

STATE OF VERMONT AGENCY OF TRANSPORTATION



TRAFFIC DATA													
LOCATION VT ROUTE 12	MILE MARKS	AADT		DHV		%T		%D		ADTT		ESALS	
		2016	2026	2016	2026	2016	2026	2016	2026	2016	2026	2016-2026	2016-2036
BEGIN PROJECT TO OLD MILL HILL RD	0.409 1.742	850	860	120	120	5.9	7.4	62	62	55	70	107,000	244,000
OLD MILL HILL RD TO LOVERS LN	1.742- 2.034	1300	1300	150	150	1.0	1.3	62	62	45	60	155,000	373,000
LOVERS LN TO END PROJECT	2.034- 2.130	4000	4000	460	460	2.1	2.8	58	58	180	230	530,000	1,285,000

POSTED SPEED : 40, 50 MPH
DESIGN SPEED : EQUAL TO POSTED SPEED

SUPERPAVE BITUMINOUS CONCRETE PAVEMENT MIXTURE DESIGN CRITERIA	
DESIGN LANE/DESIGN LIFE ESAL	151,280
DESIGN NUMBER OF GYRATIONS	50
PERFORMANCE GRADED ASPHALT BINDER	SEE SUBSECTION 490.03(b)

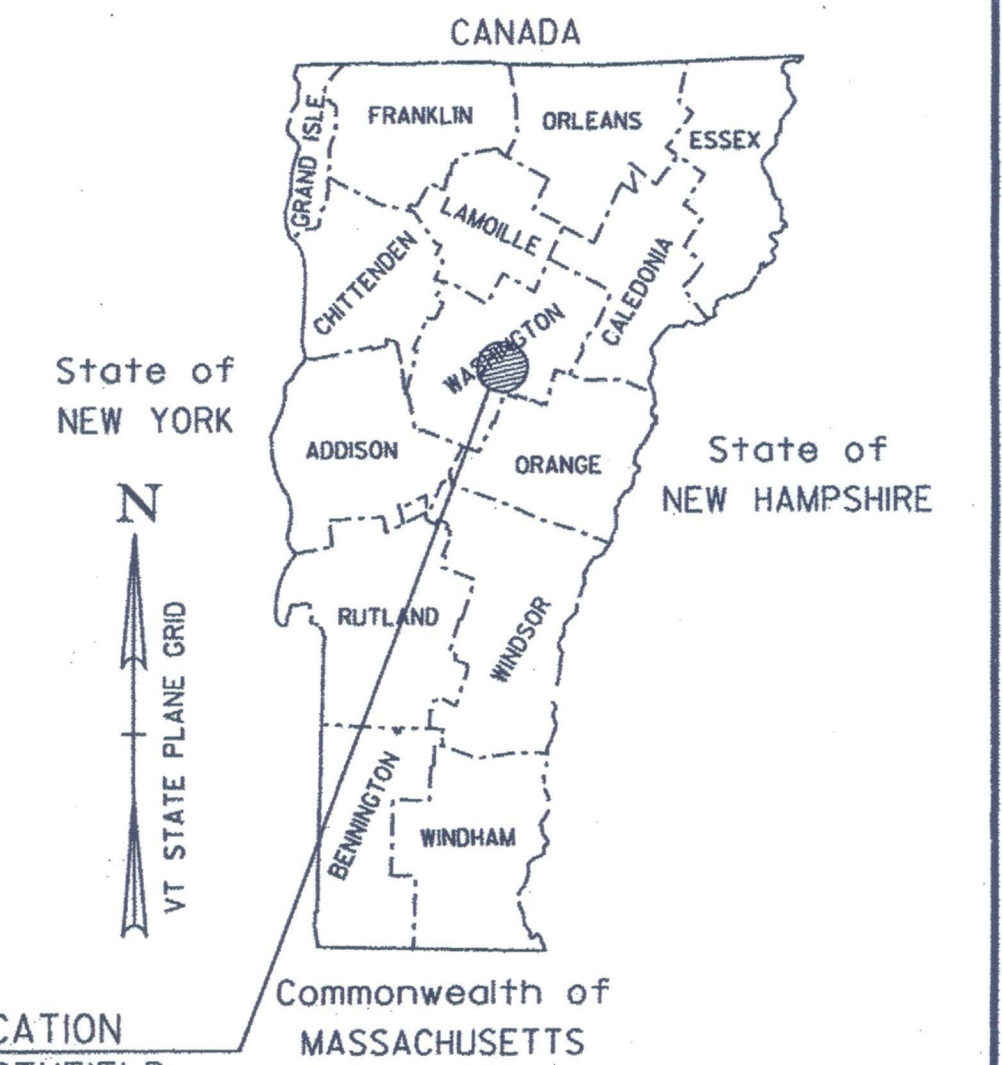
PROPOSED IMPROVEMENT TOWNS OF ROXBURY & NORTHFIELD COUNTY OF WASHINGTON VT ROUTE 12 (MAJOR COLLECTOR)

BEGINNING ON VT ROUTE 12 IN ROXBURY AT STATION 21+59.00 (MM 0.409) AND EXTENDING NORTHERLY ALONG VT ROUTE 12
A DISTANCE OF 16,898.00 FEET (3.200 MILES) TO STATION N 112+48.00 (MM 2.130) IN THE TOWN OF NORTHFIELD.

ROXBURY STA 21+59.00 (MM 0.409) ~ STA 78+09.00 (MM 1.479) = 5,650.00 FEET (1.070 MILES)
NORTHFIELD STA N 0+00.00 (MM 0.000) ~ STA N 112+48.00 (MM 2.130) = 11,248.00 FEET (2.130 MILES)

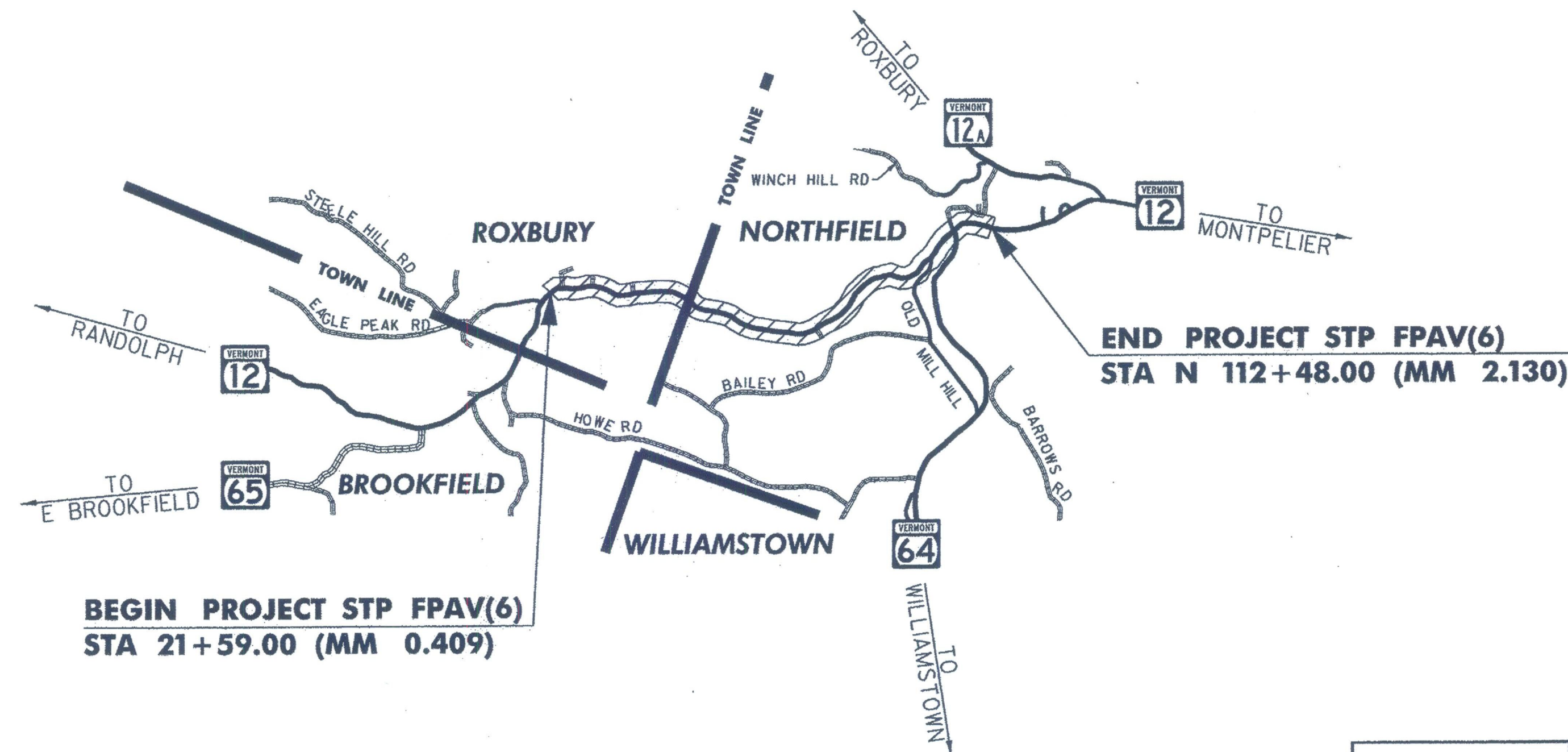
LENGTH OF ROADWAY = 16,898.00 FEET (3.200 MILES)
LENGTH OF PROJECT = 16,898.00 FEET (3.200 MILES)

WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES PAVING THE EXISTING
HIGHWAY, GUARDRAIL, PAVEMENT MARKINGS AND OTHER HIGHWAY RELATED ITEMS.



PROJECT LOCATION
ROXBURY-NORTHFIELD
STP FPAV(6)

RECORD PLANS	
CONTRACTOR:	PIKE INDUSTRIES, INC. - BERLIN, VT
RESIDENT ENGINEER:	MATT BIRCHARD
CONSTRUCTION BEGAN:	JUNE 01, 2017
CONSTRUCTION COMPLETE:	AUGUST 02, 2017
RECORD PLANS BY:	MATT BIRCHARD & JESSE IVES
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY <u>Matthew Birchard</u>	RESIDENT ENGINEER
DATE <u>09/11/19</u>	
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found by contacting Vtrans Records Management.	

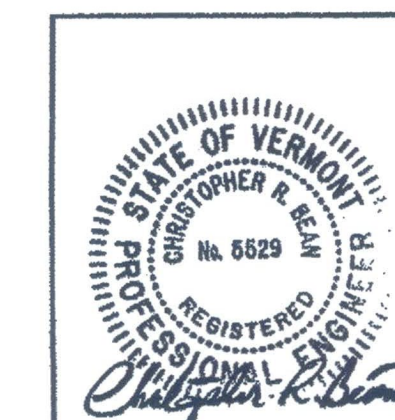


CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE
WITH THESE PLANS AND THE STANDARD SPECIFICATIONS
FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE
FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011
FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT
REVISIONS AND SUCH REVISED SPECIFICATIONS AND
SPECIAL PROVISIONS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

QUALITY ASSURANCE PROGRAM : LEVEL 3
SURVEYED BY : N/A
SURVEYED DATE : N/A
DATUM
VERTICAL N/A
HORIZONTAL N/A



BUILT AS DESIGNED



CID
CONSULTING
ENGINEERS

540 Commercial Street
Manchester, NH 03101
(603) 668-8223
www.cidengineers.com

DIRECTOR OF PROJECT DELIVERY
APPROVED <u>[Signature]</u> DATE 2/7/2017
PROJECT MANAGER : JONATHAN HARRINGTON, P.E.
PROJECT NAME : ROXBURY-NORTHFIELD
PROJECT NUMBER : STP FPAV(6)
SHEET 1 OF 21 SHEETS

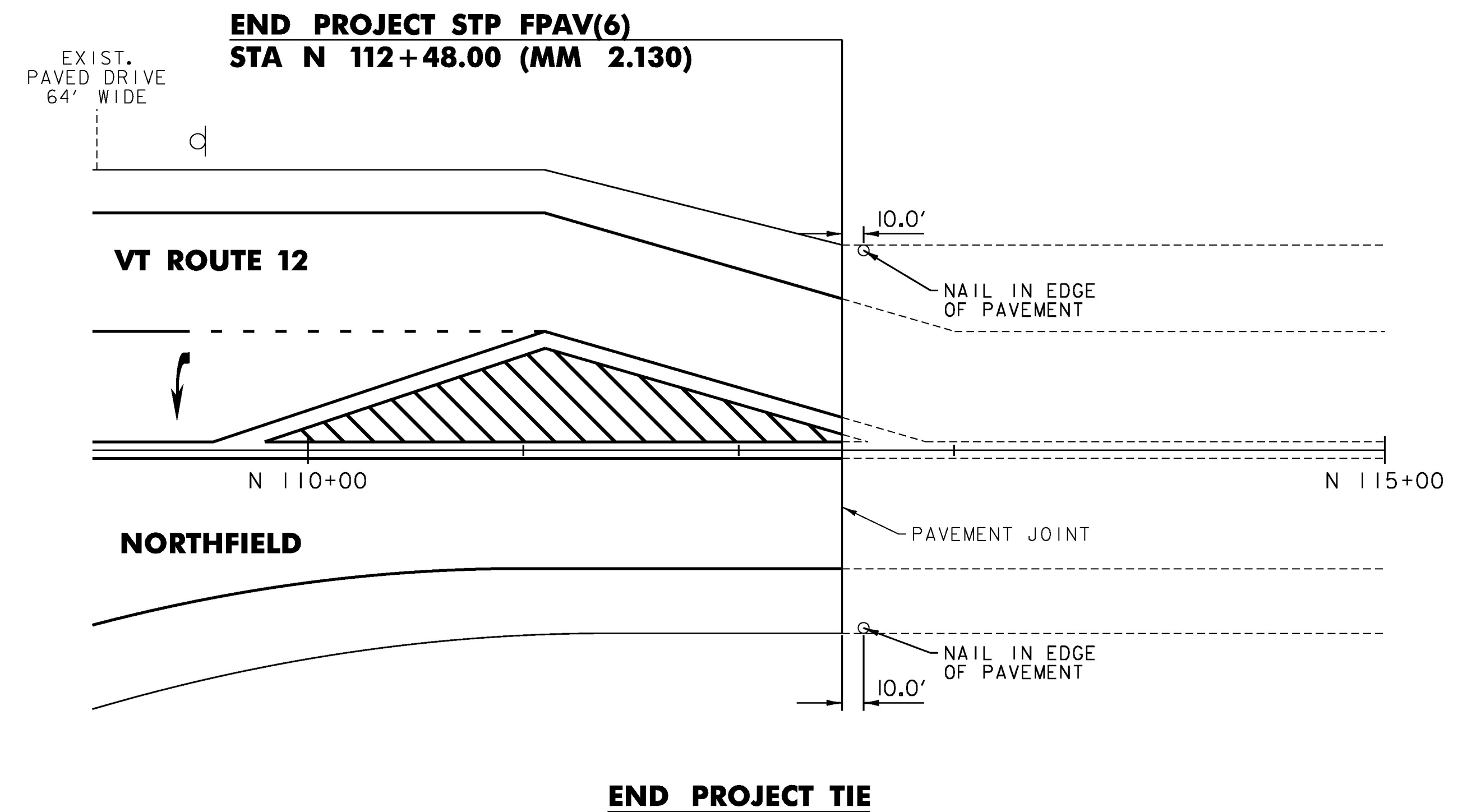
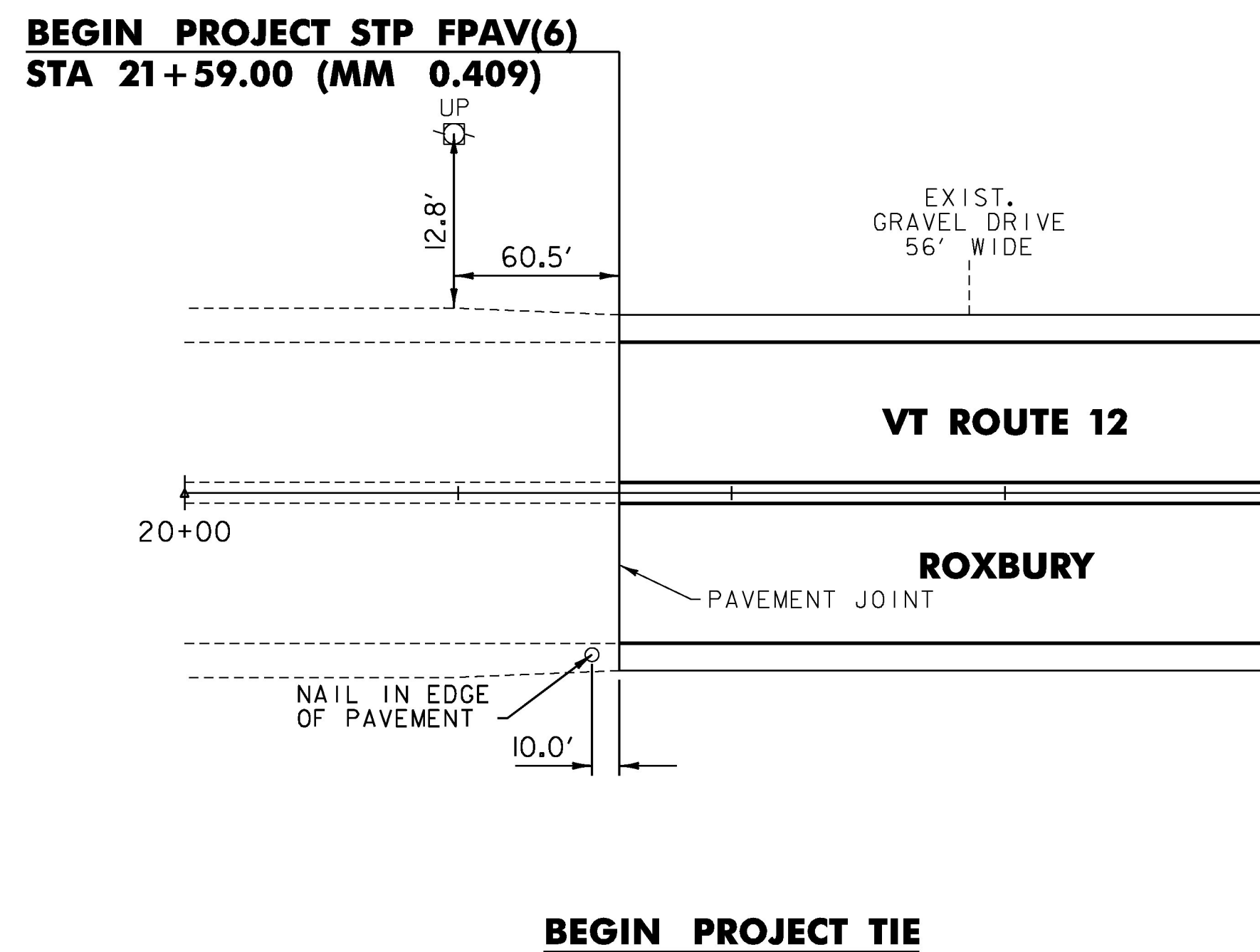
INDEX OF SHEETS

INDEX OF VAOT STANDARDS

STD	DATE	DESCRIPTION
B-71	7/8/2005	STANDARDS FOR RESIDENTIAL AND COMMERCIAL DRIVES
E-193	8/18/1995	PAVEMENT MARKING DETAILS
G-1	3/10/2017	STEEL BEAM GUARDRAIL WITH STEEL POSTS, STEEL BEAM GUARDRAIL WITH WOOD POSTS
G-1d	3/10/2017	STEEL BEAM GUARDRAIL END TERMINALS, ANCHOR FOR STEEL BEAM GUARDRAIL, STEEL BEAM MEDIAN BARRIER
T-1	4/25/2016	TRAFFIC CONTROL GENERAL NOTES
T-10	8/6/2012	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING
T-17	8/6/2012	TRAFFIC CONTROL MISCELLANEOUS DETAILS
T-24	8/6/2012	TRAFFIC CONTROL FOR MAINTENANCE PAVEMENT MARKING OPERATION
T-28	8/6/2012	CONSTRUCTION SIGN DETAILS
T-29	8/6/2012	CONSTRUCTION SIGN DETAILS
T-30	8/6/2012	CONSTRUCTION SIGN DETAILS
T-31	8/6/2012	CONSTRUCTION SIGN DETAILS
T-36	8/6/2012	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING
T-40	1/2/2013	DELINEATORS AND MILEPOSTS
T-45	1/2/2013	SQUARE TUBE SIGN POST AND ANCHOR

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4	PROJECT NOTES	
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7-8	QUANTITY SHEETS	
9-10	ITEM DETAIL SHEETS	
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14-20	PLAN SHEETS	
21	CONSTRUCTION APPROACH SIGNING	
HIGHWAY SAFETY & DESIGN DETAIL		
HSD-400.01	SAFETY EDGE DETAILS	3/29/2016
HSD-621.06	MISCELLANEOUS GUARDRAIL DETAILS	2/27/2017
STRUCTURES DETAIL		
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	8/29/2011



PROJECT NAME:	ROXBURY-NORTHFIELD
PROJECT NUMBER:	STP FPAV(6)
FILE NAME:	z16v027frm.dgn
PROJECT LEADER:	P. SHEDD
DESIGNED BY:	N. LEMAY
INDEX OF SHEETS	
PLOT DATE:	3/21/2017
DRAWN BY:	S. GOODWIN
CHECKED BY:	P. SHEDD
SHEET	2 OF 21

NOT TO SCALE

GENERAL INFORMATION

SYMBOLGY LEGEND NOTE

THE SYMBOLGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLGY. THE SYMBOLGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R. O. W. ABBREVIATIONS (CODES) & SYMBOLS

POINT CODE	DESCRIPTION
CH	CHANNEL EASEMENT
CONST	CONSTRUCTION EASEMENT
CUL	CULVERT EASEMENT
D&C	DISCONNECT & CONNECT
DIT	DITCH EASEMENT
DR	DRAINAGE EASEMENT
DRIVE	DRIVEWAY EASEMENT
EC	EROSION CONTROL
HWY	HIGHWAY EASEMENT
I&M	INSTALL & MAINTAIN EASEMENT
LAND	LANDSCAPE EASEMENT
R&RES	REMOVE & RESET
R&REP	REMOVE & REPLACE
SR	SLOPE RIGHT
UE	UTILITY EASEMENT
(P)	PERMANENT EASEMENT
(T)	TEMPORARY EASEMENT
■	BNDNS BOUND SET
▣	BNDNS BOUND TO BE SET
●	IPNS IRON PIN SET
⊙	IPNS IRON PIN TO BE SET
⊠	CALC EXISTING ROW POINT
○	PROW PROPOSED ROW POINT
[LENGTH]	LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT CODE	DESCRIPTION
⊠	APL BOUND APPARENT LOCATION
□	BM BENCHMARK
▣	BND BOUND
▣	CB CATCH BASIN
⊕	COMB COMBINATION POLE
▣	DITHR DROP INLET THROATED DNC
⊕	EL ELECTRIC POWER POLE
○	FPOLE FLAGPOLE
○	GASFIL GAS FILLER
○	GP GUIDE POST
×	GSO GAS SHUT OFF
○	GUY GUY POLE
○	GUYW GUY WIRE
×	GV GATE VALUE
⊕	H TREE HARDWOOD
△	HCTRL CONTROL HORIZONTAL
△	HVCTRL CONTROL HORIZ. & VERTICAL
◇	HYD HYDRANT
●	IP IRON PIN
●	IPIPE IRON PIPE
⊕	LI LIGHT - STREET OR YARD
⊕	MB MAILBOX
○	MH MANHOLE (MH)
○	MM MILE MARKER
●	PM PARKING METER
▣	PMK PROJECT MARKER
○	POST POST STONE/WOOD
⊕	RRSIG RAILROAD SIGNAL
⊕	RRSL RAILROAD SWITCH LEVER
⊕	S TREE SOFTWOOD
⊕	SAT SATELLITE DISH
⊕	SHRUB SHRUB
⊕	SIGN SIGN
⊕	STUMP STUMP
○	TEL TELEPHONE POLE
○	TIE TIE
⊕	TSIGN SIGN W/DOUBLE POST
⊕	VCTRL CONTROL VERTICAL
○	WELL WELL
×	WSO WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADIUS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLGY

UNDERGROUND UTILITIES	
— UGU —	UTILITY (GENERIC-UNKNOWN)
— UT —	TELEPHONE
— UE —	ELECTRIC
— UC —	CABLE (TV)
— UEC —	ELECTRIC+CABLE
— UET —	ELECTRIC+TELEPHONE
— UCT —	CABLE+TELEPHONE
— UECT —	ELECTRIC+CABLE+TELEP.
— G —	GAS LINE
— W —	WATER LINE
— S —	SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)	
— AGU —	UTILITY (GENERIC-UNKNOWN)
— T —	TELEPHONE
— E —	ELECTRIC
— C —	CABLE (TV)
— EC —	ELECTRIC+CABLE
— ET —	ELECTRIC+TELEPHONE
— AER E&T —	ELECTRIC+TELEPHONE
— CT —	CABLE+TELEPHONE
— ECT —	ELECTRIC+CABLE+TELEP.
— — —	UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLGY	
— — — CZ — — —	CLEAR ZONE
— — — — —	PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES	
▲ — — — — —	TOP OF CUT SLOPE
● — — — — —	TOE OF FILL SLOPE
⊕ — — — — —	STONE FILL
— — — — —	BOTTOM OF DITCH
— — — — —	CULVERT PROPOSED
— — — — —	STRUCTURE SUBSURFACE
PDF — — — — — PDF	PROJECT DEMARCATION FENCE
BF — — — — — BF	BARRIER FENCE
XXXXXXXXXXXXXXXXXXXX	TREE PROTECTION ZONE (TPZ)
//// //// //// ////	STRIPING LINE REMOVAL
~~~~ ~~~~ ~~~~ ~~~~	SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLGY	
— — — — —	TOWN BOUNDARY LINE
— — — — —	COUNTY BOUNDARY LINE
— — — — —	STATE BOUNDARY LINE
— — — — —	PROPOSED STATE R.O.W. (LIMITED ACCESS)
— — — — —	PROPOSED STATE R.O.W.
— — — — —	STATE ROW (LIMITED ACCESS)
— — — — —	STATE ROW
— — — — —	TOWN ROW
— — — — —	PERMANENT EASEMENT LINE (P)
— — — — —	TEMPORARY EASEMENT LINE (T)
— — — — —	SURVEY LINE
— — — — —	PROPERTY LINE (P/L)
— — — — —	SLOPE RIGHTS
6f — — — — — 6f	6F PROPERTY BOUNDARY
4f — — — — — 4f	4F PROPERTY BOUNDARY
HAZ — — — — — HAZ	HAZARDOUS WASTE

**EPSC LAYOUT PLAN SYMBOLGY**

EPSC MEASURES	
ONNOONNOONNO	FILTER CURTAIN
— — — — —	SILT FENCE
— — — — —	SILT FENCE WOVEN WIRE
— — — — —	CHECK DAM
— — — — —	DISTURBED AREAS REQUIRING RE-VEGETATION
— — — — —	EROSION MATTING

ENVIRONMENTAL RESOURCES	
— — — — —	WETLAND BOUNDARY
— — — — —	RIPARIAN BUFFER ZONE
— — — — —	WETLAND BUFFER ZONE
— — — — —	SOIL TYPE BOUNDARY
— — — — —	THREATENED & ENDANGERED SPECIES
HAZ — — — — — HAZ	HAZARDOUS WASTE AREA
— — — — —	AGRICULTURAL LAND
HABITAT — — — — —	FISH & WILDLIFE HABITAT
FLOOD PLAIN — — — — —	FLOOD PLAIN
OHW — — — — —	ORDINARY HIGH WATER (OHW)
— — — — —	STORM WATER
— — — — —	USDA FOREST SERVICE LANDS
— — — — —	WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC	
— — — — —	ARCHEOLOGICAL BOUNDARY
— — — — —	HISTORIC DISTRICT BOUNDARY
— — — — —	HISTORIC AREA
(H)	HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLGY	
— — — — —	EXISTING FEATURES
— — — — —	ROAD EDGE PAVEMENT
— — — — —	ROAD EDGE GRAVEL
— — — — —	DRIVEWAY EDGE
— — — — —	DITCH
— — — — —	FOUNDATION
x — — — — — x	FENCE (EXISTING)
□ — — — — — □	FENCE WOOD POST
○ — — — — — ○	FENCE STEEL POST
— — — — —	GARDEN
— — — — —	ROAD GUARDRAIL
— — — — —	RAILROAD TRACKS
— — — — —	CULVERT (EXISTING)
— — — — —	STONE WALL
— — — — —	WALL
— — — — —	WOOD LINE
— — — — —	BRUSH LINE
— — — — —	HEDGE
— — — — —	BODY OF WATER EDGE
— — — — —	LEDGE EXPOSED

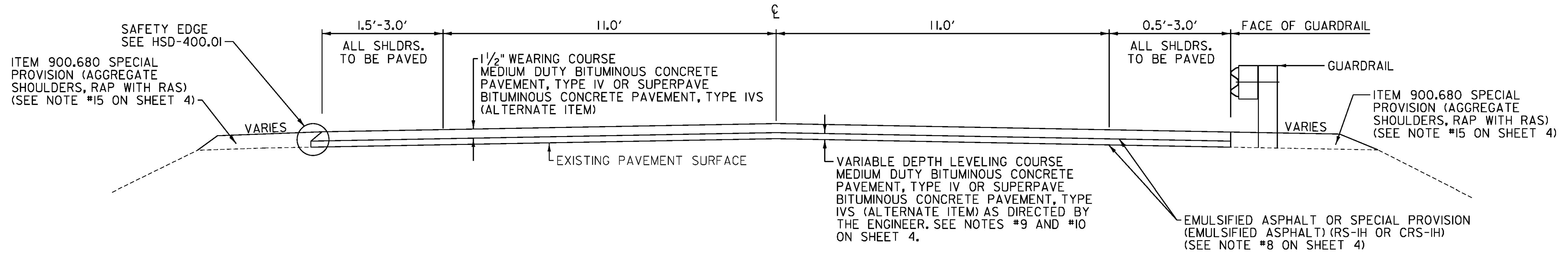
PROJECT NAME: ROXBURY-NORTHFIELD  
 PROJECT NUMBER: STP FPAV(6)  
 FILE NAME: z16v027frm.dgn PLOT DATE: 2/8/2017  
 PROJECT LEADER: P. SHEDD DRAWN BY: S. GOODWIN  
 DESIGNED BY: N. LEMAY CHECKED BY: P. SHEDD  
 CONVENTIONAL SYMBOLGY LEGEND SHEET SHEET 3 OF 21

### PROJECT NOTES

1. ALL PROPOSED WORK TO BE PERFORMED WITHIN THE EXISTING RIGHT-OF-WAY.
2. EXISTING SHOULDER MATERIAL DEEMED UNSUITABLE BY THE RESIDENT ENGINEER SHALL BE EXCAVATED TO A DEPTH OF THREE INCHES OR AS DIRECTED BY THE ENGINEER. EXCAVATION SHALL BE PAID UNDER ITEM 608.25 ALL PURPOSE EXCAVATOR RENTAL, TYPE I AND ITEM 608.37 TRUCK RENTAL. MATERIAL REMOVED SHALL BE REPLACED WITH ITEM 301.28 SUBBASE OF CRUSHED GRAVEL, FINE GRADED AS DIRECTED BY THE ENGINEER. EXCAVATED MATERIAL SHALL BE SPREAD ON THE ADJACENT SLOPES, OR REMOVED FROM THE PROJECT AS DIRECTED BY THE ENGINEER.
3. ALL NECESSARY SURFACE PREPARATION INVOLVING PATCHING, POT HOLE REPAIR, AND CRACK SEALING SHALL BE PERFORMED FOLLOWING COLD PLANING AND PRIOR TO PAVING. THE PATCHING OF ALL CRACKS GREATER THAN ONE INCH AND POT HOLE REPAIR SHALL BE COMPLETED WITH ITEM 900.680 SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT SURFACE PREPARATION, TYPE I). AN ESTIMATED QUANTITY FOR THIS ITEM HAS BEEN INCLUDED.
4. THE CONTRACTOR SHALL USE CAUTION WHEN COLD PLANING AND PAVING OPERATIONS OCCUR ON BRIDGE DECKS. SHOULD ANY DAMAGE OCCUR TO THE DECK OR MEMBRANE AS A RESULT OF THE CONTRACTOR'S OPERATIONS THE ENGINEER SHALL CONTACT THE VAOT CONSTRUCTION STRUCTURES ENGINEER TO PROVIDE AN ASSESSMENT OF THE DAMAGE AND RECOMMEND ANY NECESSARY REPAIRS. THE CONSTRUCTION STRUCTURES ENGINEER WILL ALSO DETERMINE IF THE DAMAGE WAS AVOIDABLE. IF THE CONTRACTOR IS DETERMINED BY THE ENGINEER TO BE AT FAULT FOR THE DAMAGE, THE RECOMMENDED REPAIRS SHALL BE COMPLETED BY THE CONTRACTOR AT NO COST TO THE STATE.
5. GRASS GROWING ADJACENT TO THE PAVEMENT OR THROUGH CRACKS IN THE PAVEMENT, WHICH MAY HAMPER THE PLACEMENT OF NEW BITUMINOUS CONCRETE PAVEMENT, SHALL BE REMOVED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER. PAYMENT FOR THIS WORK WILL NOT BE MADE DIRECTLY, BUT WILL BE CONSIDERED INCIDENTAL TO ITEM 406.27 MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT OR ITEM 490.30 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT.
6. PAVEMENT WILL BE AN ALTERNATE AND PAID UNDER ITEM 406.27 MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT OR ITEM 490.30 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT.
7. ALL BITUMINOUS CONCRETE PAVEMENT TOLERANCE = 1/4" +/- (TOTAL THICKNESS EXCLUDING LEVELING COURSE).
8. EMULSIFIED ASPHALT SHALL BE APPLIED AS A TACK COAT ON ALL EXISTING OR COLD PLANED PAVEMENT SURFACES AT THE RATE OF 0.080 GAL/SY AND BETWEEN ALL COURSES OF BITUMINOUS CONCRETE PAVEMENT AT THE RATE OF 0.025 TO 0.040 GAL/SY. EMULSIFIED ASPHALT WILL PAID UNDER ITEM 404.65 EMULSIFIED ASPHALT OR ITEM 900.683 SPECIAL PROVISION (EMULSIFIED ASPHALT) (RS-1H OR CRS-1H).
9. IF ITEM 406.27 MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT ALTERNATE IS SELECTED, THE WEARING COURSE AND LEVELING COURSE SHALL BE TYPE IV MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT. ALL PG GRADED ASPHALT CEMENT USED IN THE MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT SHALL BE AS SPECIFIED IN SUBSECTION 406.03(b). IF ITEM 490.30 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT ALTERNATE IS SELECTED, THE WEARING COURSE AND LEVELING COURSE SHALL BE TYPE IVS SUPERPAVE BITUMINOUS CONCRETE PAVEMENT. ALL PG GRADED ASPHALT CEMENT USED IN THE SUPERPAVE BITUMINOUS CONCRETE PAVEMENT SHALL BE AS SPECIFIED IN SUBSECTION 490.03(b).
10. FOR ESTIMATING PURPOSES 3/4" LEVELING COURSE HAS BEEN QUANTIFIED FOR THE PROJECT. THE LEVELING COURSE DEPTH IS MEANT TO CORRECT PROFILE DEFICIENCIES PRIOR TO THE WEARING COURSE BEING PLACED. THE ENGINEER WILL WORK WITH VTRANS PAVEMENT DESIGN STAFF TO DETERMINE THE ACTUAL LEVELING COURSE DEPTH.
11. RUBBER TIRE COMPACTION ROLLERS SHALL BE USED ON THE LEVELING COURSE TO MAXIMIZE COMPACTION ON THE UNEVEN SURFACES.
12. ITEM 406.28 AIR VOIDS PAY ADJUSTMENT (N.A.B.I.) PAY ITEM WILL BE REQUIRED FOR ITEM 406.27 MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT OR ITEM 490.31 AIR VOIDS PAY ADJUSTMENT (N.A.B.I.) PAY ITEM WILL BE REQUIRED FOR ITEM 490.30 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT.
13. EDGES OF PAVEMENT SHALL INCLUDE A SAFETY EDGE. SEE SAFETY EDGE DETAILS (HIGHWAY SAFETY & DESIGN DETAIL HSD-400.01).
14. ALL SIDE ROADS ARE TO BE PAVED FOUR FEET FROM THE EDGE OF MAINLINE SHOULDER UNLESS OTHERWISE SPECIFIED IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
15. ALL EDGES OF PAVEMENT SHALL BE BACKED UP TO FULL HEIGHT WITH AGGREGATE SHOULDER MATERIAL AS DIRECTED BY THE ENGINEER. THIS WORK WILL PAID UNDER ITEM 900.680 SPECIAL PROVISION (AGGREGATE SHOULDERS, RAP WITH RAS).
16. ALL PAVED AND GRAVEL RESIDENTIAL, COMMERCIAL, FIELD AND WOOD DRIVES SHALL RECEIVE A TWO FEET PAVED APRON UNLESS OTHERWISE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. ANY AND ALL REQUIRED EXCAVATION AND ASSOCIATED DRIVE GRADING IN DRIVE AREAS SHALL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE NEW BITUMINOUS SURFACE SHALL BE CONSTRUCTED AS DIRECTED BY THE ENGINEER AND WILL BE PAID FOR UNDER ITEM 900.675 SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES). BITUMINOUS CONCRETE MATERIAL PLACED BY MECHANICAL METHODS AT THESE LOCATIONS IS EXCLUDED. ALL OTHER BITUMINOUS MATERIALS PLACED WITHIN THE PROJECT LIMITS, WHETHER BY HAND OR MECHANICAL METHODS, WILL BE PAID UNDER ITEM 406.27 MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT OR ITEM 490.30 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT AS APPLICABLE.
17. ASPHALTIC PLUG-TYPE JOINT SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS. SEE BRIDGE JOINT ASPHALTIC PLUG (STRUCTURES DETAIL SD-516.10)  
NORTHFIELD BRIDGE #57 - N 76+53 (MM 1.449) 26' ASPHALTIC JOINT  
BRIDGE #58 - N 77+87 (MM 1.475) 26' ASPHALTIC JOINT
18. ESTIMATED QUANTITIES OF ITEM 608.15 POWER GRADER RENTAL, ITEM 608.25 ALL PURPOSE EXCAVATOR RENTAL, TYPE I AND ITEM 608.37 TRUCK RENTAL HAVE BEEN INCLUDED FOR REMOVING BUILT UP SAND, SOD ETC. ADJACENT TO THE SHOULDER, IN NON-GUARDRAIL AREAS, TO ALLOW FREE DRAINAGE OFF THE SHOULDER AS DIRECTED BY THE ENGINEER.
19. AN ESTIMATED QUANTITY OF ITEM 203.40 SHOULDER BERM REMOVAL HAS BEEN INCLUDED FOR THE REMOVAL OF BUILT UP SAND, SOD ETC. ADJACENT TO THE SHOULDER, IN RETAINED GUARDRAIL AREAS, TO ALLOW FREE DRAINAGE OFF THE SHOULDER.
20. A 3'-7" OF BACKING IS REQUIRED BEHIND THE FACE OF GUARDRAIL WITH SIX FEET POSTS. PAYMENT WILL BE MADE UNDER ITEM 621.20 STEEL BEAM GUARDRAIL, GALVANIZED.

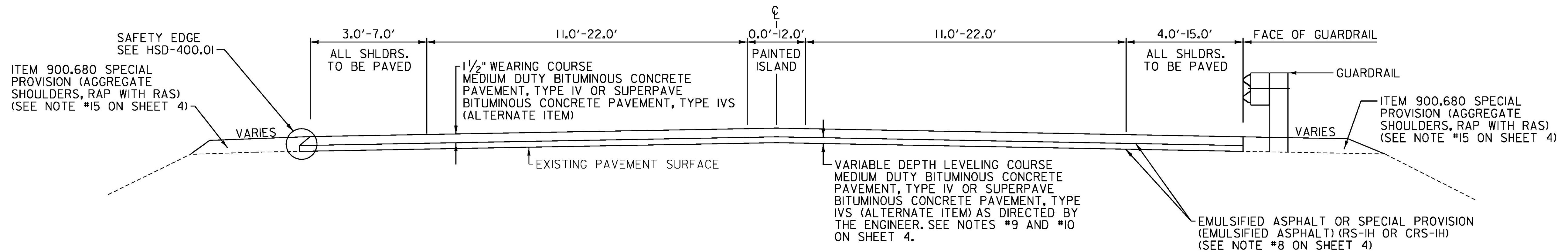
PROJECT NAME:	ROXBURY-NORTHFIELD
PROJECT NUMBER:	STP FPAV(6)
FILE NAME:	z16v027frm.dgn
PROJECT LEADER:	P. SHEDD
DESIGNED BY:	N. LEMAY
PROJECT NOTES	
PLOT DATE:	2/8/2017
DRAWN BY:	S. GOODWIN
CHECKED BY:	P. SHEDD
SHEET	4 OF 21

# ALTERNATES ZA1 & ZA2



## TYPICAL SECTION

ROXBURY		NORTHFIELD
21+59 TO 50+00 (2 FEET SHOULDERS)	N 0+00 TO N 1+21 (2 FEET SHOULDERS)	N 1+21 TO N 14+86 (2.5 FEET SHOULDERS)
50+00 TO 60+00 (2.5 FEET SHOULDERS)	N 1+21 TO N 14+86 (2.5 FEET SHOULDERS)	N 14+86 TO N 21+00 (2 FEET SHOULDERS)
60+00 TO 62+25 (2 FEET SHOULDERS)	N 21+00 TO N 32+60 RT (2.5 FEET SHOULDER)	N 21+00 TO N 41+45 LT (2.5 FEET SHOULDER)
62+25 TO 76+50 (2.5 FEET SHOULDERS)	N 21+00 TO N 41+45 LT (2.5 FEET SHOULDER)	N 32+60 TO N 33+30 RT (0.5 FEET SHOULDER)
76+50 TO 78+09 (2 FEET SHOULDERS)	N 33+30 TO N 41+45 RT (2.5 FEET SHOULDER)	N 33+30 TO N 41+45 RT (2.5 FEET SHOULDER)
	N 41+45 TO N 47+00 (1.5 FEET SHOULDERS)	N 41+45 TO N 47+00 (1.5 FEET SHOULDERS)
	N 47+00 TO N 58+33 (2 FEET SHOULDERS)	N 47+00 TO N 58+33 (2 FEET SHOULDERS)
	N 58+33 TO N 63+85 (2.5 FEET SHOULDERS)	N 58+33 TO N 63+85 (2.5 FEET SHOULDERS)
	N 63+85 TO N 76+39 (3 FEET SHOULDERS)	N 63+85 TO N 76+39 (3 FEET SHOULDERS)
	N 76+39 TO N 76+53 (2 FEET SHOULDERS)	N 76+39 TO N 76+53 (2 FEET SHOULDERS)
	N 77+87 TO N 78+41 (2 FEET SHOULDERS)	N 77+87 TO N 78+41 (2 FEET SHOULDERS)
	N 78+41 TO N 87+47 (3 FEET SHOULDERS)	N 78+41 TO N 87+47 (3 FEET SHOULDERS)
	N 87+47 TO N 101+00 (2.5 FEET SHOULDERS)	N 87+47 TO N 101+00 (2.5 FEET SHOULDERS)
	N 101+00 TO N 102+93 (3 FEET SHOULDERS)	N 101+00 TO N 102+93 (3 FEET SHOULDERS)



## TYPICAL SECTION

NORTHFIELD
N 102+93 TO N 103+50 (7 FEET SHOULDERS)
N 103+50 TO N 104+60 LT (5 FEET SHOULDER)
N 103+50 TO N 106+85 RT (9 FEET SHOULDER)
N 104+60 TO N 106+85 LT (3 FEET SHOULDER)
N 106+85 TO N 107+50 RT (4 FEET SHOULDER)
N 106+85 TO N 112+48 LT (4 FEET SHOULDER)
N 107+50 TO N 108+02 RT (15 FEET SHOULDER)
N 108+02 TO N 111+10 RT (8 FEET SHOULDER)
N 111+10 TO N 112+48 RT (6 FEET SHOULDER)

NOT TO SCALE

PROJECT NAME: ROXBURY-NORTHFIELD

PROJECT NUMBER: STP FPAV(6)

FILE NAME: z16v027frm.dgn

PLOT DATE: 2/8/2017

PROJECT LEADER: P. SHEDD

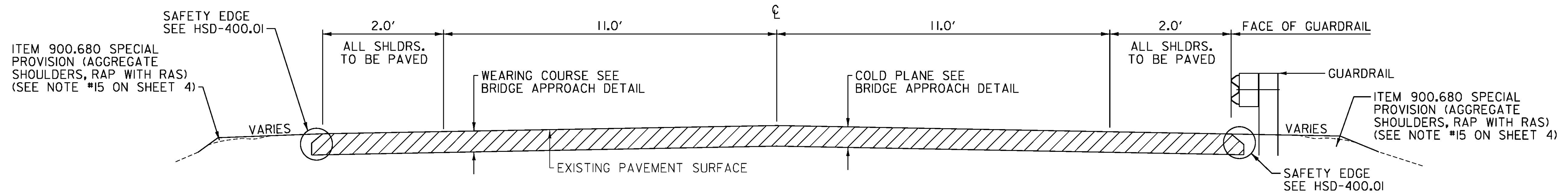
DRAWN BY: S. GOODWIN

DESIGNED BY: N. LEMAY

CHECKED BY: P. SHEDD

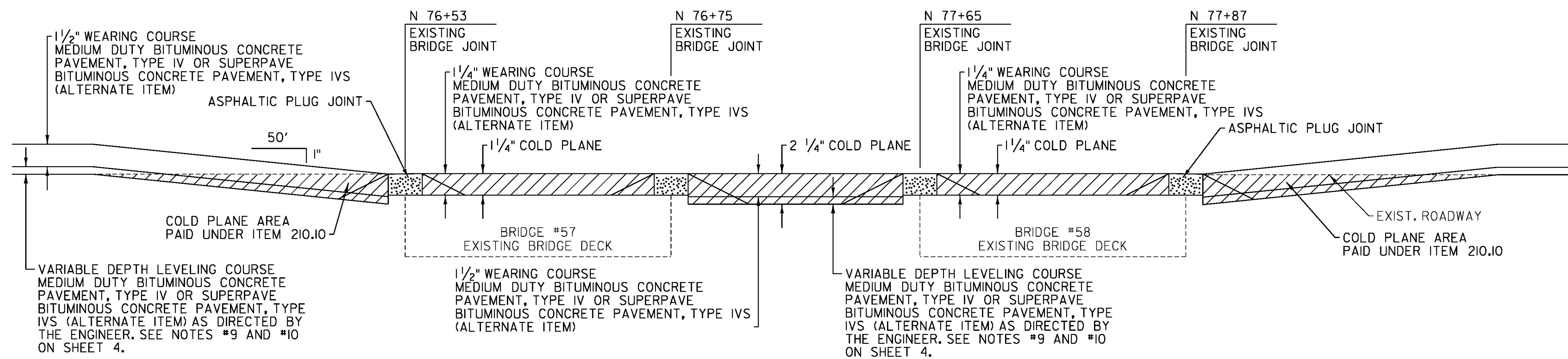
TYPICAL SECTION SHEET 1

SHEET 5 OF 21



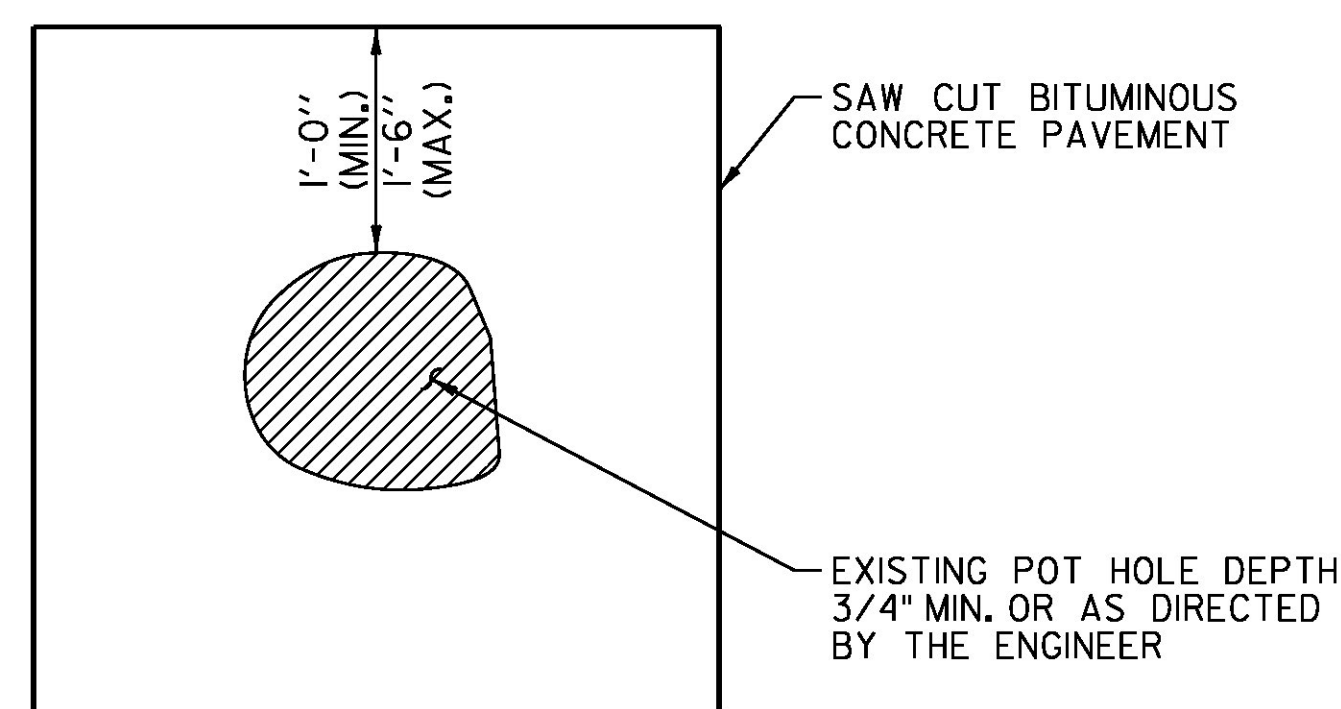
**TYPICAL SECTION**

NORTHFIELD  
N 76+53 TO N 77+87 (2 FEET SHOULDERS)



**BRIDGE APPROACH DETAIL**

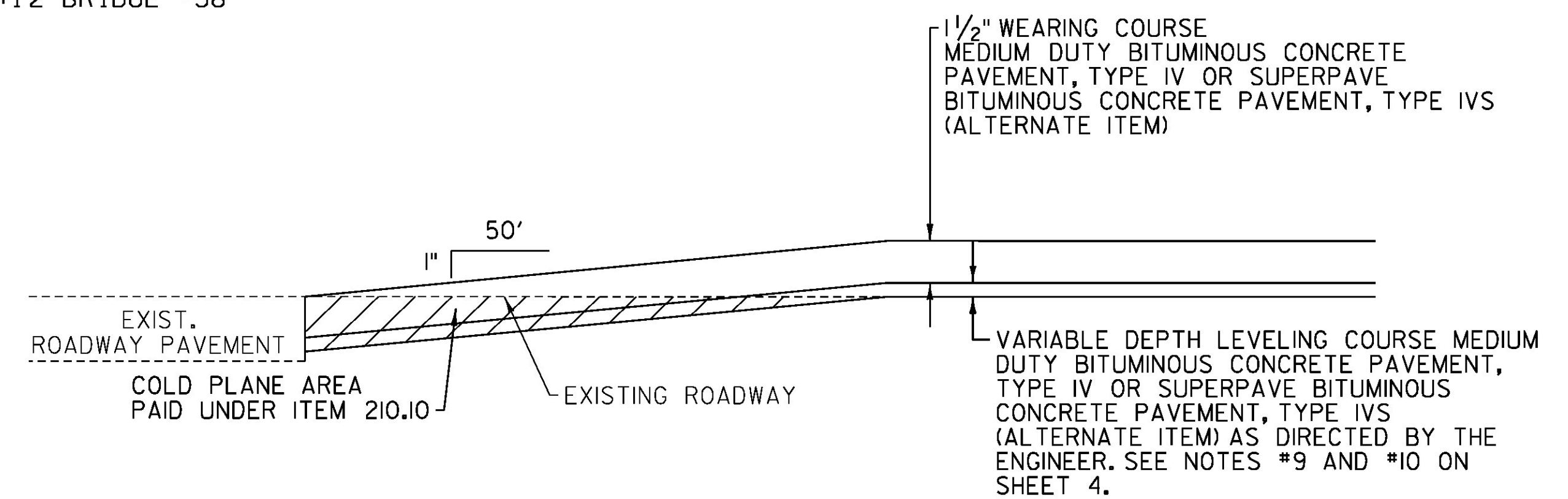
NORTHFIELD N 75+28 - N 76+53 BRIDGE #57  
N 77+87 - N 79+12 BRIDGE #58



**TYPICAL POT HOLE REPAIR**

TYPICAL POT HOLE REPAIR NOTES

- ITEM 404.65 EMULSIFIED ASPHALT OR ITEM 900.683 SPECIAL PROVISION (EMULSIFIED ASPHALT) (RS-IH OR CRS-IH) OPTION ITEM SHALL BE APPLIED AT ALL PATCH INTERFACES AT A RATE OF 0.25 - 0.50 GAL/SY. EMULSIFIED ASPHALT SHALL MEET THE REQUIREMENTS OF SECTION 404 AND WILL BE CONSIDERED INCIDENTAL TO ITEM 900.680 SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT SURFACE PREPARATION, TYPE I).
- ALL WORK ASSOCIATED WITH POT HOLE REPAIR WILL BE PAID UNDER ITEM 900.680 SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT SURFACE PREPARATION, TYPE I).



**MAINLINE APPROACH DETAIL**

ROXBURY 21+59 - 22+84  
NORTHFIELD N 111+23 - N 112+48

NOT TO SCALE

PROJECT NAME: ROXBURY-NORTHFIELD	
PROJECT NUMBER: STP FPAV(6)	
FILE NAME: z16v027frm.dgn	PLOT DATE: 2/8/2017
PROJECT LEADER: P. SHEDD	DRAWN BY: S. GOODWIN
DESIGNED BY: N. LEMAY	CHECKED BY: P. SHEDD
TYPICAL SECTION SHEET 2	SHEET 6 OF 21

# QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
						ROADWAY	BRIDGE	FULL C.E.	ROADWAY (ALTERNATE ZA1)	ROADWAY (ALTERNATE ZA2)	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						6175					6175		LF	SHOULDER BERM REMOVAL	203.40	EST.			COLD PLANING, BITUMINOUS PAVEMENT
						1					1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	-	361 SY		BEGIN PROJECT
						2075					2075		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	27	375 SY		BRIDGE 57 APPROACH
						300					300		TON	SUBBASE OF CRUSHED GRAVEL, FINE GRADED	301.28	EST.	388 SY		BRIDGE 57 & BRIDGE 58
														BEGIN OPTION AA			375 SY		BRIDGE 58 APPROACH
						520					520		CWT	EMULSIFIED ASPHALT	404.65	1	549 SY		END PROJECT
						520					520		CWT	SPECIAL PROVISION (EMULSIFIED ASPHALT) (RS-1H OR CRS-1H)	900.683	1			
														END OPTION AA					
						1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	-	2048 SY		SUBTOTAL
							55				55		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	3	27 SY		ROUNDING
							50				50		CF	RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE	580.20	EST.	2075 SY		TOTAL
						35					35		HR	POWER GRADER RENTAL	608.15	EST.			
						105					105		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25	EST.			
						25					25		HR	POWER BROOM RENTAL, TYPE I	608.30	EST.			
						45					45		HR	POWER BROOM RENTAL, TYPE II	608.31	EST.			
						210					210		HR	TRUCK RENTAL	608.37	EST.			
						15					15		HR	LOADER RENTAL, TYPE I	608.40	EST.			
						550					550		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20	17.5			
						270					270		EACH	STEEL BEAM GUARDRAIL DELINEATOR	621.218	EST.			
						12					12		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	-			
						2100					2100		LF	REMOVE AND RESET GUARDRAIL	621.75	25			
						525					525		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	12.5			
						320					320		HR	UNIFORMED TRAFFIC OFFICERS	630.10	EST.			
						1280					1280		HR	FLAGGERS	630.15	EST.			
								1			1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	-			
						1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11	-			
						1					1		LS	TRAFFIC CONTROL	641.10	-			
						3					3		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15	-			
						34000					34000		LF	4 INCH WHITE LINE, WATERBORNE PAINT	646.201	344			
						35100					35100		LF	4 INCH YELLOW LINE, WATERBORNE PAINT	646.2111	370			
						640					640		LF	8 INCH YELLOW LINE, WATERBORNE PAINT	646.231	14			
						15					15		EACH	LETTER OR SYMBOL, WATERBORNE PAINT	646.301	-			
						34000					34000		LF	TEMPORARY 4 INCH WHITE LINE, PAINT	646.602	344			
						35100					35100		LF	TEMPORARY 4 INCH YELLOW LINE, PAINT	646.612	370			
						15					15		EACH	TEMPORARY LETTER OR SYMBOL, PAINT	646.692	-			
						6850					6850		EACH	LINE STRIPING TARGETS	646.76	83			
						24					24		EACH	DELINEATOR WITH STEEL POST	676.10	EST.			
						24					24		EACH	REMOVAL OF EXISTING DELINEATOR	676.12	EST.			
						1					1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50	-			
						600					600		SY	SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES)	900.675	2			

PROJECT NAME: ROXBURY-NORTHFIELD  
PROJECT NUMBER: STP FPAV(6)  
FILE NAME: z16v027frm.dgn PLOT DATE: 2/8/2017  
PROJECT LEADER: P. SHEDD DRAWN BY: S. GOODWIN  
DESIGNED BY: N. LEMAY CHECKED BY: P. SHEDD  
QUANTITY SHEET 1 SHEET 7 OF 21





LOCATION			GUARDRAIL																		REMARKS
			621.20	621.60	621.75	621.80	676.10	676.12													
MM	MM	POS	STEEL BEAM GUARDRAIL GALV.	ANCHOR FOR STEEL BEAM RAIL	REMOVE AND RESET GUARDRAIL	REMOVAL & DISPOSAL OF GUARDRAIL	DELIN. W/STEEL POST	REMOVAL OF EXIST. DELIN.													
			LF	EACH	LF	LF	EACH	EACH													
N 80+96.0	N 82+33.5	LT			137.5			1													
N 82+33.5	N 86+22.0	LT							RETAIN GUARDRAIL												
N 86+22.0	N 87+47.0	LT			125.0			1													
N 95+82.0	N 98+29.5	LT						1	RETAIN GUARDRAIL												
N 98+29.5	N 98+92.0	LT			62.5			1													
N 99+14.0	N 99+76.5	LT			62.5			1													
N 99+76.5	N 106+09.0	LT							RETAIN GUARDRAIL												
N 106+09.0	N 106+91.0	LT			75.0				RETAIN GUARDRAIL ON TH 5												
N 106+91.0		LT																			
N 105+07.0	N 106+57.0	RT						1	RETAIN GUARDRAIL												
N 106+57.0	N 106+59.0	RT	62.5			62.5			RETAIN GUARDRAIL (ENDS ON VT ROUTE 64)												
N 106+59.0		RT																			
SUBTOTAL SHEET 9			470.0	12	1612.5	450.0	18	24													
SUBTOTAL SHEET 10			62.5	0	462.5	62.5	6	0													
PROJECT SUBTOTAL			532.5	12	2075.0	512.5	24	24													
TOTAL ROUNDING			17.5	0	25.0	12.5	0	0													
PROJECT TOTAL			550.0	12	2100.0	525.0	24	24													

PROJECT NAME: ROXBURY-NORTHFIELD	PLOT DATE: 2/8/2017
PROJECT NUMBER: STP FPAV(6)	DRAWN BY: S. GOODWIN
FILE NAME: z16v027frm.dgn	CHECKED BY: P. SHEDD
DESIGNED BY: N. LEMAY	SHEET 10 OF 21
ITEM DETAIL SHEET 2	

**GUARDRAIL REPLACEMENT GUIDELINES**

DAMAGE TYPE	REPAIR THRESHOLD	RELATIVE PRIORITY	MEASUREMENT
POST AND RAIL DEFLECTION	ONE OR MORE OF THE FOLLOWING THRESHOLDS:  <ul style="list-style-type: none"> <li>MORE THAN 9 IN. OF LATERAL DEFLECTION ANYWHERE OVER A 25 FT LENGTH OF RAIL TOP OF RAIL</li> <li>HEIGHT 2 OR MORE IN. LOWER THAN ORIGINAL TOP OF RAIL HEIGHT</li> </ul>	HIGH	
	6 - 9 IN. LATERAL DEFLECTION ANYWHERE OVER A 25-FT LENGTH OF RAIL	MEDIUM	
	LESS THAN 6 IN. OF LATERAL DEFLECTION OVER A 25-FT LENGTH OR RAIL	LOW	
(WEAK POST W-BEAM SHOWN ONLY FOR CLARITY. EACH MEASUREMENT TAKEN AT THE RAIL'S MIDDLE FOLD)			
RAIL DEFLECTION ONLY	6 - 9 IN. OF LATERAL DEFLECTION BETWEEN ANY TWO ADJACENT POSTS.  NOTE: FOR DEFLECTION OVER 9 IN., USE POST/RAIL DEFLECTION GUIDELINES	MEDIUM	
	LESS THAN 6 IN. OF LATERAL DEFLECTION BETWEEN ANY TWO ADJACENT POSTS	LOW	
RAIL FLATTENING	ONE OR MORE OF THE FOLLOWING THRESHOLDS:  <ul style="list-style-type: none"> <li>RAIL CROSS SECTION HEIGHT MORE THAN 17 IN. (SUCH AS MAY OCCUR IF RAIL IS FLATTENED)</li> <li>RAIL CROSS SECTION HEIGHT LESS THAN 9 IN. (SUCH AS A DENT TO TOP EDGE)</li> <li>WHEN GUARDRAIL IS TO BE REMOVED AND RESET, PANELS WITH A RAIL CROSS SECTION HEIGHT OF 15 INCHES OR GREATER SHALL BE REPLACED</li> </ul>	MEDIUM	
	RAIL CROSS SECTION HEIGHT BETWEEN 9 AND 17 IN.	LOW	
POSTS SEPARATED FROM RAIL	<ul style="list-style-type: none"> <li>2 OR MORE POSTS WITH BLOCKOUT ATTACHED WITH POST/RAIL SEPARATION LESS THAN 3 IN.</li> <li>1 OR MORE POSTS WITH POST/RAIL SEPARATION WHICH EXCEEDS 3 IN.</li> </ul>	MEDIUM	
		LOW	
	<ul style="list-style-type: none"> <li>1 POST, WITH BLOCKOUT ATTACHED, WITH POST/RAIL SEPARATION LESS THAN 3 IN.</li> </ul>	LOW	NOTE: 1. IF THE BLOCKOUT IS NOT FIRMLY ATTACHED TO THE POST, USE THE MISSING BLOCKOUT GUIDELINES. 2. DAMAGE SHOULD ALSO BE EVALUATED AGAINST POST/RAIL DEFLECTION GUIDELINES.

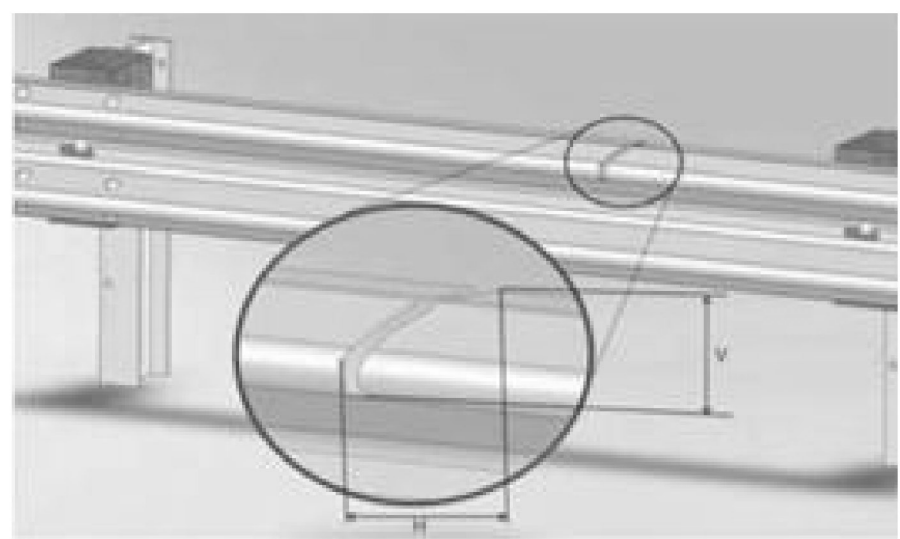
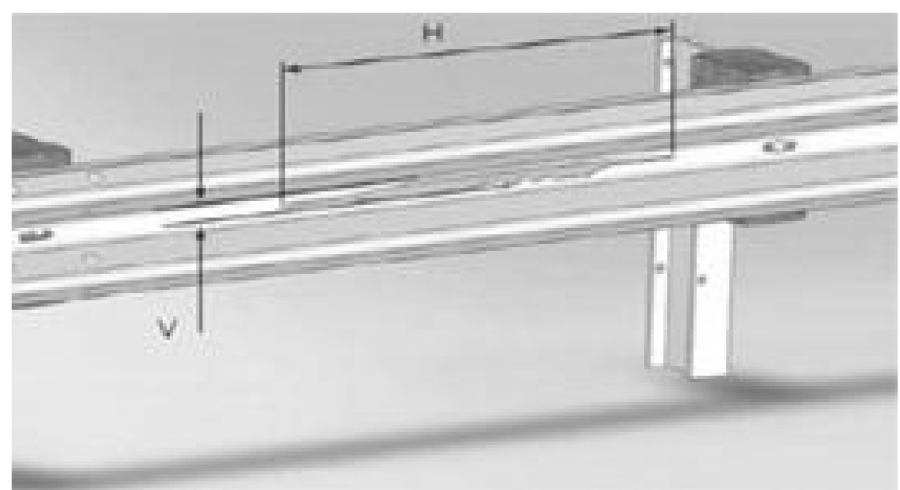
DAMAGE TYPE	REPAIR THRESHOLD	RELATIVE PRIORITY	MEASUREMENT
MISSING/BROKEN POSTS	1 OR MORE POSTS  <ul style="list-style-type: none"> <li>MISSING</li> <li>CRACKED ACROSS THE GRAIN</li> <li>BROKEN</li> <li>ROTTED</li> <li>WITH METAL TEARS</li> </ul>	HIGH	
MISSING BLOCKOUT	ANY BLOCKOUTS  <ul style="list-style-type: none"> <li>MISSING</li> <li>CRACKED ACROSS THE GRAIN</li> <li>CRACKED FROM TOP OR BOTTOM OF BLOCKOUT THROUGH POST BOLT HOLE</li> <li>ROTTED</li> </ul>	MEDIUM	
TWISTED BLOCKOUTS	ANY MISALIGNED BLOCKOUTS, TOP EDGE OF BLOCK 6 IN. OR MORE FROM BOTTOM EDGE  NOTE: REPAIRS OF TWISTED BLOCKOUT ARE RELATIVELY QUICK AND INEXPENSIVE	LOW	
DAMAGE AT A RAIL SPLICE	MORE THAN 1 SPLICE BOLT: <ul style="list-style-type: none"> <li>MISSING</li> <li>DAMAGED</li> <li>VISIBLY MISSING ANY UNDERLYING RAIL</li> <li>TORN THROUGH RAIL</li> </ul>	HIGH	
	1 SPLICE BOLT: <ul style="list-style-type: none"> <li>MISSING</li> <li>DAMAGED</li> <li>VISIBLY MISSING ANY UNDERLYING RAIL</li> <li>TORN THROUGH RAIL</li> </ul>	MEDIUM	
NON-MANUFACTURED HOLE  (SUCH AS CRASH-INDUCED HOLES, LUG-NUT DAMAGE, OR HOLES RUSTED-THROUGH THE RAIL)	<ul style="list-style-type: none"> <li>MORE THAN 2 HOLES LESS THAN 1IN. HEIGHT IN A 12.5-FT LENGTH OF RAIL</li> <li>ANY HOLES GREATER THAN 1IN. IN HEIGHT</li> <li>ANY HOLE WHICH INTERSECTS EITHER THE TOP OR BOTTOM EDGE OF THE RAIL</li> </ul>	HIGH	
	1- 2 HOLES LESS THAN 1IN. IN HEIGHT IN A 12.5-FT LENGTH OF RAIL	MEDIUM	


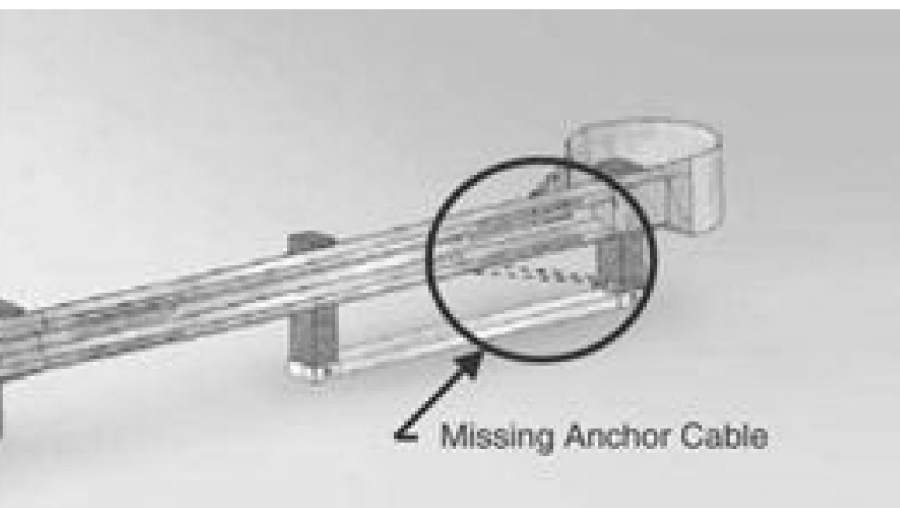
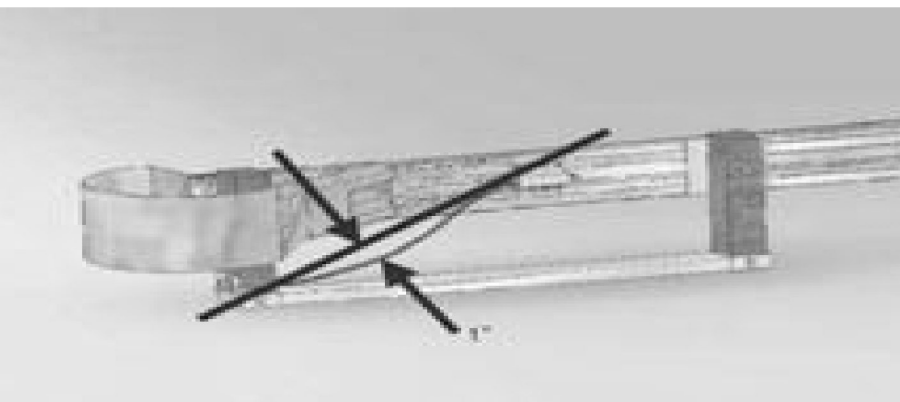
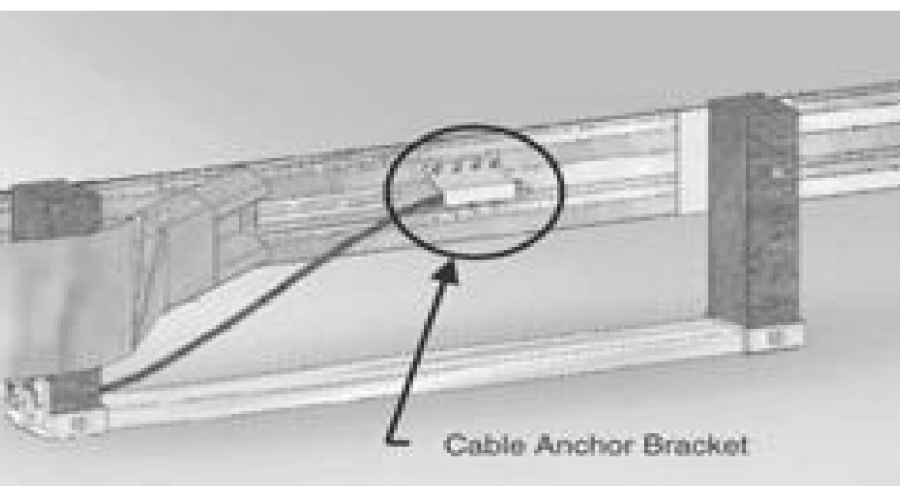
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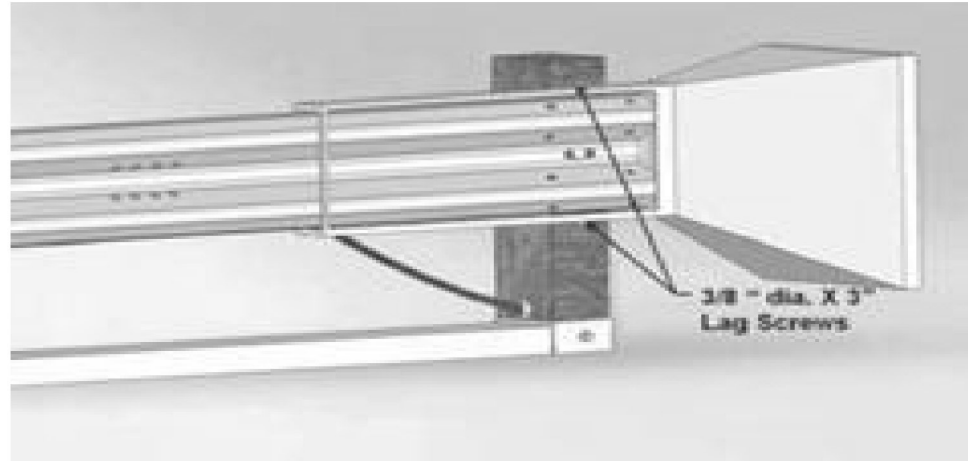
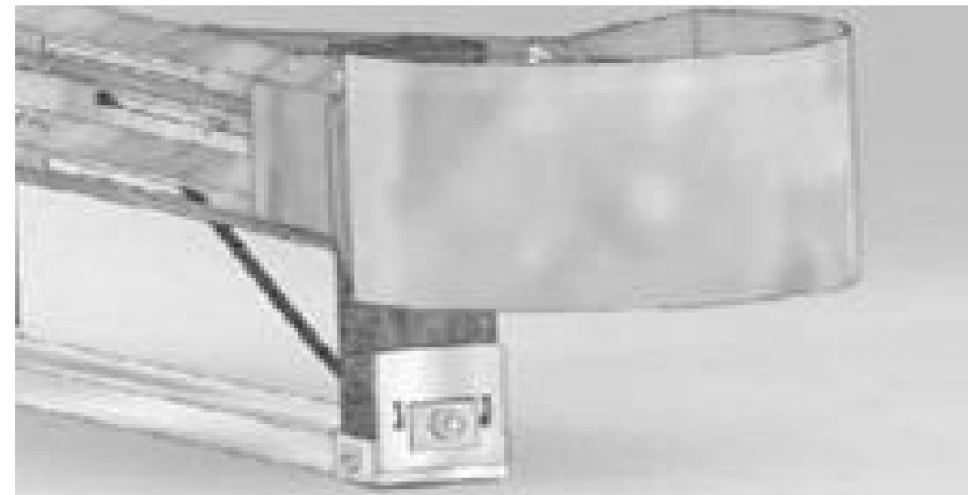
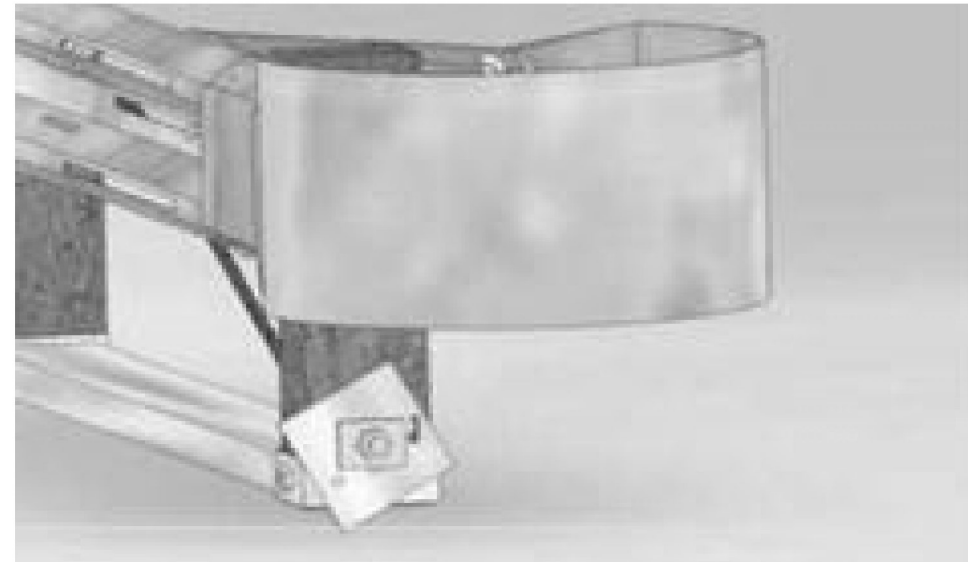
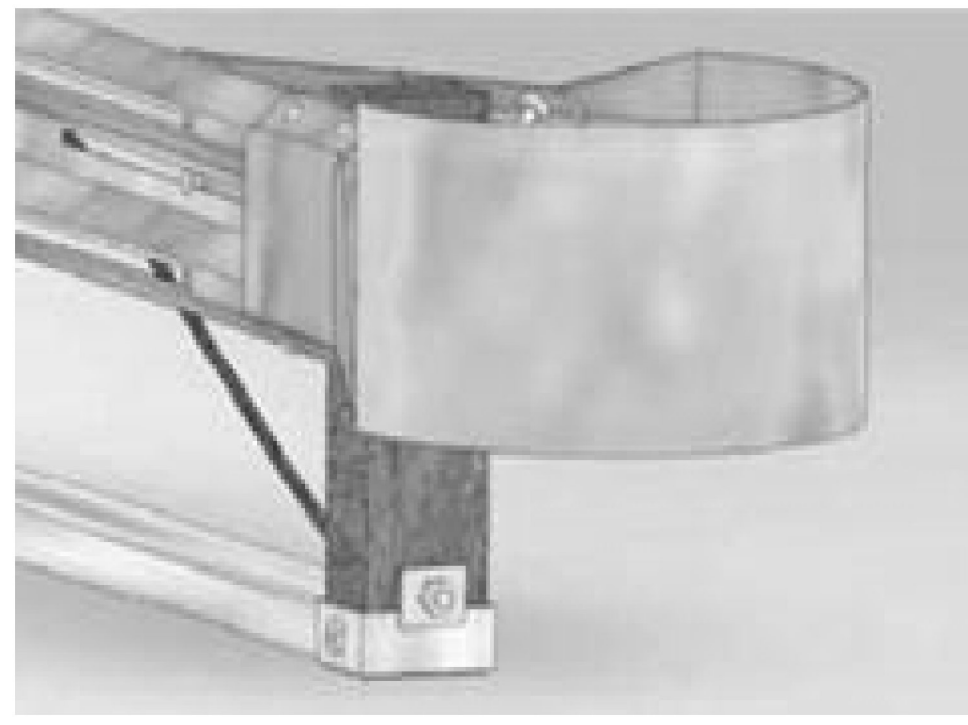
- THESE ARE GUIDELINES FOR THE EVALUATION OF EXISTING GUARDRAIL. THESE ARE GUIDELINES ONLY AND THE CONTRACTOR SHALL REPLACE GUARDRAIL AS DIRECTED BY THE ENGINEER.
- GUIDELINES ARE FROM THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 656, "CRITERIA FOR RESTORATION OF LONGITUDINAL BARRIERS", COPYRIGHT 2010.

PROJECT NAME:	ROXBURY-NORTHFIELD
PROJECT NUMBER:	STP FPAV(6)
FILE NAME:	z16v027frm.dgn
PROJECT LEADER:	P. SHEDD
DESIGNED BY:	N. LEMAY
GUARDRAIL REPLACEMENT DETAIL SHEET I	SHEET II OF 21
PLOT DATE:	2/8/2017
DRAWN BY:	S. GOODWIN
CHECKED BY:	P. SHEDD

**GUARDRAIL REPLACEMENT GUIDELINES**

DAMAGE TYPE	REPAIR THRESHOLD	RELATIVE PRIORITY	MEASUREMENT
VERTICAL TEAR	ANY LENGTH VERTICAL (TRANSVERSE) TEAR	HIGH	
HORIZONTAL TEAR	HORIZONTAL (LONGITUDINAL) GREATER THAN 12 IN. LONG AND GREATER THAN 0.5 IN. WIDE  NOTE: FOR HORIZONTAL TEARS LESS THAN 12 IN. IN LENGTH OR LESS THAN 0.5 IN. IN HEIGHT, USE THE NON-MANUFACTURED HOLES GUIDELINES	MEDIUM	

DAMAGE	REPAIR THRESHOLD	RELATIVE PRIORITY	MEASUREMENT
DAMAGED END POST	NOT FUNCTIONAL (SHEARED, ROTTED CRACKED ACROSS THE GRAIN)	HIGH	
ANCHOR CABLE	MISSING	HIGH	
ANCHOR CABLE	LOOSE - MORE THAN 1IN. OF MOVEMENT WHEN PUSHED DOWN BY HAND	MEDIUM	
CABLE ANCHOR BRACKET	LOOSE OR NOT FIRMLY SEATED IN RAIL	MEDIUM	

DAMAGE	REPAIR THRESHOLD	RELATIVE PRIORITY	MEASUREMENT
STUB HEIGHT	HEIGHT WHICH EXCEEDS 4 IN.	MEDIUM	
LAG SCREWS (ENERGY ABSORBING TERMINALS ONLY)	MISSING OR FAILED LAG SCREWS	HIGH	
BEARING PLATE	LOOSE OR MISALIGNED	MEDIUM	 (CORRECT BEARING PLATE)
			 (MISALIGNED BEARING PLATE)
			 (MISSING BEARING PLATE)

**NOTES:**

1. THESE ARE GUIDELINES FOR THE EVALUATION OF EXISTING GUARDRAIL. THESE ARE GUIDELINES ONLY AND THE CONTRACTOR SHALL REPLACE GUARDRAIL AS DIRECTED BY THE ENGINEER.
2. GUIDELINES ARE FROM THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 656, "CRITERIA FOR RESTORATION OF LONGITUDINAL BARRIERS", COPYRIGHT 2010.

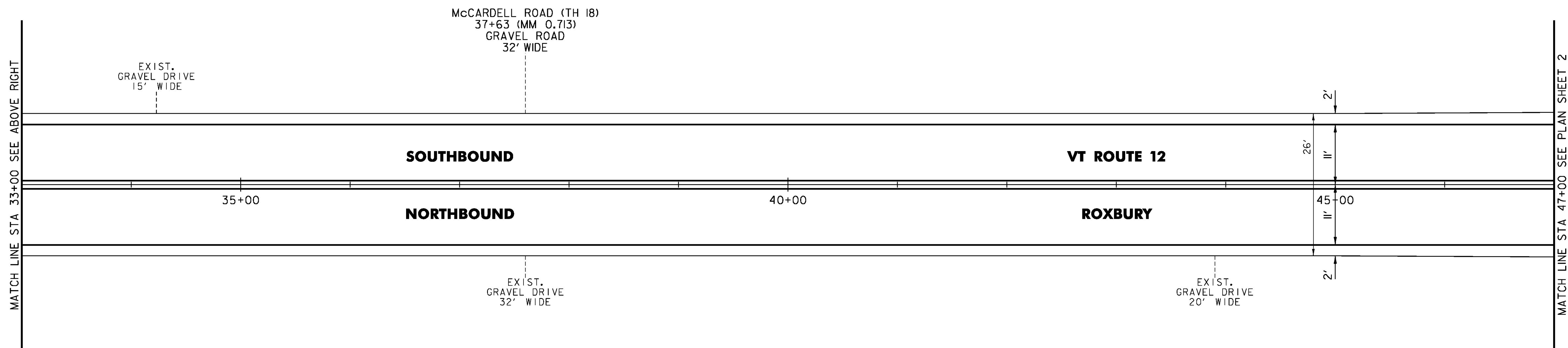
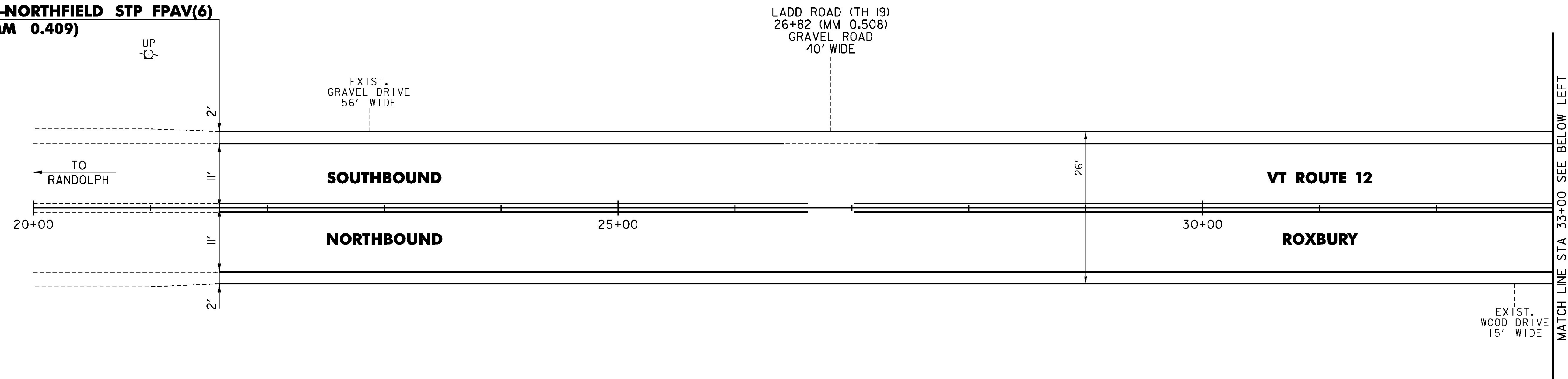
PROJECT NAME:	ROXBURY-NORTHFIELD
PROJECT NUMBER:	STP FPAV(6)
FILE NAME: z16v027frm.dgn	PLOT DATE: 2/8/2017
PROJECT LEADER: P. SHEDD	DRAWN BY: S. GOODWIN
DESIGNED BY: N. LEMAY	CHECKED BY: P. SHEDD
GUARDRAIL REPLACEMENT DETAIL SHEET 2	SHEET 12 OF 21



TEMPORARY 4 INCH WHITE LINE, PAINT  
 4 INCH WHITE LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE EDGE LINE  
 BREAKS AND RADII FOR SIDE ROADS)  
 21+59 TO 47+00 LT & RT (SOLID)

TEMPORARY 4 INCH YELLOW LINE, PAINT  
 4 INCH YELLOW LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE  $\phi$   
 BREAKS FOR SIDE ROADS)  
 21+59 TO 47+00 LT & RT (SOLID)

**BEGIN ROXBURY-NORTHFIELD STP FPAV(6)**  
**STA 21+59.00 (MM 0.409)**

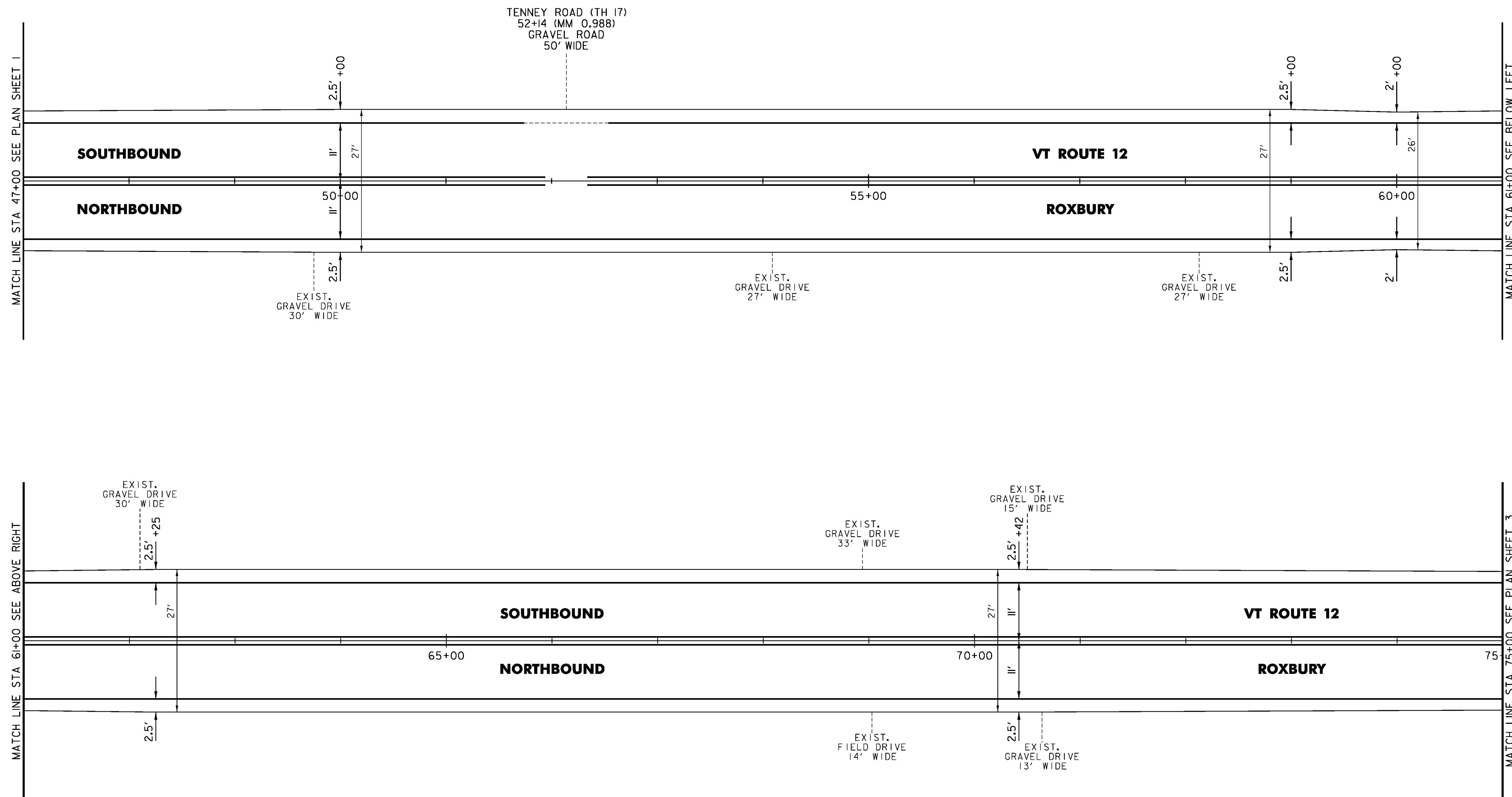


PROJECT NAME:	ROXBURY-NORTHFIELD
PROJECT NUMBER:	STP FPAV(6)
FILE NAME:	z16v027bdr.dgn
PROJECT LEADER:	P. SHEDD
DESIGNED BY:	N. LEMAY
PLAN SHEET 1	
PLOT DATE:	2/8/2017
DRAWN BY:	S. GOODWIN
CHECKED BY:	P. SHEDD
SHEET	14 OF 21

NOT TO SCALE

TEMPORARY 4 INCH WHITE LINE, PAINT  
 4 INCH WHITE LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE EDGE LINE  
 BREAKS AND RADII FOR SIDE ROADS)  
 47+00 TO 75+00 LT & RT (SOLID)

TEMPORARY 4 INCH YELLOW LINE, PAINT  
 4 INCH YELLOW LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE  $\phi$   
 BREAKS FOR SIDE ROADS)  
 47+00 TO 75+00 LT & RT (SOLID)



PROJECT NAME:	ROXBURY-NORTHFIELD
PROJECT NUMBER:	STP FPAV(6)
FILE NAME:	z16v027bdr.dgn
PROJECT LEADER:	P. SHEDD
DESIGNED BY:	N. LEMAY
PLAN SHEET 2	
PLOT DATE:	2/8/2017
DRAWN BY:	S. GOODWIN
CHECKED BY:	P. SHEDD
SHEET	15 OF 21

NOT TO SCALE

TEMPORARY 4 INCH WHITE LINE, PAINT  
 4 INCH WHITE LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE EDGE LINE  
 BREAKS AND RADII FOR SIDE ROADS)  
 75+00 TO N 25+00 LT & RT (SOLID)

TEMPORARY 4 INCH YELLOW LINE, PAINT  
 4 INCH YELLOW LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE C  
 BREAKS FOR SIDE ROADS)  
 75+00 TO N 25+00 LT & RT (SOLID)

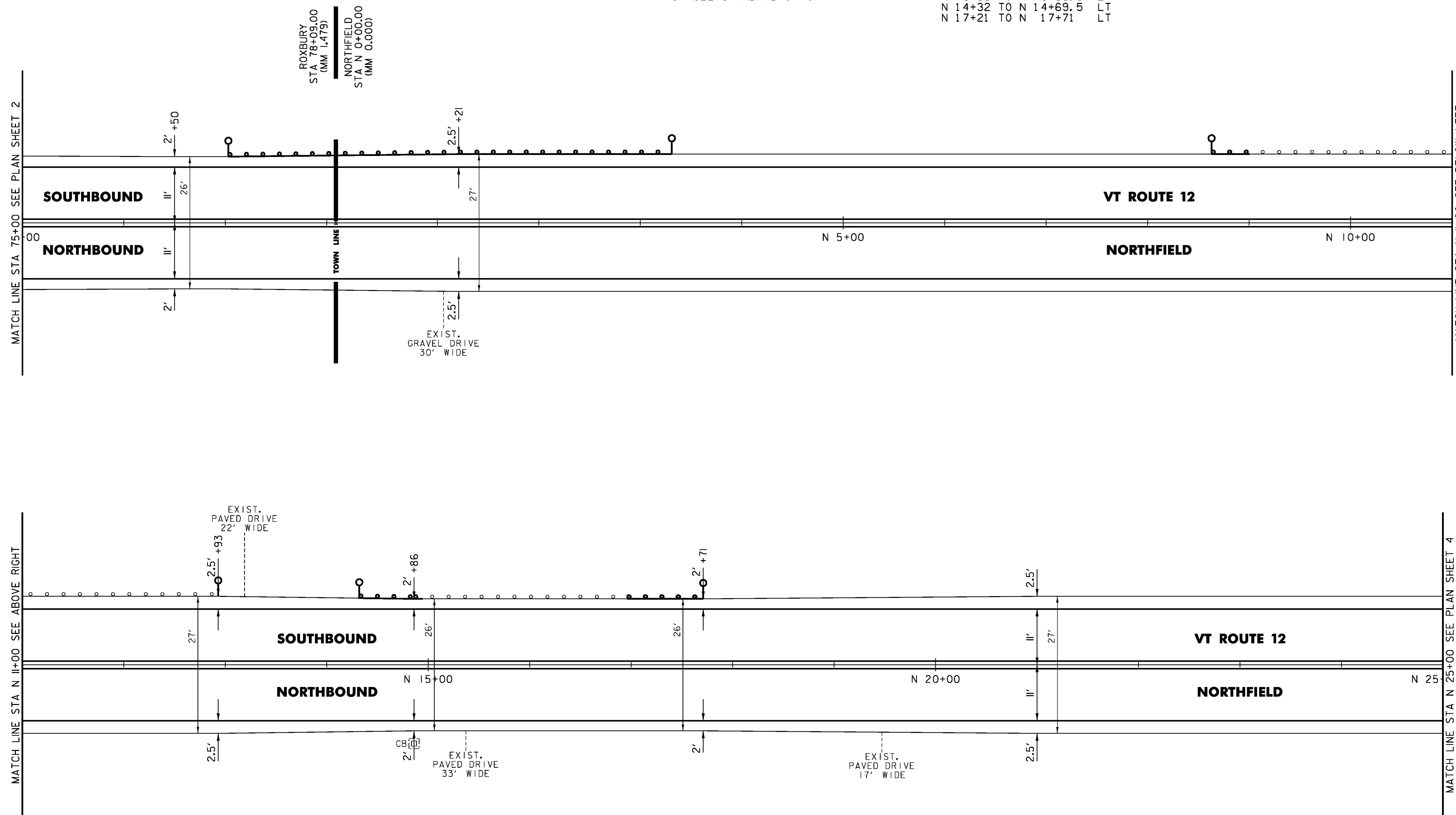
STEEL BEAM GUARDRAIL, GALVANIZED  
 77+03 TO 77+40.5 LT  
 N 2+81 TO N 3+31 LT  
 N 8+63 TO N 9+00.5 LT  
 N 14+32 TO N 14+69.5 LT  
 N 17+21 TO N 17+71 LT

ANCHOR FOR STEEL BEAM RAIL  
 5 (SEE STANDARD G-1d)

REMOVE AND RESET GUARDRAIL  
 77+40.5 TO N 2+81 LT  
 N 14+69.5 TO N 14+94.5 LT  
 N 16+96 TO N 17+21 LT

REMOVAL AND DISPOSAL OF GUARDRAIL  
 77+03 TO 77+40.5 LT  
 N 2+81 TO N 3+31 LT  
 N 8+63 TO N 9+00.5 LT  
 N 14+32 TO N 14+69.5 LT  
 N 17+21 TO N 17+71 LT

DELINEATOR WITH STEEL POST  
 77+03 LT  
 N 3+31 LT  
 N 8+63 LT  
 N 12+93 LT  
 N 14+32 LT  
 N 17+71 LT



MATCH LINE STA 75+00 SEE PLAN SHEET 2

MATCH LINE STA N 11+00 SEE BELOW LEFT

MATCH LINE STA N 11+00 SEE ABOVE RIGHT

MATCH LINE STA N 25+00 SEE PLAN SHEET 4

NOT TO SCALE

PROJECT NAME:	ROXBURY-NORTHFIELD
PROJECT NUMBER:	STP FPAV(6)
FILE NAME:	z16v027bdr.dgn
PROJECT LEADER:	P. SHEDD
DESIGNED BY:	N. LEMAY
PLAN SHEET 3	
PLOT DATE:	2/8/2017
DRAWN BY:	S. GOODWIN
CHECKED BY:	P. SHEDD
SHEET	16 OF 21

TEMPORARY 4 INCH WHITE LINE, PAINT  
 4 INCH WHITE LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE EDGE LINE  
 BREAKS AND RADII FOR SIDE ROADS)  
 N 25+00 TO N 53+00 LT & RT (SOLID)

TEMPORARY 4 INCH YELLOW LINE, PAINT  
 4 INCH YELLOW LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE  $\frac{1}{4}$   
 BREAKS FOR SIDE ROADS)  
 N 25+00 TO N 53+00 LT & RT (SOLID)

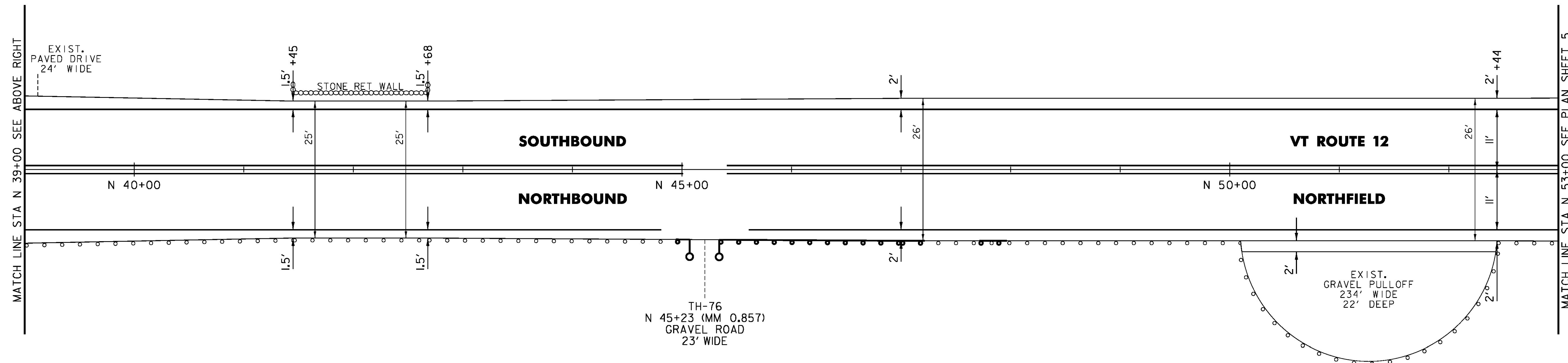
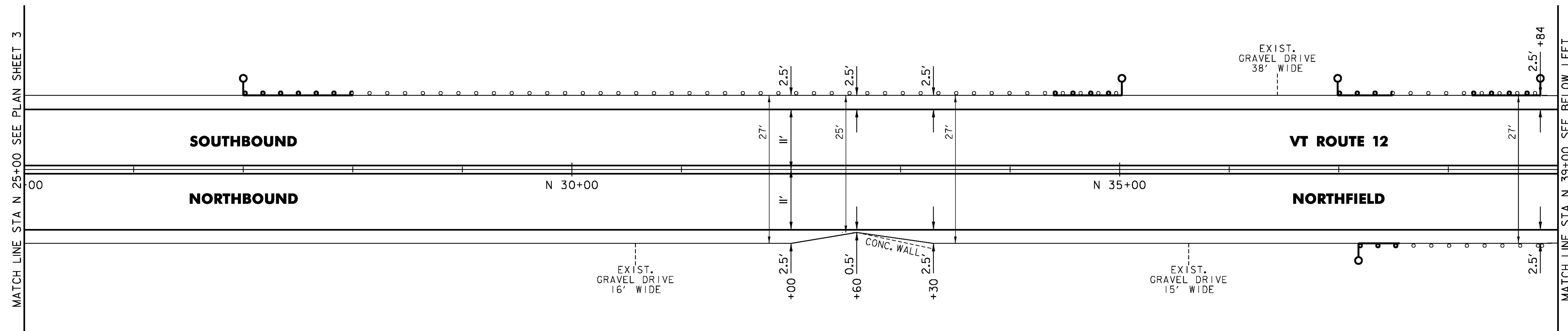
STEEL BEAM GUARDRAIL, GALVANIZED  
 N 27+00 TO N 27+50 LT  
 N 34+64.5 TO N 35+02 LT  
 N 36+99 TO N 37+49 LT  
 N 37+18 TO N 37+55.5 RT  
 N 38+46.5 TO N 38+84 LT  
 N 47+71.5 TO N 47+96.5 RT

ANCHOR FOR STEEL BEAM RAIL  
 5 (SEE STANDARD G-1d)

REMOVE AND RESET GUARDRAIL  
 N 27+50 TO N 28+00 LT  
 N 34+39.5 TO N 34+64.5 LT  
 N 38+21.5 TO N 38+46.5 LT  
 N 44+94.5 TO N 45+07 RT  
 N 45+34 TO N 47+21.5 RT

REMOVAL AND DISPOSAL OF GUARDRAIL  
 N 27+00 TO N 27+50 LT  
 N 34+64.5 TO N 35+02 LT  
 N 36+99 TO N 37+49 LT  
 N 38+46.5 TO N 38+84 LT  
 N 37+18 TO N 37+55.5 RT  
 N 47+71.5 TO N 47+96.5 RT

DELINEATOR WITH STEEL POST  
 N 27+00 LT  
 N 35+02 LT  
 N 36+99 LT  
 N 37+18 RT  
 N 38+84 LT  
 N 45+07 RT  
 N 45+34 RT



NOT TO SCALE

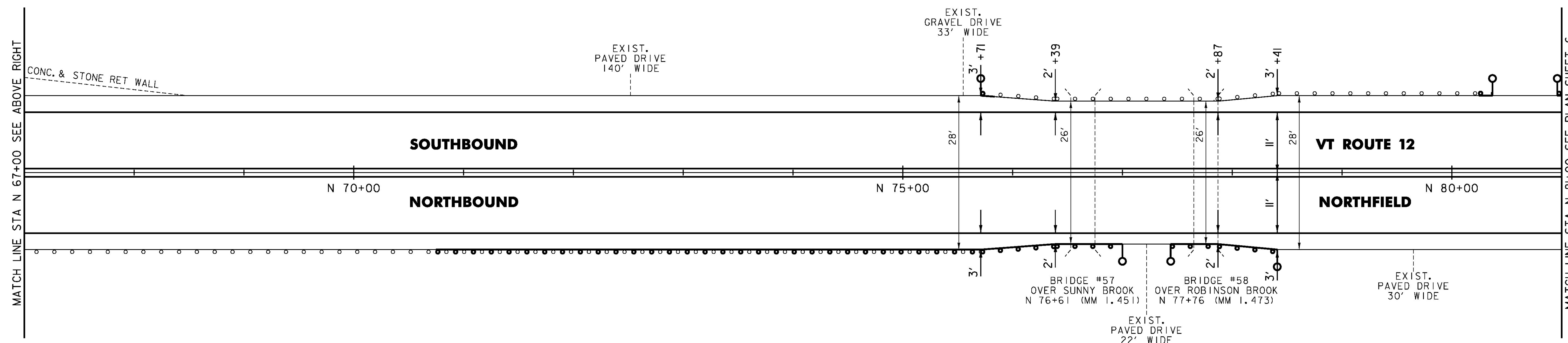
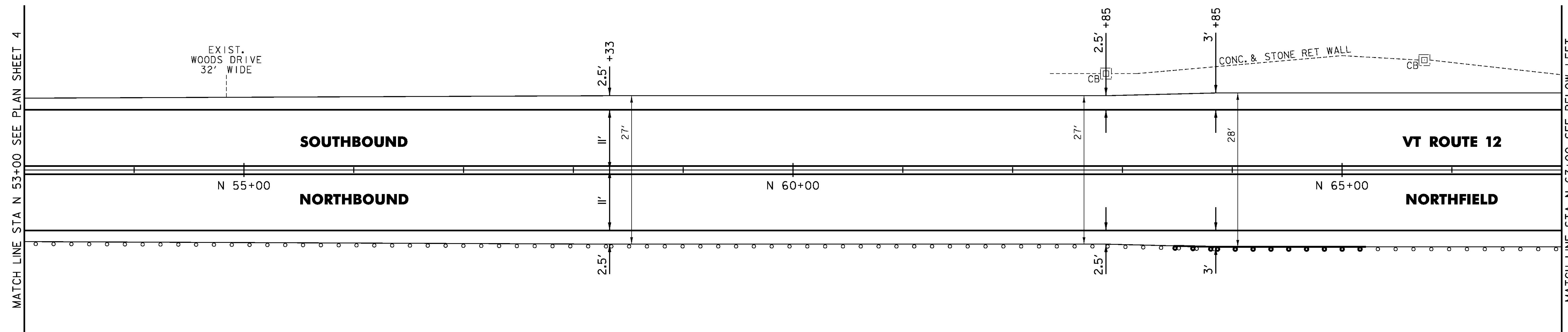
PROJECT NAME:	ROXBURY-NORTHFIELD
PROJECT NUMBER:	STP FPAV(6)
FILE NAME:	z16v027bdr.dgn
PROJECT LEADER:	P. SHEDD
DESIGNED BY:	N. LEMAY
PLAN SHEET 4	
PLOT DATE:	2/8/2017
DRAWN BY:	S. GOODWIN
CHECKED BY:	P. SHEDD
SHEET 17	OF 21

TEMPORARY 4 INCH WHITE LINE, PAINT  
 4 INCH WHITE LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE EDGE LINE  
 BREAKS AND RADII FOR SIDE ROADS)  
 N 53+00 TO N 81+00 LT & RT (SOLID)

TEMPORARY 4 INCH YELLOW LINE, PAINT  
 4 INCH YELLOW LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE  
 BREAKS FOR SIDE ROADS)  
 N 53+00 TO N 81+00 LT & RT (SOLID)

REMOVE AND RESET GUARDRAIL  
 N 63+46.5 TO N 65+21.5 RT  
 N 70+75 TO N 77+00 RT  
 N 75+71 TO N 75+83.5 LT  
 N 77+44 TO N 78+41 RT  
 N 80+24.5 TO N 80+37 LT  
 N 80+96 TO N 81+00 LT

DELINEATOR WITH STEEL POST  
 N 75+71 LT  
 N 77+00 RT  
 N 77+44 RT  
 N 78+41 RT  
 N 80+37 LT  
 N 80+96 LT



NOT TO SCALE

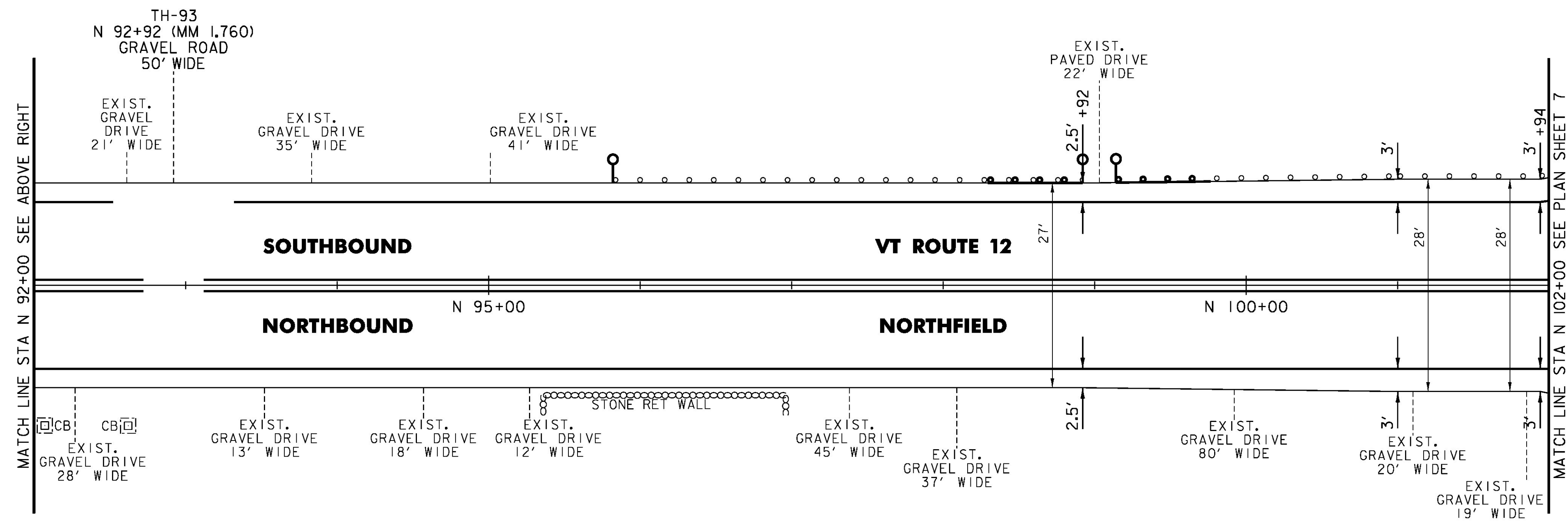
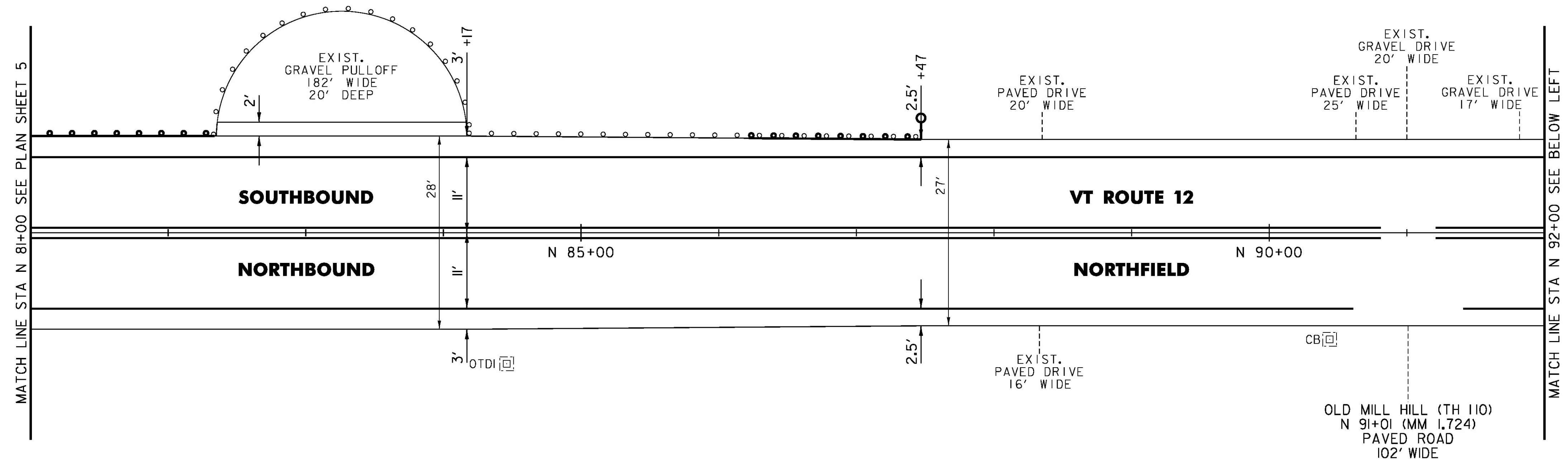
PROJECT NAME:	ROXBURY-NORTHFIELD
PROJECT NUMBER:	STP FPAV(6)
FILE NAME:	z16v027bdr.dgn
PROJECT LEADER:	P. SHEDD
DESIGNED BY:	N. LEMAY
PLAN SHEET 5	
PLOT DATE:	2/8/2017
DRAWN BY:	S. GOODWIN
CHECKED BY:	P. SHEDD
SHEET 18	OF 21

TEMPORARY 4 INCH WHITE LINE, PAINT  
 4 INCH WHITE LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE EDGE LINE  
 BREAKS AND RADII FOR SIDE ROADS)  
 N 81+00 TO TO N 102+00 LT & RT ( SOLID)

TEMPORARY 4 INCH YELLOW LINE, PAINT  
 4 INCH YELLOW LINE, WATERBORNE PAINT  
 ( ALL LINES WILL INCLUDE  
 BREAKS FOR SIDE ROADS)  
 N 81+00 TO N 102+00 LT & RT ( SOLID)

REMOVE AND RESET GUARDRAIL  
 N 81+00 TO N 82+33.5 LT  
 N 86+22 TO N 87+47 LT  
 N 98+29.5 TO N 98+92 LT  
 N 99+14 TO N 99+76.5 LT

DELINEATOR WITH STEEL POST  
 N 87+47 LT  
 N 95+82 LT  
 N 98+92 LT  
 N 99+14 LT



NOT TO SCALE

PROJECT NAME:	ROXBURY-NORTHFIELD
PROJECT NUMBER:	STP FPAV(6)
FILE NAME:	z16v027bdr.dgn
PROJECT LEADER:	P. SHEDD
DESIGNED BY:	N. LEMAY
PLAN SHEET 6	
PLOT DATE:	2/8/2017
DRAWN BY:	S. GOODWIN
CHECKED BY:	P. SHEDD
SHEET	19 OF 21

TEMPORARY 4 INCH WHITE LINE, PAINT  
 4 INCH WHITE LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE EDGE LINE  
 BREAKS AND RADII FOR SIDE ROADS)  
 N 102+00 TO N 112+48 LT & RT (SOLID)  
 N 104+86 TO N 106+18 RT (DOTTED LANE LINE)  
 N 106+18 TO N 107+08 RT (SOLID LANE LINE)  
 N 107+50 TO N 109+45 LT (SOLID LANE LINE)  
 N 109+45 TO N 111+10 LT (DOTTED LANE LINE)

TEMPORARY 4 INCH YELLOW LINE, PAINT  
 4 INCH YELLOW LINE, WATERBORNE PAINT  
 (ALL LINES WILL INCLUDE  $\sphericalangle$   
 BREAKS FOR SIDE ROADS)  
 N 102+00 TO N 112+48 LT & RT (SOLID)  
 N 102+93 TO N 107+09 LT (DOUBLE SOLID)  
 N 109+56 TO N 112+48 LT (DOUBLE SOLID)

8 INCH YELLOW LINE, WATERBORNE PAINT  
 N 102+93 TO N 107+09 LT (SOLID DIAGONAL)  
 N 109+56 TO N 112+48 LT (SOLID DIAGONAL)

TEMPORARY LETTER OR SYMBOL, PAINT  
 N 106+22 RT (RIGHT TURN ARROW)  
 N 108+19 LT (LEFT TURN ARROW)  
 N 109+41 LT (LEFT TURN ARROW)

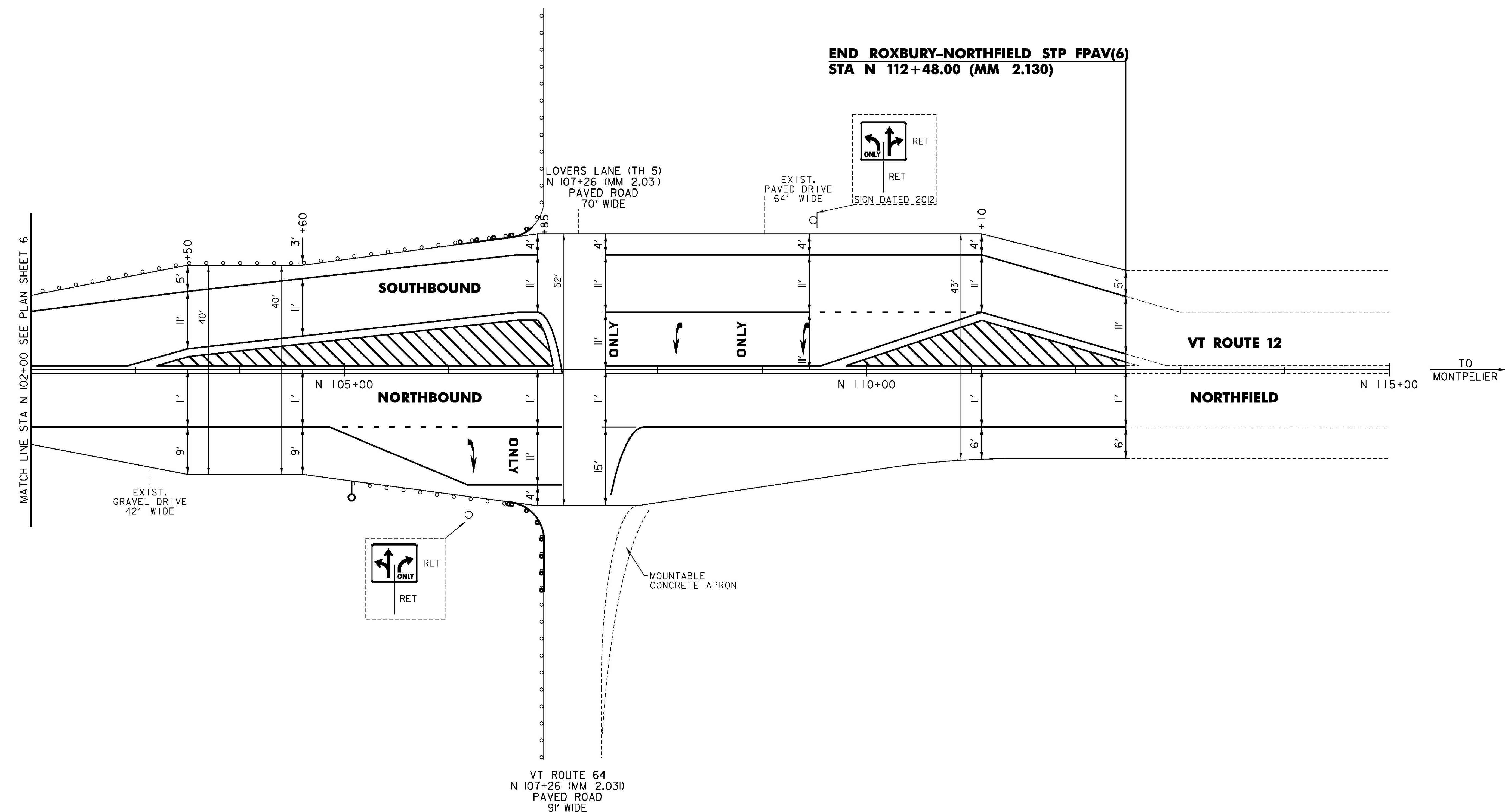
LETTER OR SYMBOL, WATERBORNE PAINT  
 N 106+22 RT (RIGHT TURN ARROW)  
 N 106+62 RT (ONLY)  
 N 107+58 LT (ONLY)  
 N 108+19 LT (LEFT TURN ARROW)  
 N 108+80 LT (ONLY)  
 N 109+41 LT (LEFT TURN ARROW)

STEEL BEAM GUARDRAIL, GALVANIZED  
 N 106+57 TO N 106+59 RT

REMOVE AND RESET GUARDRAIL  
 N 106+09 TO N 106+91 LT

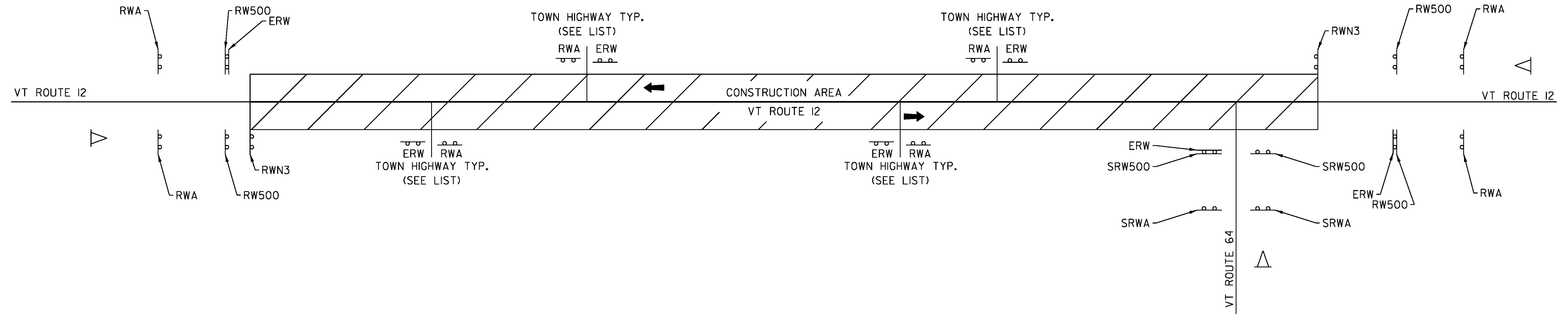
REMOVAL AND DISPOSAL OF GUARDRAIL  
 N 106+57 TO N 106+59 RT

DELINEATOR WITH STEEL POST  
 N 105+07 RT



NOT TO SCALE

PROJECT NAME:	ROXBURY-NORTHFIELD
PROJECT NUMBER:	STP FPAV(6)
FILE NAME:	z16v027bdr.dgn
PROJECT LEADER:	P. SHEDD
DESIGNED BY:	N. LEMAY
PLAN SHEET	7
PLOT DATE:	2/8/2017
DRAWN BY:	S. GOODWIN
CHECKED BY:	P. SHEDD
SHEET	20 OF 21



**TRAFFIC CONTROL NOTES**

1. THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL BE THE STANDARD FOR ALL TRAFFIC CONTROL DEVICES. EXISTING SIGNS AND MARKINGS SHALL BE VALID UNTIL SUCH TIME AS THEY ARE REPLACED OR RECONSTRUCTED. WHEN NEW TRAFFIC DEVICES ARE ERECTED OR PLACED, OR EXISTING TRAFFIC CONTROL DEVICES ARE REPLACED OR REPAIRED, THE EQUIPMENT, DESIGN, METHOD OF INSTALLATION, PLACEMENT OR REPAIR SHALL CONFORM WITH SUCH STANDARDS.
2. CONSTRUCTION ZONE SIGN LAYOUT SHALL BE IN ACCORDANCE WITH SECTION 6 OF THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND LATEST REVISIONS AND CURRENT STATE STANDARDS.
3. THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR APPROVAL BY THE PROJECT MANAGER PRIOR TO THE START OF CONSTRUCTION. THE COST OF PREPARING THIS PLAN (AND MAKING CHANGES IF NECESSARY) WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.10, TRAFFIC CONTROL. THE TRAFFIC CONTROL PLAN SHALL BE IN COMPLIANCE WITH VAOT STANDARDS AND THE LATEST EDITION OF THE MUTCD. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN.
4. THE BID PRICE FOR ITEM 641.10, TRAFFIC CONTROL SHALL INCLUDE ALL OF THE FOLLOWING, AS NEEDED: APPROACH, ON AND OFF PROJECT CONSTRUCTION SIGNING, PORTABLE FLASHING ARROW BOARDS, BARRIERS, BARRELS, CONES, BARRICADES, TEMPORARY REGULATORY AND WARNING SIGNS, AND POSTS AS DETAILED IN VAOT STANDARDS. ALL ADJUSTING, RELOCATING AND REMOVING OF THESE DEVICES AS DIRECTED BY THE ENGINEER SHALL ALSO BE INCLUDED.
5. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) WILL BE PROVIDED FOR USE ALONG THIS PROJECT AND ARE TO BE USED AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL POSITION PORTABLE CHANGEABLE MESSAGE SIGNS WARNING MOTORISTS OF THE EXPECTED ROADWAY CONDITIONS AHEAD. THE MESSAGE TO BE DISPLAYED SHALL BE SUBMITTED TO THE ENGINEER IN ADVANCE FOR APPROVAL. MESSAGES SHOULD BE UPDATED PERIODICALLY TO DESCRIBE THE WORK ACTIVITY OCCURRING SO THAT THE PCMS CONTINUES TO COMMAND THE ATTENTION OF MOTORISTS. THE COST OF PROVIDING THESE MESSAGE SIGNS SHALL BE PAID UNDER ITEM 641.15, PORTABLE CHANGEABLE MESSAGE SIGN.
6. CONSTRUCTION SIGNS SHALL BE IN NEW OR LIKE NEW CONDITION PER VAOT STANDARDS.
7. DIAMOND SHAPED SIGNS SHALL BE 48" X 48" WITH BLACK TEXT AND BORDER ON A RETROREFLECTIVE FLUORESCENT ORANGE BACKGROUND.
8. 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.

9. ALL PERMANENT SIGNS THAT CONFLICT WITH TEMPORARY TRAFFIC CONTROL SHALL BE COMPLETELY COVERED, THE PAYMENT FOR WHICH WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.10 TRAFFIC CONTROL.
10. SEE VAOT STANDARDS T-1, T-10 AND T-17 FOR ADDITIONAL SIGN PLACEMENT DETAILS.
11. A MINIMUM LANE WIDTH OF 10 FEET SHALL BE MAINTAINED.
12. THE CONTRACTOR SHALL PROVIDE ACCESS THROUGH THE WORK ZONE FOR EMERGENCY VEHICLES AT ALL TIMES. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL COMMERCIAL AND MUNICIPAL PROPERTIES DURING BUSINESS HOURS. COORDINATE MAJOR WORK ON COMMERCIAL OR MUNICIPAL ACCESSES WITH THE OWNER AT LEAST ONE WEEK PRIOR TO STARTING THE WORK. ALL COMMERCIAL AND MUNICIPAL ACCESSES SHALL BE KEPT FREE OF WORK AND TRAFFIC CONTROLLED BY UNIFORMED TRAFFIC OFFICERS OR FLAGGERS AS REQUIRED BY THE ENGINEER. ACCESS TO ALL PROPERTIES MAY BE RESTRICTED FOR A SHORT DURATION (A FEW HOURS). THIS WORK WILL BE COORDINATED WITH THE OWNER.
13. WHEN COLD PLANED BITUMINOUS PAVEMENT IS OPEN TO TRAFFIC, A "MOTORCYCLES USE CAUTION" SIGN, AS PER VAOT STANDARD T-17, SHALL BE PROVIDED.
14. AS THE PAVING OPERATION MOVES, FLAGGER SIGNS SHALL BE MOVED ACCORDINGLY. AT NO TIME SHOULD THE FLAGGER SYMBOL SIGN BE MORE THAN 1000 FEET FROM THE FLAGGER STATION. FLAGGER SIGNS SHALL BE COVERED OR TURNED AWAY FROM TRAFFIC WHEN FLAGGING OPERATIONS CEASE FOR LONGER THAN 15 MINUTES.
15. CONES SHALL BE USED TO CLEARLY DEFINE THE TRAVEL SPACE AND PROVIDE SEPARATION FROM THE WORK SPACE ALONG ITS ENTIRE LENGTH.
16. THE CONTRACTOR SHALL LEAVE NO LONGITUDINAL DROP-OFFS DURING THE OVERNIGHT HOURS. THEREFORE, THE FULL ROADWAY WIDTH SHALL BE COLD PLANED OR PAVED DURING THE DAILY WORK PERIOD. WHEN NECESSARY, DROP-OFF PROTECTION IN THESE AREAS SHALL CONFORM TO VAOT STANDARD T-36.

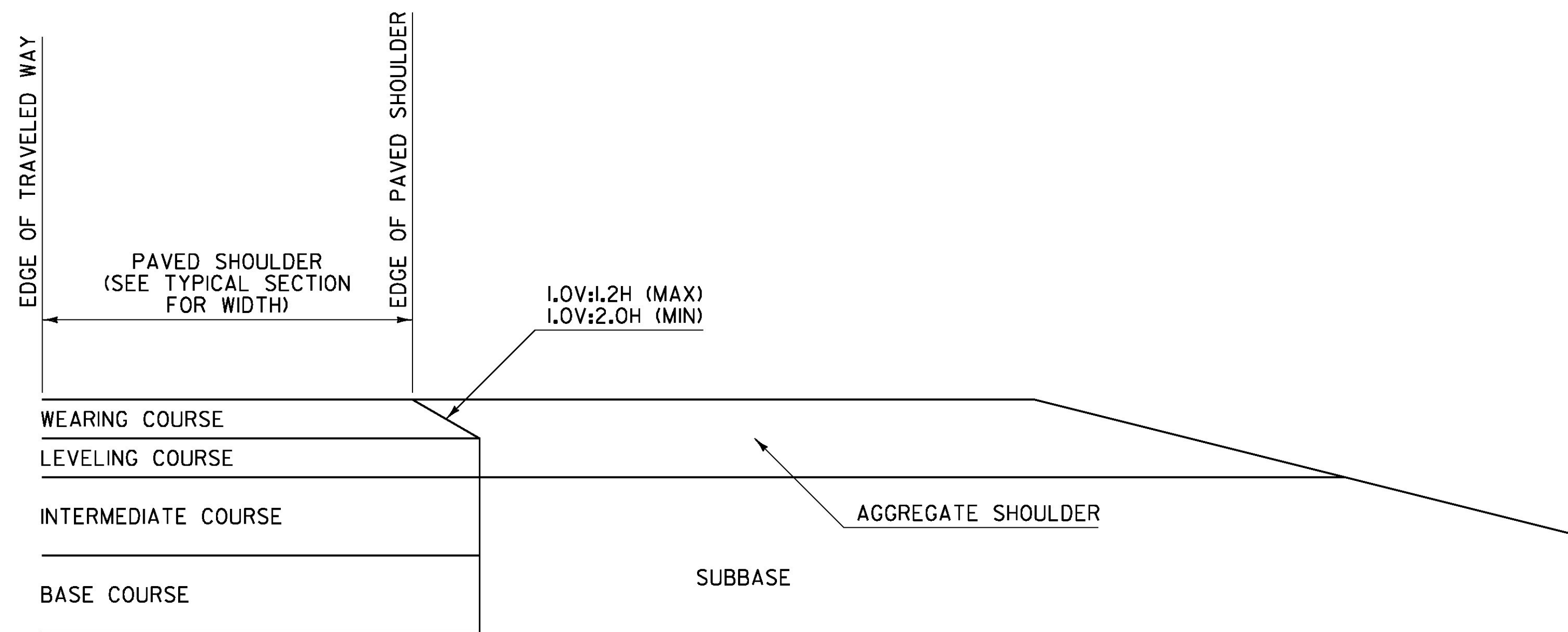
LIST OF TOWN/STATE HIGHWAYS FOR CONSTRUCTION SIGNS

TOWN/STATE HIGHWAY NAME	ROAD WORK AHEAD (RWA)	END ROAD WORK (ERW)	ROAD WORK 500' (RW500)	SIDE ROAD WORK AHEAD (SRWA)	SIDE ROAD WORK 500' (SRW500)	ROAD WORK NEXT 3 MILES (RWN3)	PCMS
VT ROUTE 12							
BEGINNING OF PROJECT	2	1	2			1	1
TH 19 (DEAD END)	-	-					
TH 18 (DEAD END)	-	-					
TH 17 (DEAD END)	-	-					
TH 76 (DEAD END)	-	-					
TH 110	1	1					
TH 93 (DEAD END)	-	-					
TH 5	1	1					
VT ROUTE 64		1		2	2		1
END OF PROJECT	2	1	2			1	1
TOTAL	6	5	4	2	2	2	3

LEGEND

- RWA = ROAD WORK AHEAD
- RW500 = ROAD WORK IN 500 FEET
- SRWA = SIDE ROAD WORK AHEAD
- SRW500 = SIDE ROAD WORK IN 500 FEET
- RWN = ROAD WORK NEXT (XX MILES)
- ERW = END ROAD WORK
- △ = PORTABLE CHANGEABLE MESSAGE SIGN
- ▨ = WORK AREA
- ← = DIRECTION OF TRAFFIC FLOW

PROJECT NAME: ROXBURY-NORTHFIELD	PLOT DATE: 2/8/2017
PROJECT NUMBER: STP FPAV(6)	DRAWN BY: S. GOODWIN
FILE NAME: z16v027frm.dgn	CHECKED BY: P. SHEDD
DESIGNED BY: N. LEMAY	CONSTRUCTION APPROACH SIGNING
	SHEET 21 OF 21

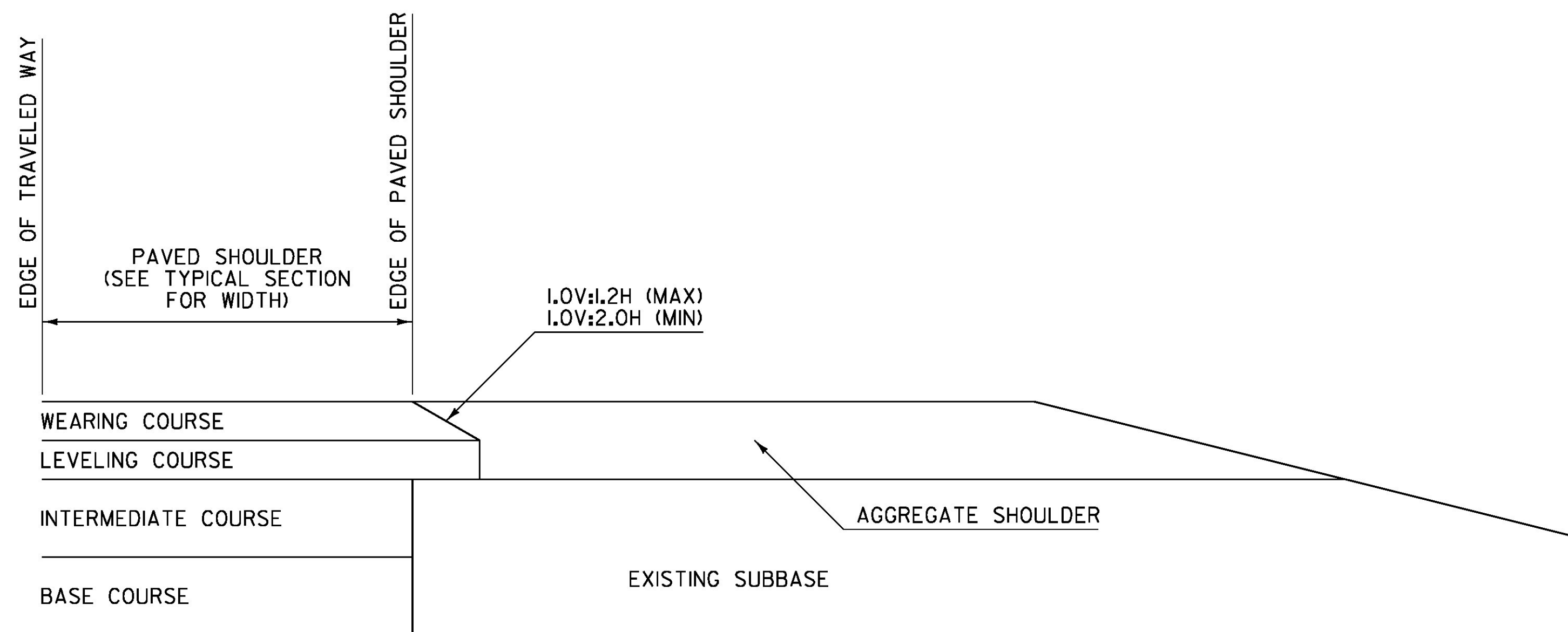


**NOTES:**

1. THIS DETAIL IS INTENDED FOR WHEN PAVING EXTENDS BELOW THE WEARING COURSE.
2. PRIOR TO PLACEMENT OF THE LEVELING AND/OR WEARING COURSE, THE SUBBASE LOCATED BENEATH THE AGGREGATE SHOULDER SHALL BE PREPARED FLUSH WITH THE BOTTOM OF THE LEVELING COURSE.
3. BASE COURSE LIMITS MAY VARY, SEE TYPICAL SECTIONS FOR WIDTH.

**SAFETY EDGE DETAIL  
FOR PAVING BELOW WEARING COURSE**

SAFETY EDGE WIDTH BASED ON WEARING COURSE THICKNESS AND A 1V:1.6H SLOPE	
WEARING COURSE THICKNESS (INCHES)	NOMINAL SAFETY EDGE WIDTH (INCHES)
1.25	2.000
1.50	2.375
1.75	2.750
2.00	3.125
2.25	3.500
2.50	4.000



**NOTES:**

1. THIS DETAIL IS INTENDED FOR WHEN ONLY THE LEVELING AND/OR WEARING COURSE IS TO BE PLACED.
2. PAVEMENT COURSES MAY VARY, SEE TYPICAL SECTIONS FOR ACTUAL PAVEMENT COURSES REQUIRED.

**SAFETY EDGE DETAIL  
FOR PAVING WEARING COURSE ONLY**

**GENERAL NOTES:**

1. PLACEMENT OF THE WEARING COURSE SHALL INCLUDE THE SAFETY EDGE, UNLESS THE FOLLOWING APPLIES:
  - A. THE ADJACENT SLOPE IS STEEPER THAN THE SAFETY EDGE.
  - B. THE EDGE OF PAVEMENT BEING PLACED ABUTS BOUND MATERIAL.
  - C. VEHICLES ARE RESTRICTED FROM LEAVING THE PAVED SURFACE (EXAMPLE: GUARDRAIL).
2. THE SAFETY EDGE SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE SLOPE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.
3. THE SAFETY EDGE SHALL NOT BE CONSIDERED PART OF THE PAVED SHOULDER.
4. THIS WORK SHALL BE INCIDENTAL TO THE RESPECTIVE BITUMINOUS CONCRETE PAVEMENT ITEM.

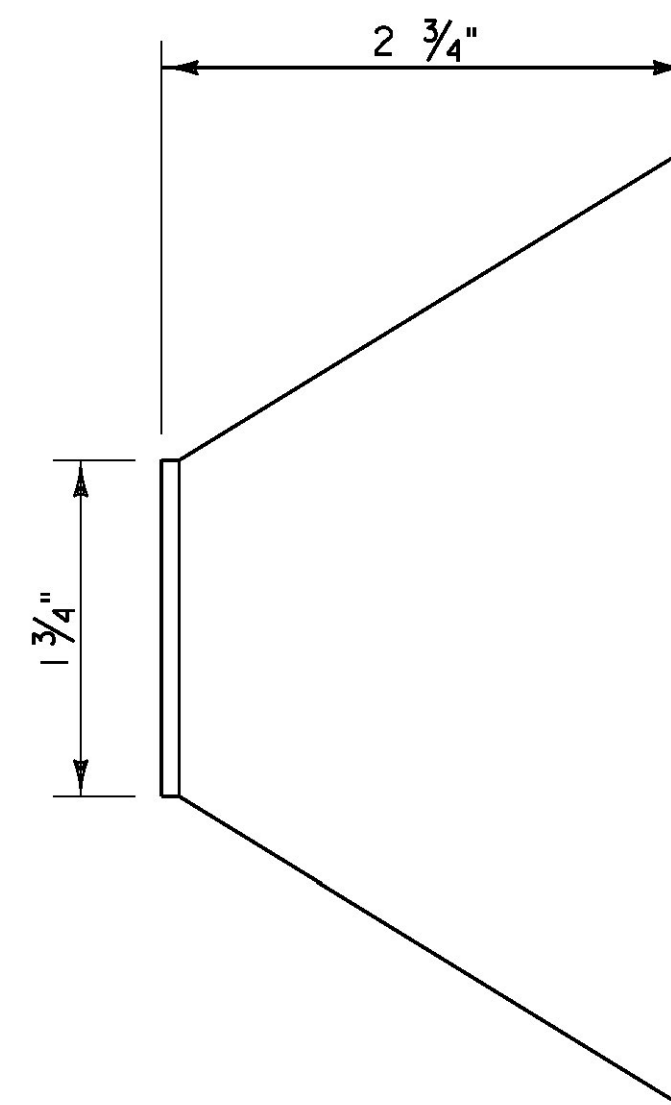
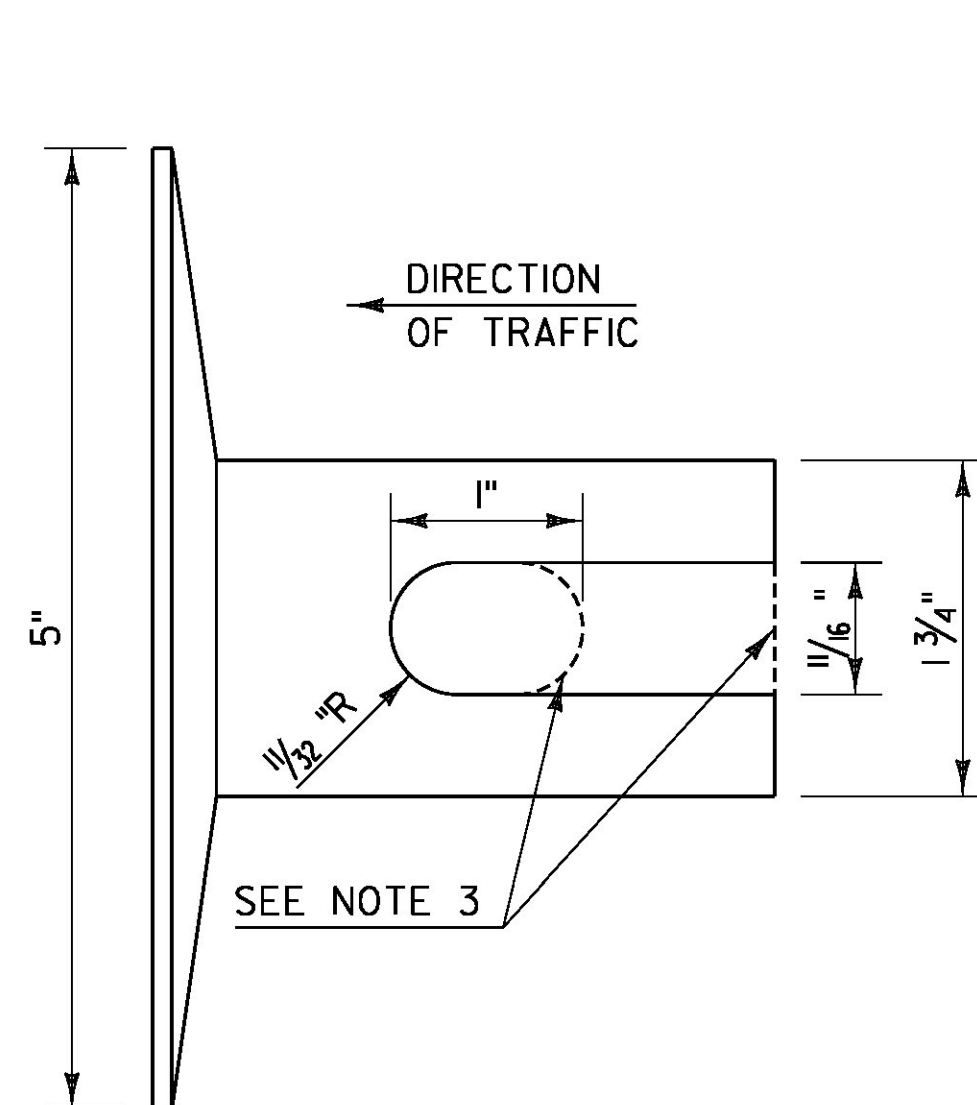
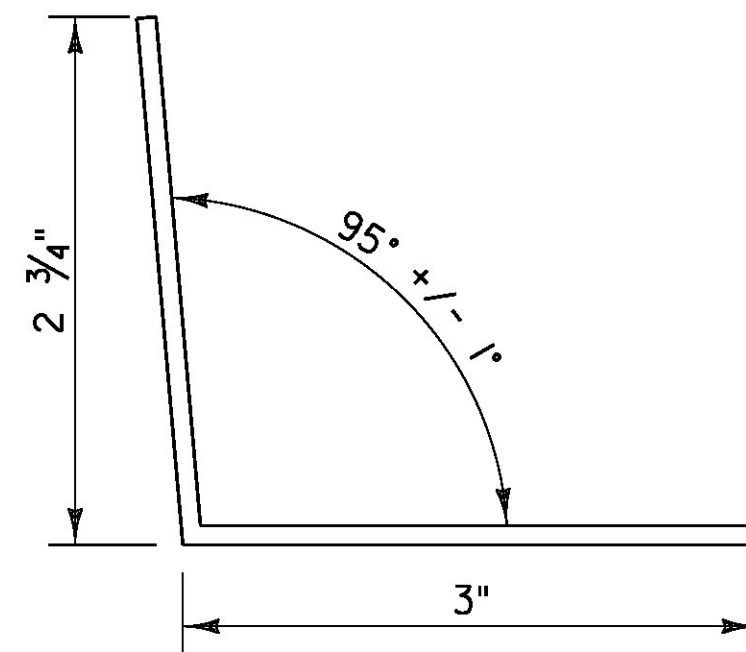
REV.	DATE	DESCRIPTION
0	MAR. 29, 2016	ORIGINAL APPROVAL
OTHER DETAILS REQUIRED: NONE		
DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN		

SAFETY EDGE DETAILS



HIGHWAY SAFETY  
& DESIGN DETAIL  
HSD-400.01

**GUARDRAIL DELINEATOR DETAIL**



**GUARDRAIL TERMINAL LABEL DETAIL**



**NOTES:**

1. GUARDRAIL DELINEATOR BASE MATERIAL SHALL BE 0.10 INCH THICK ALUMINUM IN ACCORDANCE WITH SUBSECTION 728.04 DELINEATION DEVICES.
2. GUARDRAIL DELINEATORS SHALL HAVE WHITE RETROREFLECTIVE SHEETING, EQUAL TO OR EXCEEDING TYPE III IN ACCORDANCE WITH SUBSECTION 750.08(B)(3) ON THE RIGHT SIDE OF THE TRAVELED WAY AND YELLOW RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING TYPE VII IN ACCORDANCE WITH SUBSECTION 750.08(B)(7) ON THE LEFT SIDE OF THE TRAVELED WAY IN RESPECT TO APPROACHING TRAFFIC. ON ONE DIRECTIONAL ROADWAYS RETROREFLECTIVE SHEETING MAY BE OMITTED ON FACES WHERE THERE WILL BE NO APPROACHING TRAFFIC.
3. HOLE MAY BE USED IN PLACE OF SLOT.

**NOTES:**

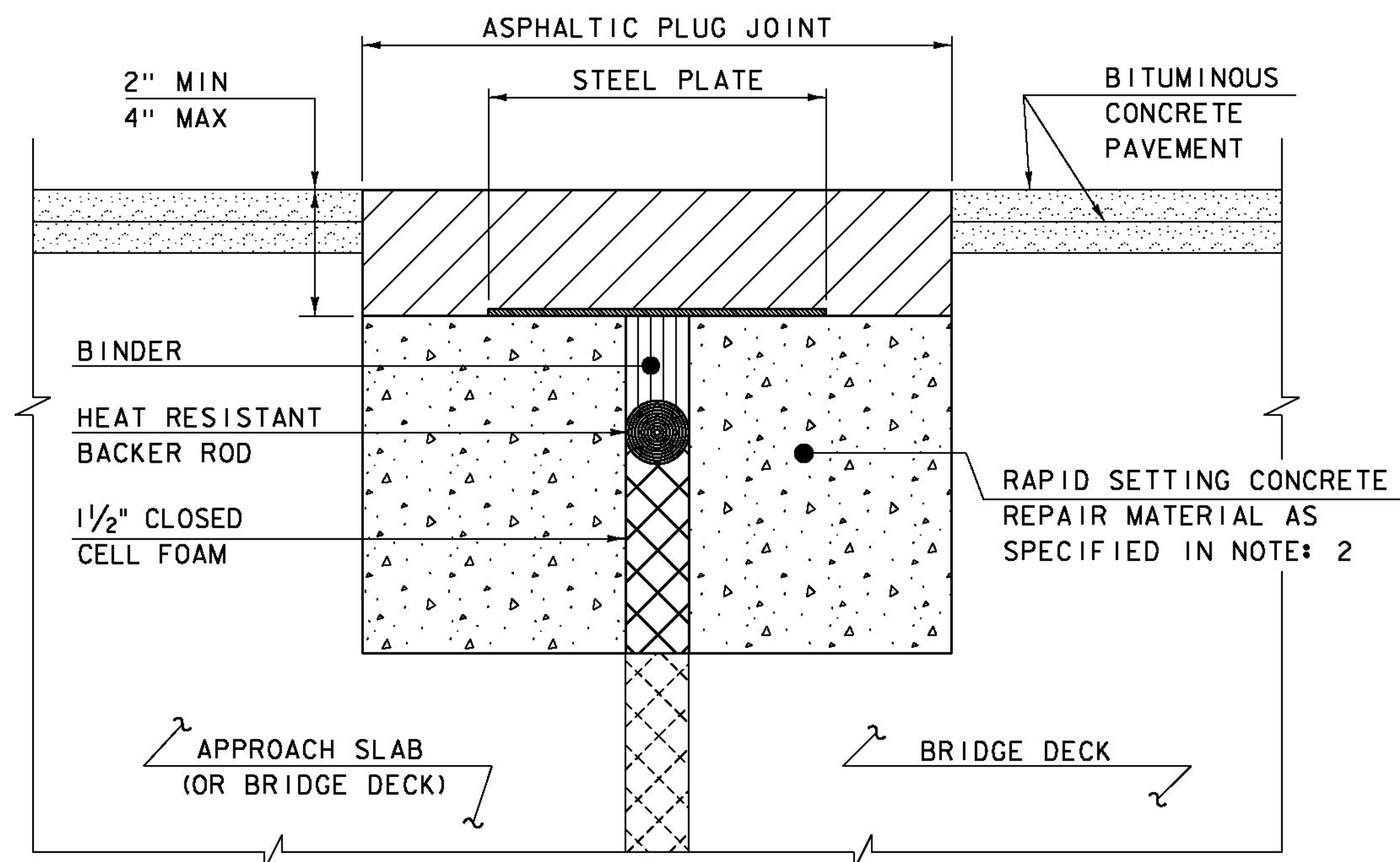
1. LINE ONE SHALL INDICATE THE INSTALLATION YEAR (YYYY).
2. LINE TWO SHALL INDICATE THE MODEL AS IDENTIFIED ON THE APPROVED PRODUCTS LIST. FOR GENERIC INSTALLATIONS THE STANDARD DRAWING DESIGNATION OR NAME AS IDENTIFIED IN THE FHWA ELIGIBILITY LETTER SHALL BE USED.
3. LINE THREE SHALL INDICATE ADDITIONAL MODEL INFORMATION IF NECESSARY.
4. LINE FOUR SHALL INDICATE FLARED (FLRD) OR TANGENT (TANG).
5. LEGEND SHALL BE SIZE 3/4 INCH ARIEL FONT.
6. LEGEND SHALL BE BLACK ON A WHITE BACKGROUND, LEGEND AND BACKGROUND SHALL NOT BE REFLECTIVE.
7. SUITABLE MATERIAL SHALL BE USED SO AS TO NOT DETERIORATE DURING EXPOSURE TO WEATHER.
8. LABELS SHALL BE APPLIED IN SUCH A WAY THAT THEY REMAIN INTACT DURING THE LIFE OF THE TERMINAL.
9. FOR W-BEAM GUARDRAIL, LABEL SHALL BE PLACED ON THE TOP OF POST ONE FACING AWAY FROM TRAFFIC.
10. FOR BOX BEAM GUARDRAIL, LABEL SHALL BE PLACED ON THE BOX BEAM ADJACENT TO POST ONE FACING AWAY FROM TRAFFIC.
11. PAYMENT SHALL BE INCIDENTAL TO OTHER TRAFFIC BARRIER ITEMS.

REV.	DATE	DESCRIPTION
0	NOV. 3, 2015	ORIGINAL APPROVAL
1	FEB. 27, 2017	UPDATED NAME, MINOR CORRECTIONS AND ADDED GUARDRAIL DELINEATOR DETAIL
OTHER DETAILS REQUIRED: NONE		
DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN		

MISCELLANEOUS GUARDRAIL DETAILS



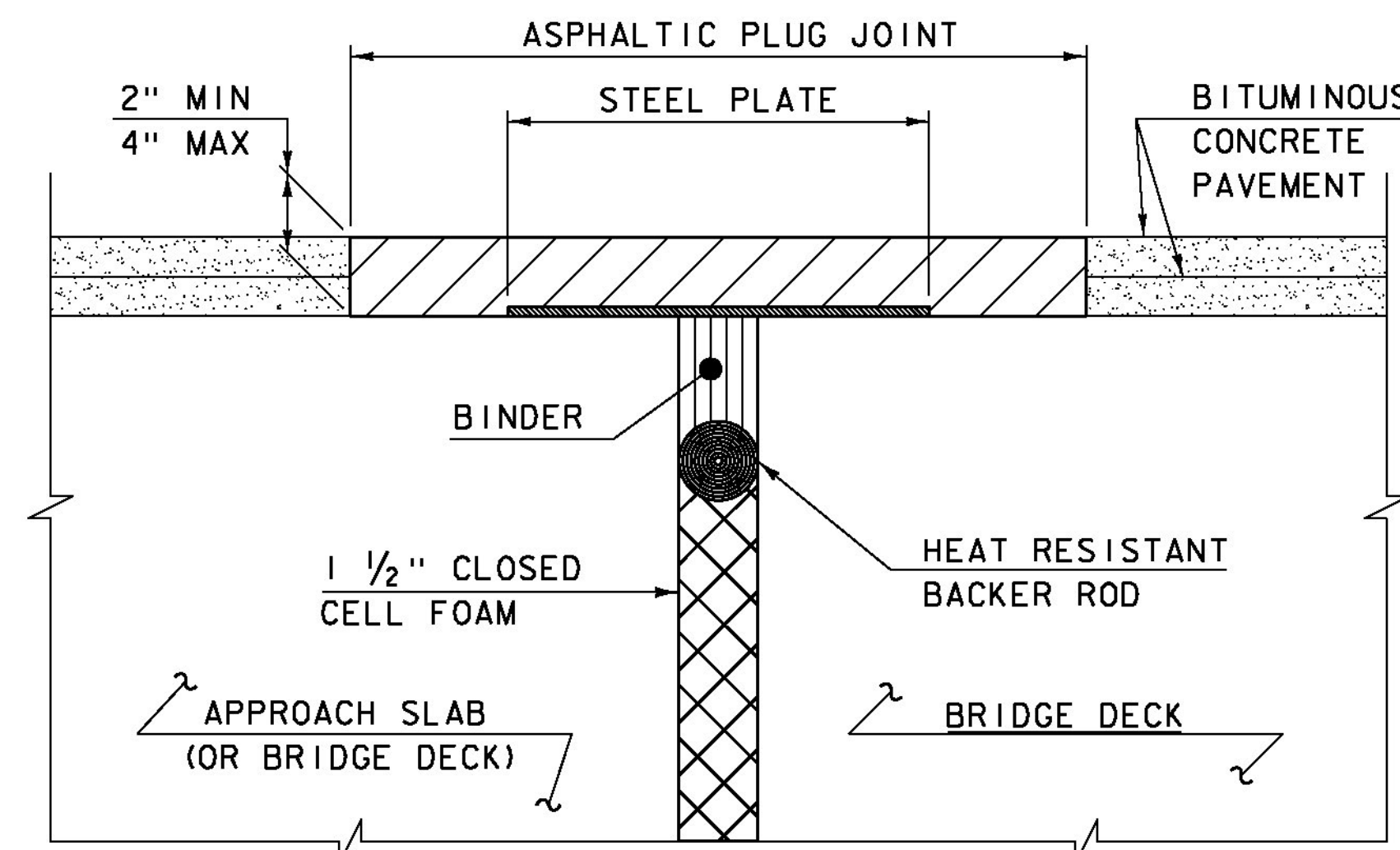
HIGHWAY SAFETY  
& DESIGN DETAIL  
HSD - 621.06



**ASPHALTIC PLUG JOINT DETAIL - REHAB**

**NOTES:**

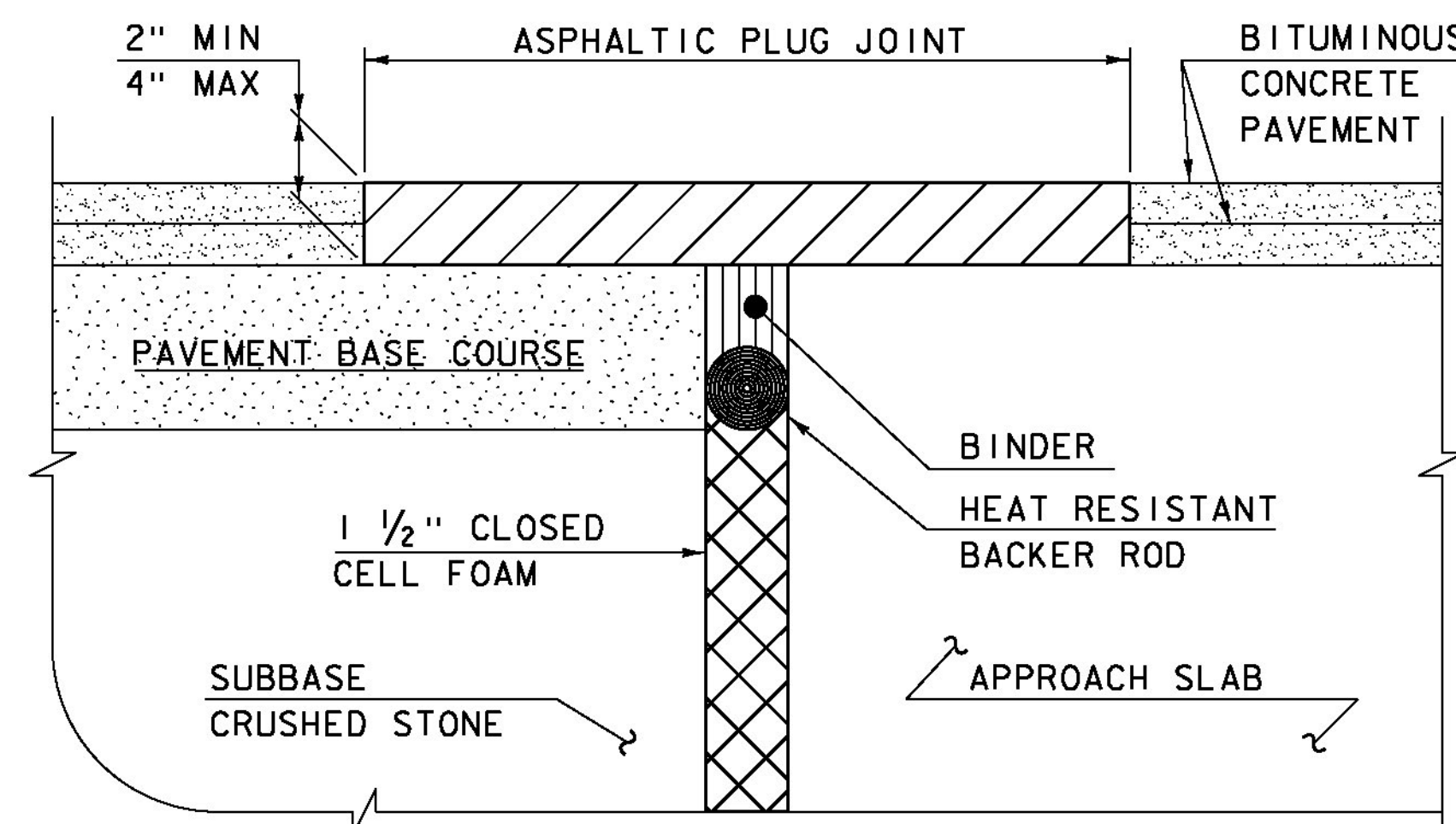
1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.
2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.
4. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.



**ASPHALTIC PLUG JOINT DETAIL "A" - NEW**

**NOTE:**

PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER.



**ASPHALTIC PLUG JOINT DETAIL "B" - NEW**

**ASPHALTIC PLUG JOINT NOTES**

**INSTALLATION:**

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
5. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
6. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

**WEATHER LIMITATIONS**

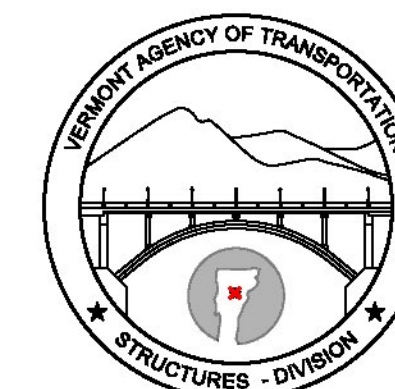
APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

DETAILS ON THIS SHEET ARE NOT TO SCALE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
AUGUST 29, 2011	ADD DETAIL "B" AND REV. NOTES

**BRIDGE JOINT  
ASPHALTIC PLUG**



**STRUCTURES  
DETAIL  
SD-516.10**