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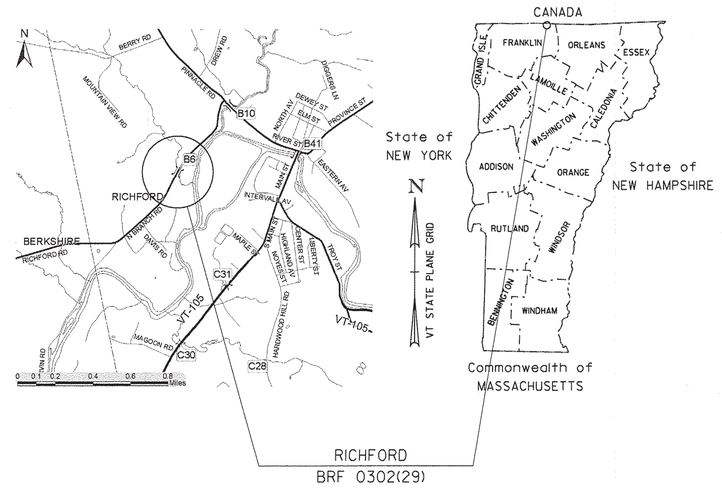
STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF RICHFORD

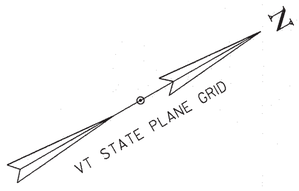
COUNTY OF FRANKLIN

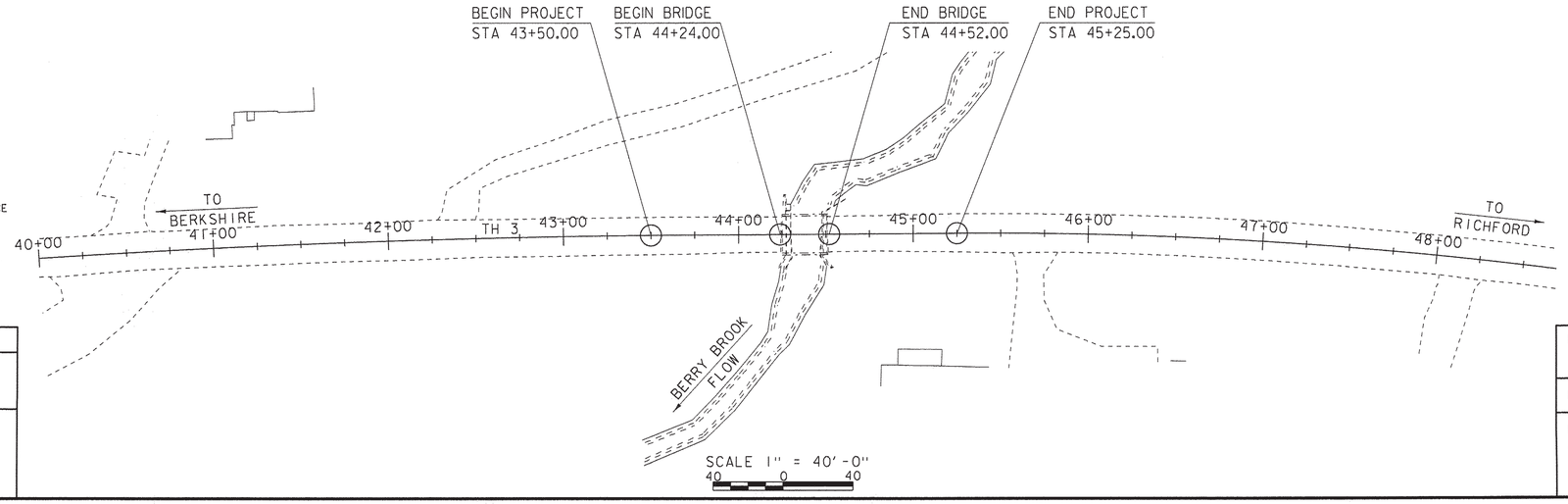
ROUTE NO : TH 3 (FAS 0302)(RURAL MAJOR COLLECTOR) BRIDGE NO : 6

PROJECT LOCATION : BEGINNING AT A POINT ON TH 3, APPROXIMATELY 1.2 MILES WEST OF THE JUNCTION WITH TH 1.

PROJECT DESCRIPTION : REPLACEMENT OF THE EXISTING BRIDGE WITH A CONCRETE ARCH AND RELATED ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE :	28.00 FEET.
LENGTH OF ROADWAY :	147.00 FEET.
LENGTH OF PROJECT :	175.00 FEET.





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.

QUALITY ASSURANCE PROGRAM : LEVEL 2

SURVEYED BY : L. ORVIS
SURVEYED DATE : 4/9/2012

DATUM
VERTICAL NAVD88
HORIZONTAL NAD (83) 1996

DIRECTOR OF PROJECT DELIVERY
APPROVED [signature] DATE 12/12/2014

PROJECT MANAGER : CAROLYN CARLSON, P.E.

PROJECT NAME : RICHFORD
PROJECT NUMBER : BRF 0302 (29)

SHEET 1 OF 36 SHEETS

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GENERAL

1. THE CONTRACTOR WILL BE ALLOWED TO CLOSE THE ROAD TO TRAFFIC FOR INSTALLATION OF THE NEW STRUCTURE. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

2. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 2012, AND ITS LATEST REVISIONS, AND THE VTRANS STRUCTURES DESIGN MANUAL.

3. ALL PRECAST CONCRETE COMPONENTS INCLUDING THE FOOTINGS, PEDESTAL WALLS, RIGID FRAME OR ARCH, HEADWALLS, WINGWALLS AND ALL CONNECTIONS BETWEEN THESE COMPONENTS SHALL BE DESIGNED BY THE PRECAST FABRICATOR. THE DESIGN CRITERIA USED FOR THIS PROJECT IS INDICATED BELOW.

4. DESIGN CRITERIA:

DESIGN LIVE LOAD:	HL - 93
FILL OVER THE STRUCTURE:	6 INCHES MINIMUM
FOUNDATION SOIL PARAMETERS	
UNIT WEIGHT:	125 PCF
FRICTION ANGLE:	36 DEGREES
COEFFICIENT OF FRICTION	
FORMED CONCRETE AGAINST SOIL:	0.35
RETAINED SOIL PARAMETERS	
UNIT WEIGHT:	140 PCF
FRICTION ANGLE:	35 DEGREES
COEFFICIENT OF FRICTION	
CONCRETE CAST AGAINST SOIL:	0.55
FORMED AGAINST SOIL:	0.45
NOMINAL BEARING RESISTANCE:	10 KSF FOR FOOTING WIDTHS > 6 FT

5. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.

6. ITEM 529.15 "REMOVAL OF STRUCTURE" SHALL INCLUDE THE REMOVAL OF THE EXISTING SUPERSTRUCTURE AND ANY PORTION OF THE EXISTING ABUTMENTS NOT REMOVED UNDER STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION.

7. THE DESIGN SHALL INCLUDE THE EFFECTS OF ALL LOADS, INCLUDING BUT NOT LIMITED TO LIVE LOAD, EARTH SURCHARGE AND HYDROSTATIC PRESSURE.

8. THE FABRICATOR SHALL BE RESPONSIBLE FOR SUPPLYING THE STATE WITH THE LRFR LOAD RATING FACTORS TO COMPLETE THE CHART SHOWN ON THE PRELIMINARY INFORMATION SHEET.

CONCRETE AND REINFORCING STEEL

9. THE RIGID FRAME OR ARCH, HEADWALLS AND WINGWALLS SHALL BE PRECAST CONCRETE CONFORMING TO SECTION 540 AND WILL BE PAID FOR UNDER THE APPROPRIATE 540 CONTRACT ITEM.

10. ALL ELEMENTS OF THE PRECAST STRUCTURE(S) SHALL BE DESIGNED BY THE PRECAST SUPPLIER, INCLUDING THE ANCHORAGE AND CONNECTIONS BETWEEN ELEMENTS. ALL ELEMENTS SHALL BE INSTALLED IN ACCORDANCE WITH THE FABRICATOR'S RECOMMENDATIONS. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS FOR THE PRECAST RIGID FRAME OR ARCH IN ACCORDANCE WITH SECTION 105. IN ADDITION TO FABRICATION DRAWINGS, THE FABRICATOR SHALL PROVIDE A LOAD RATING AND SUPPORTING CALCULATIONS IN ACCORDANCE WITH THE AASHTO SPECIFICATIONS REFERENCED IN GENERAL NOTE 1 AND THE VTRANS STRUCTURES DESIGN MANUAL, 2010. THE RATING AND SUPPORTING CALCULATIONS SHALL BE SIGNED, STAMPED AND DATED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE ENGINEERING IN THE STATE OF VERMONT. NOTE THAT THE FABRICATOR ASSUMES ALL LIABILITY FOR THE ADEQUACY AND ACCURACY OF THE RIGID FRAME OR ARCH DESIGN AND LOAD RATING.

11. WATER REPELLENT, SILANE SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 514 AND SHALL BE SHOP APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE STRUCTURE BETWEEN THE DRIP NOTCHES. ALL WORK IS INCIDENTAL TO THE APPROPRIATE 540 CONTRACT ITEM.

12. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1".

13. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:
    SPACING: +/- 1 INCH
    CLEARANCE: +/- 1/4 INCH

14. PRECAST TOLERANCES:
    HEIGHT/WIDTH: +/- 1/4 INCH
    LENGTH: +/- 1/2 INCH

15. ALL REINFORCING STEEL IN THE PRECAST PEDESTAL WALLS AND FOOTINGS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL I REINFORCING.

16. ALL REINFORCING STEEL IN THE PRECAST RIGID FRAME OR ARCH, WINGWALLS AND HEADWALLS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING.

17. PAYMENT FOR REINFORCING STEEL WILL BE INCLUDED IN THE UNIT BID PRICE FOR THE APPROPRIATE SECTION 540 CONTRACT ITEM.

18. THE PROPOSED STRUCTURE SHALL BE A THREE-SIDED RIGID FRAME OR ARCH WITH A MINIMUM CLEAR SPAN OF 26'. THE LUMP SUM COST FOR ITEM 540.10 "PRECAST CONCRETE STRUCTURE (28'-0" x 6'-0" x 29'-0" FRAME OR ARCH TYPE) SHALL INCLUDE THE PRECAST RIGID FRAME OR ARCH AND MECHANICAL CONNECTIONS.

19. THE PRECAST STRUCTURE DETAILS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND CONFIGURATION WILL BE DEPENDENT ON THE FABRICATOR. THE INSIDE CLEAR DIMENSION SHALL BE 26' – 0" AND THE RISE SHALL BE 6' - 0".

20. NO HOLES SHALL BE DRILLED IN THE RIGID FRAME OR ARCH WITHOUT THE APPROVAL OF THE FABRICATOR AND VTRANS.

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

22. JOINTS BETWEEN ALL ABUTTING PRECAST UNITS SHALL BE WATERTIGHT AND MECHANICALLY CONNECTED.

TRAFFIC CONTROL

23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT DETAILED TRAFFIC CONTROL PLANS TO THE RESIDENT ENGINEER FOR APPROVAL PER SUBSECTION 105.03. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

24. THE TOWN SHALL BE RESPONSIBLE FOR SIGNING THE DETOUR; THE CONTRACTOR SHALL GIVE THE TOWN 21 DAYS NOTICE PRIOR TO ANY ROAD CLOSURE.

25. FOR MORE INFORMATION SEE THE SPECIAL PROVISIONS.

PROJECT NAME: RICHFORD
PROJECT NUMBER: BRF 0302(29)

FILE NAME: sl2jl58pnote.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
PROJECT NOTES

PLOT DATE: 12-JAN-2015
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 4 OF 36

1. TRAFFIC CONTROL DEVICES NOT DETAILED IN THE VERMONT AGENCY OF TRANSPORTATION (VAOT) ''STANDARD DRAWINGS'' OR THE PROJECT PLANS SHALL BE IN ACCORDANCE WITH THE "MANUAL ON TRAFFIC CONTROL DEVICES" (MUTCD) AND THE ''STANDARD HIGHWAY SIGNS AND MARKINGS'' BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).

2. CONSTRUCTION SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER.

3. CONSTRUCTION SIGN COVERS SHALL CONSIST OF A PANEL, PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

4. SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. 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.

5. NO CROSS-BRACING OR BACK-BRACING TO KEEP POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS, COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO POSTS.

6. CONSTRUCTION SIGNS INSTALLED ON POSTS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST FIVE FEET ABOVE THE EDGE OF PAVEMENT AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT, FOUR FEET OUTSIDE GUARDRAIL, OR TWO FEET OUTSIDE CURBING OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE SIDEWALK OR EDGE OF PAVEMENT, WHICHEVER IS HIGHER.

7. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND A MINIMUM OF ONE FOOT ABOVE THE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.

8. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.

9. ROLL UP CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VI AND TYPE VII UNLESS OTHERWISE NOTED.

10. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VIII OR IX REQUIREMENTS UNLESS OTHERWISE NOTED.

11. WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POSTS. WHEN ANCHORS ARE INSTALLED, STUBS SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.

12. ROADWAY AND SHOULDER WIDTHS DEPICTED ON THE STANDARD DRAWINGS MAY VARY.

13. THESE STANDARD DRAWINGS ARE INTENDED TO SERVE AS VTRANS STANDARD OPERATING PROCEDURE. IT IS NOTED THAT COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL WORK ZONE MAY BE MODIFIED DUE TO FIELD CONDITIONS, AT THE DISCRETION OF THE ENGINEER.

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OTHER STDS. REQUIRED: **NONE**

REVISIONS AND CORRECTIONS

AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

FEDERAL HIGHWAY ADMINISTRATION

TRAFFIC CONTROL GENERAL NOTES

VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-1

LEGEND

(A) ROAD WORK AHEAD — W20-1

(B) ROAD WORK 500 FT — W20-1

(C) SIDE ROAD WORK AHEAD — VC-869

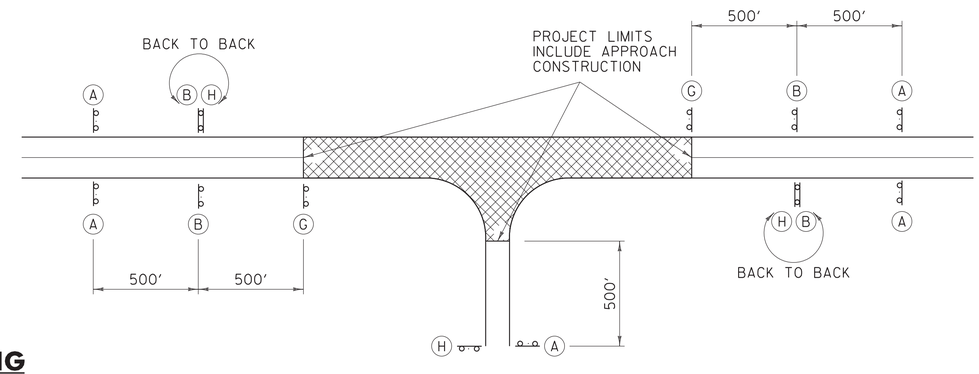
(D) SIDE ROAD WORK 500 FT — VC-869

(E) SIDE ROAD WORK LEFT — VC-869

(F) SIDE ROAD WORK RIGHT — VC-869

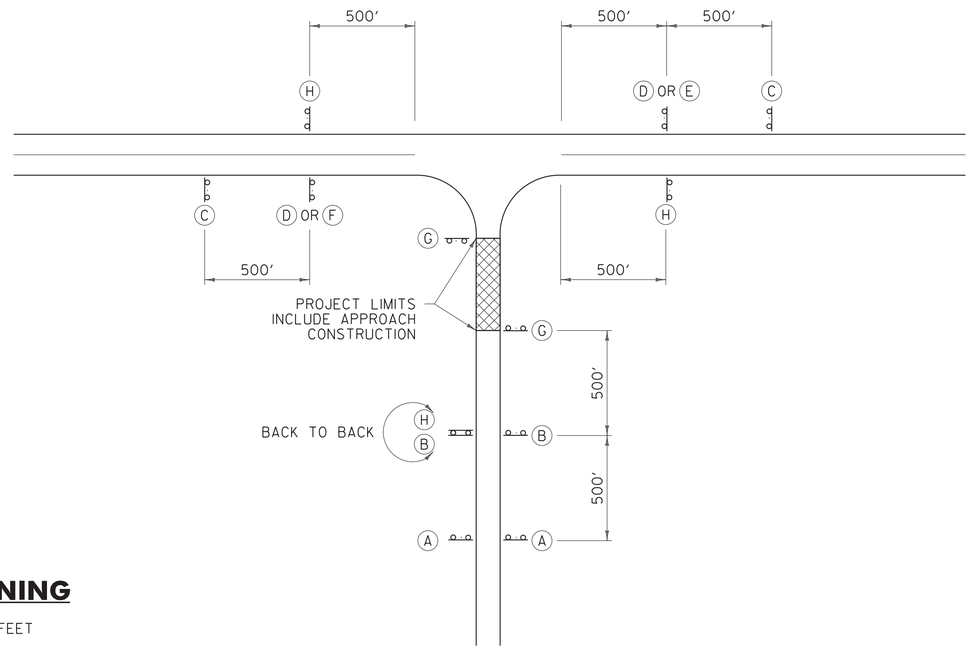
(G) ROAD WORK NEXT XX MILES — G20-1

(H) END ROAD WORK — G20-2



TYPICAL APPROACH SIGNING

FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.



SIDE ROAD APPROACH SIGNING

TO BE USED WHEN CONSTRUCTION IS UP TO 1000 FEET FROM THE INTERSECTION. FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.

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GENERAL NOTES:

1. 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. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.
2. THE "ROAD WORK NEXT XX MILES" SIGN (G20-1) SHALL BE INSTALLED IN ADVANCE OF TEMPORARY TRAFFIC CONTROL ZONES THAT ARE MORE THAN TWO MILES IN LENGTH OR AS DIRECTED BY THE ENGINEER. DISTANCES SHALL BE STATED TO THE NEAREST WHOLE MILE.
3. SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

OTHER STDS. REQUIRED: T-1, T-28

REVISIONS AND CORRECTIONS

AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

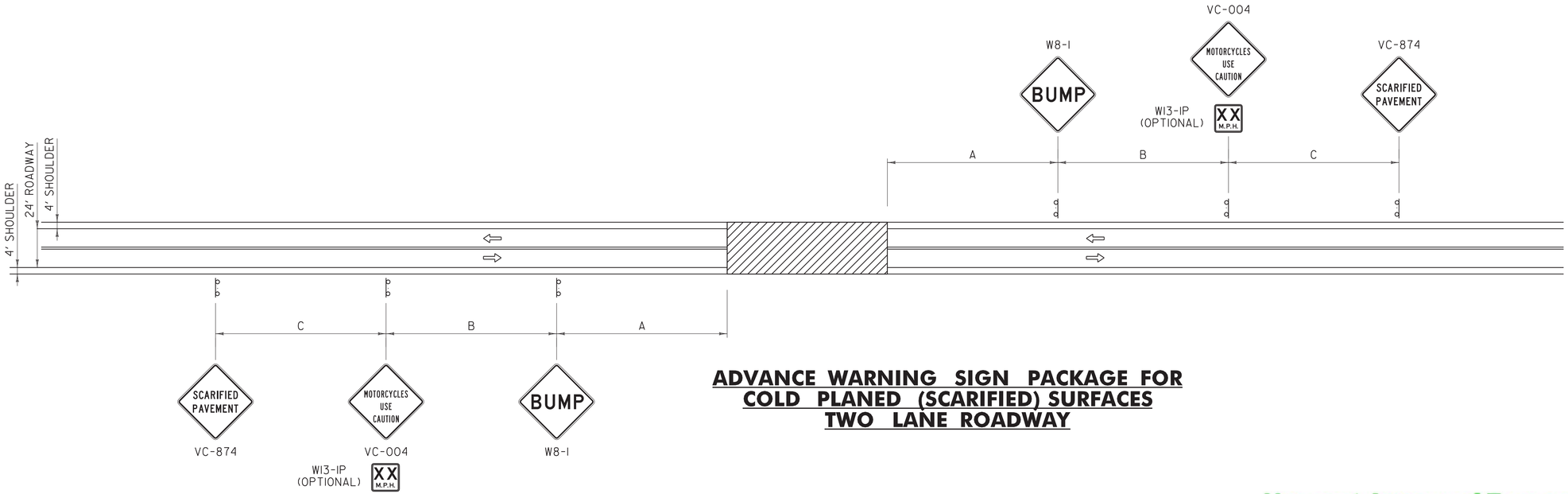
Mark D. Richter

FEDERAL HIGHWAY ADMINISTRATION

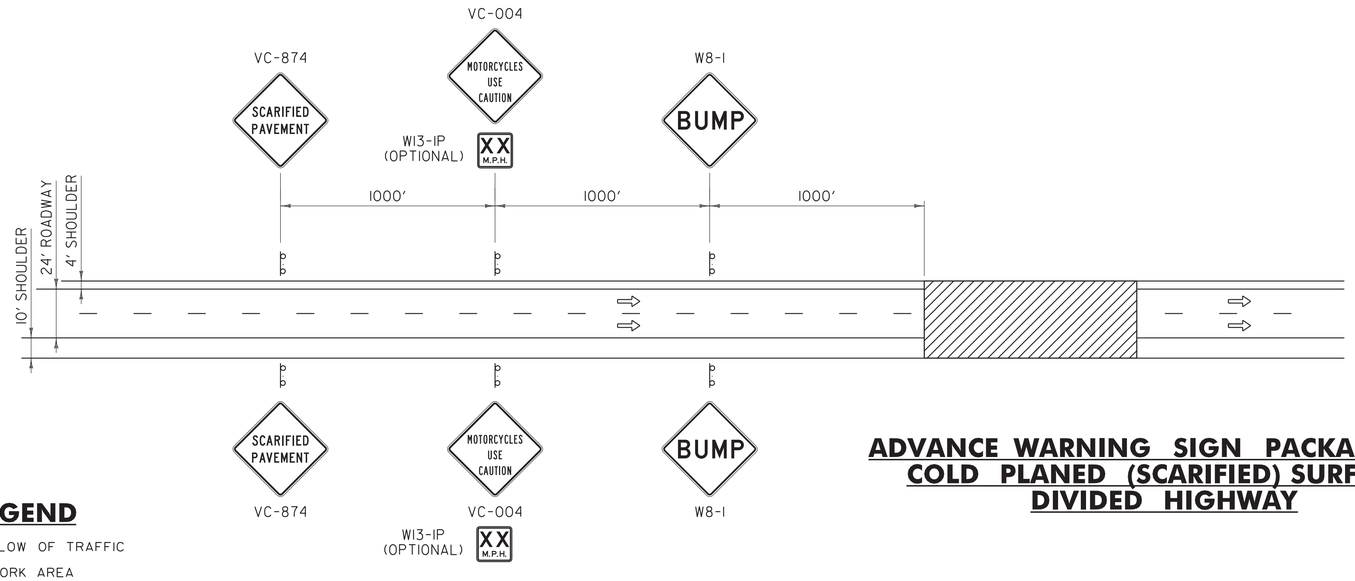
CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING

VERMONT AGENCY OF TRANSPORTATION

STANDARD T-10



ADVANCE WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES TWO LANE ROADWAY



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

LEGEND

⇨ FLOW OF TRAFFIC

▨ WORK AREA

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GENERAL NOTES:

1. 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 THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) FOR ADDITIONAL INFORMATION.
2. GATE POSTING OF SIGNS IS AN OPTION AS DETERMINED BY THE ENGINEER FOR TWO LANE ROADWAY WHEN PASSING, TURNING OR CLIMBING LANES LIMIT VISIBILITY.
3. FOR DIMENSIONS A, B AND C, REFER TO THE MUTCD. USE TABLE 6C-1 (RECOMMENDED ADVANCE WARNING SIGN MINIMUM SPACING), FOR SIGN SPACING.

OTHER STDS. REQUIRED: T–1, T–28

REVISIONS AND CORRECTIONS

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HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

FEDERAL HIGHWAY ADMINISTRATION

TRAFFIC CONTROL MISCELLANEOUS DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-17

Notes for Figure 6H-10—Typical Application 10
Lane Closure on a Two-Lane Road Using Flaggers

Option:

1. For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).
2. The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short-duration operations.
3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

4. *The buffer space should be extended so that the two-way traffic taper is placed before a horizontal (or crest vertical) curve to provide adequate sight distance for the flagger and a queue of stopped vehicles.*

Standard:

5. **At night, flagger stations shall be illuminated, except in emergencies.**

Guidance:

6. *When used, the BE PREPARED TO STOP sign should be located between the Flagger sign and the ONE LANE ROAD sign.*
7. *When a grade crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the grade crossing, the TTC zone should be extended so that the transition area precedes the grade crossing.*
8. *When a grade crossing equipped with active warning devices exists within the activity area, provisions should be made for keeping flaggers informed as to the activation status of these warning devices.*
9. *When a grade crossing exists within the activity area, drivers operating on the left-hand side of the normal center line should be provided with comparable warning devices as for drivers operating on the right-hand side of the normal center line.*
10. *Early coordination with the railroad company or light rail transit agency should occur before work starts.*

Option:

11. A flagger or a uniformed law enforcement officer may be used at the grade crossing to minimize the probability that vehicles are stopped within 15 feet of the grade crossing, measured from both sides of the outside rails.

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

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

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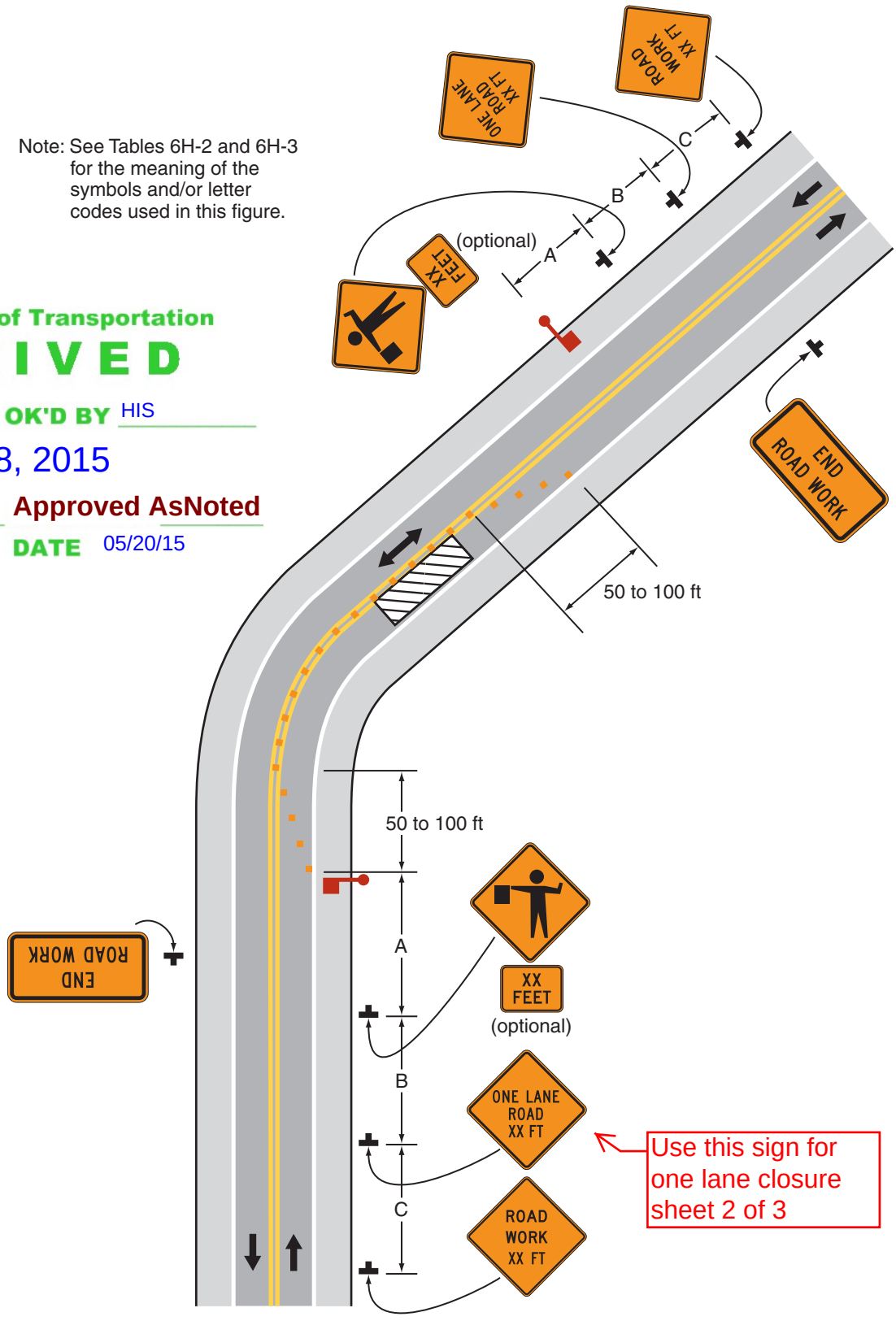

Typical Application 10

Notes for Figure 6H-17—Typical Application 17
Mobile Operations on a Two-Lane Road

Standard:

1. **Vehicle-mounted signs shall be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs shall be covered or turned from view when work is not in progress.**
2. **Shadow and work vehicles shall display high-intensity rotating, flashing, oscillating, or strobe lights.**
3. **If an arrow board is used, it shall be used in the caution mode.**

Guidance:

4. *Where practical and when needed, the work and shadow vehicles should pull over periodically to allow vehicular traffic to pass.*
5. *Whenever adequate stopping sight distance exists to the rear, the shadow vehicle should maintain the minimum distance from the work vehicle and proceed at the same speed. The shadow vehicle should slow down in advance of vertical or horizontal curves that restrict sight distance.*
6. *The shadow vehicles should also be equipped with two high-intensity flashing lights mounted on the rear, adjacent to the sign.*

Option:

7. The distance between the work and shadow vehicles may vary according to terrain, paint drying time, and other factors.
8. Additional shadow vehicles to warn and reduce the speed of oncoming or opposing vehicular traffic may be used. Law enforcement vehicles may be used for this purpose.
9. A truck-mounted attenuator may be used on the shadow vehicle or on the work vehicle.
10. If the work and shadow vehicles cannot pull over to allow vehicular traffic to pass frequently, a DO NOT PASS sign may be placed on the rear of the vehicle blocking the lane.

Support:

11. Shadow vehicles are used to warn motor vehicle traffic of the operation ahead.

Standard:

12. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.**

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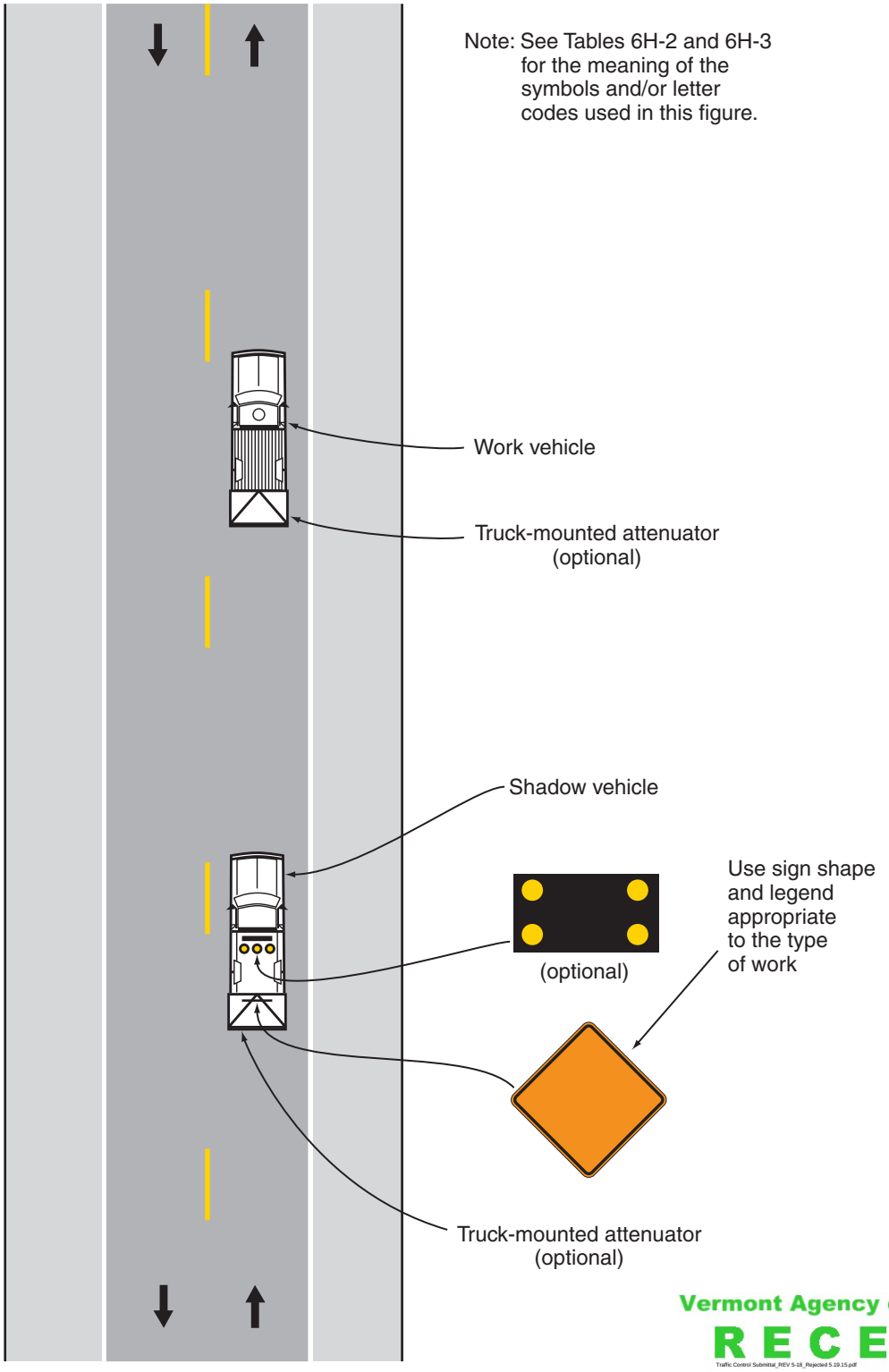
Figure 6H-17. Mobile Operations on a Two-Lane Road (TA-17)



Typical Application 17

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Notes for Figure 6H-8—Typical Application 8
Road Closure with an Off-Site Detour

Guidance:

1. *Regulatory traffic control devices should be modified as needed for the duration of the detour.*

Option:

2. If the road is opened for some distance beyond the intersection and/or there are significant origin/destination points beyond the intersection, the ROAD CLOSED and DETOUR signs on Type 3 Barricades may be located at the edge of the traveled way.
3. A Route Sign Directional assembly may be placed on the far left corner of the intersection to augment or replace the one shown on the near right corner.
4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. Cardinal direction plaques may be used with route signs.

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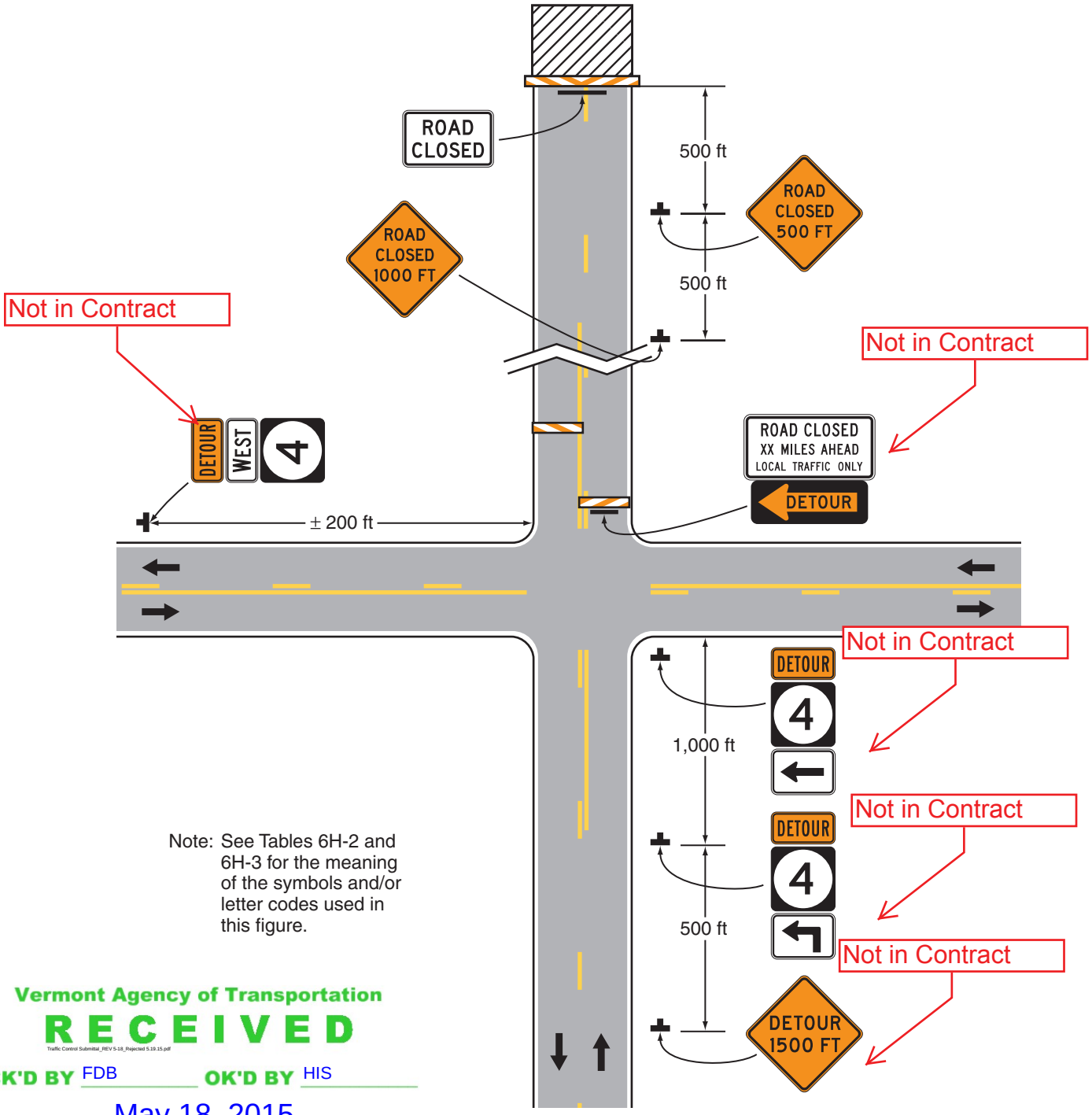
BY Carolyn Carlson DATE 05/20/15

Figure 6H-8. Road Closure with an Off-Site Detour (TA-8)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

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Typical Application 8

HD STEEL BEAM GUARDRAIL, GALVANIZED
STA 43+44.92 LT - STA 43+88.67 LT
STA 43+44.92 RT - STA 43+88.67 RT
STA 44+87.33 LT - STA 45+31.08 LT
STA 44+87.33 RT - STA 45+31.08 RT

GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM
STA 43+88.67 LT - STA 44+24.00 LT
STA 43+88.67 RT - STA 44+24.00 RT
STA 44+52.00 LT - STA 44+87.33 LT
STA 44+52.00 RT - STA 44+87.33 RT

BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM
STA 44+24.00 LT - STA 44+52.00 LT
STA 44+24.00 RT - STA 44+52.00 RT

REMOVING AND RESETTING FENCE *
STA 42+50.00 LT - STA 44+17.00 LT
STA 42+50.00 RT - STA 44+23.00 RT
STA 44+51.00 RT - STA 44+75.00 RT
STA 44+52.00 LT - STA 46+25.00 LT

*FENCING WILL BE RESET AT A LOCATION AGREED UPON W/ THE PROPERTY OWNER AND ENGINEER IN THE FIELD

CONSTRUCT 5' PAVED APRON
STA 45+59.00 RT - STA 45+77.00 RT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA 43+98.79 LT - STA 44+78.62 LT
STA 43+98.45 RT - STA 44+77.92 RT

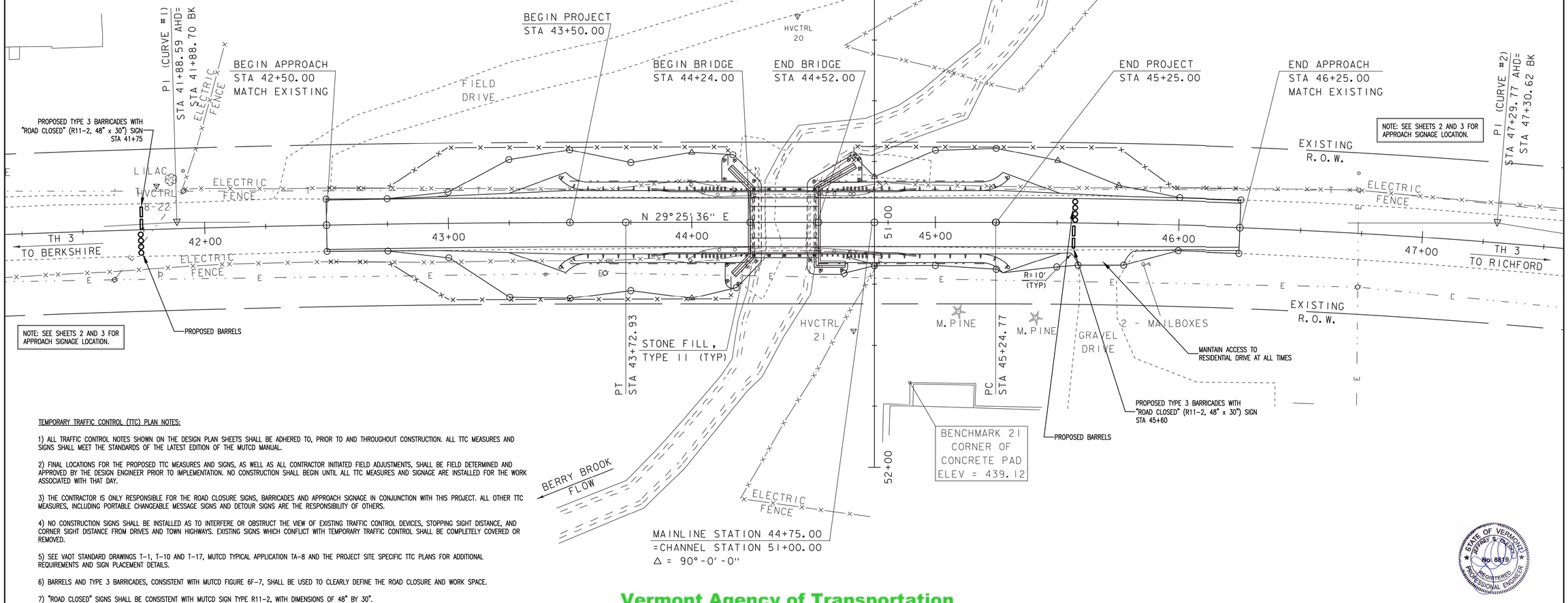
CAST-IN-PLACE CONCRETE CURB, TYPE B
STA 43+83.58 LT - STA 44+24.00 LT
STA 44+52.00 LT - STA 44+92.00 LT
STA 43+83.58 RT - STA 44+24.00 RT
STA 44+52.00 RT - STA 44+92.00 RT

ANCHOR FOR STEEL BEAM RAIL
STA 43+50.98 LT & RT
STA 45+23.80 LT & RT

CURVE (1)
DELTA = 3°14'56"
D = 0°52'53"
R = 6500.00'
T = 184.34'
L = 368.57'
E = 2.61'

CURVE (2)
DELTA = 9°03'14"
D = 2°12'13"
R = 2600.00'
T = 205.85'
L = 410.85'
E = 8.14'

VT STATE PLANE GRID



TEMPORARY TRAFFIC CONTROL (TTC) PLAN NOTES:

1) ALL TRAFFIC CONTROL NOTES SHOWN ON THE DESIGN PLAN SHEETS SHALL BE ADHERED TO, PRIOR TO AND THROUGHOUT CONSTRUCTION. ALL TTC MEASURES AND SIGNS SHALL MEET THE STANDARDS OF THE LATEST EDITION OF THE MUTCD MANUAL.

2) FINAL LOCATIONS FOR THE PROPOSED TTC MEASURES AND SIGNS, AS WELL AS ALL CONTRACTOR INITIATED FIELD ADJUSTMENTS, SHALL BE FIELD DETERMINED AND APPROVED BY THE DESIGN ENGINEER PRIOR TO IMPLEMENTATION. NO CONSTRUCTION SHALL BEGIN UNTIL ALL TTC MEASURES AND SIGNAGE ARE INSTALLED FOR THE WORK ASSOCIATED WITH THAT DAY.

3) THE CONTRACTOR IS ONLY RESPONSIBLE FOR THE ROAD CLOSURE SIGNS, BARRICADES AND APPROACH SIGNAGE IN CONJUNCTION WITH THIS PROJECT. ALL OTHER TTC MEASURES, INCLUDING PORTABLE CHANGEABLE MESSAGE SIGNS AND DETOUR SIGNS ARE THE RESPONSIBILITY OF OTHERS.

4) NO CONSTRUCTION SIGNS SHALL BE INSTALLED AS TO INTERFERE OR OBSTRUCT THE VIEW OF EXISTING TRAFFIC CONTROL DEVICES, STOPPING SIGHT DISTANCE, AND CORNER SIGHT DISTANCE FROM DRIVES AND TOWN HIGHWAYS. EXISTING SIGNS WHICH CONFLICT WITH TEMPORARY TRAFFIC CONTROL SHALL BE COMPLETELY COVERED OR REMOVED.

5) SEE VAOT STANDARD DRAWINGS T-1, T-10 AND T-17, MUTCD TYPICAL APPLICATION TA-8 AND THE PROJECT SITE SPECIFIC TTC PLANS FOR ADDITIONAL REQUIREMENTS AND SIGN PLACEMENT DETAILS.

6) BARRELS AND TYPE 3 BARRICADES, CONSISTENT WITH MUTCD FIGURE 6F-7, SHALL BE USED TO CLEARLY DEFINE THE ROAD CLOSURE AND WORK SPACE.

7) "ROAD CLOSED" SIGNS SHALL BE CONSISTENT WITH MUTCD SIGN TYPE R11-2, WITH DIMENSIONS OF 48" BY 30".

8) ACCESS TO DRIVES FOR BUSINESSES AND RESIDENCES MUST BE MAINTAINED AT ALL TIMES.

EXISTING BRIDGE DATA
SINGLE SPAN CONCRETE T-BEAM
BRIDGE BUILT IN 1900
BRIDGE LENGTH = 24 FT.
WATERWAY AREA = 125 SF

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STATE OF VERMONT DEPARTMENT OF TRANSPORTATION No. 8879 REGISTERED PROFESSIONAL ENGINEER

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME: RICHFORD
PROJECT NUMBER: BRF 0302(29)

FILE NAME: sl2j158bdr.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
~~LAYOUT~~ TRAFFIC CONTROL PLAN (1 OF 3)

PLOT DATE: 11-DEC-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 10 OF 36

PLAN REVISED BY: G.W. TATRO CONSTRUCTION
REVISION DATE: 11-MAY-2015

TEMPORARY TRAFFIC CONTROL (TTC) PLAN NOTES:

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2) FINAL LOCATIONS FOR THE PROPOSED TTC MEASURES AND SIGNS, AS WELL AS ALL CONTRACTOR INITIATED FIELD ADJUSTMENTS, SHALL BE FIELD DETERMINED AND APPROVED BY THE DESIGN ENGINEER PRIOR TO IMPLEMENTATION. NO CONSTRUCTION SHALL BEGIN UNTIL ALL TTC MEASURES AND SIGNAGE ARE INSTALLED FOR THE WORK ASSOCIATED WITH THAT DAY.

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4) NO CONSTRUCTION SIGNS SHALL BE INSTALLED AS TO INTERFERE OR OBSTRUCT THE VIEW OF EXISTING TRAFFIC CONTROL DEVICES, STOPPING SIGHT DISTANCE, AND CORNER SIGHT DISTANCE FROM DRIVES AND TOWN HIGHWAYS. EXISTING SIGNS WHICH CONFLICT WITH TEMPORARY TRAFFIC CONTROL SHALL BE COMPLETELY COVERED OR REMOVED.

5) SEE VAOT STANDARD DRAWINGS T-1, T-10 AND T-17, MUTCD TYPICAL APPLICATION TA-8 AND THE PROJECT SITE SPECIFIC TTC PLANS FOR ADDITIONAL REQUIREMENTS AND SIGN PLACEMENT DETAILS.

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8) ACCESS TO DRIVES FOR BUSINESSES AND RESIDENCES MUST BE MAINTAINED AT ALL TIMES.

9) ONE LANE CLOSURE SIGN PACKAGE TO BE COVERED WHEN IT IS NOT APPLICABLE.

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 ft.

TYPICAL ONE LANE CLOSURE SIGN PACKAGE
SCALE 1" = 150'

STATE OF VERMONT
JEFFREY S. DUNN
No. 6819
REGISTERED PROFESSIONAL ENGINEER

NOTE: DETOUR SIGNAGE TO BE PREPARED AND PROVIDED BY OTHERS.

TRAFFIC CONTROL PLAN (2 OF 3)
PLAN PREPARED BY: G.W. TATRO CONSTRUCTION
REVISION DATE: 11-MAY-2015

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9) BRIDGE CLOSURE SIGN PACKAGE TO BE COVERED WHEN IT IS NOT APPLICABLE.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

BRIDGE CLOSURE SIGN PACKAGE
SCALE 1" = 100'

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STATE OF VERMONT
JEFFREY S. DOLLOFF
No. 8879
REGISTERED
PROFESSIONAL ENGINEER

TRAFFIC CONTROL PLAN (3 OF 3)
PLAN PREPARED BY: G.W. TATRO CONSTRUCTION
REVISION DATE: 11-MAY-2015