL CONSTRUCTION SEQUENCE

48. PROPOSED SEQUENCE OF CONSTRUCTION
    A. CLOSE ROADWAY, EXCAVATE AND INSTALL STREAM DIVERSION.
    B. DEMO EXISTING STRUCTURE.
    C. PREPARE LEDGE FOR CAST-IN-PLACE SUBFOOTING.
    D. PLACE SUBFOOTINGS.
    E. PLACE PRECAST FOOTINGS, LEVEL AND GROUT.
    F. ERECT PRECAST PEDESTALS, GROUT CONNECTIONS AND KEYWAYS.
    G. BACKFILL SUBSTRUCTURE TO TOP OF PEDESTAL.
    H. INSTALL STONE FILL AND STONE FILL CHANNEL FLOW LINE THROUGH STRUCTURE.
    I. ERECT PRECAST STRUCTURE PER MANUFACTURER'S RECOMMENDATION (AT CONTRACTOR'S OPTION, PRECAST WINGWALLS MAY BE ERECTED AFTER OPENING ROADWAY TO ONE-WAY ALTERNATING TRAFFIC).
    J. BACKFILL PRECAST STRUCTURE.
    K. CONSTRUCT ROADWAY (TEMPORARY ONE-WAY ALTERNATING TRAFFIC PERMISSIBLE PRIOR TO INSTALLATION OF APPROACH RAIL AND CONCRETE BARRIER).
    L. CONSTRUCT ROADSIDE DITCHES, APPROACH RAIL, AND CONCRETE BARRIER.
    M. FINAL GRADE AND PAVE ON APPROACHES.
    N. FINAL RESTORATION AND LINE STRIPING USING TEMPORARY ONE-LANE CLOSURES, AS APPROVED BY THE ENGINEER.

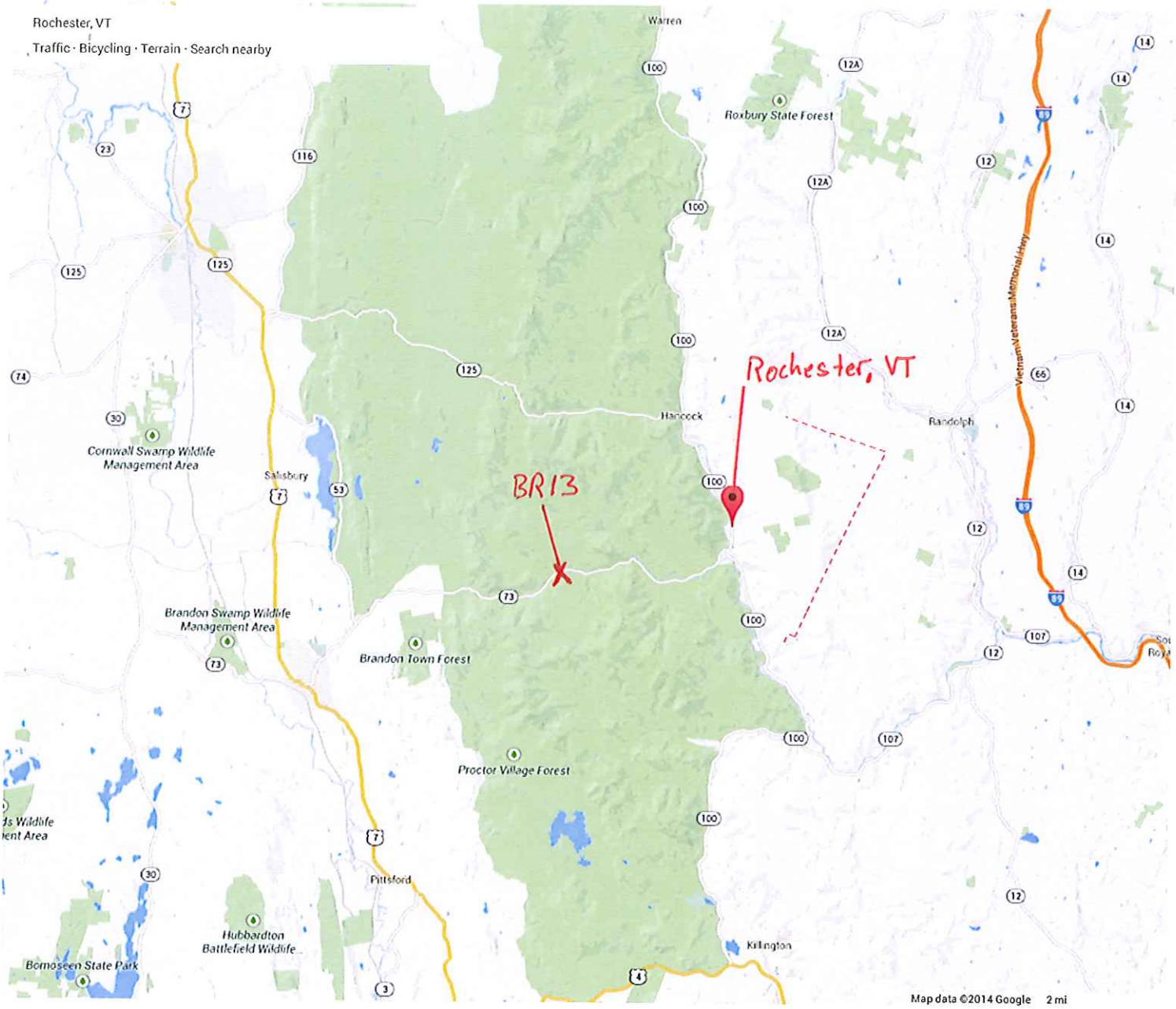

Rochester, VT
Traffic · Bicycling · Terrain · Search nearby
Warren
Roxbury State Forest
Rochester, VT
BR13
Hancock
Randolph
Cornwall Swamp Wildlife Management Area
Salisbury
Brandon Swamp Wildlife Management Area
Brandon Town Forest
Proctor Village Forest
Pittsford
Hubbardton Battlefield Wildlife
Bomoseen State Park
Killington
Vietnam Veterans Memorial Hwy
Map data ©2014 Google 2 mi

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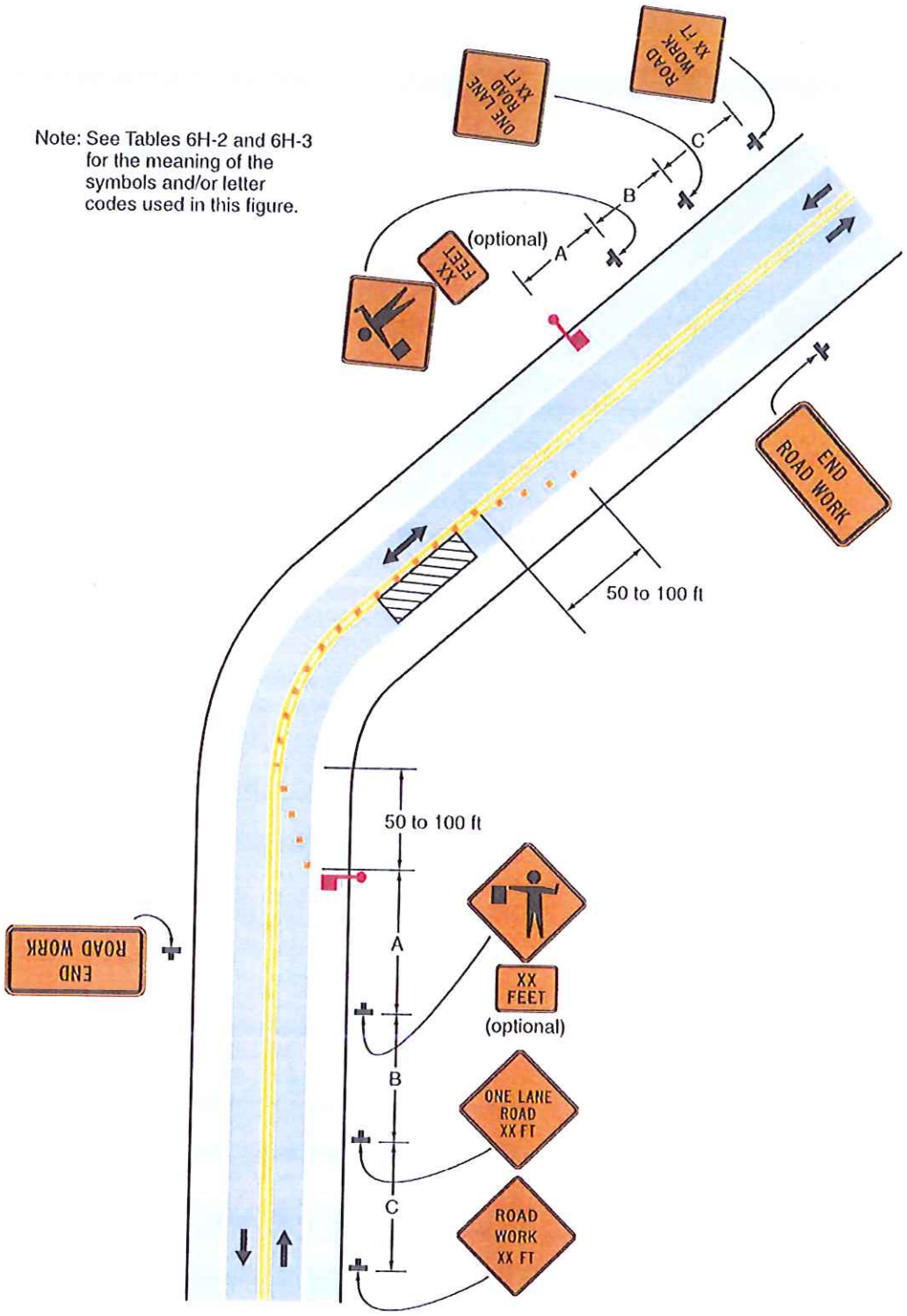
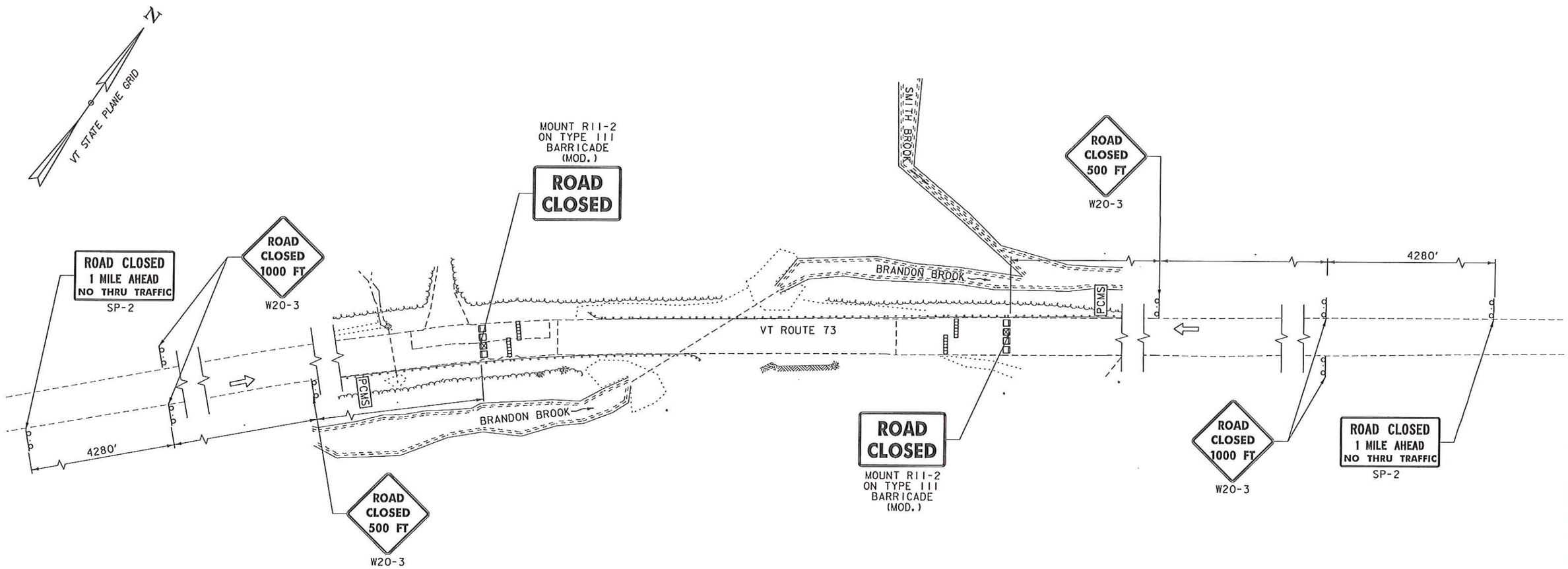
Figure 6H-10. Lane Closure on a Two-Lane Road Using Flaggers (TA-10)



Typical Application 10



LOCAL TRAFFIC CONTROL PLAN

NOT TO SCALE

LEGEND

- FLOW OF TRAFFIC
- TYPE III BARRICADE
- TYPE III BARRICADE (MOD.)
- CONCRETE MEDIAN BARRIER
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN

NOTES:

1. SEE REGIONAL TRAFFIC CONTROL PLANS FOR ADDITIONAL NOTES.
2. THE COSTS FOR ALL SIGNS, POSTS, TYPE III BARRICADES, CONCRETE MEDIAN BARRIERS, ETC. SHALL BE INCLUDED IN ITEM 641.10, "TRAFFIC CONTROL (ER STP 0162(19))".
3. THE NUMBER OF TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY, THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL LANE CLOSURE REQUIREMENTS. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
4. THE PCMS SHALL DISPLAY THE MESSAGE SHOWN ON BR 13 TRAFFIC CONTROL PLAN (2 OF 2) ONE WEEK (7 DAYS) PRIOR TO THE CLOSURE OF THE BRIDGE. THE PCMS SHALL NOT BE A PART OF THE DETOUR AND SHALL BE TURNED OFF ONCE THE DETOUR IS IMPLEMENTED AND THE BRIDGE IS CLOSED.
5. ALL SIGNS SHALL BE COVERED COMPLETELY WHEN NOT APPLICABLE FOR THE SPECIFIED BRIDGE CLOSURE.

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: ROCHESTER	
PROJECT NUMBER: ER STP 0162(19)	
FILE NAME: zllc334tcp.dgn	PLOT DATE: 9/3/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
BR 13 TRAFFIC CONTROL PLAN (1 OF 2)	SHEET 29 OF 238

VHB 57518

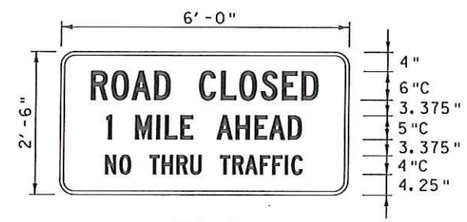
IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	NUMBER OF SIGNS REQ'D	REMARKS
	WIDTH (IN)	HEIGHT (IN)			
R11-2	48	24	ROAD CLOSED	2	MOUNT ON TYPE III BARRICADE (MOD.)
SP-2	60	30	ROAD CLOSED 1 MILE AHEAD NO THRU TRAFFIC	2	MOUNT ON TWO POSTS
W20-3	48	48	ROAD CLOSED 1000 FT	4	MOUNT ON TWO POSTS
W20-3	48	48	ROAD CLOSED 500 FT	2	MOUNT ON TWO POSTS

MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) - AT BRIDGE

ONE WEEK PRIOR

MESSAGE 1	MESSAGE 2	
BRIDGE	**MMMM DD**	(DATE) **
CLOSED	**TO**	
	MMMM DD	(DATE) **

** - MONTH SHALL BE SPELLED OUT - JUNE 10 NOT 06/10



SP-2

NOT TO SCALE

NOTE:

1. COLORS FOR THE SP-2 SIGN SHALL BE BLACK TEXT AND BORDER ON RETROREFLECTVE FLUORESCENT WHITE BACKGROUND. TWO ORANGE FLAGS (ONE EACH SIDE) SHALL BE PLACED AT THE TOP OF THE SP-2 SIGNS. BORDER SHALL BE 0.75" AND INDENT SHALL BE 0.50".

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: ROCHESTER	
PROJECT NUMBER: ER STP 0162(19)	
FILE NAME: z11c334tcp.dgn	PLOT DATE: 9/3/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: S.E. BURBANK
BR 13 TRAFFIC CONTROL (2 OF 2)	SHEET 30 OF 238

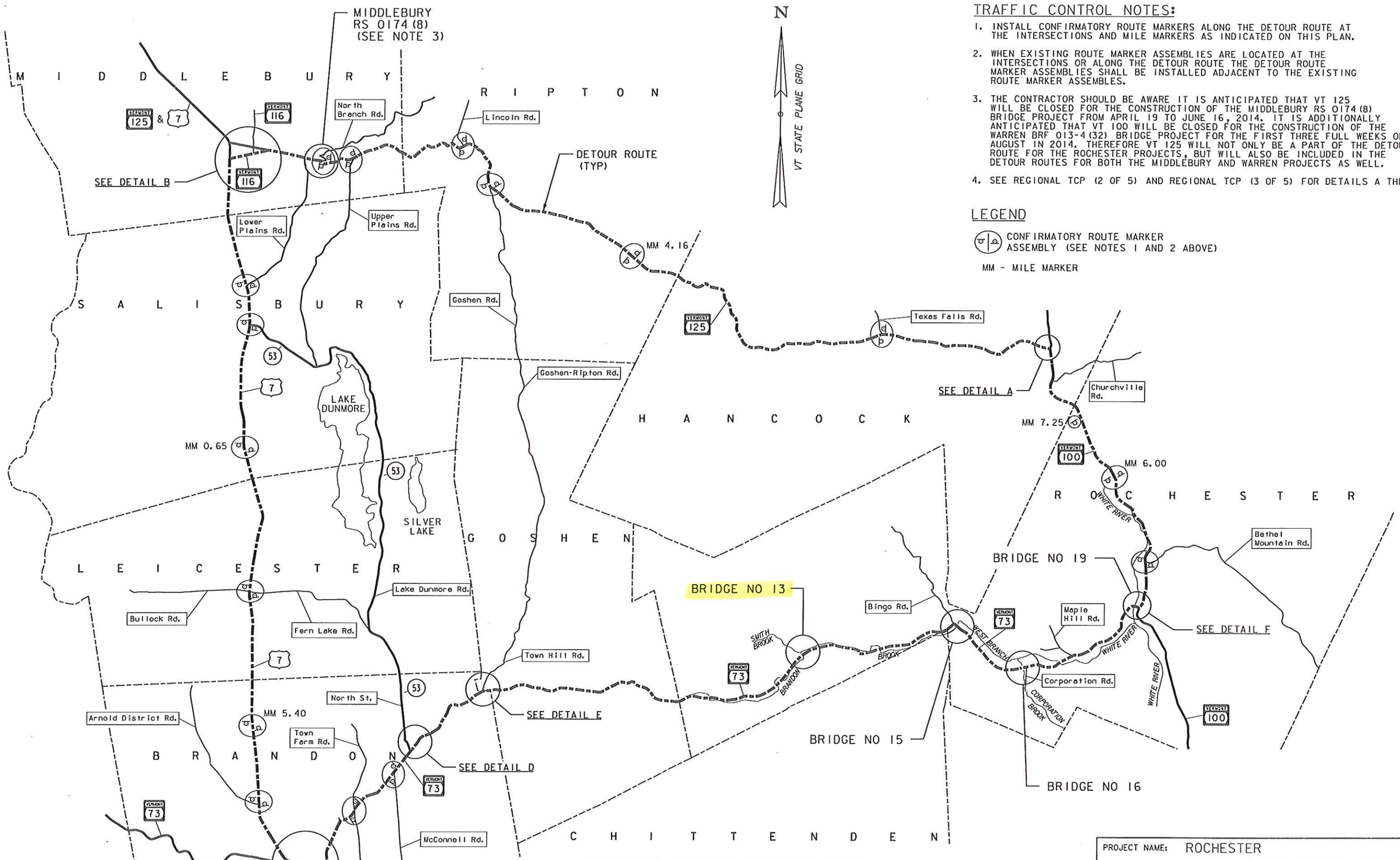
TRAFFIC CONTROL NOTES:

1. INSTALL CONFIRMATORY ROUTE MARKERS ALONG THE DETOUR ROUTE AT THE INTERSECTIONS AND MILE MARKERS AS INDICATED ON THIS PLAN.
2. WHEN EXISTING ROUTE MARKER ASSEMBLIES ARE LOCATED AT THE INTERSECTIONS OR ALONG THE DETOUR ROUTE THE DETOUR ROUTE MARKER ASSEMBLIES SHALL BE INSTALLED ADJACENT TO THE EXISTING ROUTE MARKER ASSEMBLES.
3. THE CONTRACTOR SHOULD BE AWARE IT IS ANTICIPATED THAT VT 125 WILL BE CLOSED FOR THE CONSTRUCTION OF THE MIDDLEBURY RS 0174(8) BRIDGE PROJECT FROM APRIL 19 TO JUNE 16, 2014. IT IS ADDITIONALLY ANTICIPATED THAT VT 100 WILL BE CLOSED FOR THE CONSTRUCTION OF THE WARREN BRF 013-4(32) BRIDGE PROJECT FOR THE FIRST THREE FULL WEEKS OF AUGUST IN 2014. THEREFORE VT 125 WILL NOT ONLY BE A PART OF THE DETOUR ROUTE FOR THE ROCHESTER PROJECTS, BUT WILL ALSO BE INCLUDED IN THE DETOUR ROUTES FOR BOTH THE MIDDLEBURY AND WARREN PROJECTS AS WELL.
4. SEE REGIONAL TCP (2 OF 5) AND REGIONAL TCP (3 OF 5) FOR DETAILS A THRU F.

LEGEND

CONFIRMATORY ROUTE MARKER ASSEMBLY (SEE NOTES 1 AND 2 ABOVE)

MM - MILE MARKER



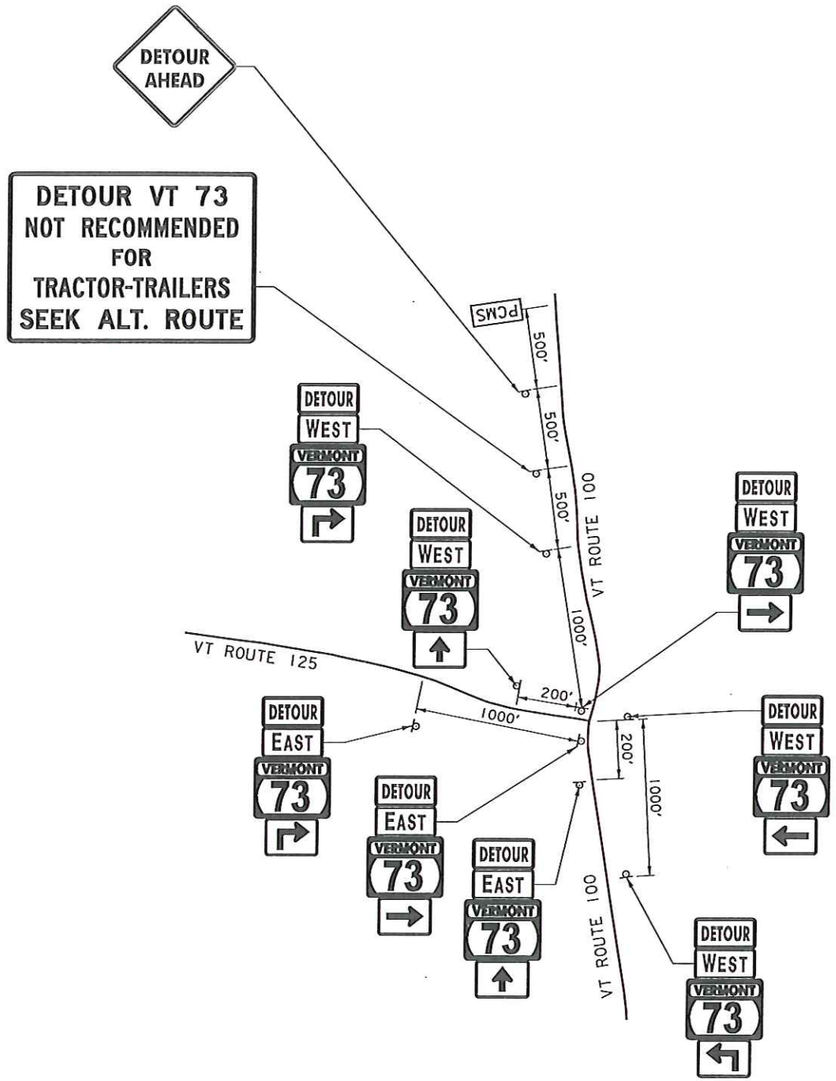
REGIONAL TRAFFIC CONTROL PLAN

4000 0 4000

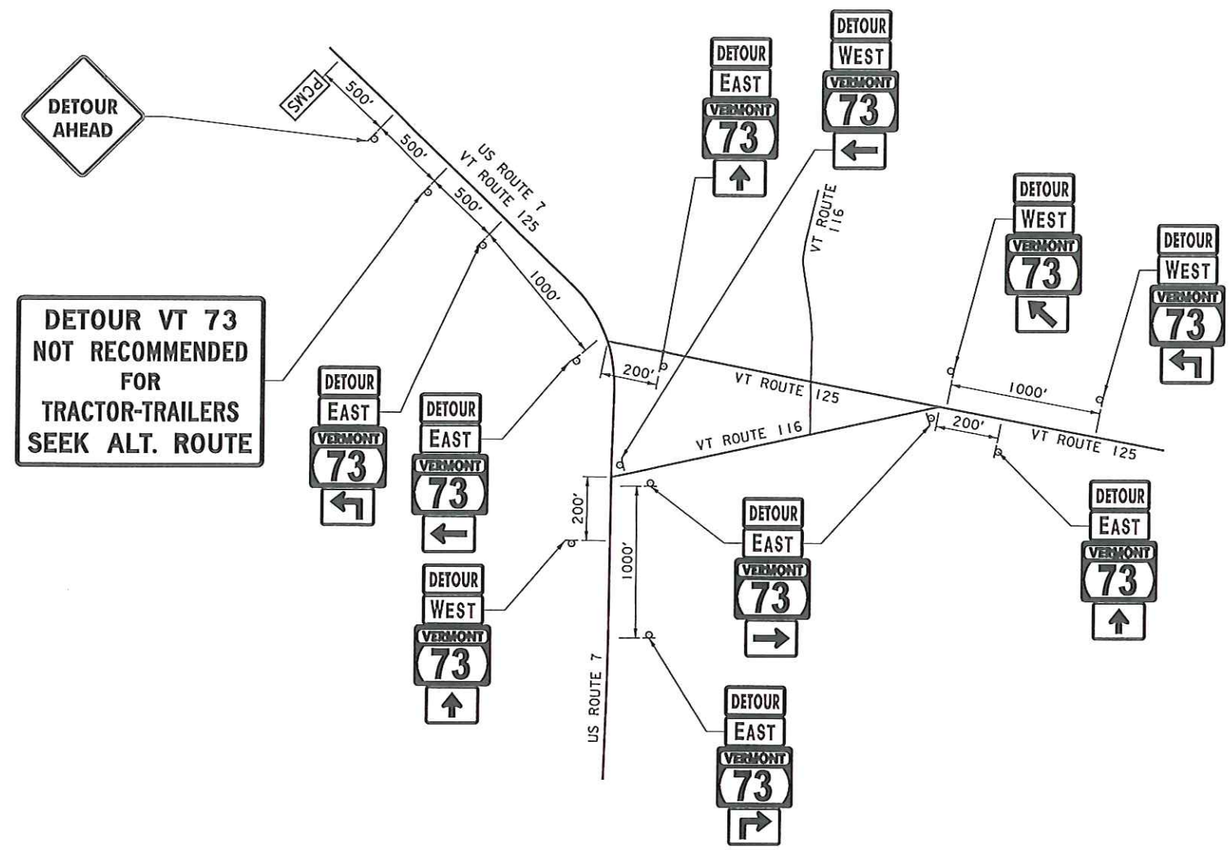
VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: ROCHESTER	
PROJECT NUMBER: 0162(19), 0162(16), 0162(17), 0162(18)	
FILE NAME: zllc334Regionaldetour.dgn	PLOT DATE: 9/16/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: C.L. CILLEY
DESIGNED BY: M.D. SUENNEN	CHECKED BY: G.S. GOODRICH
REGIONAL TCP (1 OF 5)	SHEET 8 OF 238

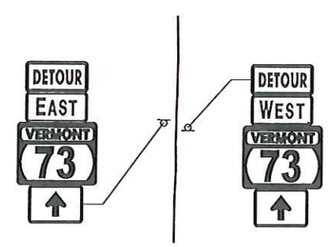
VHB 57518



DETAIL A
NOT TO SCALE



DETAIL B
NOT TO SCALE



CONFIRMATORY ROUTE MARKER ASSEMBLY
NOT TO SCALE

N
VT STATE PLANE GRID

LEGEND

PCMS PORTABLE CHANGEABLE MESSAGE SIGN

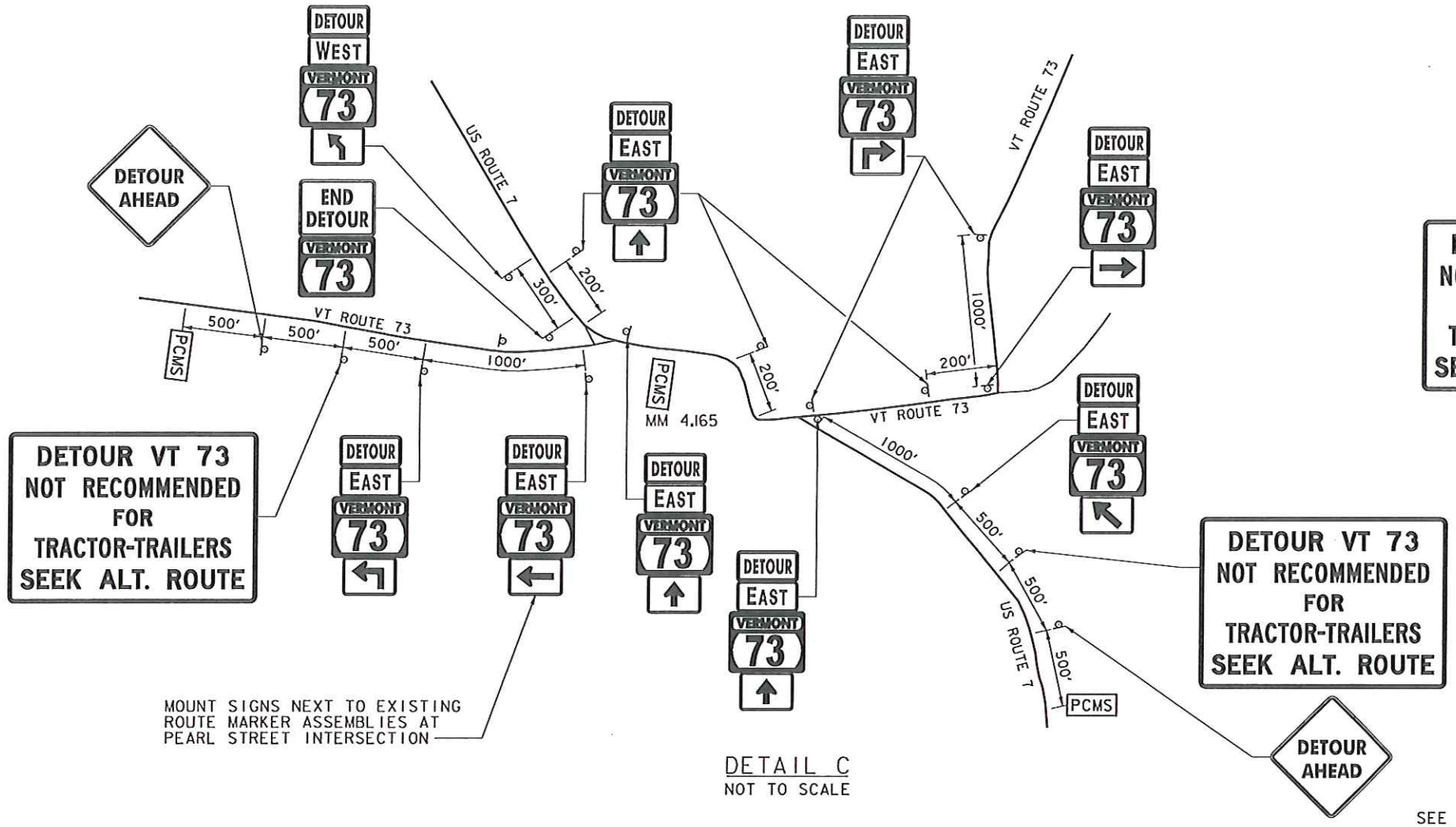
NOTE:

1. SEE REGIONAL TRAFFIC CONTROL PLAN (4 OF 5) FOR PCMS MESSAGES.
2. WHEN EXISTING ROUTE MARKER ASSEMBLIES ARE LOCATED AT THE INTERSECTIONS OR ALONG THE DETOUR ROUTE, THE DETOUR ROUTE MARKER ASSEMBLIES SHALL BE INSTALLED ADJACENT TO THE EXISTING ROUTE MARKER ASSEMBLIES.
3. ALL DISTANCES ARE APPROXIMATE AND MAY VARY IN THE FIELD.

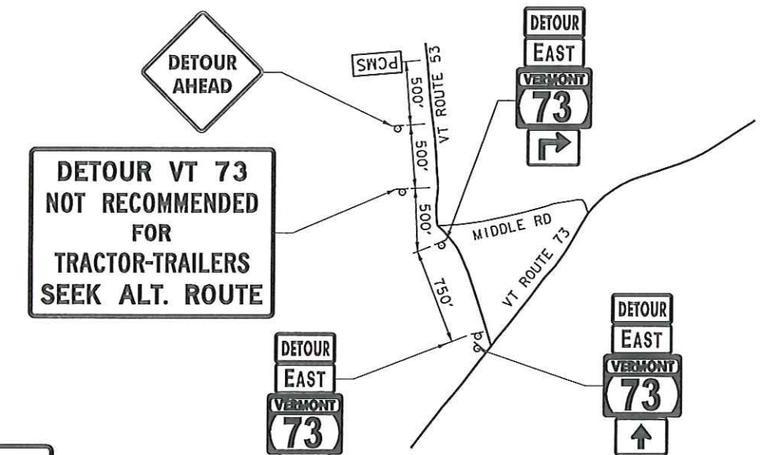
Vanasse Hangen Brustlin, Inc.

PROJECT NAME: ROCHESTER	
PROJECT NUMBER: 0162(19), 0162(16), 0162(17), 0162(18)	
FILE NAME: z11c334Regionaldetour.dgn	PLOT DATE: 9/3/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: S.E. BURBANK	CHECKED BY: S.E. BURBANK
REGIONAL TCP (2 OF 5)	SHEET 9 OF 238

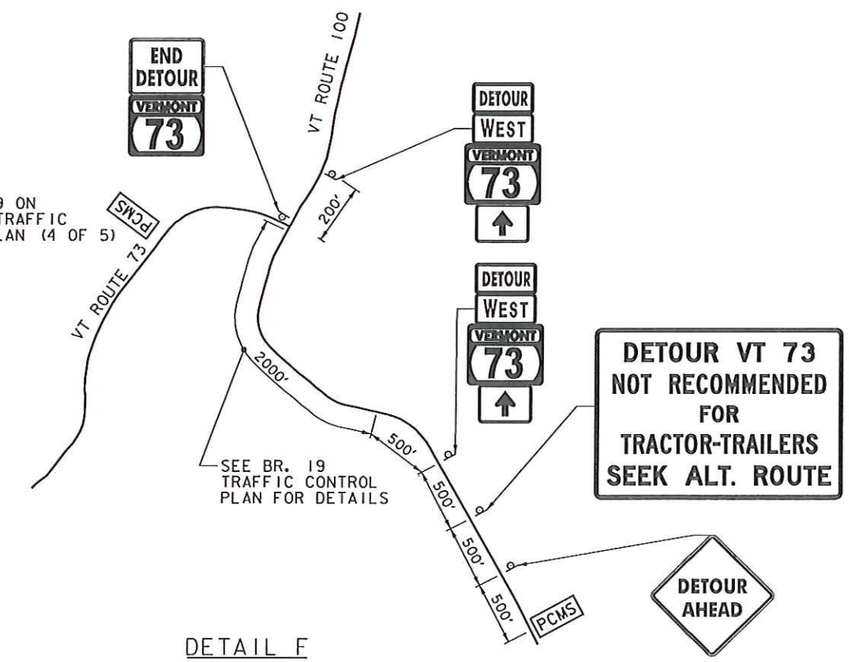
VHB 57518



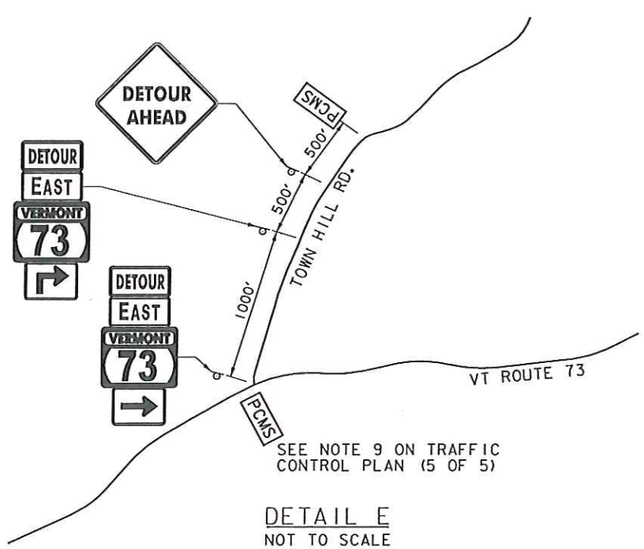
DETAIL C
NOT TO SCALE



DETAIL D
NOT TO SCALE



DETAIL F
NOT TO SCALE



DETAIL E
NOT TO SCALE

LEGEND

PCMS PORTABLE CHANGEABLE MESSAGE SIGN

NOTE:

1. SEE REGIONAL TRAFFIC CONTROL PLAN (4 OF 5) FOR PCMS MESSAGES.
2. WHEN EXISTING ROUTE MARKER ASSEMBLIES ARE LOCATED AT THE INTERSECTIONS OR ALONG THE DETOUR ROUTE, THE DETOUR ROUTE MARKER ASSEMBLIES SHALL BE INSTALLED ADJACENT TO THE EXISTING ROUTE MARKER ASSEMBLIES.
3. ALL DISTANCES ARE APPROXIMATE AND MAY VARY IN THE FIELD.

N
VT STATE PLANE GRID

VHB Vanasse Hangen Brustlin, Inc.

PROJECT NAME: ROCHESTER	
PROJECT NUMBER: 0162(19), 0162(16), 0162(17), 0162(18)	
FILE NAME: z11c334Regionaldetour.dgn	PLOT DATE: 9/3/2013
PROJECT LEADER: S.E. BURBANK	DRAWN BY: E.A. FIALA
DESIGNED BY: S.E. BURBANK	CHECKED BY: S.E. BURBANK
REGIONAL TCP (3 OF 5)	SHEET 10 OF 238

VHB 57518

MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) FOR REGIONAL DETOUR

ER STP 0162(19) BRIDGE 13

ONE WEEK PRIOR

	MESSAGE 1	MESSAGE 2	MESSAGE 3	
(ROUTE) ***	VT 73 E(W)	ROCHESTR	MMMM DD	(DATE) **
	BRIDGE	WEST OF	TO	
	CLOSED	W HIL RD	MMMM DD	(DATE) **

DURING BRIDGE CLOSURE

	MESSAGE 4	MESSAGE 5
(ROUTE) ***	VT 73	ROCHESTR
	BRIDGE	WEST OF
	CLOSED	W HIL RD

ALONG VT 73 DURING BRIDGE CLOSURE

MESSAGE 6	MESSAGE 7
BRIDGE	SEEK
CLOSED	ALT
XXMI AHD	ROUTE

BRF 0162(16) BRIDGE 15

ONE WEEK PRIOR

	MESSAGE 1	MESSAGE 2	MESSAGE 3	
(ROUTE) ***	VT 73	ROCHESTR	MMMM DD	(DATE) **
	BRIDGE	EAST OF	TO	
	CLOSED	BINGO RD	MMMM DD	(DATE) **

DURING WEEKEND CLOSURE

	MESSAGE 4	MESSAGE 5
(ROUTE) ***	VT 73	ROCHESTR
	BRIDGE	EAST OF
	CLOSED	BINGO RD

ALONG VT 73 DURING BRIGE CLOSURE

MESSAGE 6	MESSAGE 7
BRIDGE	SEEK
CLOSED	ALT
XXMI AHD	ROUTE

BRF 0162(17) BRIDGE 16

ONE WEEK PRIOR

	MESSAGE 1	MESSAGE 2	MESSAGE 3	
(ROUTE) ***	VT 73	ROCHESTR	MMMM DD	(DATE) **
	BRIDGE	WEST OF	TO	
	CLOSED	CORP. RD	MMMM DD	(DATE) **

DURING WEEKEND CLOSURE

	MESSAGE 4	MESSAGE 5
(ROUTE) ***	VT 73	ROCHESTR
	BRIDGE	WEST OF
	CLOSED	CORP. RD

ALONG VT 73 DURING BRIDGE CLOSURE

MESSAGE 6	MESSAGE 7
BRIDGE	SEEK
CLOSED	ALT
XXMI AHD	ROUTE

** - MONTH SHALL BE SPELLED OUT - JUNE 10 NOT 06/10
*** - ROUTE VT 73 SHALL SPECIFY W(WEST) OR E(EAST) AS APPROPRIATE FOR THE DETOUR

NOTES:

1. ALL SIGNS SHALL BE LOCATED SO THEY ARE VISIBLE AND ABLE TO BE READ BY THE TRAVELING PUBLIC. SIGNS SHALL BE INSTALLED SO AS NOT TO OBSTRUCT EXISTING SIGNS.
2. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
3. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM D4956) TYPE VII, VIII OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED. SOLID SUBSTRATE REGULATORY SIGNS (WHITE BACKGROUND) SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM D4956 TYPE III.
4. SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, AND UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
5. FIXED SIGNS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE EDGE OF PAVEMENT. THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT OR FOUR FEET OUTSIDE GUARDRAIL. ALL SIGNS SHALL BE INSTALLED WITHIN VTRANS OR TOWNS RIGHTS-OF-WAY (ROW). IF THE SIGN CANNOT BE INSTALLED IN ROW, CONTRACTOR SHALL GET PERMISSION FROM LANDOWNER.
6. WHERE SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL BE "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 COMPLIANT. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POST(S). WHEN ANCHORS ARE INSTALLED, STUB SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
7. THE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE USED IN ACCORDANCE WITH SECTION 6F.60 OF THE MUTCD.
8. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE PLACED OFF THE EDGE OF THE ROADWAY, OUTSIDE THE CLEAR ZONE, BUT SHALL BE VISIBLE FROM THE ROADWAY. ANY VEGETATION THAT INTERFERES WITH VISIBILITY OF THE PCMS SHALL BE REMOVED. REMOVAL OF THE VEGETATION SHALL BE INCIDENTAL TO ITEM 641.15, "PORTABLE CHANGEABLE MESSAGE SIGN". WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
9. ONE WEEK PRIOR (7 DAYS) TO CLOSING THE BRIDGE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) MESSAGES 1, 2, AND 3 WILL BE DISPLAYED.
10. DURING THE BRIDGE CLOSURE, PCMS SHALL READ MESSAGES 4 AND 5 REGIONALLY.
11. PCMS LOCATED ON VT ROUTE 73 TO READ MESSAGE 6 AND 7 DURING THE BRIDGE CLOSURE.
12. THE COSTS OF ALL DETOUR SIGNS AND REQUIRED SIGN POSTS AND INSTALLATION SHALL BE INCLUDED IN ITEM 641.10, "TRAFFIC CONTROL (DETOUR)".
13. ALL DETOUR SIGNS SHALL BE COVERED COMPLETELY WHEN NOT APPLICABLE FOR THE SPECIFIED DETOUR.
14. PCMS LOCATED ON VT ROUTE 73 AT DETAIL E AND F TO READ MESSAGES 6 AND 7 DURING TIMES OF BRIDGE CLOSURE (SEE REGIONAL TRAFFIC CONTROL PLAN 3 OF 5).

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: ROCHESTER
PROJECT NUMBER: 0162(19), 0162(16), 0162(17), 0162(18)

FILE NAME: zllc334Regionaldetour.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: M.D. SUENNEN
REGIONAL TCP (4 OF 5)
PLOT DATE: 9/3/2013
DRAWN BY: C.L. CILLEY
CHECKED BY: G.S. GOODRICH
SHEET 11 OF 238

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IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	NUMBER OF SIGNS REQ'D	REMARKS
M1-5	24	24	VERMONT 73	73*	SEE NOTE 5
M3-2	24	12	EAST	43*	SEE NOTE 5
M3-4	24	12	WEST	28*	SEE NOTE 5
M4-8	24	12	DETOUR	71*	MOUNT ABOVE THE M3-2 OR M3-4
M4-8A	24	18	END DETOUR	2	MOUNT ON ONE POST
M5-1L	21	15		4	MOUNT BELOW THE M1-5
M5-1R	21	15		7	MOUNT BELOW THE M1-5
M5-2L	21	15		1	MOUNT BELOW THE M1-5
M6-1L	21	15		4	MOUNT BELOW THE M1-5
M6-1R	21	15		7	MOUNT BELOW THE M1-5
M6-2L	21	15		2	MOUNT BELOW THE M1-5
M6-3	21	15		46*	MOUNT BELOW THE M1-5
SP-1	78	54	DETOUR VT 73 NOT RECOMMENDED FOR TRACTOR-TRAILERS SEEK ALT. ROUTE	6	MOUNT ON TWO POSTS
W20-2	36	36	DETOUR AHEAD	7	MOUNT BELOW M1-5

* = NUMBER OF SIGNS REQ'D ASSUMING APPROXIMATELY 33 LOCATIONS OF CONFIRMATORY ROUTE MARKER ASSEMBLY DETAIL

SP-1
NOT TO SCALE

NOTE: BORDER SHALL BE 0.75" AND INDENT SHALL BE 0.50"

NOTES:

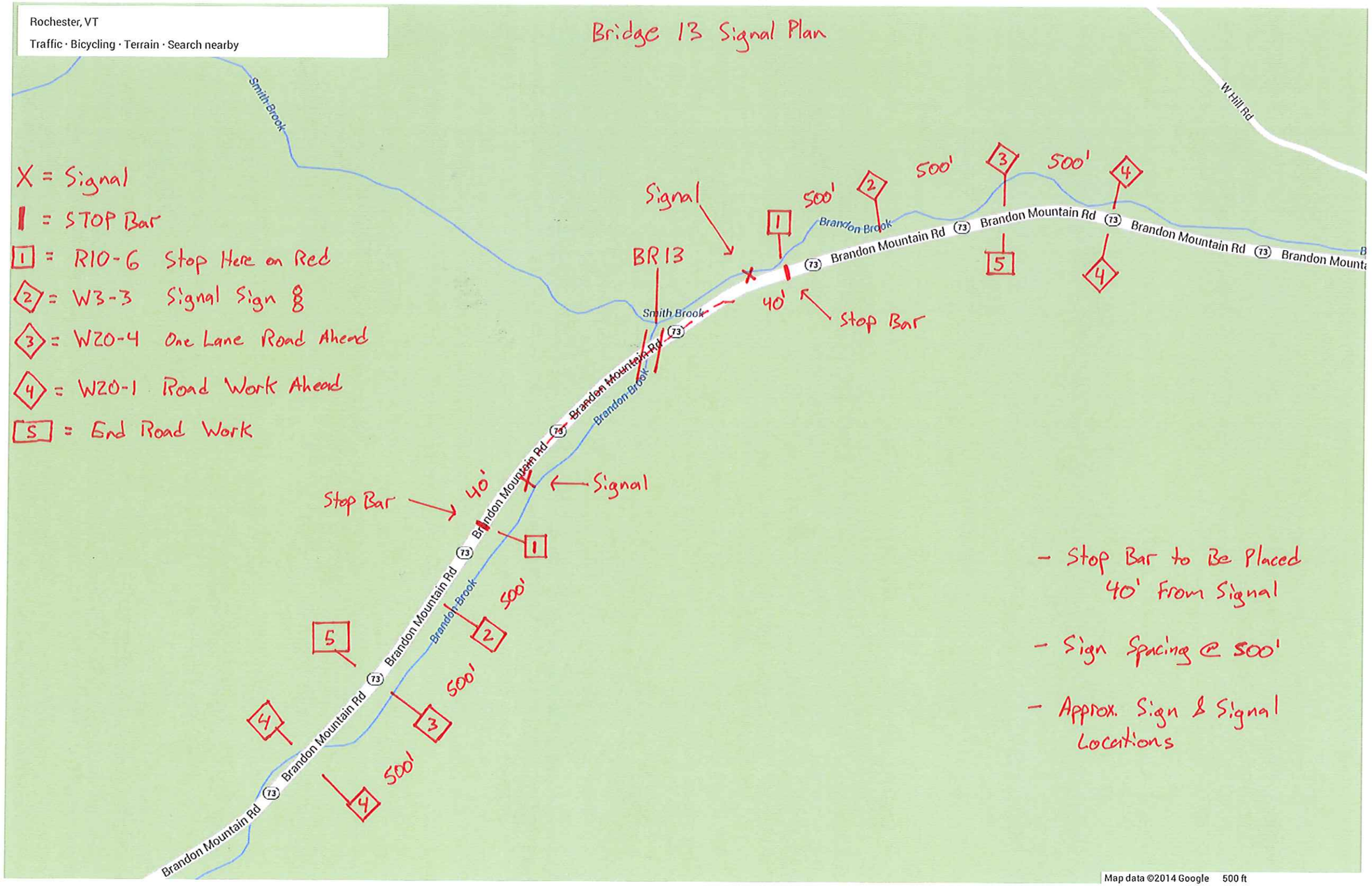
1. COLORS FOR THE M1-5, M3-2, AND M3-4 SIGNS SHALL MATCH THE COLORS SHOWN ON VTRANS STD. E-136B.
2. COLORS FOR THE M5-1L, M5-1R, M5-2L, M6-1L, M6-1R, M6-2L AND THE M6-3 SIGNS SHALL BE A BLACK ARROW AND BORDER ON RETROREFLECTIVE FLUORESCENT ORANGE BACKGROUND.
3. COLORS FOR THE M4-8 AND M4-8A SIGNS SHALL BE BLACK TEXT AND BORDER ON RETROREFLECTIVE FLUORESCENT ORANGE BACKGROUND.
4. COLORS FOR THE SP-1 SIGN SHALL BE BLACK TEXT AND BORDER ON RETROREFLECTIVE FLUORESCENT ORANGE BACKGROUND.
5. THE M1-5, M3-2, AND THE M3-4 SIGNS SHALL BECOME THE PROPERTY OF THE STATE AFTER THEY ARE REMOVED FROM THE DETOUR. THE CONTRACTOR SHALL DELIVER THE SIGNS TO THE STATE GARAGE ON STATE GARAGE ROAD IN ROCHESTER. ALL COSTS ASSOCIATED WITH PROVIDING THE SIGNS TO THE STATE SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL (DETOUR)".
6. ALL DETOUR SIGNS SHALL BE COVERED COMPLETELY WHEN THE DETOUR IS NOT IN USE.

Vanasse Hangen Brustlin, Inc.

PROJECT NAME: ROCHESTER
PROJECT NUMBER: 0162(19), 0162(16), 0162(17), 0162(18)

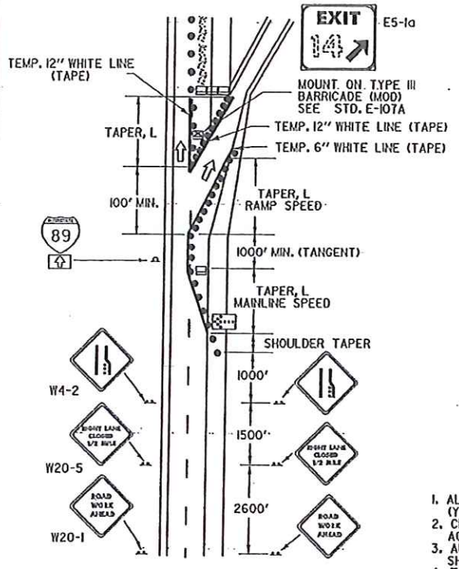
FILE NAME: z11c334Reglonaldetour.dgn
PROJECT LEADER: S.E. BURBANK
DESIGNED BY: E.A. FIALA
REGIONAL TCP (5 OF 5)
PLOT DATE: 9/3/2013
DRAWN BY: E.A. FIALA
CHECKED BY: S.E. BURBANK
SHEET 12 OF 238

VHB 575IR



Not to Scale

WMSCI MG 8/7/14



MAINLINE LANE CLOSURE AT AN EXIT RAMP

NOT TO SCALE

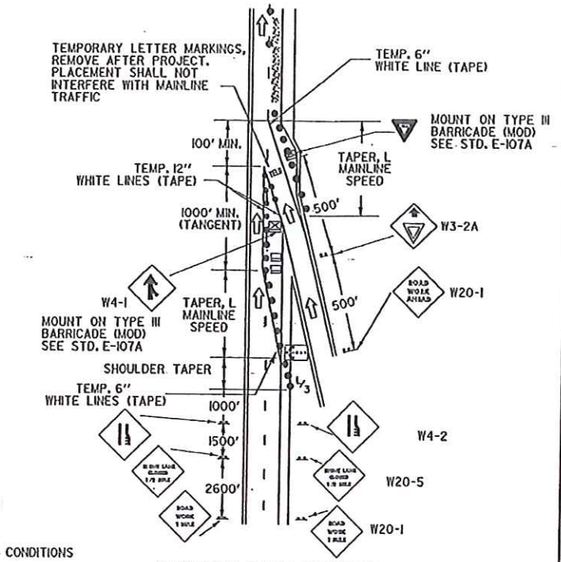
THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE GORE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE EXIT RAMP.

LEGEND

- REFL. PLASTIC DRUMS
- PAVEMENT MARKING REMOVAL
- INDICATES TRAFFIC FLOW.
- WORK AREA
- FLASHING ARROW PANEL
- TYPE III BARRICADES
- TYPE III BARRICADES (MOD.)

NOTES

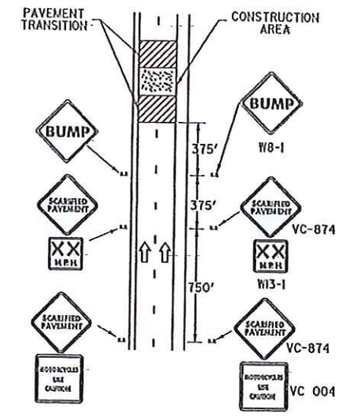
1. ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE) UNLESS OTHERWISE NOTED.
2. CHANNELIZING DEVICES SHALL BE PLACED IN ACCORDANCE WITH THE TABLE ON THIS SHEET
3. ALL DISTANCES ARE DESIRABLE MINIMUMS, FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
4. TAPER RATES ARE BASED ON THE POSTED MAINLINE AND EXIT SPEEDS.
5. TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.
6. LANE CLOSURES AND TAPER LENGTHS, L, AS DETAILED ON THIS SHEET.
7. EXIT SIGN SHALL BE MOUNTED A MINIMUM OF 7 FEET ABOVE THE GROUND AND HIGH ENOUGH TO BE SEEN ABOVE CHANNELIZING DEVICES.



MAINLINE LANE CLOSURE AT AN ENTRANCE RAMP

NOT TO SCALE

THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE END OF THE ACCELERATION LANE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE ON-RAMP TRAFFIC. IF THE LENGTH OF THE ACCELERATION LANE IS NOT ADEQUATE, THE YIELD SIGN SHALL BE REPLACED WITH A STOP SIGN. IF A STOP SIGN IS USED, IT SHOULD BE ACCOMPANIED BY A STOP BAR.

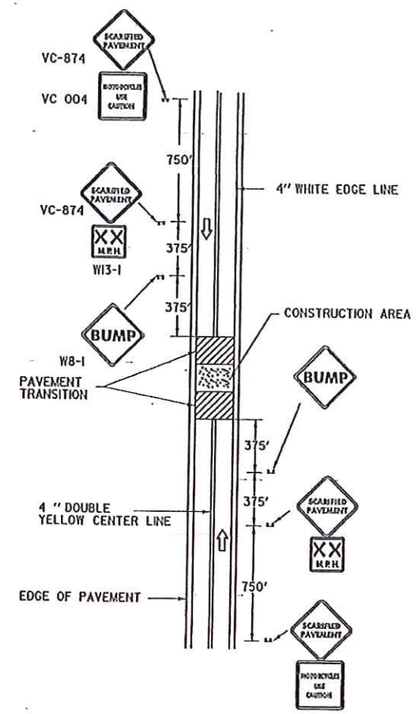


ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES DIVIDED HIGHWAY

NOT TO SCALE

NOTES

1. ADVISORY SPEED AS DETERMINED BY THE RESIDENT ENGINEER (40 MPH MINIMUM RECOMMENDED).
2. ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE).
3. ALL DISTANCES ARE DESIRABLE MINIMUMS, FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
4. THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED, SEE STD.E-103.
5. GATE POSTING OF SIGNS IS AN OPTION AS DETERMINED BY THE RESIDENT ENGINEER (WHEN PASSING, TURNING OR CLIMBING LANES LIMIT VISIBILITY).

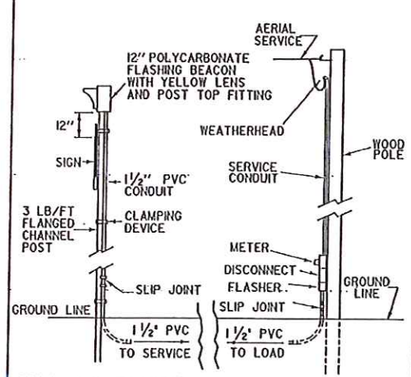


ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES 2 LANE ROADWAY

NOT TO SCALE

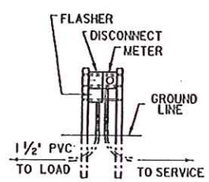
NOTES

1. ADVISORY SPEED AS DETERMINED BY THE RESIDENT ENGINEER (40 MPH MINIMUM RECOMMENDED).
2. ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE).
3. ALL DISTANCES ARE DESIRABLE MINIMUMS, FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
4. THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED, SEE STD.E-110.
5. GATE POSTING OF SIGNS IS AN OPTION AS DETERMINED BY THE RESIDENT ENGINEER (WHEN PASSING, TURNING OR CLIMBING LANES LIMIT VISIBILITY).

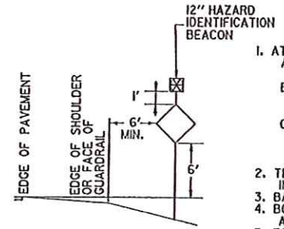


FLASHING BEACON DETAIL

AERIAL SERVICE WITHOUT LUMINAIRE



UNDERGROUND SERVICE DETAIL



SIGN PLACEMENT DETAIL

NOTES

1. AT THE CONTRACTOR'S OPTION:
   A. THE POWER SUPPLY MAY BE AERIAL OR UNDERGROUND (SEE DETAIL).
   B. POWER FOR A FLASHING BEACON MAY BE COMBINED WITH POWER FOR A TRAFFIC SIGNAL OR THEY MAY HAVE SEPARATE POWER SOURCES.
   C. THE FLASHER MAY BE INSTALLED ON A STANCHION NEAR THE SIGN, ON A UTILITY POLE (WITH UTILITY COMPANY APPROVAL) OR AT THE SAME LOCATION AS A TRAFFIC SIGNAL CONTROLLER.
2. THE FLASHER UNIT SHALL BE ONE CIRCUIT AND INCLUDE A RADIO INTERFERENCE FILTER.
3. BATTERY OPERATED FLASHERS WILL NOT BE ALLOWED.
4. BOTTOM OF THE BEACON SHALL BE A MIN. OF 8' AND A MAX. OF 12' ABOVE THE EDGE OF THE PAVEMENT.
5. FOR URBAN AREA PLACEMENT SEE STD. E-121.
6. FOR POWER DROP STANCHIONS SEE STD. E-175

CHANNELIZING DEVICES

TAPER RATES ARE DETERMINED USING THE FOLLOWING EQUATION:

L = WS FOR DESIGN SPEEDS OF 45 MPH OR GREATER

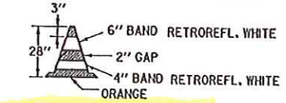
L = WS²/60 FOR DESIGN SPEEDS OF 40 MPH OR LESS

WHERE: L = MINIMUM LENGTH OF TAPER IN FEET

W = WIDTH OF OFFSET (USUALLY LANE WIDTH) IN FEET

S = DESIGN SPEED IN MPH

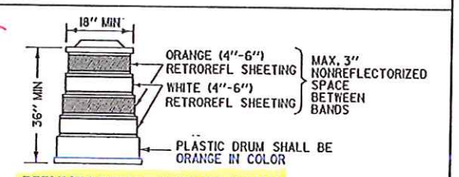
POSTED SPEED OR 85th PERCENTILE (mph)	DESIGN SPEED (mph)	TAPER LENGTHS (ft)			TANGENT SECTION LENGTHS (L/2) (ft)	MINIMUM BUFFER SPACE LENGTH (ft)	MAXIMUM CHANNELIZING DEVICE SPACING (ft)		BARRIER FLARE RATE (MIN)
		MERGING 12ft LANE (L)	SHIFTING W=16ft (L/2)	SHOULDER W=10ft (L/3)			TAPER	ALONG LANE LINE & WORK ZONE	
≤40	40	320	215	90	160	160	35	70	1:9
45	45	540	360	150	270	270	40	80	1:9
50	50	600	400	170	300	300	50	100	1:11
55	55	660	440	185	330	330	55	110	1:13
60 & 65	60	720	480	200	360	360	60	120	1:13
70	70	840	560	235	420	440	65	130	1:13



28" REFLECTORIZED CONE

NOTES

1. 28" CONES SHALL BE USED ON ROADWAYS WITH SPEED LIMITS OF 35 MPH OR MORE AND ON ALL ROADWAYS DURING HOURS OF DARKNESS.
2. CONES MAY BE WEIGHTED TO PREVENT OVERTURNING, HOWEVER THE WEIGHTS SHALL NOT PRESENT A HAZARD IF THE CONE IS STRUCK.
3. RETROREFLECTIVE SHEETING SHALL BE ASTM TYPE III OR TYPE VI.



REFLECTORIZED PLASTIC DRUM

SAND BAGS OR AN APPROPRIATE BALLASTING DEVICE, WHICH DOES NOT PRESENT A HAZARD TO THE IMPACTING VEHICLE OR BECOME A PROJECTILE UPON IMPACT, SHALL BE USED TO WEIGHT DRUMS. RETROREFLECTIVE SHEETING SHALL BE ASTM TYPE III OR TYPE VI.

OTHER STDS. REQUIRED: E-101, E-102, E-102A, E-103, E-107A, E-110, E-121, E-136, E-150, E-175

REVISIONS AND CORRECTIONS

APR 12, 1988 - DATE OF ORIGINAL ISSUE

JAN 23, 1989 - REVISED EXIT SIGN - CLARIFIED EXIT TAPER

SEPT 20, 1993 - REVISED RAMP CLOSURES, FLASHING BEACON DETAILS AND MOVED TYPE III BARRICADE (MOD) TO STDE-107A

AUG 08, 1995 - REVISED BEACON SIZE

MAR. 01, 2004 - ADDED ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED TWO WAY HIGHWAYS, CHANNELIZING DEVICES CHART

APPROVED

DIRECTOR OF PROGRAM DEVELOPMENT

TRAFFIC OPERATIONS ENGINEER

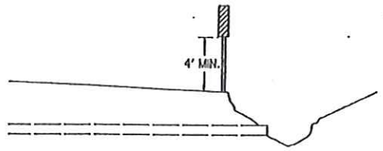
FEDERAL HIGHWAY ADMINSTRATION

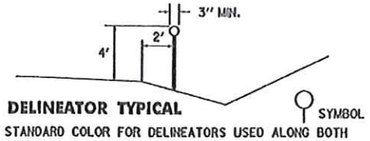
TRAFFIC CONTROL MISCELLANEOUS DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

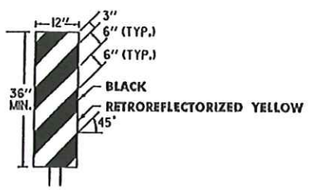
E-106





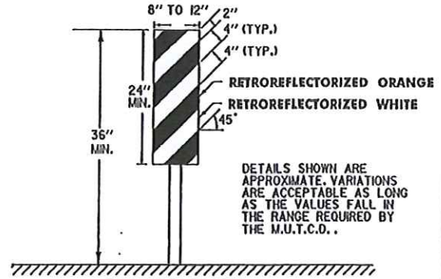
DELINEATOR TYPICAL

THE STANDARD COLOR FOR DELINEATORS USED ALONG BOTH SIDES OF TWO-WAY STREETS AND HIGHWAYS AND THE RIGHT SIDE OF ONE-WAY STREETS SHALL BE WHITE. DELINEATORS USED ALONG THE LEFT SIDE OF ONE-WAY ROADWAYS SHALL BE YELLOW THEY SHALL HAVE A MINIMUM AREA OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE OR OBLONG, FOR ALTERNATES SEE STD. E-198



OBJECT MARKER TYPICAL

OBJECTS MARKERS ARE USED TO MARK OBSTRUCTIONS WITHIN OR ADJACENT TO THE ROADWAY. IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED, BUT OTHER ROADSIDE CONDITIONS SUCH AS NARROW SHOULDER DROP-OFFS, CORES, D.I. EXCAVATIONS, AND ABRUPT CHANGES IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE OBJECT MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE.
OBJECT MARKERS SHALL HAVE ALTERNATING BLACK AND RETROREFLECTORIZED YELLOW STRIPES. (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS).

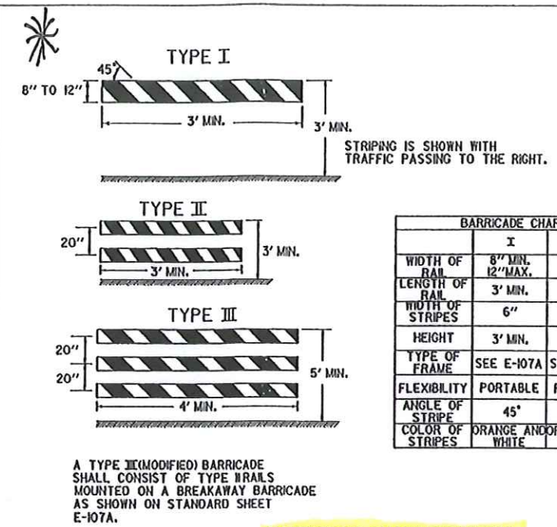


DETAILS SHOWN ARE APPROXIMATE. VARIATIONS ARE ACCEPTABLE AS LONG AS THE VALUES FALL IN THE RANGE REQUIRED BY THE M.U.T.C.D..

VERTICAL PANEL

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

DELINEATOR, VERTICAL PANEL AND OBJECT MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED



A TYPE III(MODIFIED) BARRICADE SHALL CONSIST OF TYPE II RAILS MOUNTED ON A BREAKAWAY BARRICADE AS SHOWN ON STANDARD SHEET E-107A.

BARRICADE CHARACTERISTICS			
	I	II	III
WIDTH OF RAIL	8" MIN. 12" MAX.	8" MIN. 12" MAX.	8" MIN. 12" MAX.
LENGTH OF RAIL	3' MIN.	3' MIN.	4' MIN.
WIDTH OF STRIPES	6"	6"	6"
HEIGHT	3' MIN.	3' MIN.	5' MIN.
TYPE OF FRAME	SEE E-107A	SEE E-107A	SEE E-107A
FLEXIBILITY	PORTABLE	PORTABLE	PORTABLE
ANGLE OF STRIPE	45°	45°	45°
COLOR OF STRIPES	ORANGE AND WHITE	ORANGE AND WHITE	ORANGE AND WHITE

BARRICADE CHARACTERISTICS

DETOUR DESIGN SPEED	MINIMUM RADIUS (FT.)[a] SUPERELEVATION (FT./FT.)				
(M.P.H.)	0.00[b]	0.02	0.04	0.06	0.08
20	160	140	130	120	110
25	245	220	200	185	170
30	375	335	305	275	255
35	510	455	410	375	340
40	715	630	575	510	470
50	1190	1045	.955	850	765

a. PER AASHTO REQUIREMENTS
b. 0.00 SUPERELEVATION SHOULD BE AVOIDED IF POSSIBLE

BARRICADES

APPLICATION NOTES

TYPE I BARRICADES SHALL BE USED ON CONVENTIONAL ROADS OR URBAN STREETS AND ARTERIALS TO MARK A SPECIFIC HAZARD.

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

TYPE III BARRICADES (SEE STD. E-107A) SHALL ONLY BE USED WHEN A ROAD SECTION OR LANE IS CLOSED TO TRAFFIC AND ARE TO BE ERECTED AT THE POINT OF CLOSURE.

MATERIALS

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

1. WOODEN BARRICADES (TYPE 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 M.P.H. ARE EXPECTED UNLESS INSTALLED FOR PEDESTRIAN CONTROL BEHIND APPROVED POSITIVE BARRIERS.
   B) MAY BE USED WHERE OPERATING SPEEDS OF 20 M.P.H. OR LESS ARE EXPECTED.
2. TYPE III WOODEN BARRICADES SHALL NOT BE USED.

COLORS

THE BARRICADE PANELS SHOWN ON THIS SHEET SHALL HAVE ALTERNATING RETRO-REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICALS AND APPROVED BY THE US DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE UNLESS UNPAINTED METAL OR ALUMINUM IS USED.

REFLECTORIZATION

THE RETROREFLECTIVE SHEETING ON BARRICADE PANELS SHALL BE ASTM TYPE III.

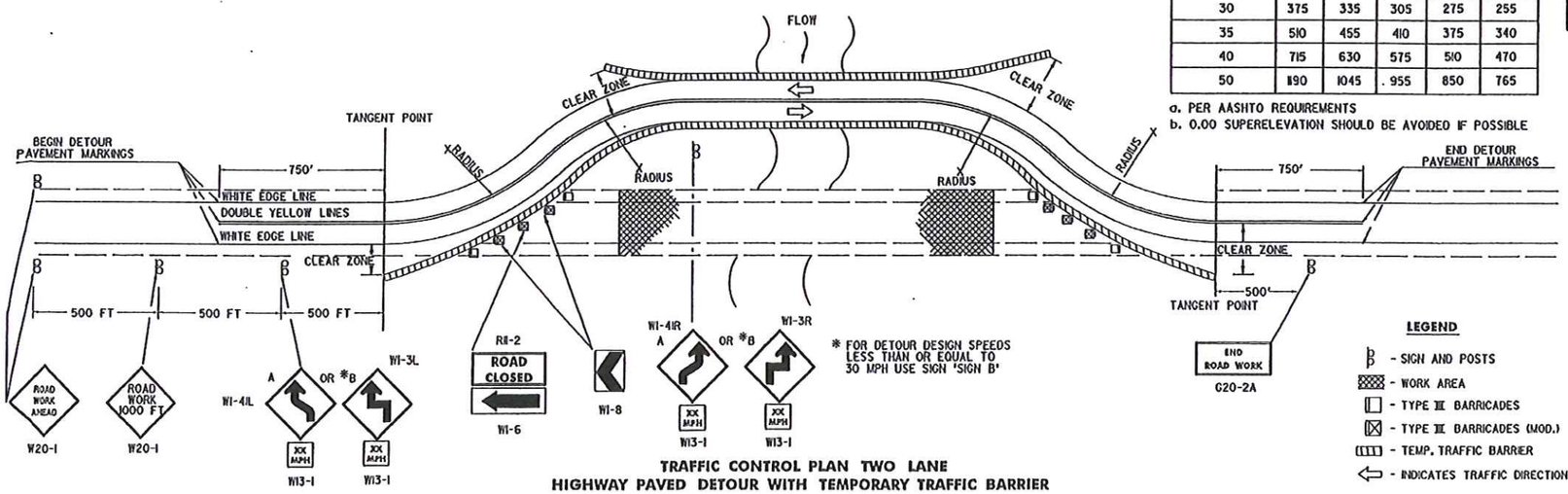
LOCATION

THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE RESIDENT 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.

MAINTENANCE

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

ALL SIGN PLACEMENT DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT. PROJECT CONSTRUCTION APPROACH SIGNING PLACEMENT SHALL TAKE INTO CONSIDERATION SPACING REQUIREMENTS FOR THE DETOUR SIGN LAYOUT REQUIREMENTS.



TRAFFIC CONTROL PLAN TWO LANE
HIGHWAY PAVED DETOUR WITH TEMPORARY TRAFFIC BARRIER

DETOUR NOTES

1.) SIGNS AND DELINEATION SHOWN FOR ONE DIRECTION OF TRAFFIC ONLY.
2.) THE CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.
3.) ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE RESIDENT ENGINEER.
4.) UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS FROM EXISTING PAVEMENT.
5.) THE NUMBER OF CHANNELIZING DEVICES, BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).
6.) AASHTO CLEAR ZONE REQUIREMENTS SHOULD BE MET. IF NOT THEN AN APPROVED ENERGY ABSORPTION ATTENUATOR (SUITABLE FOR THE TEMPORARY TRAFFIC BARRIER USED AND FOR THE DESIGN SPEED) SHALL BE INSTALLED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE.
7.) THE DETOUR DESIGN SPEED SHOULD BE NO LESS THAN 10 M.P.H. BELOW THE POSTED SPEED LIMIT, UNLESS PHYSICAL RESTRICTIONS PREVENT THIS.
8.) SEE STANDARD SHEETS E-100, E-101 AND E-102 FOR SIGN DETAIL AND MATERIAL REQUIREMENTS.
9.) IF THE USE OF TEMPORARY TRAFFIC BARRIER IS NOT REQUIRED, THEN REFLECTORIZED PLASTIC DRUMS SHALL BE USED.

OTHER STDS. REQUIRED:			
	E-100	E-102	E-107a
	E-101	E-102a	E-198

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
APRIL 29, 1988 - FHWA REVIEW COMMENTS
SEPT. 20, 1993 - NEW RADIUS CHART, BARRICADE ALIGNMENT AND USE OF TEMPORARY TRAFFIC BARRIER
AUG. 08, 1995 - REVISED SIGNING PER MUTCD
JUNE 30, 2003 - CHANGED REFLECTIVE SHEETING TO TYPE III

APPROVED

DIRECTOR OF PROGRAM DEVELOPMENT

TRAFFIC OPERATIONS ENGINEER

FEDERAL HIGHWAY ADMINISTRATION

DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-107