RECORD PLANS

CONTRACTOR MORRILL CONSTRUCTION INC – NORTH HAVERHILL, NH

RESIDENT ENGINEER CHARLY HARDING

CONSTRUCTION BEGAN APRIL 30, 2009

CONSTRUCTION COMPLETE AUGUST 30, 2010

RECORD PLANS BY CHARLY HARDING & NICK GARBACIK

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN

BY Charlie Harding RESIDENT ENGINEER

DATE 01/21/11

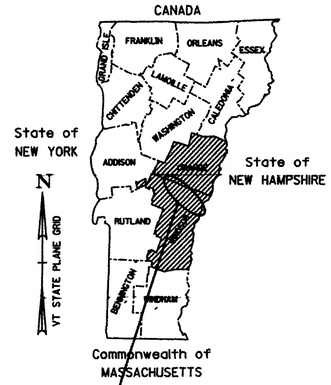
NOTE Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives

STATE OF VERMONT
AGENCY OF TRANSPORTATION

INDEX OF SHEETS

1	TITLE SHEET
2	TYPICAL SECTIONS
3-4	QUANTITY SHEETS
5	PROJECT NOTES
6	HARTFORD 189 - BR. NO. 9-1 LAYOUT SHEET
7	HARTFORD 189 - BR. NO. 9-2 LAYOUT SHEET
8	ROYALTON 189 - BR. NO. 20-4 LAYOUT SHEET
9	RANDOLPH 189 - BR. NO. 29-1D LAYOUT SHEET
10	EPSC NARRATIVE
11	HEADWALL DETAIL SHEET
12	REINFORCING STEEL SCHEDULE
13-20	REFERENCE SHEETS

PROPOSED IMPROVEMENT
TOWNS OF RANDOLPH, ROYALTON, AND HARTFORD
COUNTIES OF ORANGE AND WINDSOR
PREVENTATIVE MAINTENANCE OF CULVERTS



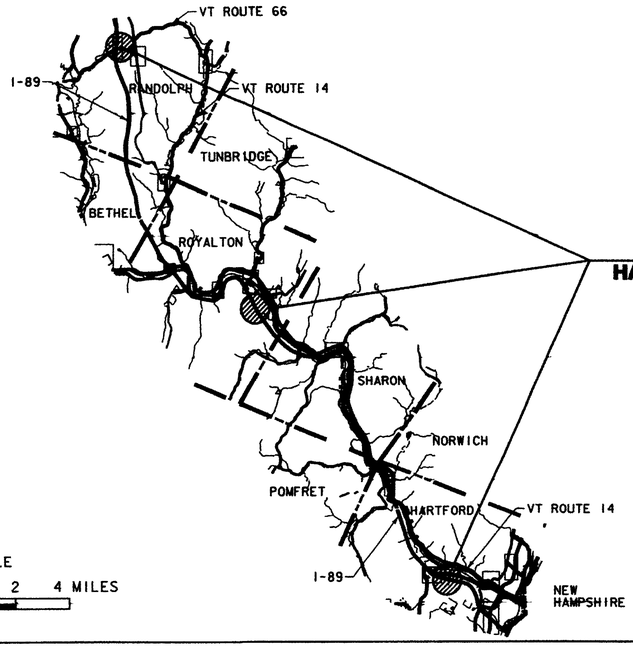
PROJECT LOCATION : THE FOLLOWING CULVERTS ALONG THE INTERSTATE 89 CORRIDOR WITH LOCATIONS IN THE TOWNS OF RANDOLPH, ROYALTON, AND HARTFORD:

HARTFORD BR. NO. 9-1 MILE MARKER 4.9
HARTFORD BR. NO. 9-2 MILE MARKER 5.2
ROYALTON BR. NO. 20-4 MILE MARKER 17.0
RANDOLPH BR. NO. 29-1D AT EXIT 4 ON RAMP D

PROJECT DESCRIPTION : PREVENTATIVE MAINTENANCE TO EXISTING CULVERTS INCLUDING THE INSTALLATION OF PIPE-LINERS AND CHANNEL STABILIZATION.

VAOT STANDARDS FOR CONSTRUCTION

E-100	CONSTRUCTION APPROACH SIGNS	01-02-2004
E-100A	SIDE ROAD CONSTRUCTION - APPROACH SIGNS	01-02-2004
E-101	CONSTRUCTION SIGN DETAILS	05-30-2003
E-102	CONSTRUCTION SIGN DETAILS	06-30-2003
E-102A	CONSTRUCTION SIGN DETAILS	05-01-2004
E-103	MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED	03-01-2004
E-106	TRAFFIC CONTROL - MISCELLANEOUS DETAILS	03-01-2004
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	06-30-2003
E-107A	BREAKAWAY BARRICADE DETAILS	08-08-1995
E-111	MINOR MAINTENANCE OPERATIONS	03-11-1997
E-120	STANDARD SIGN PLACEMENT EXPRESSWAY AND FREEWAY	08-08-1995
E-121	STANDARD SIGN PLACEMENT CONVENTIONAL ROAD	08-08-1995



PROJECT LOCATION
HARTFORD-SHARON IM 089-1(55)

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

DuBois & King inc.
engineering planning management development

SURVEYED BY :	N/A
SURVEYED DATE :	N/A

DATUM

VERTICAL	N/A
HORIZONTAL	N/A

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 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

STATE OF VERMONT — JASON P. PRICE — NO. 9015 — CIVIL — LICENSED PROFESSIONAL ENGINEER
1/9/2009

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED Richard Edwards DATE 1-12-09

PROJECT MANAGER : DANNY R. LANDRY

PROJECT NAME : HARTFORD-SHARON
PROJECT NUMBER : IM 089-1(55)

SHEET 1 OF 20 SHEETS

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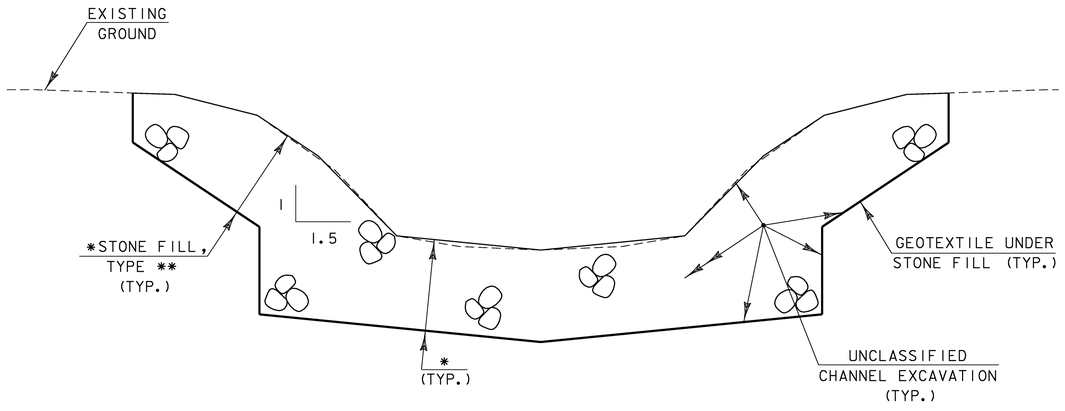
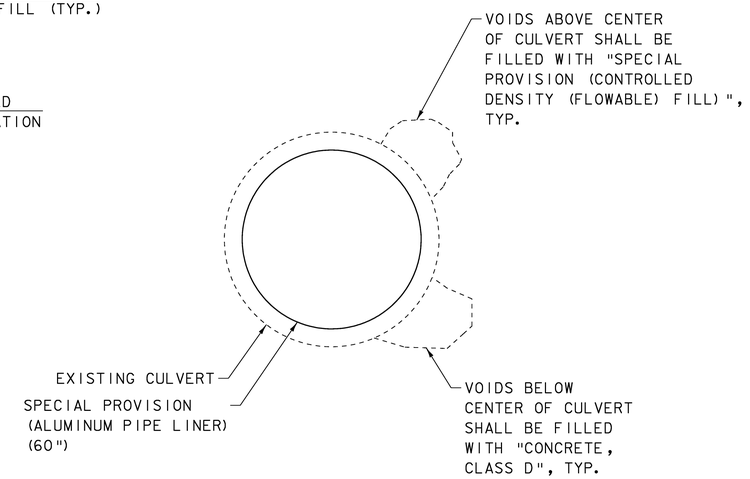


TYPICAL CHANNEL SECTION

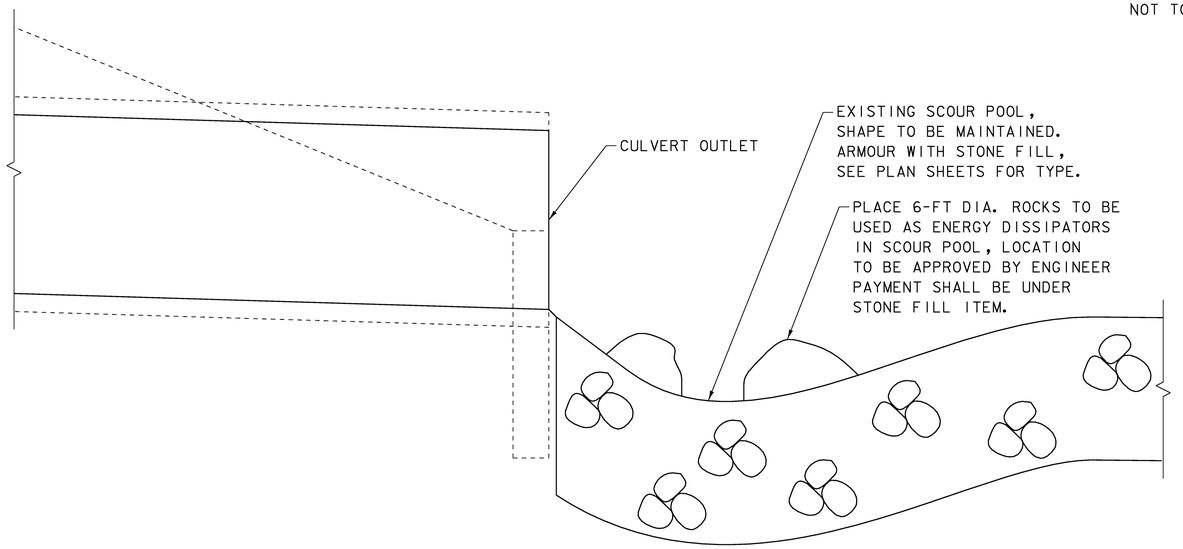
NOT TO SCALE

* = 2'-0" FOR STONE FILL, TYPE II OR 4'-0" FOR STONE FILL, TYPE IV
** = TYPE II OR TYPE IV (SEE SITE PLANS FOR DETAILS)



TYPICAL CULVERT SECTION

NOT TO SCALE



SCOUR POOL DETAIL

NOT TO SCALE

SEEDING FORMULA
RURAL AREAS

% WT.	LBS./A.	NAME	PUR %	GERM %
37.5	22.5	CREEPING RED FESCUE	98	85
37.5	22.5	TALL FESCUE	95	90
5.0	3.0	RED TOP	95	90
15.0	9.0	BIRDSFOOT TREFOIL	98	85
5.0	3.0	ANNUAL RYEGRASS	95	85
100.0	60.0			

GENERAL NOTES

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

TOPSOIL: TO BE USED WITH SEED ON DISTURBED AREAS AS DIRECTED BY THE ENGINEER.

NOTE:
IF A HYDROSEEDER IS USED THE APPLICATION RATES SHALL BE DOUBLED.

STRUCTURE	LOCATION	2008 AADT
HARTFORD I-89 BR. 9-1	BETWEEN EXITS 1 & 2	18100*
HARTFORD I-89 BR. 9-2	BETWEEN EXITS 1 & 2	18100*
ROYLATON I-89 BR. 20-4	BETWEEN EXITS 2 & 3	14900*
RANDOLPH I-89 BR. 29-1D	EXIT 4 RAMP D	1700

TRAFFIC DATA

*THE AADT INCLUDES BOTH NORTHBOUND AND SOUTHBOUND TRAFFIC. DIVIDE BY 2 TO CALCULATE NB OR SB SEPARATELY. (TRAFFIC IS TYPICALLY SPLIT 50/50 DIRECTIONALLY OVER THE DAY.)

PROJECT NAME: HARTFORD-SHARON
PROJECT NUMBER: IM 089-1(55)

FILE NAME: ppmstyp.dgn
PROJECT LEADER: E. P. DETRICK
DESIGNED BY: A. P. GUYETTE
TYPICAL SECTIONS

PLOT DATE: 15-JAN-2009
DRAWN BY: R. H. BARNES
CHECKED BY: E. P. DETRICK
SHEET 2 OF 20

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
			ROADWAY	EROSION CONTROL	I89 - BR. NO. 9-1	I89 - BR. NO. 9-2	I89 - BR. NO. 20-4	I89 - BR. NO. 29-1D	FULL C.E.	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
			1							1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
					35	30	35	35		135		CY	SOLID ROCK EXCAVATION	203.16				
					70	70	38	25		203		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
					60	60	60	60		240		CY	STRUCTURE EXCAVATION	204.25				
					45	45	45	45		180		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
					16	16	16	16		64		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
					2100	2100	2100	2100		8400		LB	REINFORCING STEEL	507.15				
					10	10	10	10		40		LF	DRILLING AND GROUTING DOWELS	507.16				
					1.5	1.5	1.5	1.5		6		GAL	WATER REPELLENT, SILANE	514.10				
					5	5	5	5		20		CY	CONCRETE, CLASS C	541.30				
					10	10	10	10		40		CY	CONCRETE, CLASS D	541.31				
			40							40		HR	POWER BROOM RENTAL, TYPE II	608.31				
								35		35		CY	STONE FILL, TYPE II	613.11				
					135	140	75			350		CY	STONE FILL, TYPE IV	613.13				
			160							160		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
									1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
			1							1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
			1							1		LS	TRAFFIC CONTROL (I89 - BR. NO. 20-4)	641.10				
			1							1		LS	TRAFFIC CONTROL (I89 - BR. NO. 29-1D)	641.10				
			1							1		LS	TRAFFIC CONTROL (I89 - BR. NO. 9-1)	641.10				
			1							1		LS	TRAFFIC CONTROL (I89 - BR. NO. 9-2)	641.10				
			2							2		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
					105	105	55	35		300		SY	GEOTEXTILE UNDER STONE FILL	649.31				
				50						50		LB	SEED	651.15				
				330						330		LB	FERTILIZER	651.18				
				2						2		TON	AGRICULTURAL LIMESTONE	651.20				
				2						2		TON	HAY MULCH	651.25				
				180						180		CY	TOPSOIL	651.35				
					10	10	10	10		40		CY	SPECIAL PROVISION (CONTROLED DENSITY (FLOWABLE) FILL)	900.608				
				40						40		HR	SPECIAL PROVISION (MONITORING EPSC PLAN)	900.630				
					470		390	140		1000		LF	SPECIAL PROVISION (ALUMINUM PIPE LINER)(60")(EXISTING 72" PIPE)	900.640				
						660				660		LF	SPECIAL PROVISION (ALUMINUM PIPE LINER)(60")(EXISTING 78" PIPE)	900.640				
					85	30	50	20		185		LF	SPECIAL PROVISION (TEST BORINGS)	900.640				
				1						1		LS	SPECIAL PROVISION (EPSC PLAN)	900.645				
							1			1		LS	SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)(I89 - BR. NO. 20-4)	900.645				
								1		1		LS	SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)(I89 - BR. NO. 29-1D)	900.645				
					1					1		LS	SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)(I89 - BR. NO. 9-1)	900.645				
						1				1		LS	SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)(I89 - BR. NO. 9-2)	900.645				

PROJECT NAME: HARTFORD - SHARON
PROJECT NUMBER: IM 089-1(55)

FILE NAME: z08a056qs.dgn
PROJECT LEADER: E. P. DETRICK
DESIGNED BY: A. P. GUYETTE
QUANTITY SHEET #1

PLOT DATE: 01/15/2009
DRAWN BY: A. P. GUYETTE
CHECKED E. P. DETRICK

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	EROSION CONTROL	I89 - BR. NO. 9-1	I89 - BR. NO. 9-2	I89 - BR. NO. 20-4	I89 - BR. NO. 29-1D	FULL C.E.
				1		
		1				
			1			
					1	
	1					
	1					

TOTALS

GRAND TOTAL	FINAL
1	
1	
1	
1	
1	
1	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)(I89 - BR. NO. 20-4)	900.645	
LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)(I89 - BR. NO. 9-1)	900.645	
LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)(I89 - BR. NO. 9-2)	900.645	
LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)(I89 - BR. NO.29-1D)	900.645	
LU	SPECIAL PROVISION (EROSION PREVENTION AND SEDIMENT CONTROL MEASURES)(N.A.B.I.)	900.650	
LU	SPECIAL PROVISION (MAINTENANCE OF EPSC PLAN)(N.A.B.I.)	900.650	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

PROJECT NAME: HARTFORD - SHARON
PROJECT NUMBER: IM 089-1(55)

FILE NAME: z08a056qs.dgn
PROJECT LEADER: E. P. DETRICK
DESIGNED BY: A. P. GUYETTE
QUANTITY SHEET #2

PLOT DATE: 01/15/2009
DRAWN BY: A. P. GUYETTE
CHECKED E. P. DETRICK

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION, DATED 2002, AND ITS LATEST REVISIONS.

2. DIMENSIONS, ANGLES, BEARINGS, AND ELEVATIONS OF THE EXISTING CULVERTS SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURES AND LIMITED FIELD INVESTIGATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING FIELD MEASUREMENTS OF ALL EXISTING STRUCTURE COMPONENTS TO ASSURE CONSISTENCY WITH THE PROPOSED MODIFICATIONS. ANY DISCREPANCIES IN DIMENSIONS, CHARACTER OR EXTENT OF THE EXISTING FEATURES SHALL BE BROUGHT TO THE ATTENTION OF THE RESIDENT ENGINEER BEFORE ADVANCING THE WORK. WORKING DRAWINGS REQUIRED FOR VARIOUS ITEMS OF WORK SHALL INDICATE THE ACTUAL FIELD MEASUREMENTS AND SHALL BE SO NOTED.

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

4. IT IS EXPECTED THAT CULVERT LINING, HEADWALLS AND STONE FILL WILL BE THE EXTENT OF THE WORK AT EACH SITE. FOLLOWING PREPARATION OF THE EXISTING CULVERT FOR SLIPLINING, THE CONTRACTOR AND ENGINEER SHALL JOINTLY INSPECT THE INTERIOR OF THE EXISTING CULVERT. IF AN AREA OF CONCERN IS IDENTIFIED, SUCH AS VOIDS AROUND THE EXISTING CULVERT THE ENGINEER SHALL MAKE A DETERMINATION AS TO THE NEED FOR FURTHER EXPLORATION. IF FURTHER EXPLORATION IS NEEDED TEST BORINGS SHALL BE CONDUCTED IN THE AREA OF CONCERN. THIS WORK SHALL BE PAID FOR AS ITEM 900.640, "SPECIAL PROVISION (TEST BORINGS)". THE MAXIMUM DEPTH OF "SPECIAL PROVISION (TEST BORINGS) IS EXPECTED TO BE FROM FINISHED GRADE OF THE INTERSTATE TO 10-FEET BELOW THE INVERT OF THE EXISTING CULVERT.

PIPE REHABILITATION NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY ACCESS TO ALL CULVERT REHABILITATION SITES. ALL RESULTING DISTURBED EARTH SHALL BE STABILIZED AND RESTORED UPON COMPLETION OF CONSTRUCTION. PAYMENT SHALL BE MADE UNDER CONTRACT ITEM 900.645, "SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)".

2. AT EACH LOCATION SPECIFIED IN THESE PLANS, THE EXISTING CULVERT SHALL REMAIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARATION OF THE EXISTING PIPE TO THE SATISFACTION OF THE ENGINEER. IT IS ANTICIPATED THAT IT WILL BE NECESSARY FOR THE CONTRACTOR TO REMOVE SEDIMENT, LARGE STONES, AND/OR DEBRIS FROM INSIDE THE EXISTING CULVERT, AND TO FILL AND REPAIR LARGE HOLES IN THE EXISTING CULVERT, PRIOR TO INSTALLING THE NEW LINER. PAYMENT FOR THIS WORK SHALL BE MADE UNDER ITEM 900.640, "SPECIAL PROVISION (ALUMINUM PIPE LINER) (60")".

3. THE CONTRACTOR SHALL FILL ANY VOIDS UNDER THE CULVERT FROM WITHIN THE CULVERT BEFORE INSTALLING THE LINER. PAYMENT FOR THIS WORK SHALL BE MADE UNDER ITEM 541.31, "CONCRETE, CLASS D".

4. THE EXISTING CRADLE WALL AT EACH PIPE INLET SHALL BE RETAINED AND A NEW CONCRETE HEADWALL SHALL BE CONSTRUCTED UPSTREAM OF THE CRADLE WALL.

5. A NEW FULL BEVELED HEADWALL SHALL BE CONSTRUCTED AT THE INLET TO EACH CULVERT. THE NEW HEADWALL SHALL BE CONSTRUCTED IN THE DRY. CONTROL OF WATER SHALL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)".

CONCRETE NOTES

1. CONCRETE PAYMENT AND CLASSIFICATION SHALL BE AS FOLLOWS:

   HEADWALL: ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B"
   SUBFOOTING: ITEM 541.30, "CONCRETE, CLASS C".
   FILLING VOIDS UNDER CULVERT: ITEM 541.31, "CONCRETE, CLASS D"

2. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH BY 1 INCH, UNLESS OTHERWISE NOTED.

3. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

4. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT UNLESS OTHERWISE INDICATED. ANY UPWARD KEY SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.

5. IT IS EXPECTED THAT BEDROCK WILL BE ENCOUNTERED AT ALL FOUR WORK AREAS.

6. FOOTINGS OR SUBFOOTINGS FOR SUBSTRUCTURES FOUNDED ON BEDROCK SHALL BE PLACED ON CLEAN COMPETENT ROCK. ALL LOOSE ROCK AND DEBRIS SHALL BE REMOVED.

7. UPON COMPLETION OF THE EXCAVATION FOR SUBSTRUCTURES FOUNDED ON BEDROCK AND PRIOR TO PLACING FORMWORK, THE RESIDENT ENGINEER SHALL CONTACT THE VTRANS SOILS AND FOUNDATION ENGINEER TO INSPECT THE BEDROCK. THE STRUCTURES ENGINEER WILL ALSO BE NOTIFIED THAT THE BEDROCK IS READY FOR INSPECTION. THE SOILS AND FOUNDATION ENGINEER WILL DETERMINE IF THE BEDROCK IS COMPETENT TO OBTAIN THE NOMINAL BEARING RESISTANCE AS SHOWN ON THE PLANS. FIVE (5) WORKING DAYS FROM NOTIFICATION SHALL BE ALLOWED TO MAKE THE INSPECTION AND THE DETERMINATION FOR THE COMPETENCY OF THE BEDROCK.

8. IF COMPETENT BEDROCK IS WITHIN 1'-0" BELOW THE DESIGN BOTTOM OF FOOTING FOR THE EXTENT OF THE SUBSTRUCTURE AS SHOWN IN THE CONTRACT PLANS, THE FOOTING MAY BE PLACED INTEGRALLY TO THE TOP OF THE BEDROCK USING THE CONCRETE ITEM SPECIFIED FOR THE FOOTING AT THE CONTRACT UNIT PRICE.

9. WHERE COMPETENT BEDROCK IS BELOW THE DESIGN BOTTOM OF FOOTING BY MORE THAN 1'-0" FOR ANY PORTION OF THE SUBSTRUCTURE AND A SUBFOOTING IS NOT SHOWN IN THE CONTRACT PLANS, THE STRUCTURES ENGINEER SHALL BE CONTACTED TO DETERMINE WHETHER OR NOT THE FOOTING SHALL BE LOWERED OR IF THE CONSTRUCTION OF A SUBFOOTING IS REQUIRED. IF THE DESIGN BOTTOM OF FOOTING ELEVATION IS TO BE LOWERED THE CONTRACTOR SHALL PROVIDE A BEDROCK PROFILE TO THE STRUCTURES ENGINEER. THREE (3) WORKING DAYS FROM RECEIPT OF THE BEDROCK PROFILE SHALL BE ALLOWED TO MAKE THIS DETERMINATION. NO WORK SHALL BE DONE ON THE FOOTINGS UNTIL A REPLY IS RECEIVED.

10. THE LIMITS OF SUBFOOTINGS SHALL BE 1'-0" OUTSIDE OF THE HORIZONTAL LIMITS OF THE FOOTING. IF A SUBFOOTING IS REQUIRED IT SHALL BE PAID FOR UNDER ITEM 541.30, "CONCRETE, CLASS C". THE TOP SURFACE OF ALL SUBFOOTINGS SHALL BE INTENTIONALLY ROUGHENED TO ¼" AMPLITUDE.

11. WHERE COMPETENT BEDROCK IS ABOVE THE DESIGN BOTTOM OF FOOTING ELEVATION, IT SHALL BE REMOVED WITH CONTRACT PAY ITEMS OR A BEDROCK PROFILE SHALL BE PROVIDED BY THE CONTRACTOR TO THE STRUCTURES ENGINEER TO DETERMINE WHETHER THE DESIGN BOTTOM OF FOOTING ELEVATION MAY BE RAISED. THREE (3) WORKING DAYS FROM RECEIPT OF THE BEDROCK PROFILE SHALL BE ALLOWED TO MAKE THE DETERMINATION. FOOTING ELEVATIONS SHALL NOT BE ADJUSTED WITHOUT APPROVAL OF THE STRUCTURES ENGINEER.

12. OVERBREAKAGE AND REPLACEMENT WITH THE FOOTING CONCRETE BEYOND THE AVERAGE MAXIMUM ALLOWANCE SPECIFIED IN SUBSECTIONS 204.09 (B) (1) AND 208.11 (C) WILL BE AT THE CONTRACTOR'S EXPENSE.

CONCRETE NOTES (CONT.)

13. DOWELS SHALL BE DRILLED AND GROUTED INTO BEDROCK WHEN SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER. THE DOWELS SHALL HAVE A 2'-0" MINIMUM EMBEDMENT IN THE BEDROCK AND SHALL EXTEND IN THE FOOTING OR SUBFOOTING A MINIMUM OF 1'-6", UNLESS NOTED OTHERWISE. PAYMENT SHALL BE MADE UNDER ITEM 507.16, "DRILLING AND GROUTING DOWELS".

14. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES. PAYMENT SHALL BE MADE AS ITEM 514.10, "WATER REPELLENT, SILANE".

15. THE NOMINAL BEARING CAPACITY HAS BEEN DETERMINED TO BE 4 KSF.

REINFORCING STEEL NOTES

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

2. ALL REINFORCING STEEL SHALL BE GRADE 60.

3. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
   ALONG BACK FACES OF WALLS AGAINST EARTH: 2"
   ELSEWHERE UNLESS OTHERWISE INDICATED: 3"

4. REINFORCEMENT STEEL PLACEMENT TOLERANCES SHALL BE:
   SPACING = +/- 1-INCH
   CLEARANCE = +/- 1/4-INCH

TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL MEASURES FOR THIS PROJECT SHALL BE INSTALLED IN ACCORDANCE WITH THE 2003 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE VTRANS STANDARD DRAWINGS.

2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT PLANS WITH AND GAIN APPROVAL FROM THE ENGINEER FOR ALL PROPOSED TRAFFIC CONTROL PROCEDURES AND MEASURES. PAYMENT FOR THIS WORK SHALL BE MADE UNDER ITEM 641.10, "TRAFFIC CONTROL".

3. LARGE CONSTRUCTION VEHICLES MAY BE REQUIRED TO BACK DOWN THE TEMPORARY ACCESS ROAD AT EACH CULVERT LOCATION. THESE VEHICLES WILL LIKELY NOT HAVE ADEQUATE SPACE AT THE INTERSECTION OF THE ACCESS ROAD AND THE INTERSTATE TO PERFORM THE NECESSARY TURNING MOVEMENTS. AT THE OPTION OF THE CONTRACTOR, A TEMPORARY CLOSURE OF THE INTERSTATE TRAVEL LANE AND SHOULDER WILL BE ALLOWED FOR ACCESS TO THE PROJECT SITES. THIS WORK SHALL BE PAID FOR UNDER ITEM 641.10, "TRAFFIC CONTROL".

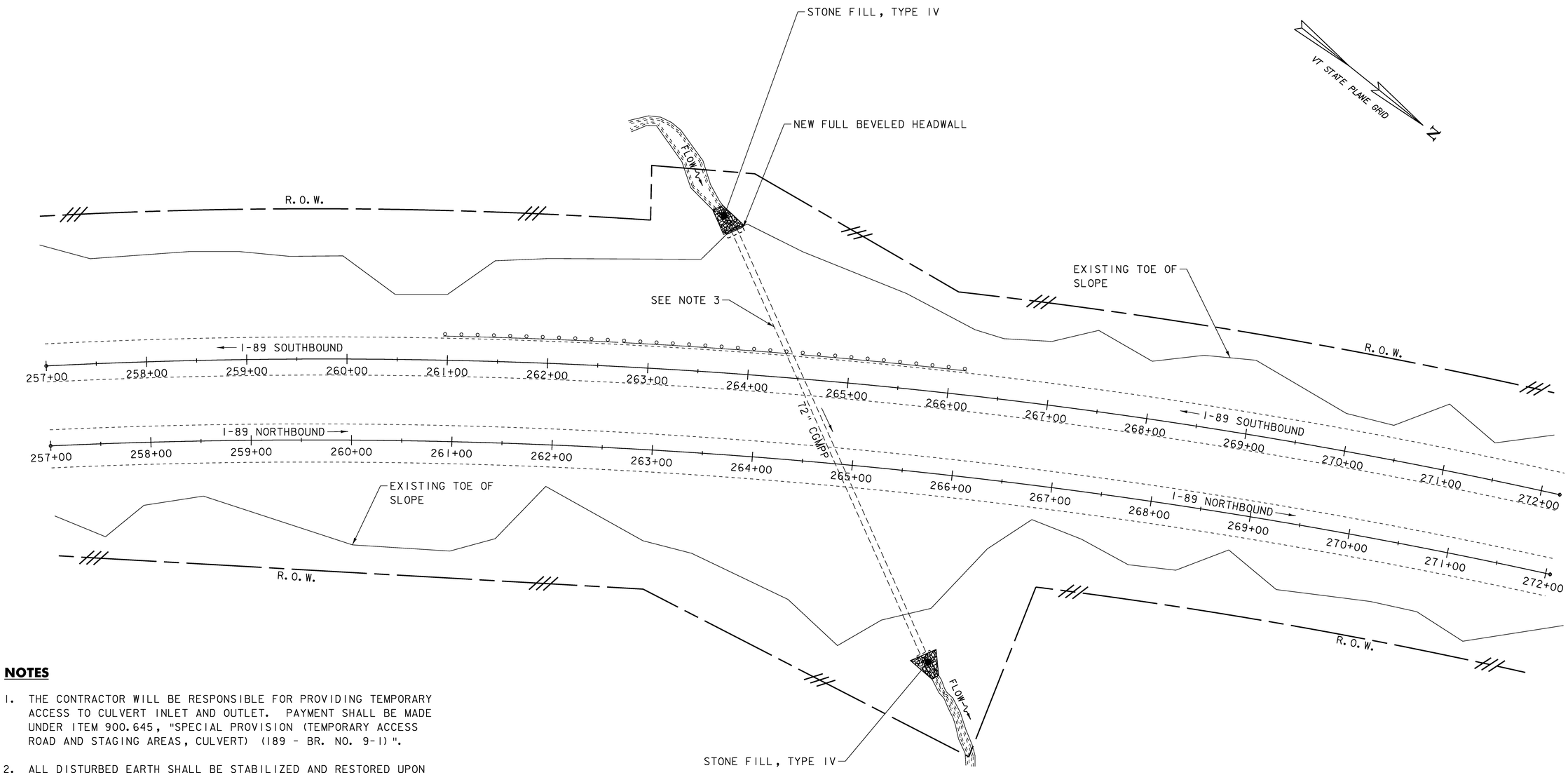
4. TEMPORARY LANE AND/OR SHOULDER CLOSURES SHALL BE ALLOWED DURING WORKING HOURS ONLY. THE INTERSTATE SHALL BE RESTORED TO FULL CAPACITY AT THE CLOSE OF DAILY CONSTRUCTION ACTIVITIES.

5. TEMPORARY BARRIER, IF USED, SHALL MEET THE REQUIREMENTS OF SECTION 621. BARRIER ENDS FACING ONCOMING TRAFFIC SHOULD BE TAPERED BEYOND THE CLEAR ZONE. IF NECESSARY, PAYMENT FOR INSTALLING, RESETTING, AND REMOVING ANY TEMPORARY TRAFFIC BARRIER SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".

6. ENERGY ABSORPTION ATTENUATORS, IF USED, SHALL MEET THE REQUIREMENTS OF SECTION 621. PAYMENT FOR INSTALLING AND REMOVING ANY ENERGY ABSORPTION ATTENUATORS SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".

7. SIGNS, BARRICADES, AND TRAFFIC CONTROL DEVICES SHALL BE CLEANED WEEKLY AND THIS WORK SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 641.10, "TRAFFIC CONTROL".

PROJECT NAME: HARTFORD-SHARON	
PROJECT NUMBER: IM 089-1(55)	
FILE NAME: z08a056notes.dgn	PLOT DATE: 15-JAN-2009
PROJECT LEADER: E. P. DETRICK	DRAWN BY: R. H. BARNES
DESIGNED BY: A. P. GUYETTE	CHECKED BY: E. P. DETRICK
PROJECT NOTES	SHEET 5 OF 20



NOTES

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING TEMPORARY ACCESS TO CULVERT INLET AND OUTLET. PAYMENT SHALL BE MADE UNDER ITEM 900.645, "SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT) (189 - BR. NO. 9-1)".

2. ALL DISTURBED EARTH SHALL BE STABILIZED AND RESTORED UPON COMPLETION OF CONSTRUCTION.

3. THE EXISTING CULVERT SHALL BE LINED WITH AN ALUMINUM PIPE LINER. THE LENGTH OF ALUMINUM PIPE LINER FOR 189 - BR. NO. 9-1 IS ESTIMATED TO BE 470-LF. PAYMENT FOR ALUMINUM LINER WILL BE MADE UNDER ITEM 900.640, "SPECIAL PROVISION ALUMINUM PIPE LINER) (60") (EXISTING 72" PIPE)".

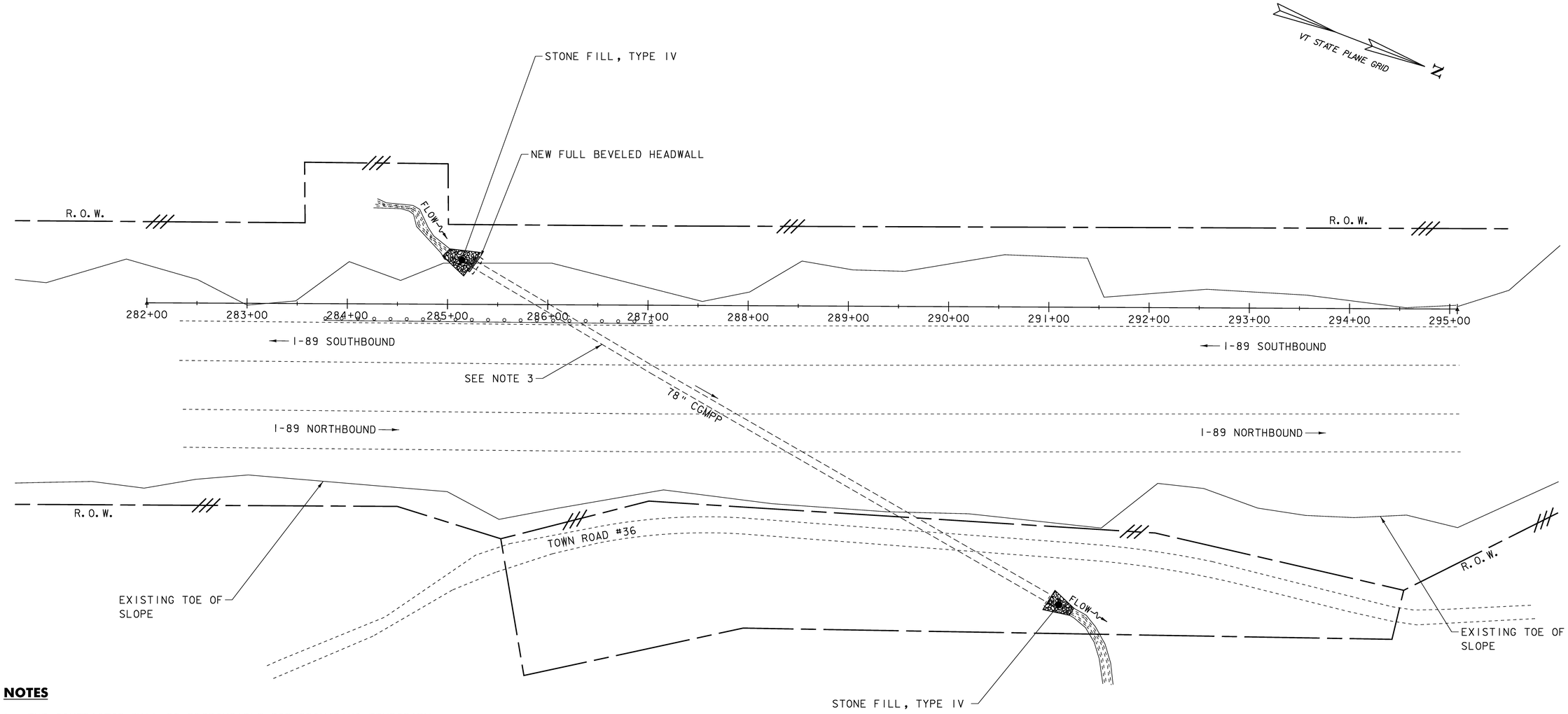
HARTFORD B 9-1 CULVERT

SCALE 1" = 50'-0

50 0 50

THIS SITE PLAN, INCLUDING R.O.W. LIMITS, WAS DEVELOPED BASED ON EXISTING AS-BUILT PLANS.

PROJECT NAME: HARTFORD-SHARON	
PROJECT NUMBER: IM 089-1(55)	
FILE NAME: z08a056bdr.dgn	PLOT DATE: 15-JAN-2009
PROJECT LEADER: E. P. DETRICK	DRAWN BY: R. H. BARNES
DESIGNED BY: A. P. GUYETTE	CHECKED BY: E. P. DETRICK
HARTFORD 189 - BR. NO. 9-1 LAYOUT SHEET	SHEET 6 OF 20



NOTES

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING TEMPORARY ACCESS TO CULVERT INLET AND OUTLET. PAYMENT SHALL BE MADE UNDER ITEM 900.645, "SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT) (189 - BR. NO. 9-2)".

2. ALL DISTURBED EARTH SHALL BE STABILIZED AND RESTORED UPON COMPLETION OF CONSTRUCTION.

3. THE EXISTING CULVERT SHALL BE LINED WITH AN ALUMINUM PIPE LINER. THE LENGTH OF ALUMINUM PIPE LINER FOR 189 - BR. NO. 9-2 IS ESTIMATED TO BE 660-LF. PAYMENT FOR ALUMINUM LINER WILL BE MADE UNDER ITEM 900.640, "SPECIAL PROVISION (ALUMINUM PIPE LINER) (60") (EXISTING 78" PIPE)".

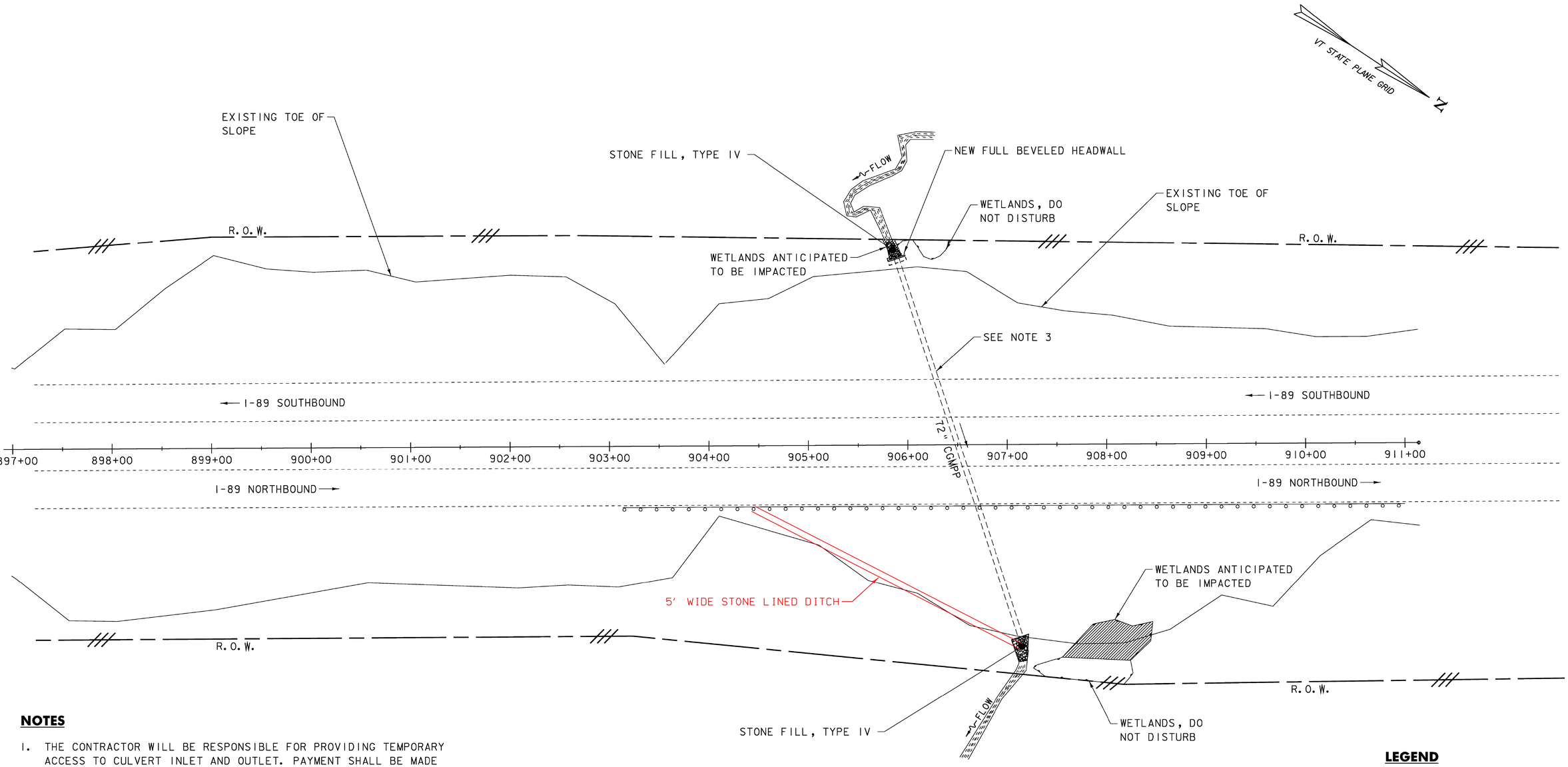
HARTFORD B 9-2 CULVERT

SCALE 1" = 50'-0

50 0 50

THIS SITE PLAN, INCLUDING R.O.W. LIMITS, WAS DEVELOPED BASED ON EXISTING AS-BUILT PLANS.

PROJECT NAME: HARTFORD-SHARON	
PROJECT NUMBER: IM 089-1(55)	
FILE NAME: z08a056bdr.dgn	PLOT DATE: 15-JAN-2009
PROJECT LEADER: E. P. DETRICK	DRAWN BY: R. H. BARNES
DESIGNED BY: A. P. GUYETTE	CHECKED BY: E. P. DETRICK
HARTFORD 189 - BR. NO. 9-2 LAYOUT SHEET	SHEET 7 OF 20



NOTES

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING TEMPORARY ACCESS TO CULVERT INLET AND OUTLET. PAYMENT SHALL BE MADE UNDER ITEM 900.645, "SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT) (189 - BR. NO. 20-4)".

2. ALL DISTURBED EARTH SHALL BE STABILIZED AND RESTORED UPON COMPLETION OF CONSTRUCTION.

3. THE EXISTING CULVERT SHALL BE LINED WITH AN ALUMINUM PIPE LINER. THE LENGTH OF ALUMINUM PIPE LINER FOR 189 - BR. NO. 20-4 IS ESTIMATED TO BE 390-LF. PAYMENT FOR ALUMINUM LINER WILL BE MADE UNDER ITEM 900.640, "SPECIAL PROVISION (ALUMINUM PIPE LINER) (60") (EXISTING 72" PIPE)".

ROYALTON B 20-4 CULVERT

SCALE 1" = 50'-0

50 0 50

LEGEND

ANTICIPATED WETLAND IMPACT AREAS

WETLAND AREA, DO NOT DISTURB

THIS SITE PLAN, INCLUDING R.O.W. LIMITS, WAS DEVELOPED BASED ON EXISTING AS-BUILT PLANS.

PROJECT NAME: HARTFORD-SHARON
PROJECT NUMBER: IM 089-1(55)

FILE NAME: z08a056bdr.dgn
PROJECT LEADER: E. P. DETRICK
DESIGNED BY: A. P. GUYETTE
ROYALTON 189 - BR. NO. 20-4 LAYOUT SHEET

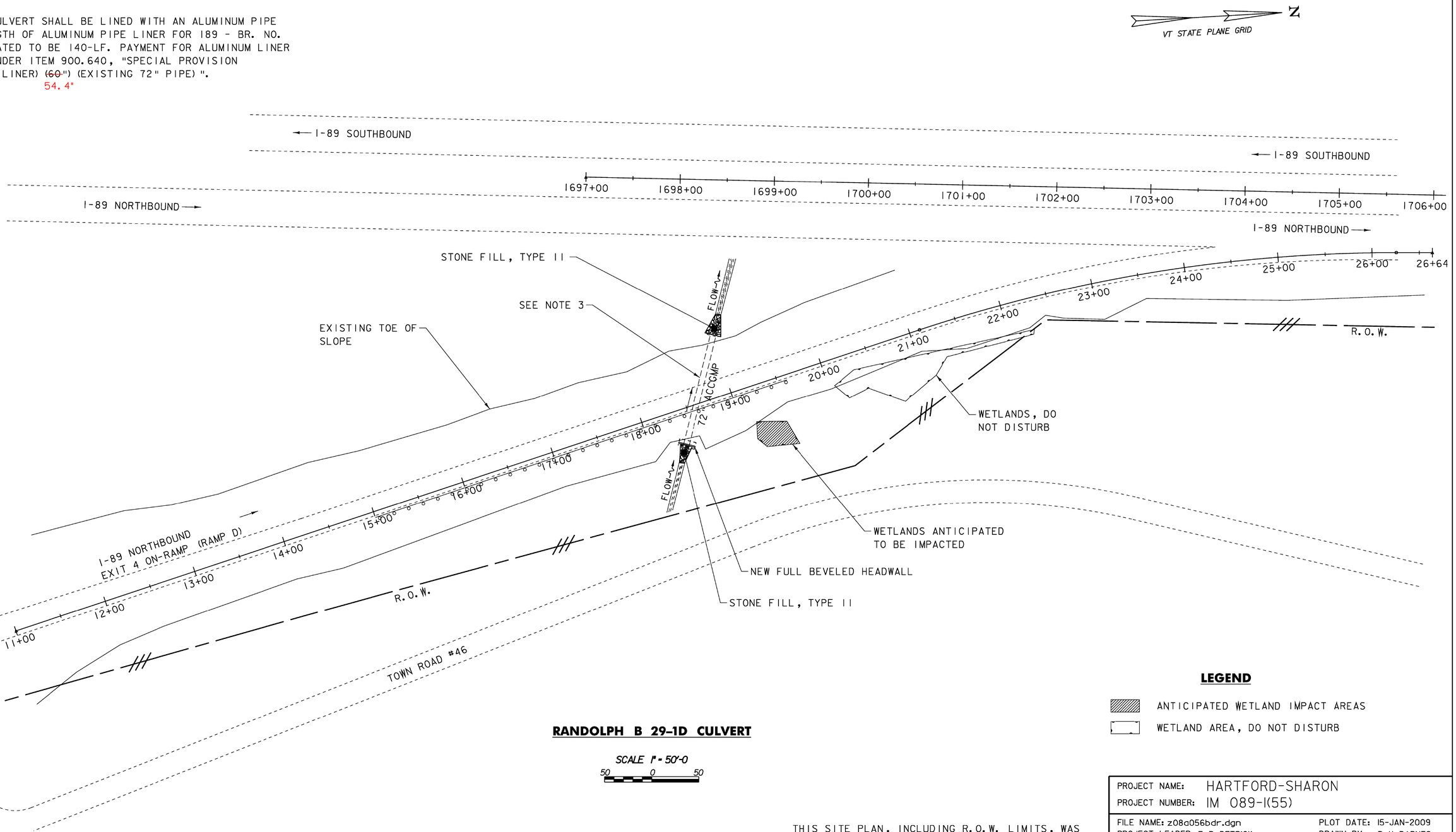
PLOT DATE: 15-JAN-2009
DRAWN BY: R. H. BARNES
CHECKED BY: E. P. DETRICK
SHEET 8 OF 20

NOTES

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING TEMPORARY ACCESS TO CULVERT INLET AND OUTLET. PAYMENT SHALL BE MADE UNDER ITEM 900.645, "SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT) (189 - BR. NO. 29-ID)".

2. ALL DISTURBED EARTH SHALL BE STABILIZED AND RESTORED UPON COMPLETION OF CONSTRUCTION.

3. THE EXISTING CULVERT SHALL BE LINED WITH AN ALUMINUM PIPE LINER. THE LENGTH OF ALUMINUM PIPE LINER FOR 189 - BR. NO. 29-ID IS ESTIMATED TO BE 140-LF. PAYMENT FOR ALUMINUM LINER WILL BE MADE UNDER ITEM 900.640, "SPECIAL PROVISION (ALUMINUM PIPE LINER) (~~60~~ 54.4") (EXISTING 72" PIPE)".



RANDOLPH B 29-1D CULVERT

SCALE 1" = 50'-0

50 0 50

LEGEND

ANTICIPATED WETLAND IMPACT AREAS

WETLAND AREA, DO NOT DISTURB

THIS SITE PLAN, INCLUDING R.O.W. LIMITS, WAS DEVELOPED BASED ON EXISTING AS-BUILT PLANS.

PROJECT NAME:	HARTFORD-SHARON
PROJECT NUMBER:	IM 089-1(55)
FILE NAME: z08a056bdr.dgn	PLOT DATE: 15-JAN-2009
PROJECT LEADER: E. P. DETRICK	DRAWN BY: R. H. BARNES
DESIGNED BY: A. P. GUYETTE	CHECKED BY: E. P. DETRICK
RANDOLPH 189 - BR. NO. 29-ID LAYOUT SHEET	SHEET 9 OF 20

1.1 PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF SLIP LINING OF EXISTING CULVERTS UNDER I-89. THE SLIP LINING WILL USE NEW ALUMINUM PIPES PRESSURE GROUTED INTO PLACE. NEW FULL BEVELED HEADWALLS WILL BE CONSTRUCTED AT THE INLETS TO THE NEW SLIP LINED PIPE. ADDITIONAL WORK INCLUDES PLACEMENT OF STONE FILL AT THE INLETS AND OUTLETS OF THE NEW CULVERT LINER AND POSSIBLY THE FILLING OF VOIDS AROUND THE EXISTING CULVERT.

THE PROJECT IS LOCATED AT FOUR SEPARATE SITES ALONG THE I-89 CORRIDOR FROM HARTFORD TO RANDOLPH. THE CULVERTS ARE LOCATED IN THE TOWN OF HARTFORD AT MILE MARKERS 4.9 AND 5.2, IN THE TOWN OF ROYALTON AT MILE MARKER 17 AND IN THE TOWN OF RANDOLPH AT EXIT 4 ON RAMP D. A TEMPORARY ACCESS ROAD AND STAGING AREA WILL BE CONSTRUCTED FOR EACH SITE AND WILL BE USED FOR THE PURPOSE OF ACCESSING THE EXISTING CULVERT AND PERFORMING THE REQUIRED CONSTRUCTION ACTIVITIES. THE ACCESS ROADS AND STAGING AREAS ARE TO BE REMOVED UPON COMPLETION OF CONSTRUCTION. THIS PROJECT IS EXPECTED TO LAST ONE CONSTRUCTION SEASON.

IT HAS BEEN DETERMINED THAT THE TOTAL AREA OF DISTURBANCE FOR EACH CULVERT WILL BE LESS THAN ONE ACRE OF LAND. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN A TOTAL INDIVIDUAL CULVERT SITE DISTURBANCE OF MORE THAN ONE ACRE OR SHOULD THE PROJECT BECOME PART OF A LARGER DEVELOPMENT PLAN THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH VANR VIA FILING OF THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION GENERAL PERMIT PROCESS.

DUE TO THE PRESENCE OF WETLANDS AT SOME OF THE SITES, AN ASSUMED AREA OF THE WETLANDS HAS BEEN IDENTIFIED IN THE SITE PLANS AS BEING DISTURBED AND THE PROJECT HAS BEEN PERMITTED FOR THAT DISTURBANCE. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ADDITIONAL DISTURBANCE TO THE WETLANDS THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH THE APPROPRIATE REGULATORY AGENCIES. PREPARATION AND COSTS ASSOCIATED WITH ADDITIONAL PERMITTING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

1.2 SITE INVENTORY

1.2.1 OFFSITE DRAINAGE CHARACTERISTICS

THIS PROJECT SITE IS LOCATED IN A RURAL, RARELY TRAVELED AREA ALONG THE TOE OF SLOPE OF I-89. THE AREA SURROUNDING THE PROJECT IS STEEP INTERSTATE FILL SLOPES ADJACENT TO MODERATELY SLOPED AREAS WITH ESTABLISHED VEGETATION, INCLUDING GRASSY AREAS AND TREE LINES. MUCH OF THE RUNOFF FROM THE SURROUNDING TERRAIN DRAINS INTO THE SUBJECT WATERWAYS.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

THE SUBJECT WATERWAYS AND AREAS OF WETLANDS IDENTIFIED ON THE PLANS ARE THE ONLY WATERWAYS WITHIN THE PROJECT LIMITS. THERE ARE NO OTHER WETLANDS WITHIN THE PROJECT LIMITS, OR SURROUNDING AREA.

1.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

THE TOPOGRAPHY OF THE PROJECT AREA CONSISTS OF STEEP INTERSTATE FILL SLOPES AND ROLLING HILLS. THE IS NO EVIDENCE OF BURIED OR OVERHEAD UTILITIES IN THE PROJECT AREA.

1.2.4 VEGETATION

THE PROJECT AREA CONSISTS OF GRASSY AREAS AND TREE LINES. IMPACTS TO VEGETATED AREAS WILL BE LIMITED TO THE SIDE SLOPES OF THE SUBJECT WATERWAYS AND THE AREA OF THE TEMPORARY ACCESS ROAD AND STAGING AREAS. SEVERAL SMALL TREES WILL BE REMOVED AS PART OF THE CLEARING FOR THE ACCESS AND STAGING AREAS. FOLLOWING THE COMPLETION OF CONSTRUCTION, THE TEMPORARY ACCESS ROADS AND STAGING AREAS AND ASSOCIATED FILL WILL BE REMOVED AND THE VEGETATION WILL BE REESTABLISHED USING STANDARD SEED AND MULCH PRACTICES.

1.2.5 SOILS

THE SOIL CONSERVATION SERVICE HAS MAPPED THE SOILS THROUGHOUT WINDSOR AND ORANGE COUNTIES. THE SOIL TYPE IDENTIFIED FOR 189 - BR. NO. 9-1 IS HITCHCOCK SILT LOAM AND IS LISTED AS HIGHLY ERODIBLE LAND. THE SOIL TYPE IDENTIFIED FOR 189 - BR. NO. 9-2 IS HINCKLEY SAND LOAM AND IS LISTED AS POTENTIALLY HIGHLY ERODIBLE LAND. THE SOIL TYPE IDENTIFIED FOR 189 - BR. NO. 20-4 IS HITCHCOCK SILT LOAM AND IS LISTED AS HIGHLY ERODIBLE LAND. THE SOIL TYPE IDENTIFIED FOR 189 - BR. NO. 29-1D IS CABOT STONY SILT LOAM AND IS LISTED AS POTENTIALLY HIGHLY ERODIBLE LAND.

1.2.6 SENSITIVE RESOURCE AREAS

THE SUBJECT WATERWAYS AND THE WETLANDS DELINEATED ON THE PLANS ARE THE ONLY KNOWN RESOURCE AREAS OF SPECIFIC CONCERN THAT HAVE BEEN IDENTIFIED WITHIN THE PROJECT AREA. THE PRIMARY OBJECTIVE FOR THE EROSION PREVENTION AND SEDIMENT CONTROL PLAN WILL BE TO PREVENT THE MOBILIZATION AND TRANSPORT OF SEDIMENT INTO THE SUBJECT WATERWAYS. ALL WORK TO BE COMPLETED IN THE RIVER SHALL BE IN THE DRY. THE SENSITIVE RESOURCE AREAS HAVE BEEN IDENTIFIED ON THE LAYOUT SHEETS FOR EACH CONSTRUCTION SITE.

1.3 RISK EVALUATION

SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH VANR VIA FILING OF THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION GENERAL PERMIT PROCESS.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE CONTRACTOR SHALL REFER TO THE VTRANS EROSION PREVENTION AND SEDIMENT CONTROL PLAN CHECKLIST TO DEVELOP THE EPSC PLAN. THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT.

1.4.1 MARK SITE BOUNDARIES

PROJECT DEMARCATION FENCE SHALL BE INSTALLED TO DELINEATE THE LIMITS THE CONTRACTOR CAN ACCESS WITH CONSTRUCTION EQUIPMENT. THIS MEASURE LIMITS THE AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION.

1.4.2 LIMIT DISTURBANCE AREA

THE CONTRACTOR SHALL ESTABLISH THE LIMITS OF CONSTRUCTION ACCORDING TO THE CONTRACT LANGUAGE REQUIREMENTS. ALL EFFORTS SHALL BE MADE TO MINIMIZE EARTH DISTURBANCE.

1.4.3 STABILIZE CONSTRUCTION EXIT

A VEHICLE TRACKING PAD SHALL BE CONSTRUCTED AT ALL ACCESS POINTS BETWEEN CONSTRUCTION ACTIVITIES, INCLUDING STOCKPILE AREAS, AND PUBLIC OR PRIVATE ROADS. VEHICLE TRACKING PAD SHALL BE CONSTRUCTED IN ACCORDANCE APPROVED VTRANS EROSION CONTROL DETAILS.

1.4.4 INSTALL SILT FENCE

SILT FENCE SHALL BE INSTALLED ACCORDING TO THE ACCEPTED EPSC PLAN OR AS NECESSARY. IT SHALL BE NOTED THAT SILT FENCE SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

1.4.5 DIVERT UPLAND RUNOFF

UPLAND RUNOFF SHALL BE DIVERTED AROUND THE PROJECT AS APPROPRIATE.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHANNELIZED RUNOFF SHALL BE TREATED AS NECESSARY.

1.4.7 CONSTRUCT PERMANENT CONTROLS

STONE FILL SHALL BE PLACED ALONG THE STREAMBEDS OF THE SUBJECT WATERWAYS TO PREVENT EROSION AND SCOUR.

1.4.8 TEMPORARY SOIL STABILIZATION

METHODS MAY INCLUDE SEED, MULCH, SOIL BINDER, OR OTHER METHODS AS APPROVED BY THE ENGINEER. TEMPORARY SOIL STABILIZATION METHODS SHALL BE APPLIED TO EXPOSED EARTH WITHIN 48 HOURS OF EARTH DISTURBANCE. PAYMENT FOR TEMPORARY SOIL STABILIZATION WILL BE MADE UNDER ITEM 900.650, "SPECIAL PROVISION (EROSION PREVENTION AND SEDIMENT CONTROL MEASURES) (N.A.B.I.)".

1.4.9 WINTER STABILIZATION

NOT APPLICABLE

1.4.10 PERMANENT SOIL STABILIZATION

ALL DISTURBED AREAS OUTSIDE THE LIMITS OF THE WATERWAYS SHALL RECEIVE TOPSOIL, SEED AND MULCH TO REESTABLISH GRASS AND VEGETATION. TOPSOILING, SEEDING AND MULCHING SHALL BE IN ACCORDANCE WITH THE SEEDING FORMULA FOR RURAL AREAS AND ASSOCIATED NOTES AS SHOWN ON THE PLANS. PAYMENT FOR TURF ESTABLISHMENT WILL BE MADE UNDER THE SECTION 651 ITEMS IN THE CONTRACT.

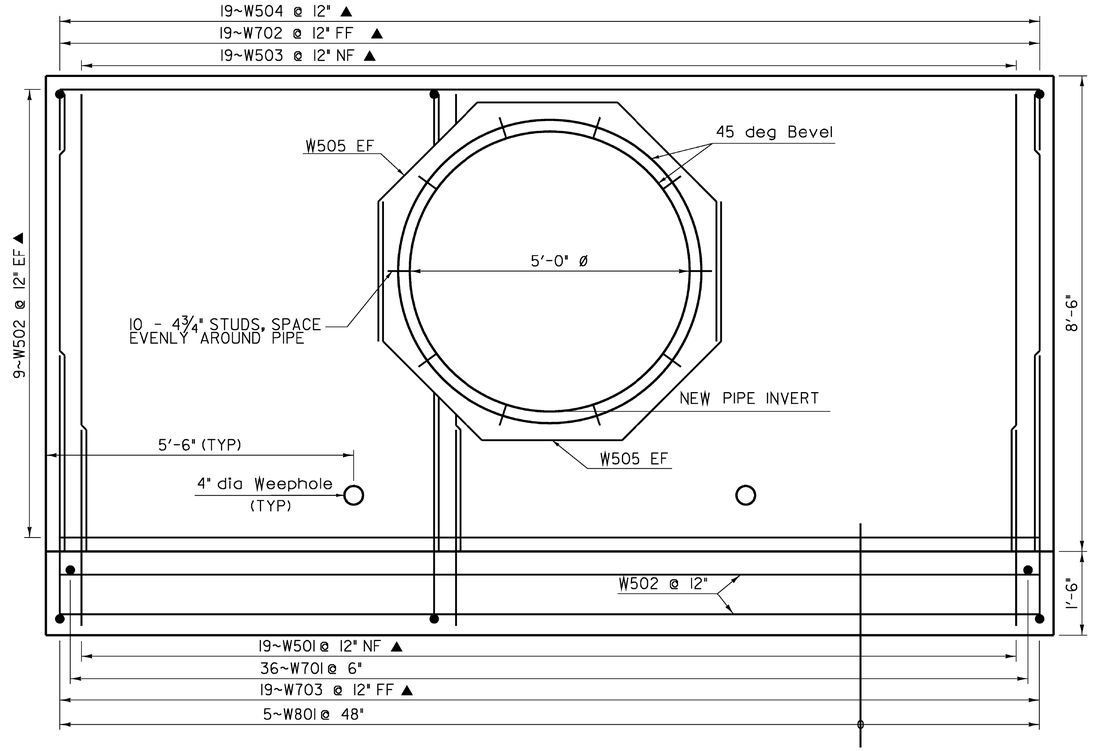
1.4.11 DEWATERING ACTIVITIES

ANY NECESSARY DEWATERING SHALL BE PERFORMED AS INDICATED IN THE ACCEPTED EPSC PLAN.

1.4.12 INSPECT YOUR SITE

INSPECTION OF THE SITE SHALL BE BASED ON PERMIT AUTHORIZATION OR SPECIAL PROVISION REQUIREMENTS.

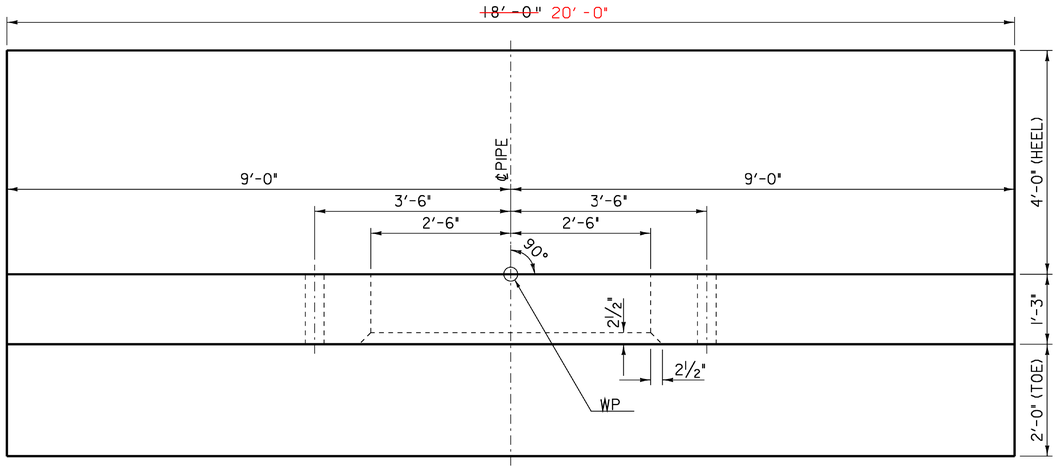
PROJECT NAME:	HARTFORD-SHARON
PROJECT NUMBER:	IM 089-1(55)
FILE NAME: z08a056epscnar.dgn	PLOT DATE: 15-JAN-2009
PROJECT LEADER: E. P. DETRICK	DRAWN BY: R. H. BARNES
DESIGNED BY: A. P. GUYETTE	CHECKED BY: E. P. DETRICK
EPSC NARRATIVE	SHEET 10 OF 20



HEADWALL ELEVATION

SCALE ¾" = 1'-0

ALL HEADWALLS ARE BUILT AS 20'-0" IN LENGTH

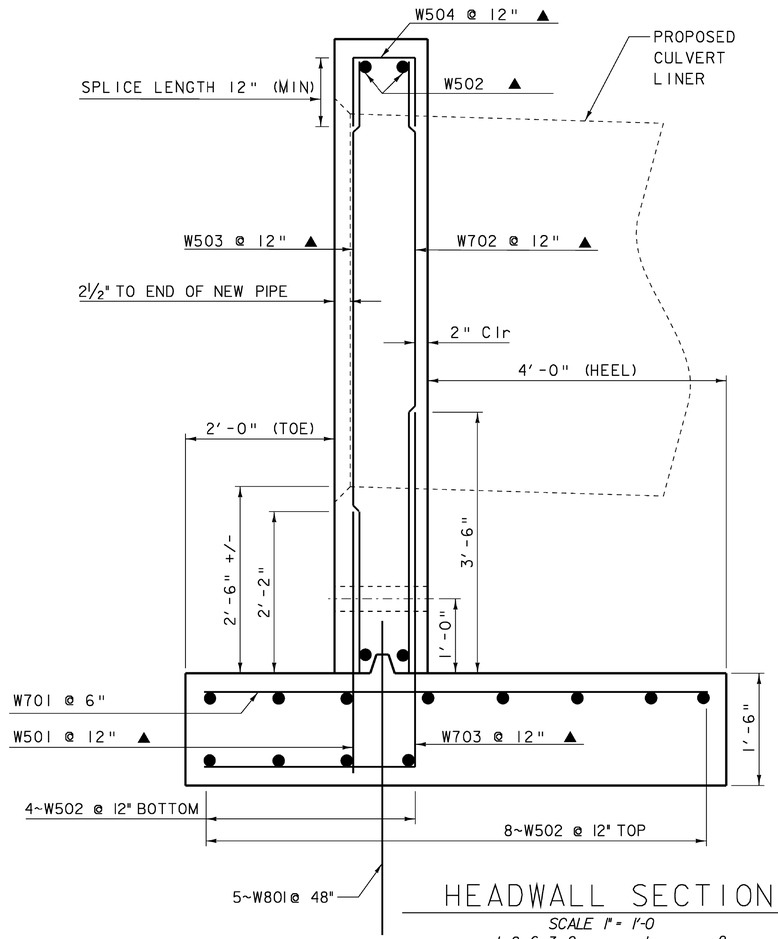


HEADWALL PLAN

SCALE ¾" = 1'-0

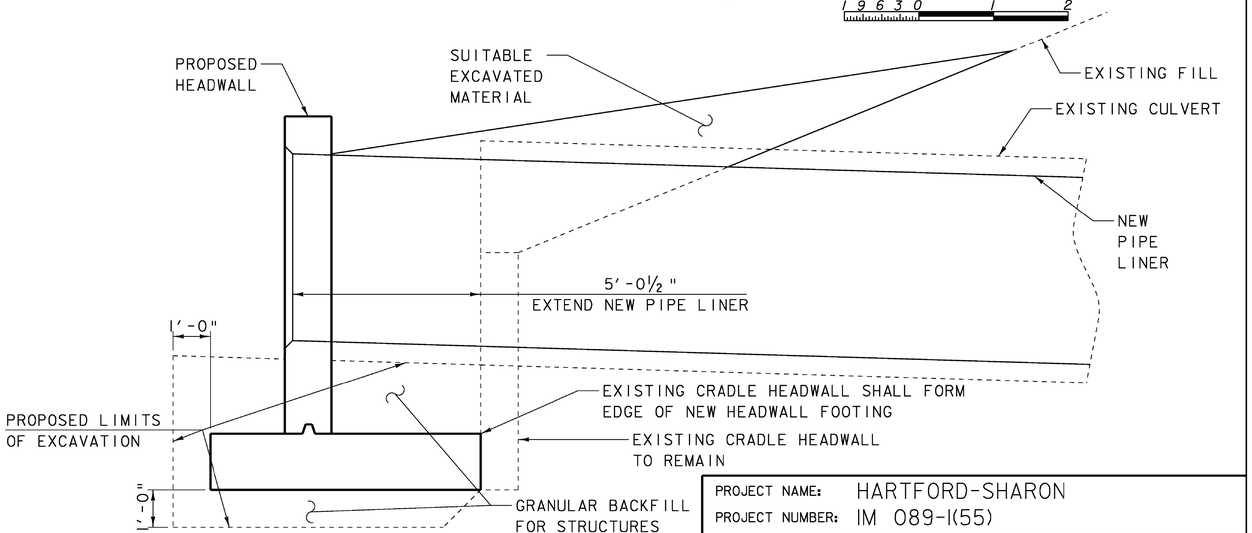
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.



HEADWALL SECTION

SCALE 1" = 1'-0



EXISTING / PROPOSED HEADWALL SECTION

SCALE ½" = 1'-0

PROJECT NAME:	HARTFORD-SHARON
PROJECT NUMBER:	IM 089-1(55)

FILE NAME: z08a056det.dgn	PLOT DATE: 15-JAN-2009
PROJECT LEADER: E. P. DETRICK	DRAWN BY: R. H. BARNES
DESIGNED BY: A. P. GUYETTE	CHECKED BY: E. P. DETRICK
HEADWALL DETAIL SHEET	SHEET 11 OF 20

STATE OF VERMONT
AGENCY OF TRANSPORTATION

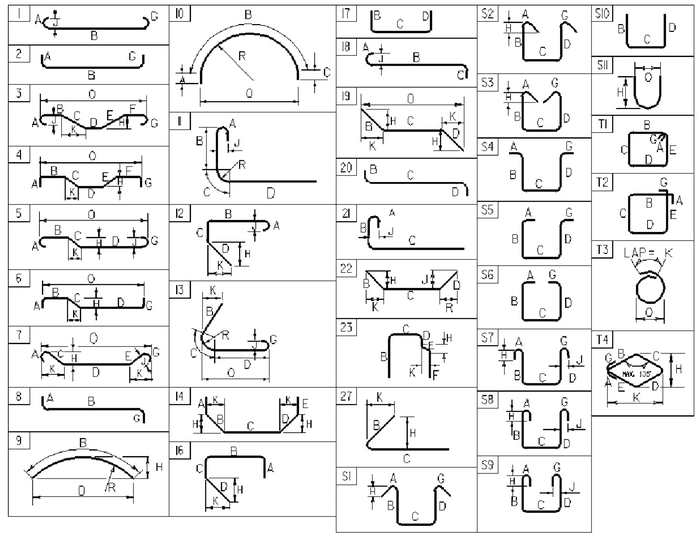
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
HARTFORD 9-1 CULVERT HEADWALL 1																	
▲	19	5	3'- 5"	1W501	STR												
▲	30	5	17'- 6"	1W502	STR												
▲	19	5	8'- 3"	1W503	STR												
	19	5	2'- 10"	1W504	17		1'- 0"	0'- 10"	1'- 0"								
	4	5	12'- 6"	1W505	14	2'- 6"	2'- 6"	2'- 6"	2'- 6"	2'- 6"			1'- 9"		1'- 9"		
	36	7	6'- 9"	1W701	STR												
▲	19	7	8'- 3"	1W702	STR												
▲	19	7	7'- 7"	1W703	17		2'- 10"	4'- 9"									
	5	8	4'- 0"	1W801	STR												
HARTFORD 9-2 CULVERT HEADWALL 2																	
▲	19	5	3'- 5"	2W501	STR												
▲	30	5	17'- 6"	2W502	STR												
▲	19	5	8'- 3"	2W503	STR												
	19	5	2'- 10"	2W504	17		1'- 0"	0'- 10"	1'- 0"								
	4	5	12'- 6"	2W505	14	2'- 6"	2'- 6"	2'- 6"	2'- 6"	2'- 6"			1'- 9"		1'- 9"		
	36	7	6'- 9"	2W701	STR												
▲	19	7	8'- 3"	2W702	STR												
▲	19	7	7'- 7"	2W703	17		2'- 10"	4'- 9"									
	5	8	4'- 0"	2W801	STR												
ROYALTON 20-4 CULVERT HEADWALL 3																	
▲	19	5	3'- 5"	3W501	STR												
▲	30	5	17'- 6"	3W502	STR												
▲	19	5	8'- 3"	3W503	STR												
	19	5	2'- 10"	3W504	17		1'- 0"	0'- 10"	1'- 0"								
	4	5	12'- 6"	3W505	14	2'- 6"	2'- 6"	2'- 6"	2'- 6"	2'- 6"			1'- 9"		1'- 9"		
	36	7	6'- 9"	3W701	STR												
▲	19	7	8'- 3"	3W702	STR												
▲	19	7	7'- 7"	3W703	17		2'- 10"	4'- 9"									
	5	8	4'- 0"	3W801	STR												
RANDOLPH 29-1D CULVERT HEADWALL 4																	
▲	19	5	3'- 5"	4W501	STR												
▲	30	5	17'- 6"	4W502	STR												
▲	19	5	8'- 3"	4W503	STR												
	19	5	2'- 10"	4W504	17		1'- 0"	0'- 10"	1'- 0"								
	4	5	12'- 6"	4W505	14	2'- 6"	2'- 6"	2'- 6"	2'- 6"	2'- 6"			1'- 9"		1'- 9"		
	36	7	6'- 9"	4W701	STR												
▲	19	7	8'- 3"	4W702	STR												
▲	19	7	7'- 7"	4W703	17		2'- 10"	4'- 9"									
	5	8	4'- 0"	4W801	STR												

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O

~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M31 (ASTM A615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	AREA INCHES^2	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

PROJECT NAME: **HARTFORD - SHARON**
PROJECT NUMBER: **IM 089-1(55)**

FILE NAME: **z08a056rss.dgn**
PROJECT MANAGER: **E. P. DETRICK**
DESIGNED BY: **A. P. GUYETTE**
REINFORCING STEEL SCHEDULE

PLOT DATE: **1/8/2009**
DRAWN BY: **A. P. GUYETTE**
CHECKED BY: **E. P. DETRICK**
SHEET **12** OF **20**

BIT CONCRETE CURB ITEM 535*
N.B. 257+00 Rt - 258+00 Rt
N.B. 266+30 Rt - 266+43 Rt

THREE CABLE GUARD RAIL w/ STEEL POSTS, ITEM 542 *
N.B. 257+00 - 258+25 Rt
N.B. 261+80 - 266+60 Rt
N.B. 268+79 - 272+00 Rt
S.B. 260+98 - 266+26 Lt

PLANK GUARD RAIL ITEM 540
S.B. 271+93 Lt
N.B. 259+45 Rt
N.B. 271+95 Rt

PROPERTY LINE FENCE w/ STEEL POSTS ITEM 589-I
NB 257+00-269+00 Rt
SB 257+00-272+00 Lt

JUTE MATTING ITEM 623
Med. 259+00 - 261+24 *
N.B. 259+00 - 261+00 Rt
S.B. 259+00 - 261+00 Lt
Med. 262+70 - 264+45 *
Med. 266+84 - 269+10 *
S.B. 269+00 - 269+25 Lt
N.B. 268+00 - 269+00 Rt
Med. 271+26 - 272+00. *

STONE FILL FOR SLOPE PROTECTION - ITEM 612
S.B. 268+75 - S.B. 266+25 Lt

P.O.T. 251+00.95
P.O.S.T. 259+82.91
P.O.S.T. 260+84.10
P.O.S.T. 262+27.28
P.O.S.T. 264+80.0
P.O.S.T. 266+49.79
P.O.S.T. 271+00.04
Mi. POST 264+50.0 Ch. L. POST. 3+00.0
Dev. SB P.I. 266+86.31 = 266+64.13
Dev. NB P.I. 266+71.86 = 266+49.68
Survey P.I. 269+15.56 = 268+93.9
Δ 20° 30'
D 1° 00'
Vt. Grid
Water Course
Match to Sheet #(28)
MATCH
Match to Sheet #(29)

B.M. #45 U.S. Elev. 563.383
B.M. #44 U.S. Elev. 572.240
B.M. #46 U.S. Elev. 520.943
B.M. #47 U.S. Elev. 522.076
B.M. #48 U.S. Elev. 551.952
B.M. #49 U.S. Elev. 524.661

T.P. 38 P.I. 28+09.92 Δ 8° 25 00" Rt.
T.P. 38 P.I. 31+49.34 Δ 6° 09' 00" Rt.

2x2' Open Spring Hole 12" Galv. Outlet Pipe to Kolaski House

"CONTROL OF ACCESS IS COMPLETE ON THIS SHEET."

*Denotes Stage II Construction

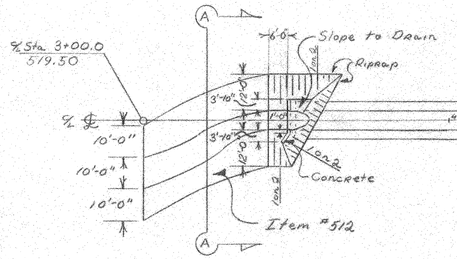
HARTFORD - SHARON
IM 089-1(55)
189 - BR. NO. 9-1
SHEET 13 of 20
FOR REFERENCE ONLY

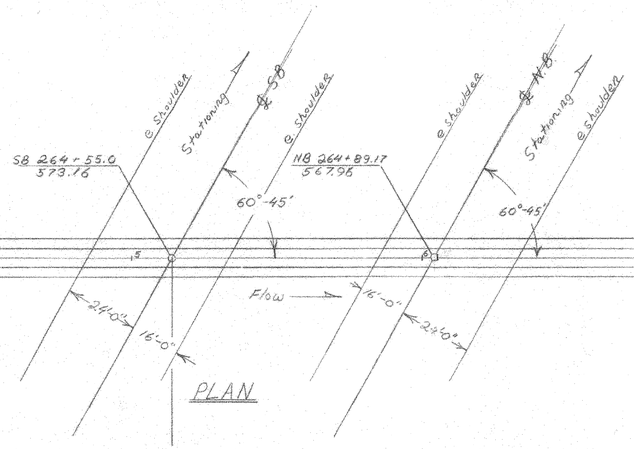
Curve Data
Δ 20° 30' Rt
D 1° 00'
R 5729.58'
T 1036.08'
L 2050.00'
E 92.93'
Bank ¼" per ft.

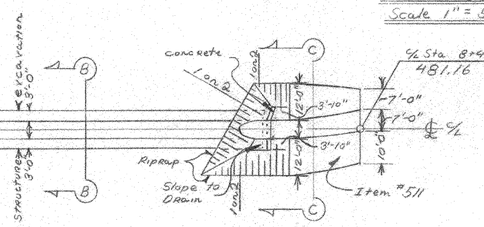
Stage I Construction
Stage 2 Construction
HARTFORD I89-1(24)
I 89-1(5)
Sheet 28 of 269 Sheets
Sheet 61 of 141

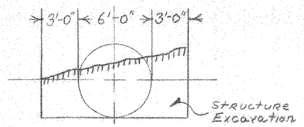
Notes

℄ Pipe = ℄
Pipe begins ℄ Sta 3+50
Pipe ends ℄ Sta 8+11
Item #512 begins ℄ Sta 3+00
Item #511 ends ℄ Sta 8+50

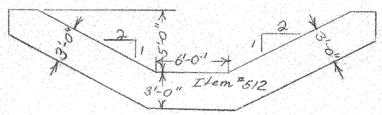




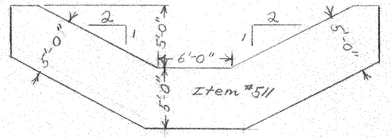




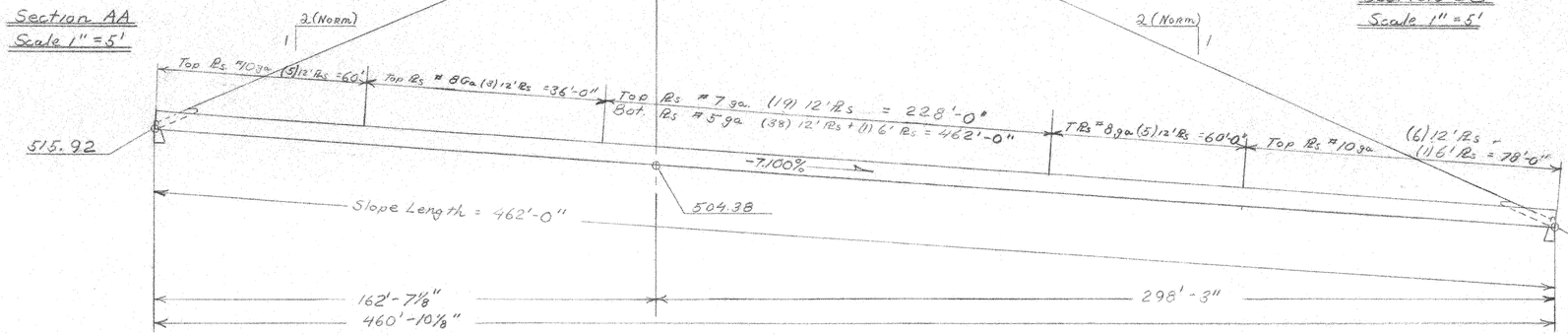
Section BB
Scale 1" = 5'



Section AA
Scale 1" = 5'



Section CC
Scale 1" = 5'



Elevation of Plate Pipe

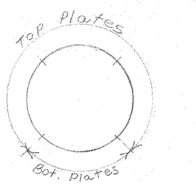
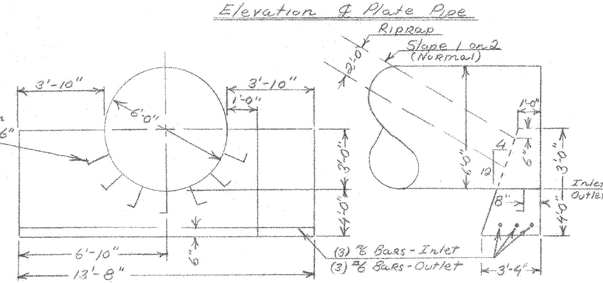


Plate Arrangement
Not to Scale

One row 3/4" ϕ Galv. 1'-6" Mm Hook Bolts, spaced approx 1'-6" to be furnished with and included in cost of Plate Pipe



Headwall Elevation

Headwall Section

Not to Scale

Notes

Dia. of Pipe	72"
O.A. Length	462'-0"
Hor. Length	460'-10 1/8"
Gage Top Rs	#10 & #8 & #7
Gage Bot Rs	#5
Camber	0
Waterway	28 □'
Wt. per ft	138' @ 187 #/ft 96' @ 211 #/ft 228' @ 223 #/ft
Total Weight	96,906 lbs

HARTFORD - SHARON
IM 089-1(55)
189 - BR. NO. 9-1
SHEET 14 of 20
FOR REFERENCE ONLY

Reinforcing Steel					
No. Pieces	Size	Length	Mark	Type	Location
3	6	14'-0	601	Str.	Upstream
3	6	14'-0	602	Str	Downstream

Stage 1 Construction

ITEM NO.	ITEM	UNIT	NET		TOTAL	FINAL
	CHAN. EXCAV. OF EARTH	C.Y.				AB
	CHAN. EXCAV. OF ROCK	C.Y.				
108C	UNCLASS CHAN. EXCAV.	C.Y.			860	387
109	STRUCT. EXCAV.	C.Y.			1940	1708
	CONC. CLASS AA (HIGH)	C.Y.				
401B	CONC. CLASS B (HIGH)	C.Y.			15	15
402	REINF. STEEL	LBS.			127	127
422A	Corrugated Galvanized Metal Plate Pipe (Top Rs #10 & 8 & 7 ga. Bot Rs #5 ga. wt 96,906 lbs	L.S.			1	1
511	Stone fill for Slope Protection (Heavy Type)	C.Y.			290	7
512	Stone fill for Slope Protection (Light Type	C.Y.			185	121
513A	Riprap (Heavy Type)	C.Y.			70	69

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF Hartford
ROUTE NO. I89 LOG STA.
72" CGMRP @ SB Sta 264+55.0
Top Rs #10 & 8 & 7 ga Bot Rs #5 ga wt 96,906 lbs
SCALE Not to Scale
SURVEYED BY MORRIS
DRAWN BY LIL CHECKED BY GEH
PROJECT NO. I89-1(5) Cont #
SHEET 82 OF 269

PROPERTY LINE FENCE w/STEEL POSTS - ITEM 583-II
SB 272+00 - 285+50 Lt.
NB 273+00 - 287+00 Rt.
Property Line Fence Listed Below is to be Installed Prior to Other Work in the Area
NB 273+00 - 286+00 Rt.

THREE CABLE GUARD RAIL w/ STEEL POSTS, ITEM 542 *
N.B. 272+00 - 273+92 Lt.
N.B. 277+50 - 287+00 Rt.
S.B. 273+17 - 287+00 Rt.
S.B. 283+76 - 287+00 Lt.

DRILLING & BLASTING OF SOLID ROCK SUBGRADE, ITEM 115 *
277+00 - 285+00

STONE FILL FOR SLOPE PROTECTION, ITEM 512
S.B. 285+75 - 287+00 Lt.

BIT. CONCRETE CURB ITEM 555 *
N.B. 276+30 - 287+00 Rt.
S.B. 284+00 - 287+00 Lt.

JUTE MATTING, ITEM 623
Med. 272+00 - 273+33 *
S.B. 272+50 - 273+50 Lt.
Med. 275+29 - 277+25 *
S.B. 273+50 - 277+50 Lt.
Med. 278+98 - 281+00 *
S.B. 280+00 - 281+00 Lt.
Med. 283+00 - 285+00 *

DEMOLITION & DISPOSAL OF BUILDING ITEM 886
#31) Sta. 286+50 Rt.

PLAN | SURVEYED | BY | DATE
NOTE BOOK | PLANIMETRIC CHECKED | | 2
NO. | PROFILE CHECKED | | 3
| R.O.W. CHECKED | | 4
| DRAWN | Ryall - Vib | 5/12/5

B.M. #51 U.S. Elev. 313.740
B.M. #52 U.S. Elev. 497.189
B.M. #53 U.S. Elev. 326.337
B.M. #50 U.S. Elev. 344.026

12" Beech
Brook
12" Hem.
6" Hem.
15" Hem.
Vit. Clay
Match to Steel (282)
Match to Steel (283)
Stone Patio
Fireplace
Septic Tank
2½ S.F. House
Barn
Drive
Fence
Gravel Drive
Match
Begin Construction

M/L 286+94.5 = Chan. L. Rt. 5+00
Δ 38°09'15" Rt.

P.O.T. 286+50
P.O.T. 285+97.98
T.H. 36 P.O.T. 0+00
T.H. 36 P.O.T. 1+00

Med. P.O.T. 279+46.67
Surv. N.B.L. 278+84.63
Av. P.O.T. 279+30.01
S.B. P.O.T. 279+29.47
N.B. Eq. = 28.39

P.O.T. 283+46.10

N.B. 272+00 - 273+92 Lt. Guard Rail
N.B. 273+00 - 285+50 Lt. 16" C.M.P. 16ga. w/ 12"x18" Pipe C.M.P. 16ga. w/ 1 1/2"x 1/2" Corrugations Use 24" Coupling Bands @ All Joints
N.B. 273+00 - 286+00 Rt. Property Line Fence
N.B. 273+17 - 287+00 Rt. Guard Rail
N.B. 277+50 - 287+00 Rt. Guard Rail
N.B. 277+00 - 285+00 Rt. Rock Excavation
N.B. 280+00 - 283+00 Lt. Guard Rail
N.B. 281+00 - 285+00 Lt. Guard Rail
N.B. 283+00 - 285+00 Lt. Guard Rail
N.B. 283+00 - 285+00 Lt. Special Ditch Type "A" 16ga. w/ 12"x18" Pipe C.M.P. 16ga. w/ 1 1/2"x 1/2" Corrugations w/ 1'-10" Elbow Use 24" Coupling Bands @ All Joints
N.B. 283+00 - 285+00 Lt. Stone Fill for Slope Protection
N.B. 283+00 - 285+00 Lt. Jute Matting
N.B. 283+00 - 285+00 Lt. Bit. Concrete Curb
N.B. 283+00 - 285+00 Lt. 4'-0" Chain Link Fence
N.B. 283+00 - 285+00 Lt. Drilling & Blasting of Solid Rock Subgrade
N.B. 283+00 - 285+00 Lt. Demolition & Disposal of Building
S.B. 272+00 - 273+34 Lt. Guard Rail
S.B. 273+34 - 285+50 Lt. 16" C.M.P. 16ga. w/ 12"x18" Pipe C.M.P. 16ga. w/ 1 1/2"x 1/2" Corrugations w/ 1'-10" Elbow Use 24" Coupling Bands @ All Joints
S.B. 277+34 - 285+50 Lt. Stone Fill for Slope Protection
S.B. 277+34 - 285+50 Lt. Jute Matting
S.B. 277+34 - 285+50 Lt. Bit. Concrete Curb
S.B. 277+34 - 285+50 Lt. 4'-0" Chain Link Fence
S.B. 277+34 - 285+50 Lt. Drilling & Blasting of Solid Rock Subgrade
S.B. 277+34 - 285+50 Lt. Demolition & Disposal of Building
S.B. 280+00 - 283+00 Lt. Special Ditch Type "A" 16ga.
S.B. 281+00 - 285+00 Lt. Special Ditch Type "A" 16ga.
S.B. 283+00 - 285+00 Lt. Special Ditch Type "A" 16ga.

"CONTROL OF ACCESS IS COMPLETE ON THIS SHEET"

TN. H. #36 TO BE BUILT IN ITS ENTIRETY DURING STAGE I CONSTRUCTION.

PLAN SCALE 0 50 100 100 FEET

*Denotes Stage II Construction

HARTFORD - SHARON
IM 089-1(55)
189 - BR. NO. 9-2
SHEET 15 of 20
FOR REFERENCE ONLY

TA M#52-A Elev. 454.36

HARTFORD I89-1(24)
I89-1(5)
Sheet 30 of 269 Sheets
Sheet 63 of 141

Drilling and Blasting of Solid Rock Sub-grade, Item 118
295+00 to 302+00 Rt

Drilling & Presplitting of Solid Rock Item 125
299+25 - 302+00 SB Rt
299+75 - 302+00 NB Lt

Stone Fill For Slope Protection Item 512
Southbound 287+00 to 291+32 Lt
Northbound 288+96 to 291+25 Rt

Jute Matting Item 623
Median 287+00 to 289+00 *
Median 291+00 to 293+00 *

Two Cable Guard Rail Item 541
T.H. #36 5+45 to 7+06 Rt

Three Cable Guard Rail w/Steel Posts, Item 542 *
Northbound 287+00 to 292+66 Rt
Northbound 295+25 to 299+25 Rt
Southbound 287+00 to 292+24 Lt
Southbound 287+00 to 297+25 Rt

Bituminous Concrete Curb Item 555 *
Southbound 287+00 to 291+50 Lt
Northbound 287+00 to 293+00 Rt

Property Line Fence w/Steel Posts Item 583-II
NB 287+00 - 302+00 Rt

PLAN | SURVEYED | PLOTTED | NOTE BOOK | CURVED | R.O.W. SHEET | NO. | TRACED | BY | Morris | EWell - WB | 13

B.M. #54 U.S. Elev. 327.092
B.M. #55 U.S. Elev. 489.370
B.M. #56 U.S. Elev. 492.608
B.M. #57 U.S. Elev. 541.055
B.M. #58 U.S. Elev. 583.322
B.M. #59 U.S. Elev. 581.389
T.O.M. #36A U.S. Elev. 456.43

T.H. #36
P.I. 1+70.02 = 1+68.94
Δ 16°12'00" Rt.
D 10°

T.H. #36
Δ 10°12'00" Rt.
D 10°
R 572.96
T 81.54
L 162.00
E 3.78
Bank ½" per ft. - Rt.

T.H. #36
Δ 9°38'00" Rt.
D 9°
R 954.93'
T 80.47'
L 160.56'
E 3.39
Bank ½" per foot - Rt.

P.O.T. 287+58.66
P.O.T. 289+63.39
P.O.T. 291+61.61
P.O.T. 292+14
P.O.T. 297+87.62
P.O.T. 300+32.77
P.O.T. 3+70.31
P.O.T. 6+65.77 = 6+65.39
P.O.T. 8+65.39 End Construction

P.I. 6+65.77 = 6+65.39

Southbound 285+00 Lt
New 12"x18" Pipe CGMP 16ga w/Coupling Bands & All Joints
CAP 0 16ga w/15° Elbow Use 24" Coupling Bands & All Joints
1050'

Northbound 288+00 Rt
New 12"x44' Pipe CGMP 16ga CAP 0 16ga w/15° Elbow Use 24" Coupling Bands & All Joints
288+50 Southbound Lt to Northbound Rt
New 6"x222' Pipe

Northbound 289+00 Lt
New 18"x88' ACCGMP 16ga w/2-25° Elbows Use 24" Coupling Bands & All Joints

Southbound 290+00 Lt
New 18"x48' Pipe CGMP 16ga CAP 0 16ga w/2-25° Elbows Use 24" Coupling Bands & All Joints

Northbound 290+00 Rt
New 12"x36' Pipe CGMP 16ga CAP 0 16ga w/10°1" x 25° Elbows Use 24" Coupling Bands & All Joints

Median 291+25
New 42"x260' ACCGMP, B Gage

Southbound 291+75 to 293+25
Special Ditch, Item 1060 *

Southbound 291+50 Lt
New 12"x48' Pipe CGMP 16ga CAP 0 16ga w/10°1" x 25° Elbows Use 24" Coupling Bands & All Joints

Northbound 292+00 Rt
New 12"x90' Pipe CGMP 16ga CAP 0 16ga w/10°1" x 25° Elbows Use 24" Coupling Bands & All Joints
New 18"x110' ACCGMP 16ga

Southbound 296+00 Lt
New 18"x60' ACCGMP 16ga

Northbound 296+00 Rt
New 18"x64' ACCGMP 16ga

Southbound 300+00 Lt
New 18"x66' ACCGMP 16ga w/2-45° Elbows
Northbound Lt. 300+00
Southbound Rt. 300+00
Bituminous Concrete Surface Gutter 2ft Traffic Islands * Item 554

Northbound 300+00 Rt
New 18"x 600' ACCGMP 16ga

Vt. Grid
N
12" Hem.
2-12" Hem.
15" Beech
10" Bass
292+00 300
460'
415'
295+50 90'
Woods
Wards
750'
Construct Drive A
T.H. #36
Bit. Pr.
10' Cut
12" Bot.
10" Cut
T.O. #36
MATCH
Match to Sheet #(38)
Match to Sheet #(35)

"CONTROL OF ACCESS IS COMPLETE ON THIS SHEET.

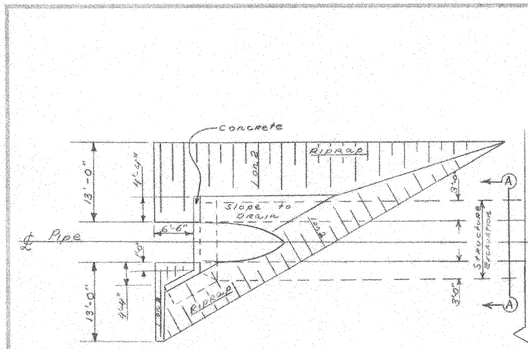
T.H. #36 TO BE BUILT IN ITS ENTIRETY DURING STAGE I CONSTRUCTION.

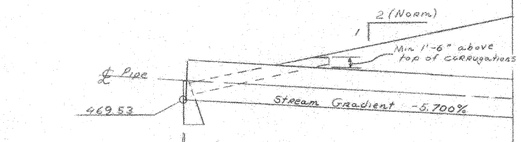
HARTFORD - SHARON
IM 089-1(55)
189 - BR. NO. 9-2
SHEET 16 of 20
FOR REFERENCE ONLY

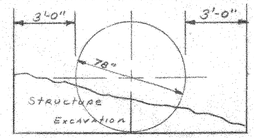
*Denotes Stage II Construction

PLAN SCALE 0 50 100

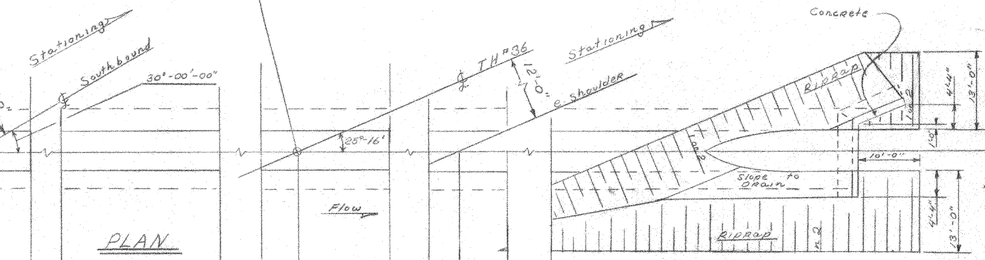
HARTFORD I89-1(24)
I89-1(5)
Sheet 32 of 269 Sheets
Sheet 65 of 141







Section AA
Not to Scale



Note: Stone fill for Slope Protection, (Heavy Type) required 25'-0" from end of Pipe. Continue Stone fill for Slope Protection, (Light Type) on West side of channel to Ch. Line Sta. 11+75. See Sketch A for Outlet.

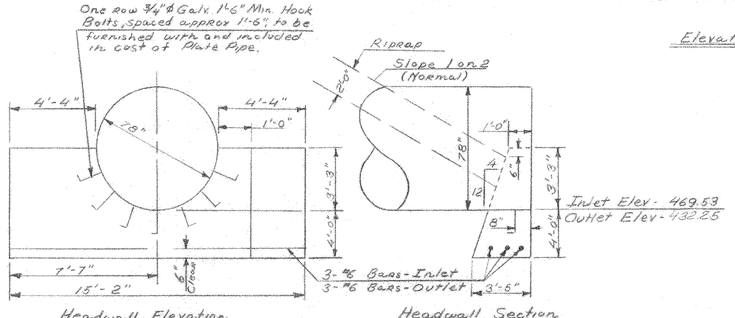
Note: Channel at Inlet & Outlet to be 7'-0" wide.

Reinforcing Steel						
No. Pieces	Size	Length	Mark	Type	Location	
3	#6	18'-0"	601	Str.	Upstream	Bend in Field
3	#6	20'-0"	602	Str.	Downstream	

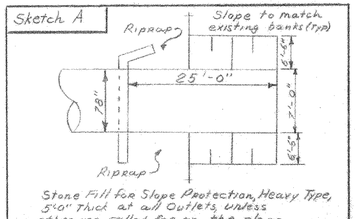
HARTFORD - SHARON
IM 089-1(55)
189 - BR. NO. 9-2
SHEET 17 of 20
FOR REFERENCE ONLY

Notes:

Dia. of Pipe:	78"
OA Slope Length:	654'-0"
OA. Horiz. Length:	653'-0"
Camber:	0
Gage T Rs:	10 ga.
Gage B Rs:	8 ga.
Wt. Per Ft.:	185 lb/ft
Total Wt.:	120,990 lbs.
Waterway:	33 ft²



Headwall Elevation — Not to Scale — Headwall Section



Stone Fill for Slope Protection, Heavy Type, 5'0" thick at all Outlets, unless otherwise called for on the plans. Individual stones may project 18" above channel grade to retard velocity at outlet flow.

ITEM NO.	ITEM	UNIT	NET		TOTAL	FINAL
	CHAN. EXCAV. OF EARTH	C.Y.				AB
	CHAN. EXCAV. OF ROCK	C.Y.				
108C	STRUCT. CHAN. EXCAV.	C.Y.			2270	1123
109	STRUCT. EXCAV.	C.Y.			1340	1344
	CONC. CLASS AA (MOD.)	C.Y.				
4018	CONC. CLASS B	C.Y.			22	18.7
402	REINF. STEEL	LBS.			172	172
429A	78" x 654' Corrugated Galvinized Metal Pipe, Top Plates #10ga., Bottom Plates #8ga., wt. 120,990 lbs.	L.S.			1	1
511	Stone Fill for Slope Protection (Heavy Type)	C.Y.			100	75
512	Stone Fill for Slope Protection (Light Type)	C.Y.			100	460
613A	Riprap (Heavy Type)	C.Y.			180	90

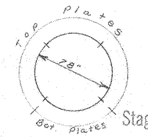


Plate Arrangement
Not to Scale

Stage 1 Construction

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF Hartford
ROUTE NO. I89 LOG STA.
78" x 654' CGMPP
SB Sta. 286+63.78 @ 30°-00' Rt.
SCALE 1" = 10'-0"
SURVEYED BY MORRIS
DRAWN BY LIL CHECKED BY GEH
PROJECT NO. I89-1(5) Cont 88-89
SHEET 85 OF 269

420

* THREE CABLE GUARD RAIL w/ LIGHT STEEL POSTS ITem 538
SB 904+00 - 911+00 Lt.
NB 895+00 - 898+02 Rt.

* STD STEEL BEAM GUARD RAIL, ITEM 545-A
NB 905+37 - 909+62 Rt.
3+18 - 9+43

* TREATED TIMBER CURB ITEM 555
SB 904+00 - 911+00 Lt.
NB 905+50 - 909+66 Rt.
898+00 - 836+15 Rt.

PROPERTY LINE FENCE w/STEEL POSTS ITEM 599-II
NB 895+00 - 911+00 Rt.
SB 895+00 - 911+00 Lt.
Note: Property Line Fence @ 903+07 - 911+00 Rt. to be Constructed prior to commencement of other work in this area.

24" SUB-BASE OF SAND ITEM 202
SB 897+77 - 902+77
NB 897+35 - 902+98

GRAVEL BACKFILL, ITEM 222-A
N.B. 896+75 ~ 903+75 Rt.
S.B. 897+50 ~ 903+25 Lt.

BIT. CONC. CURB, ITEM 555
NB. 904+98 - 911+00 Rt.

MINNIE LAHUE Meadows

GERTRUDE O. MUDGETT Woods

VT GRID N

BM 188-A U.S. Elev. 604.18

BM 188 U.S. Elev. 590.09

BM 187 U.S. Elev. 565.33

BM 186-B U.S. Elev. 631.03

BM 188 U.S. Elev. 556.02

BM 186 U.S. Elev. 624.22

BM 186-C SIR 12" Pine El. 614.79

POT 895+24.0 = Ch. POT 2+00.0

POT 896+37.76

POT 898+28.19

POT 902+78.35

POT 905+21.35

POT 907+29.09

POST 910+77.68

POT 906+38.0 = Ch. POT 5+00.0 Δ = 73°00' Rt.

Dev. P.C. 908+04.28

Match Line

HARTFORD - SHARON
IM 089-1(55)
189 - BR. NO. 20-4
SHEET 18 of 20
FOR REFERENCE ONLY

Stage 2 Construction

SHARON-ROYALTON

CONTROL OF ACCESS IS COMPLETE ON THIS SHEET.

PLAN SCALE 0 50 100 FEET

* Denotes Stage II Items

SURVEYED BY Spaulding DATE 1-63
DRAWN BY _____ DATE _____
TRACED BY Wii DATE 3-63

PROJ. I 64 NO. 89-1(55) (20)
SHEET 44 OF 280 183

* STANDARD STEEL BEAM GUARD RAIL w/ STEEL POSTS, ITEM 545-E
NB 1697+56 - 1699+10 Rt.
Ramp D 17+32 - 18+86 Rt.

* TREATED TIMBER CURB, ITEM 558

* 4" LIGHT STEEL POSTS, ITEM 538
10+00 - 5 @ 9' 95

P/L FENCE TO BE ERECTED PRIOR TO CONSTRUCTION
1700+10 - 1705+00 NB Rt.
1694+00 - 1700+66 58 Lt.

* DENOTES STAGE 2 CONSTRUCTION

Ramp D 18+98 Lt - NB 1698+56 Rt.
NB 1698+50 - 1698+62 Rt.
TR 45 22+95 - 23+05 Rt.

TR 45
Δ 1°28' Lt.
D 3°
R 1909.86
T 191.75
L 382.22
E 9.61
Bank 5.16" per ft.

TR 45 - 22+64 - 23+12 Lt.
22+68 - 23+16 Rt.

TR 45 POT 22+09.50

TR 45 17+25 - 19+00 Rt.
Special Ditch, Item 106

TR 45 22+00 Lt. - 23+00 Rt.
New 60"x 168' Pipe CGMP 16 ga. or CAACMP 08 ga. or RCP Class III

TR 45 25+91.65
25+00.37

Ramp C Pl. 11+96.33 = 11+84.73

Begin 12% Decel. Lane

Ramp D 25+61.6
TR 29+10 Φ

POT 27+91.15

POT 32+73.20

N 3° 46' E

Ramp "D" Pl. 23+35.20 = 23+79.73

Approx. Aerial Lithi. Detec. Pic. by NET & Co.

Ramp D 18+36 Rt - 18+98 Lt.
New 72"x 116' ACCGMP 8 ga. Strutted

Ramp D 18+35
3.5'x 4.5' Stone Box Remove

N 15° 47' W 17

TR 46 Pl. 21+09.36 = 20+96.45

19° 32'

TR 46 18+75 - 20+00 Lt.
Berm Ditch, Item 108

TR 46 18+23 Lt. - Ramp "D" 18+36 Rt.
Special Ditch, Item 108-C

TR 46 POT 16+93.46

N 18° 49' W

NB 1698+66 - 1699+80 Rt.
Special Ditch, Item 106

Ramp D 18+98 Lt. - NB 1698+56 Rt.
Special Ditch, Item 108-C

20+00
New 24"x 30' Pipe CGMP 16 ga. or CAACP 16 ga. or RCP Class III

17+89 Ashlaw 54° 30' Lt.

16+00 - 17+45 Rt.
Berm Ditch, Item 108-C

TR 46 POT 23+18.26

POT 25+09.62

POT 27+00

25+50
END APPROACH
END CONSTRUCTION

N 13° 36' E 23

Approx. Aerial Lithi. Detec. Plg. by NET & Co.

STONE FILL FOR SLOPE PROTECTION
ITEM 512
TR 46 16+00 - 17+45 Rt.
TR 46 17+35 - 17+60 Rt.
TR 46 17+65 - 17+90 Rt.
Ramp D 18+10 - 18+30 Rt.
Ramp D 18+42 - 18+62 Rt.
TR 46 19+85 - 20+10 Lt.
NB 1698+30 - 1698+50 Rt.
NB 1698+62 - 1698+82 Rt.
TR 45 22+75 - 27+95 Rt.
TR 45 23+05 - 23+25 Rt.

HARTFORD - SHARON
IM 089-1(55)
189 - BR. NO. 29-ID
SHEET 19 of 20
FOR REFERENCE ONLY

PLAN SCALE
0 50 100
100 FEET

Stage II Construction

CONTROL OF ACCESS COMPLETE ON THIS SHEET

105
81 132

CURBED CENTER ISLAND
GRANITE SLOPE EDGING, ITEM 556-A
R.S.H. 134+71 - 136+53 NB

JUTE MATTING, ITEM 623
Ramp 'B' 23+00 - 25+00 Rt.

B O 6

* DENOTES STAGE 2 CONSTRUCTION.

RSH 134+00 Lt. - 134+43 Lt.
* RSH 134+43 Lt. - Ramp D -15+00 Lt.
TR 46 10+96 Rt. - RSH 139+00 Lt. } NB

Approx. Underground Util. Reloc. Rte. by "NET. t"

RSH 140+49 135'

RSH 139+00 120'

RSH POT 135

MH 54

MH 53

MH 52

RSH POT 136+85.00=
TR 46 POT 10+00.00

Detour 20' Reverse

Reverse Curve

2"

RSH 140+70 75'

RSH 140+95 82'

TR 46 10+21
Begin Construction

Approx. Underground Util. Reloc. by CVPSC & NET. Co.

RSH 135+75 Lt. - 136+00 Rt.
New 18" x 138' RCCMP @ 0%

TR 46 10+57 Rt. - 11+35 Lt.
New 5'-1" x 120' Pipe CAMP @ 0%
or CMCP 16.00' or ACP, CL "C"

RSH 138+00 Lt. - TR 46 16+00 Rt.
Channel Excavation Item 209-C

Ramp B 23+00 - 25+00 Rt.
Item 623 Jute Matting

(+ RSH 135+75 Rt.)
Ramp B 23+00-26+00 Rt.
Berm Ditch Item 105

3" Pipe 23.06'
4" Pine 22.63'
4" Pine 24.63'

Ramp B POT 24+36.76

RSH POST 135+10.00=
Ramp B POT 26+72.95

3° Curve

RSH POST 136+85.00=
Ramp D POT 10+00.00 NB

16"

36"

Ramp B

N 23° 26' E

23

Ramp D

N 15° 47' W.

N 15° 47' W.

TR 46

VCP

R.P.C.

P.R.C.

P.R.T.

2" Blanket Course

NB 16.90+72
83.97' Rt.

NB 16.93+00
4.07' Rt.

RSH 138+00 Lt. - Ramp D 11+25 Lt.
New 24" x 172' ACCMP 16 ga.

Ramp D 11+00 Rt. - 11+25 Lt.
New 24" x 172' ACCMP 16 ga.

CONTROL OF ACCESS TO THE INTERSTATE IS COMPLETE ON THIS SHEET EXCEPT FOR ACCESS TO RAMP 'D' & THE NORTHBOUND LANE FROM THE RANDOLPH STATE HIGHWAY.

14+63
20.5°

PLAN SCALE
0 50 100
100 FEET

HARTFORD - SHARON
IM 089-1(55)
189 - BR. NO. 29-ID
SHEET 20 of 20
FOR REFERENCE ONLY

RANDOLPH STATE HIGHWAY

(27)

107
78 132