STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROPOSED SAFETY IMPROVEMENT
TOWN OF ESSEX
COUNTY OF CHITTENDEN

LOCATED IN THE TOWN OF ESSEX ON VERMONT ROUTE 15, ADJACENT TO THE NEW ENGLAND CENTRAL RAILROAD (NECR), BEGINNING AT VT ROUTE 15 MM 0.20 AND EXTENDING EASTERLY 0.30 MILES TO MM 0.50.

WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REPAIR OF A SLIDE AREA ON THE SOUTH SIDE OF THE NECR, INCLUDING NEW DRAINAGE STRUCTURES WITHIN THE HIGHWAY AND RAILROAD ROW, A SLEEVE UNDER THE RAILROAD, AND REPLACEMENT OF RAILROAD TIES AND BALLAST.

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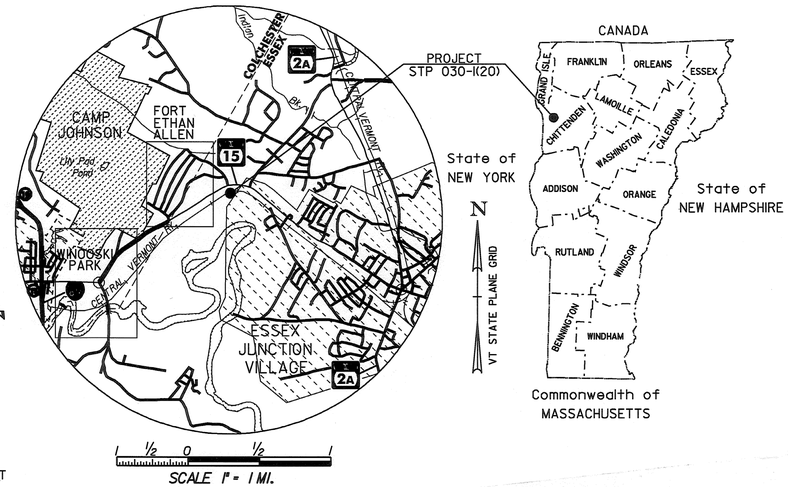
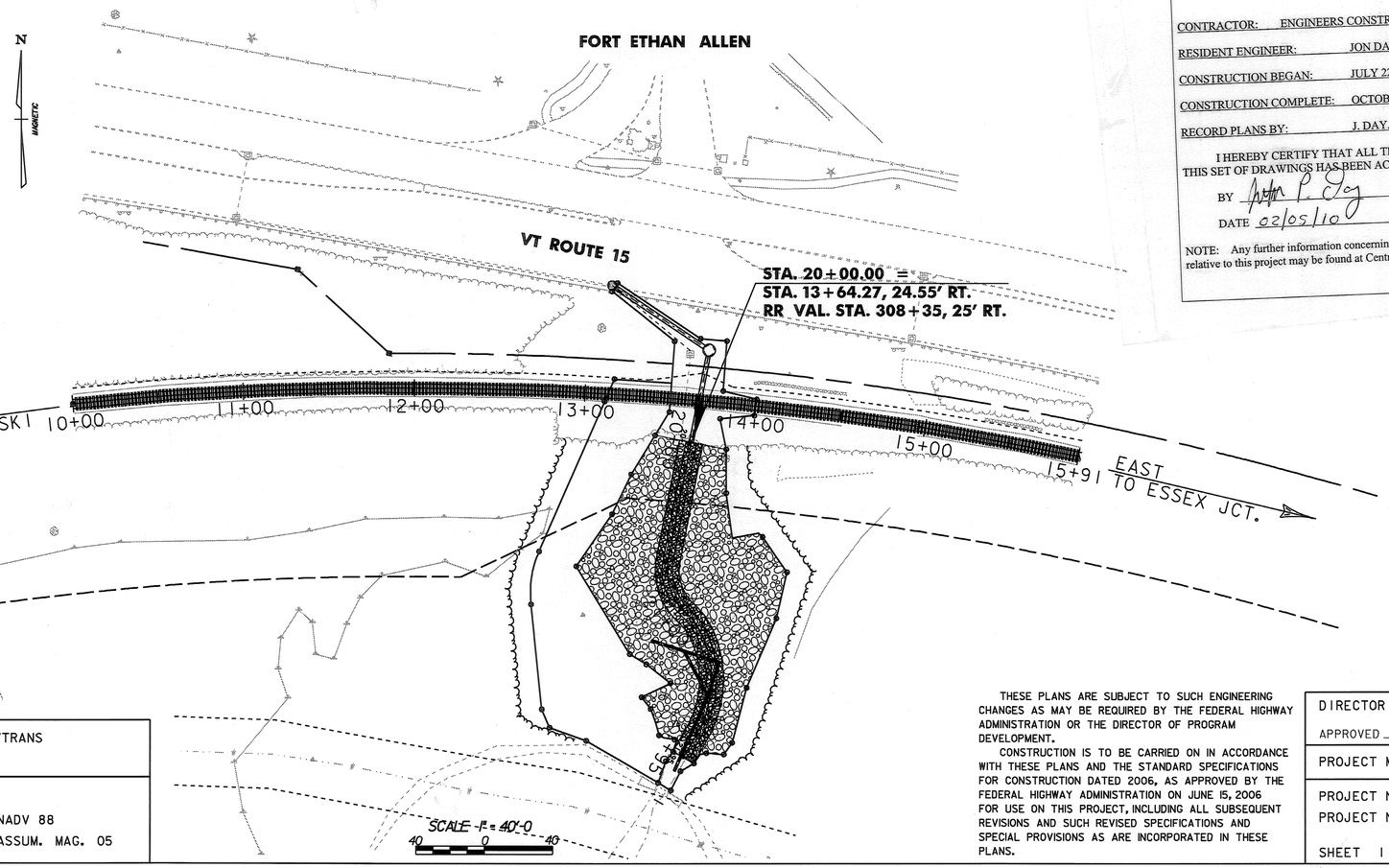




RECORD PLANS

CONTRACTOR: ENGINEERS CONSTRUCTION, INC – SO. BURLINGTON, VT

RESIDENT ENGINEER: JON DAY

CONSTRUCTION BEGAN: JULY 22, 2009

CONSTRUCTION COMPLETE: OCTOBER 6, 2009

RECORD PLANS BY: J. DAY, N. GARBACIK

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

BY Jon P. Day RESIDENT ENGINEER

DATE 02/05/10

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.

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 (SR SR SR)
TOP OF CUT
TOE OF SLOPE

SURVEYED BY : VTRANS
SURVEYED DATE :

DATUM
VERTICAL NADV 88
HORIZONTAL ASSUM. MAG. 05

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.

DIRECTOR OF PROGRAM DEVELOPMENT

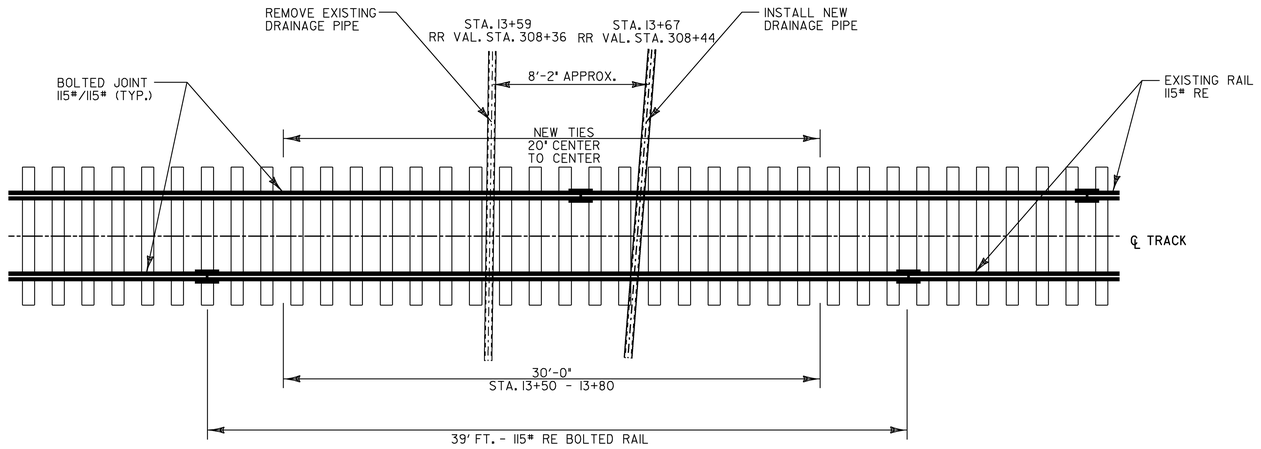
APPROVED _____ DATE _____

PROJECT MANAGER : JOSHUA L. SCHULTZ

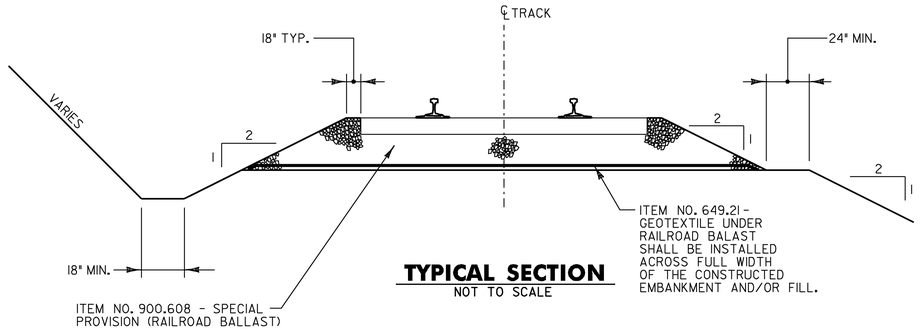
PROJECT NAME : ESSEX
PROJECT NUMBER : STP 030-1(20)

SHEET 1 OF 27 SHEETS

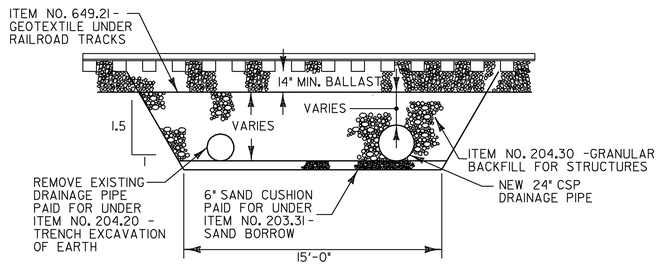
TYPICAL SECTIONS



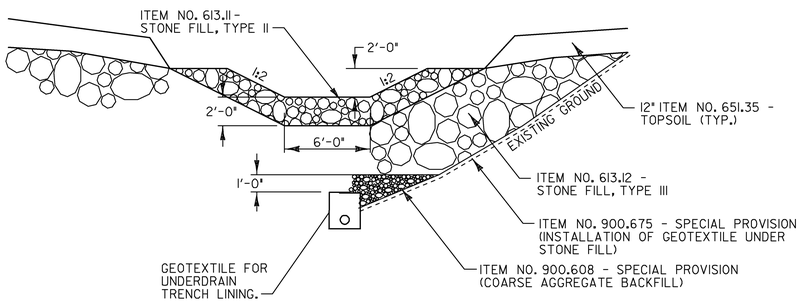
TYPICAL PLAN VIEW
NOT TO SCALE



TYPICAL SECTION
NOT TO SCALE

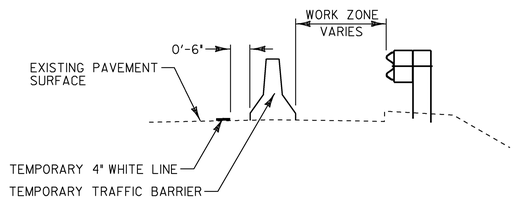


TRENCH SECTION
NOT TO SCALE



STONE LINED DITCH DETAIL
NOT TO SCALE

NOTE: SEE STD. D-30 FOR UNDERDRAIN INSTALLATION DETAILS.



TEMPORARY TYPICAL SECTION
NOT TO SCALE

SEEDING FORMULAS
RURAL AREAS

% MASS	LBS/AC	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 RYE GRASS	95	85
100.0	60.0			

GENERAL NOTES

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY MASS 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/AC (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 AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

NOTES:

1. UP TO 117 FEET OF RAIL SHALL BE REMOVED. THIS WORK SHALL BE PAID FOR UNDER ITEM NO. 900.640 - SPECIAL PROVISION (REMOVE AND RESET RAILROAD TRACKS). UP TO 30 FEET OF TIES SHALL BE REMOVED. THIS WORK SHALL BE PAID FOR UNDER ITEM NO. 900.620 - SPECIAL PROVISION (REMOVAL AND REPLACEMENT OF CROSS TIES).
2. THE CONTRACTOR SHALL HAVE NO MORE THAN 50 LINEAR FEET OF UNDERDRAIN TRENCH OPEN AT ANY GIVEN TIME.
3. GEOTEXTILE TO BE USED UNDER ALL STONE FILL, TYPE III SHALL HAVE A MINIMUM OVERLAP OF 36".
4. GEOTEXTILE TO BE USED UNDER ALL MATERIAL USED FOR RAILROAD BALLAST SHALL HAVE A MINIMUM OVERLAP OF 36".
5. WHEN POSSIBLE, EXISTING BALLAST SHALL BE RETAINED AND REUSED.
6. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION'S 2006 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND ITS LATEST REVISIONS.
7. TRACK SHALL BE RESTORED TO F.R.A. CLASS 1 STANDARDS AT A MINIMUM, UPON COMPLETION OF THE PROJECT.

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206frm.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
TYPICAL SECTIONS

PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM

GPS CONTROL POINTS

BM #1

DESIGNATION
"NOYES"

ELEV. = 318.03

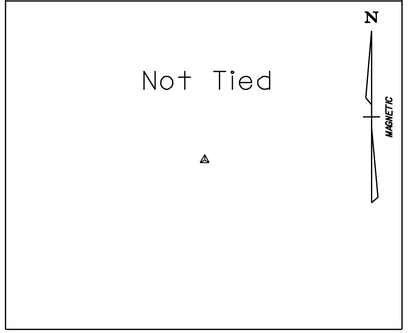
DESCRIBED BY VERMONT AGENCY OF TRANSPORTATION 1977
TO REACH THE STATION FROM THE LINCOLN INN, GO WEST ALONG VT. ROUTE 15
APPROXIMATELY 2.6 MILES TO GATE NO. 1 ENTRANCE TO CAMP JOHNSON, ON THE
NORTHWEST SIDE OF THE ROAD, 251.5 FEET NORTHEAST OF THE CENTERLINE OF
THE ENTRANCE TO CAMP JOHNSON, 47.8 FEET WEST OF THE CENTER OF A
MAN-HOLE COVER IN THE SIDEWALK, 18 FEET NORTHWEST OF A DRILLHOLE IN
THE TOP OF THE CURB ABOVE THE WEST CORNER OF A DRAIN INLET (THIS BEING
THE SECOND DRAIN INLET NORTHEAST ALONG VT. ROUTE 15 FROM THE ENTRANCE
TO CAMP JOHNSON), 18.8 FEET SOUTHEAST OF THE RIGHT-OF-WAY FENCE, 8.5
FEET NORTHWEST OF THE NORTHWEST EDGE OF A BITUMINOUS SIDEWALK, 61.5
FEET SOUTHWEST OF AN 18-INCH ELM, 38.7 FEET NORTHEAST OF A 20-INCH ELM.

HORIZONTAL
COORDINATES ASSUMED

TRAVERSE TIES

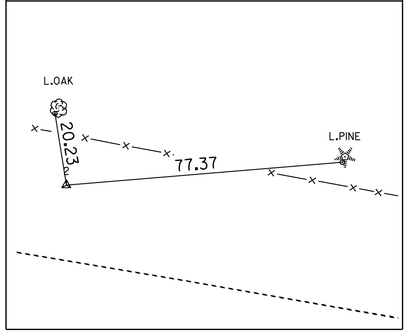
HVCTRL #1

NORTH =	10000.00
EAST =	50000.00
ELEV. =	326.54



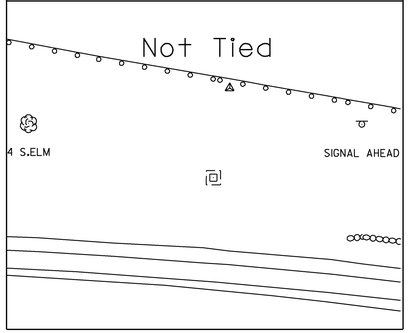
HVCTRL #2

NORTH =	10182.81
EAST =	51036.79
ELEV. =	323.04



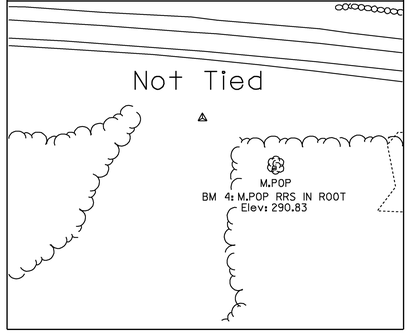
HVCTRL #3

NORTH =	10032.08
EAST =	51375.54
ELEV. =	323.27



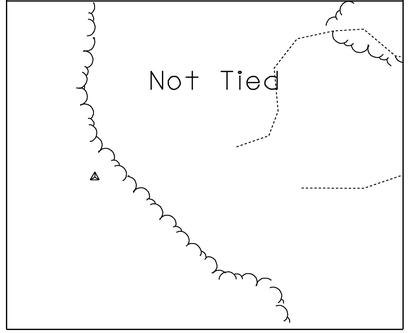
HVCTRL #4

NORTH =	9959.17
EAST =	51371.15
ELEV. =	300.20



HVCTRL #5

NORTH =	9854.91
EAST =	51308.32
ELEV. =	242.84



ALIGNMENT TIES

NORTH =	
EAST =	

NORTH =	
EAST =	

NORTH =	
EAST =	

NORTH =	
EAST =	

NORTH =	
EAST =	

SURVEYED BY :	VTRANS
SURVEYED DATE :	
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	ASSUM. MAG 05
ADJUSTMENT	NONE

PROJECT NAME:	ESSEX
PROJECT NUMBER:	STP 030-1(20)
FILE NAME: de206frm.dgn	PLOT DATE: 11-MAY-2009
PROJECT LEADER: JLS	DRAWN BY: MBL
DESIGNED BY: CAA/MBL	CHECKED BY: SDM
TIE SHEETS	SHEET 3 OF 27

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES								TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
					ROADWAY	LANDSCAPING	EROSION CONTROL	FULL E.C. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
					1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
					116				116		CY	COMMON EXCAVATION	203.15				
					17				17		CY	SAND BORROW	203.31				
					520				520		CY	TRENCH EXCAVATION OF EARTH	204.20				
					50				50		CY	TRENCH EXCAVATION OF ROCK	204.21				
					1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
					200				200		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
					55				55		LF	24" CSP .064 (2-2/3 X 1/2)	601.0025				
					68				68		LF	24" CPEP	601.0920				
					1				1		EACH	PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE	604.18				
					1				1		EACH	PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE	604.20				
					142				142		LF	12 INCH UNDERDRAIN PIPE	605.13				
					40				40		HR	BULLDOZER RENTAL, TYPE I	608.10				
					40				40		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
					10				10		HR	POWER BROOM RENTAL, TYPE I	608.30				
					20				20		HR	TRUCK RENTAL	608.37				
					40				40		HR	LOADER RENTAL, TYPE I	608.40				
					265				265		CY	STONE FILL, TYPE II	613.11				
					3575				3575		CY	STONE FILL, TYPE III	613.12				
					40				40		LF	REMOVE AND RESET GUARDRAIL	621.75				
					315				315		LF	TEMPORARY TRAFFIC BARRIER	621.90				
					200				200		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
					200				200		HR	FLAGGERS	630.15				
					150				150		HR	FLAGGERS, RAILROAD	630.20				
					1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
					1				1		LS	TRAFFIC CONTROL	641.10				
					2				2		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
					25				25		LF	DURABLE 4 INCH WHITE LINE	646.400				
					25				25		LF	TEMPORARY 4 INCH WHITE LINE	646.600				
					8				8		SF	REMOVAL OF EXISTING PAVEMENT MARKINGS	646.85				
					8				8		SF	PAVEMENT MARKING MASK	646.86				
					60				60		SY	GEOTEXTILE UNDER RAILROAD BALLAST	649.21				
							40		40		LB	SEED	651.15				
							300		300		LB	FERTILIZER	651.18				
							2		2		TON	AGRICULTURAL LIMESTONE	651.20				
							2		2		TON	HAYMULCH	651.25				
						1000	14		1014		CY	TOPSOIL	651.35				
							1		1		LS	EPSC PLAN	652.10				
							40		40		HR	MONITORING EPSC PLAN	652.20				
							1		1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206frm.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
QUANTITY SHEET #1

PLOT DATE: 19-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	LANDSCAPING	EROSION CONTROL	FULL E.C. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
								2800		2800		SY	TEMPORARY EROSION MATTING	653.20				
								1		1		EACH	PREFABRICATED CHECK DAM	653.30				
								10		10		CY	VEHICLE TRACKING PAD	653.35				
								103		103		LF	BARRIER FENCE	653.50				
								560		560		LF	PROJECT DEMARCATION FENCE	653.55				
							1			1		EACH	EVERGREEN SEEDLINGS (PINUS STROBUS)(CONT.)(3' HT.)	656.15				
							13			13		EACH	DECIDUOUS SEEDLINGS (ACER RUBRUM)(CONT.)(5'-6' HT.)	656.16				
							8			8		EACH	DECIDUOUS SEEDLINGS (ACER SACCHARUM)(CONT.)(5'-6' HT.)	656.16				
							12			12		EACH	DECIDUOUS SEEDLINGS (POPULOUS DELTOIDES)(CONT.)(4'-5' HT.)	656.16				
							4			4		EACH	DECIDUOUS SEEDLINGS (PRUNUS SEROTINA)(CONT.)(5'-6' HT.)	656.16				
							24			24		EACH	DECIDUOUS SEEDLINGS (QUERCUS RUBRA)(CONT.)(5'-6' HT.)	656.16				
							7			7		EACH	DECIDUOUS TREES (ACER RUBRUM)(B&B)(1-1/2" CAL.)	656.30				
							7			7		EACH	DECIDUOUS TREES (ACER SACCHARUM)(B&B)(1-1/2" CAL.)	656.30				
							6			6		EACH	DECIDUOUS TREES (QUERCUS RUBRA)(B&B)(1-1/2" CAL.)	656.30				
							80			80		EACH	DECIDUOUS SHRUBS (CORNUS RACEMOSA)(CONT.)(30" HT.)	656.35				
							64			64		EACH	DECIDUOUS SHRUBS (VIBURNUM LENTAGO)(CONT.)(30" HT.)	656.35				
						1				1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
						210				210		CY	SPECIAL PROVISION (COARSE AGGREGATE BACKFILL)	900.608				
						30				30		CY	SPECIAL PROVISION (RAILROAD BALLAST)	900.608				
									3000	3000		DL	SPECIAL PROVISION (FIELD OFFICE TELEPHONE)(N.A.B.I)	900.615				
						24				24		EACH	SPECIAL PROVISION (REMOVAL AND REPLACEMENT OF CROSS TIES)	900.620				
						78				78		LF	SPECIAL PROVISION (REMOVE AND RESET RAILROAD TRACKS)	900.640				
						1				1		LS	SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, SLIDE)	900.645				
								42		42		SY	SPECIAL PROVISION (INSTALL GEOTEXTILE FOR SILT FENCE)	900.675				
						1650				1650		SY	SPECIAL PROVISION (INSTALL GEOTEXTILE UNDER STONE FILL)	900.675				

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206frm.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
QUANTITY SHEET #2

PLOT DATE: 19-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 5 OF 27

STATE OF VERMONT
AGENCY OF TRANSPORTATION

ITEM DETAIL AND DRAINAGE SHEET

STATION	STATION	POS.	PIPE ID	INLET/OUTLET TYPE		PIPE		ALLOWABLE OPTIONS			PIPE ELBOW	LS	CB	PERCENT	DEPTH DI	CONC CLASS B	REINF STEEL	DI GRATE	CHAN ELEV	CHAN	TRENCH EXCAVATION		GRAN BKFILL STRUCT	FROG MATT	STONE FILL		MARKER POSTS		REMARKS	GUARDRAIL					
				INLET	OUTLET	D	I	PCCSP	CSP	CDEP											EARTH	ROCK			CY	TYPE	LT	RT		BEGIN STATION	END STATION	POSITION		END TREATMENT	
						IN	FT	IN			NO. DEG	EA	EA		FT	CY	LBS	TYPE	EA	CY	CY	CY	SY	CY		EA	EA				LEFT FT	RIGHT FT	LEFT FT	RIGHT FT
13+12.28	13+70.17	LT	P1	~~DI~~ CB	CB-2	24	6863			X				X				~~DI~~ GRATE			222.9								CONSTRUCTION OF DI SHALL BE DETERMINED BY RESIDENT ENGINEER; RIM = 323.50'						
13+70.17	13+64.27	LT-RT	P2	CB-2	SWALE	24	5560		X				1					I			114.6								RIM = 311.03	12+92	13+32	REMOVE & RESET GUARDRAIL			
13+12.28	13+59.44	LT	EX1															CAST IRON			64.5	21.79							~~REMOVE EXISTING DROP INLET AND PIPE~~ •						
13+59.44	13+55.22	LT-RT	EX2															COVER			46.8	20.03							REMOVE EXISTING JUNCTION BOX AND PIPE						
13+12.28	13+12.28	LT-LT		EXIST DI	CB	24	6			X																			INLET PLACED IN EXISTING DROP INLET ON ROUTE 15						
																															TOTALS					
																				Rounding =	6.20	8.18												
TOTALS							123														455	50												

• PIPE WAS REMOVED EXCEPT FOR THE FIRST 20'. THIS WAS FILLED WITH CONTROLLED DENSITY FILL.

UNDERDRAIN

BEGIN STATION	END STATION	POSITION	ID	DIA IN	LENGTH FT	TRENCH EARTH CY	TRENCH ROCK CY	GRAN BKFILL CF	ER EA	MARK POST EA
21+01.38	21+37.22	RT	U1	12	42	22.4			-	-
21+25.37	21+56.27	RT	U2	12	~~30~~ 24	12.5			-	-
21+37.22	21+56.27	RT	U3	12	~~22~~ 23	7.5			-	-
21+56.27	22+04.73	RT	U4	12	~~48~~ 20	21.3			-	-
13+70.17	13+70.17	LT		12	12					
					Rounding =	2.2				
TOTALS					142	65				

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-I(20)

FILE NAME: de206frm.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
ITEM DETAIL & DRAINAGE SHEET

PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 6 OF 27

RR TRACKS - CURVE #1
△ = 13°56′36.02" RT.
D = 2°48′51.20"
R = 2035.94′
L = 495.46′
T = 248.96′
E = 15.17′

SWALE - COMP. CURVE #1
△ = 58°35′16.22" LT.
D = 171°26′54.00"
R = 33.42′
L = 34.17′
T = 18.75′
E = 4.90′

SWALE - COMP. CURVE #2
△ = 25°01′08.80" RT.
D = 139°40′17.08"
R = 41.02′
L = 17.91′
T = 9.10′
E = 1.00′

SWALE - COMP. CURVE #3
△ = 44°03′21.38" RT.
D = 90°56′44.45"
R = 63.00′
L = 48.44′
T = 25.49′
E = 4.96′

STONE FILL, TYPE II
STA. 20+00 - 21+95

STONE FILL, TYPE III
STA. 20+00 - 21+95

REMOVE AND RESET GUARDRAIL
STA. 12+92 - 13+32

SPECIAL PROVISION
(REMOVE AND RESET RAILROAD TRACKS)
STA. 13+23 - 14+01

N
MAGNETIC

DI-1
20′ OF EXISTING PIPE LEFT IN PLACE AND FILLED WITH CONTROLLED DENSITY FILL.
P1
EX1
NEW 12" UNDERDRAIN ATTACHED TO THE EXISTING
CB-2
P2
EX2
SGR W/STEEL POST
POE 15+91.25
RELOCATE EXISTING FIBER OPTIC UTILITY (BY OTHERS)
2x3" FIBER OPTIC
P1 12+48.98
11+00
12+00
13+00
14+00
15+00
15+91
20′
POB 20+00.00
STONE FILL LIMIT (TYP.)
PT 14+95.48
PC 20+69.47
PRC 21+03.64
PCC 21+21.55
P1 21+44.85
STA. 20+00.00 = STA. 13+64.27, 24.55′ RT. = RR VAL. STA. 308+35, 25′ RT.
P1 20+88.22
U1
U2
PCC 21+69.99
PT 21+77.75
U3
U4
POE 21+95.35
22+00
MAXIMUM CONSTRUCTION LIMITS TO ACCOMODATE HAUL ROAD. SEE NOTES 4 AND 5.
MAXIMUM CLEARING LIMITS SEE NOTE 6.
MAXIMUM CLEARING LIMITS SEE NOTE 6.
SAVE TREE WITHIN CONSTRUCTION LIMITS
BASE LINE POT 21+50
BASE LINE POT 22+00
P L

1
CV PROPERTIES, INC. JOINED BY NEW ENGLAND CENTRAL RAILROAD, INC.

2
WINOOSKI VALLEY PARK DISTRICT

NOTES:
1. REMOVAL OF EXISTING DROP INLET IN THE ROADWAY (DI-1) WILL BE AT THE RESIDENT ENGINEER'S DISCRETION AND SHALL BE PAID FOR UNDER 204.21 - TRENCH EXCAVATION OF ROCK.
2. REMOVAL OF EXISTING JUNCTION BOX SHALL BE PAID FOR UNDER ITEM NO. 204.21 - TRENCH EXCAVATION OF ROCK AND EXISTING PIPES SHALL BE PAID FOR UNDER ITEM NO. 204.20 - TRENCH EXCAVATION OF EARTH.
3. ANY TREE CLEARING WITHIN THE LIMITS OF THE HAUL ROAD SHALL BE MINIMIZED.
4. ANY DISTURBED AREA RELATED TO THE HAUL ROAD SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITION.
5. CONSTRUCTION SHALL BE CONTAINED WITHIN THE LIMITS SHOWN ON THE PLAN.
6. CLEARING SHALL BE CONTAINED WITHIN THE CLEARING LIMITS SHOWN ON THE PLAN.
7. PAVEMENT REQUIRED AS PART OF INSTALLATION OF DROP INLET SHALL MEET THE REQUIREMENTS OF SECTION 406 AND PAYMENT SHALL BE INCIDENTAL TO ITEM NO. 604.18 - PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE.
8. ALL GRANULAR BACKFILL SHALL MEET THE REQUIREMENTS OF 704.08A OF THE VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

(P1) STA. 13+12.28 - STA. 13+70.17, LT.
CONSTRUCT NEW 24" X ~~68′~~ CPEP 63′
INV. IN = ~~315.21′~~, INV. OUT = ~~303.58′~~
CONSTRUCT NEW DI (DI-1) AT INLET, RIM = ~~323.50′~~
SEE NOTE IN=314.48, OUT=302.8 NEW CB @ 322.0′

(P2) STA. 13+70.17, LT. - STA. 13+64.27, RT.
CONSTRUCT NEW 24" X ~~55′~~ CSP 60′
INV. IN = ~~303.08′~~, INV. OUT = ~~294.79′~~
CONSTRUCT NEW CB (CB-2) AT INLET, RIM = 311.03′
IN=302.3, OUT 294.9

(EX1) STA. 13+12.28, LT. - STA. 13+59.44, LT.
REMOVE EXISTING DRAINAGE PIPE AND STRUCTURE
SEE NOTE 2 FIRST 20′ FILLED WITH CONTROLLED DENSITY FILL AND LEFT IN PLACE

(EX2) STA. 13+59.44, LT. - STA. 13+55.22, RT.
REMOVE EXISTING DRAINAGE PIPE AND STRUCTURE
SEE NOTE 2

(U1) STA. 21+01.38 - STA. 21+37.22, RT.
CONSTRUCT NEW 12" X 42′ UNDERDRAIN
INV. IN = ~~220.01′~~, INV. OUT = ~~219.18′~~
NEW 45° WYE CONNECTION AT U2 INLET
IN=222.3, OUT 220.6

(U2) STA. 21+25.37 - STA. 21+56.27, RT.
CONSTRUCT NEW 12" X ~~30′~~ UNDERDRAIN 24′
INV. IN = ~~219.61′~~, INV. OUT = ~~218.73′~~
NEW 45° WYE CONNECTION AT OUTLET
IN=221.3, OUT 219.7

(U3) STA. 21+37.22 - STA. 21+56.27, RT.
CONSTRUCT NEW 12" X ~~22′~~ UNDERDRAIN 23′
INV. IN = ~~219.18′~~, INV. OUT = ~~218.77′~~
CONNECT OUTLET WITH U4 INLET
IN=220.6, OUT 219.7

(U4) STA. 21+56.27 - STA. 22+04.73, RT.
CONSTRUCT NEW 12" X 48′ UNDERDRAIN 20′
INV. IN = ~~218.45′~~, INV. OUT = ~~217.50′~~
219.7 218.4

STA+12.28 - STA+12.28 LT - LT
CONSTRUCT NEW 24" X 6′ CPCEP
INV. IN = 315.21, INV OUT = 314.48
USED EXISTING DI

UNDERDRAIN SLOPES & ELEVATIONS

ID	INV. IN		INV. OUT		SLOPE
U1	220.01	222.3	219.18	220.6	2.0%
U2	219.61	221.3	218.73	219.7	3.0%
U3	219.18	220.6	218.77	219.7	2.0%
U4	218.45	219.7	217.50	218.4	2.0%

0 20 40
SCALE IN FEET

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-I(20)

FILE NAME: de206ero.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
LAYOUT PLAN

PLOT DATE: 13-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 7 OF 27

TEMPORARY EROSION MATTING
STA. 13+13, LT. - 21+95, RT.

N

MAGNETIC

SILT FENCE

RELOCATE EXISTING FIBER OPTIC UTILITY (BY OTHERS)

11+00 12+00 13+00 14+00 15+00 15+91

1

CV PROPERTIES, INC.
JOINED BY
NEW ENGLAND CENTRAL
RAILROAD, INC.

P
L

MAXIMUM CONSTRUCTION LIMITS TO ACCOMODATE HAUL ROAD.

MAXIMUM CLEARING LIMITS.

BARRIER FENCE

SILT FENCE

PREFABRICATED CHECK DAM

2

WINOOSKI VALLEY
PARK DISTRICT

NOTES:

1. THESE PLANS SHOW A CONCEPTUAL EROSION CONTROL PLAN. THE CONTRACTOR MUST SUBMIT A FORMAL EROSION CONTROL PLAN FOR APPROVAL.
2. TEMPORARY EROSION CONTROL MEASURES ARE CONCEPTUALLY SHOWN. THE CONTRACTOR MAY RELOCATE TEMPORARY MEASURES TO IMPROVE EROSION CONTROL WITH APPROVAL OF THE RESIDENT ENGINEER AND ON-SITE COORDINATOR. SILT FENCE SHALL NOT BE INSTALLED ACROSS CONTOURS.
3. THE CONTRACTOR SHALL USE OTHER TEMPORARY EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION OR AS DIRECTED BY THE RESIDENT ENGINEER AND ON-SITE COORDINATOR.
4. REFER TO EROSION CONTROL DETAILS SHEETS FOR ADDITIONAL DETAILS.
5. ANY TREE CLEARING WITHIN THE LIMITS OF THE HAUL ROAD SHALL BE MINIMIZED.
6. BARRIER FENCE SHALL BE INSTALLED TO PROTECT FOOTPATH USERS FROM DEBRIS.

0 20 40
SCALE IN FEET

SOIL CLASSIFICATIONS

HARTLAND VERY FINE SANDY LOAM
25% TO 60%
'K-FACTOR' = 0.49
CLASSIFIED AS HIGHLY ERODIBLE

MUNSON AND RAYNHAM SILT LOAM
6% TO 12%
'K-FACTOR' = 0.49
CLASSIFIED AS HIGHLY ERODIBLE

SCANTIC SILT LOAM
2% TO 6%
'K-FACTOR' = 0.32
CLASSIFIED AS HIGHLY ERODIBLE

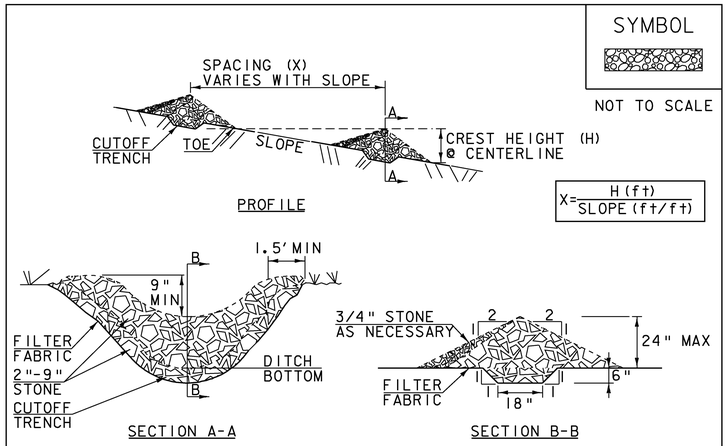
LEGEND

- PREFABRICATED CHECK DAM
- PDF — PDF — PROJECT DEMARCATION FENCE
- SILT FENCE
- TEMPORARY EROSION MATTING
- BARRIER FENCE

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206nul.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
EROSION CONTROL PLAN

PLOT DATE: 29-APR-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 8 OF 27



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

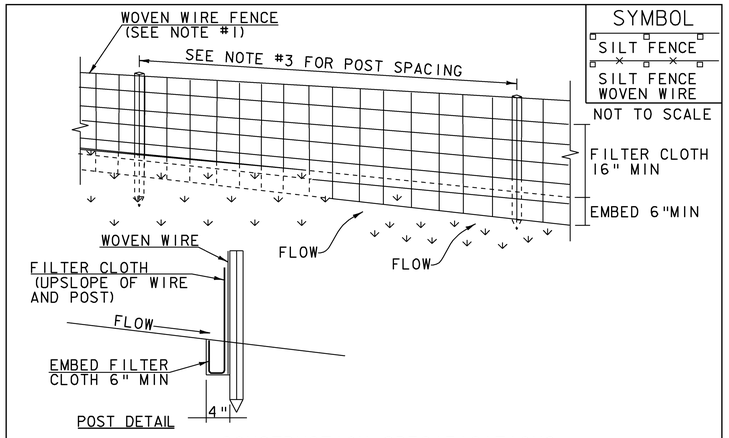
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PREFABRICATED CHECK DAM

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR PREFABRICATED CHECK DAM (PAY ITEM 653.30)

REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

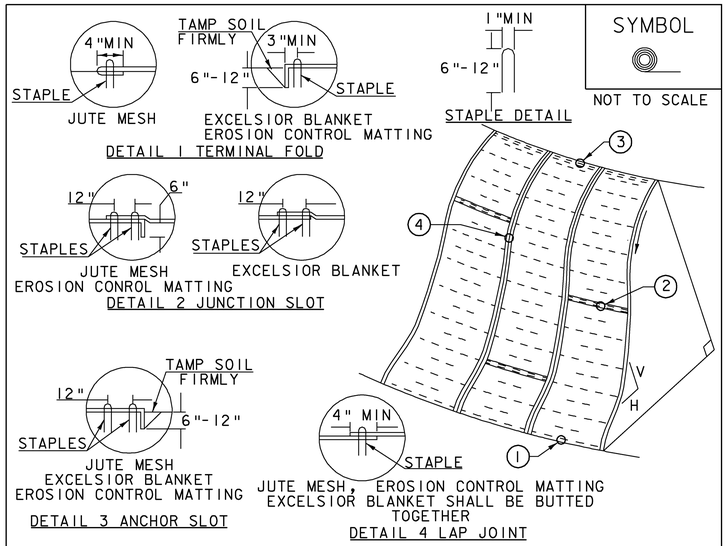
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR SPECIAL PROVISION (INSTALLATION OF GEOTEXTILE FOR SILT FENCE) (PAY ITEM 900.675).

REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF



CONSTRUCTION SPECIFICATIONS

1. APPLY TO SLOPES GREATER THAN 3H: 1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

NOTE:
FOR STABILIZED CONSTRUCTION ENTRANCE DETAIL, SEE LANDSCAPING DETAIL SHEET.

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: d07b096frm.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
EROSION CONTROL DETAILS

PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 9 OF 27

EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPAIR OF A SLIDE AREA AND REPLACEMENT OF DRAINAGE STRUCTURES AND REPLACEMENT OF RAILROAD TIES AND BALLAST, LOCATED ON THE SOUTH SIDE OF THE NEW ENGLAND CENTRAL RAILROAD WITHIN THE HIGHWAY AND RAILROAD RIGHT-OF-WAY.

NOTE: AREA OF DISTURBANCE SHALL INCLUDE LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, INCLUDING ANY WASTE, STAGING AND BORROW AREAS WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS.

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 0.58 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 OFF SITE DRAINAGE CHARACTERISTICS (UP AND DOWN-GRADIENT)

THE PROPERTY SURROUNDING THE PROJECT SITE CONSISTS OF WELL ESTABLISHED FOREST WITH STEEP SLOPES AT THE PROJECT SITE. RAILROAD TRACKS ARE LOCATED BELOW THE ROADWAY SURFACE. THERE ARE NO HOUSES OR COMMERCIAL STRUCTURES ON THE CONSTRUCTION SIDE OF THE ROAD AND RAILROAD. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM THE ROADWAY AND NEARBY SLOPES. IF THIS IS THE CASE, IT SHOULD BE MINIMAL.

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

THERE IS A WETLAND, CURRENTLY UNDELINEATED, TOWARD THE BOTTOM OF THE SLOPE. THERE IS A DROP INLET ON SITE DRAINING FROM THE ROADWAY TO THE SLOPE.

1.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

THE TOPOGRAPHY OF THE AREA IS MAINLY SLOPED FROM THE ROADWAY THAT IS MOSTLY WOODED WITH OCCASIONAL OPEN AREAS. VT ROUTE 15, THE NEW ENGLAND CENTRAL RAILROAD AND A WINOOSKI VALLEY PARK DISTRICT FOOTPATH ARE WITHIN THE PROJECT SITE. THERE ARE COMMERICAL BUSINESSES IN FORT ETHAN ALLEN ON THE OPPOSITE SIDE OF THE HIGHWAY, BUT ARE OUT OF THE PROJECT LIMITS. THERE ARE UNDERGROUND FIBER OPTIC LINES ADJACENT TO THE RAILROAD.

1.2.4 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY INSTALLATION OF THE STONE LINED DITCH AND TEMPORARY HAUL ROAD. UPON PROJECT COMPLETION, THE SLOPE WILL BE ARMORED WITH STONE FILL TYPE II AND TYPE III AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES OUTSIDE THE LIMITS OF THE NEW DRAINAGE SLOPE AND SWALE.

1.2.5 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF CHITTENDEN, VERMONT. SOILS ON THE PROJECT SITE ARE HARTLAND VERY FINE SANDY LOAM, 25% TO 60% SLOPES, "K FACTOR" = 0.49; MUNSON AND RAYNHAM SILT LOAMS, 6% TO 12% SLOPES, "K FACTOR" = 0.49; SCANTIC SILT LOAM, 2% TO 6% SLOPES, "K FACTOR" = 0.32. THE SOILS ARE CONSIDERED HIGHLY ERODIBLE DUE TO SIGNIFICANT SLOPES.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING: 0.0-0.23 = LOW EROSION POTENTIAL; 0.24-0.36 = MODERATE EROSION POTENTIAL: 0.37 AND HIGHER = HIGH EROSION POTENTIAL.

1.2.6 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: NONE
WETLANDS: NONE IMPACTED

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF CONSTRUCTION GENERAL PERMIT 3-9020 BASED ON THE PROJECT IMPACT AREA. 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 EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLLUTION PREVENTION CONTROLS.

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED AT AN APPPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

(REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR EACH PRACTICE REQUIRED ON THE PROJECT TO INCLUDE BUT NOT LIMITED TO THE FOLLOWING.)

1.4.1 MARK SITE BOUNDARIES
PROJECT DEMARCATION FENCING, DENOTED -PDF- ON THE PLANS, IS USED 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
EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES (PHASING) AS CONSTRUCTION PROCEEDS. ADDITIONAL MEASURES MAY BE NEEDED DUE TO THE PHASING OF THE PROJECT AND AS DIRECTED BY THE ENGINEER.

1.4.3 STABILIZE CONSTRUCTION EXIT
STABILIZED CONSTRUCTION ENTRANCE SHALL BE UTILIZED AS NECESSARY, PAID FOR UNDER ITEM NO. 653.35 - VEHICLE TRACKING PAD.

1.4.4 INSTALL SILT FENCE
SILT FENCE SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK AS SHOWN ON THE PLANS OR AS NECESSARY.

1.4.5 DIVERT UPLAND RUNOFF
SWALE (STORM WATER FROM STREET COLLECTIONS DRAINAGE SYSTEM)

1.4.6 SLOW DOWN CHANNELIZED RUNOFF
CHECK DAMS SHALL BE UTILIZED AS NECESSARY.

1.4.7 CONSTRUCT PERMANENT CONTROLS
TYPES II & III STONE FOR SLOPE LINING AND CHANNEL PROTECTION
SEED AND MULCH
DRAINAGE INLETS AND PIPING

1.4.8 STABILIZE EXPOSED SOILS
SEED AND MULCH
EROSION MATTING

TRACKING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, WILL BE UTILIZED ON A REGULAR BASIS. SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF FORECASTED RAIN.
SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING INTERMITTENT PHASES OF CONSTRUCTION.

1.4.9 WINTER STABILIZATION
NOT APPLICABLE AS THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.4.10 STABILIZE SOIL AT FINAL GRADE
SEED AND MULCH
EROSION MATTTING

SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

1.4.11 DE-WATERING ACTIVITIES
AS NECESSARY.

1.4.12 INSPECT YOUR SITE
INSPECT SITE BASED ON PERMIT AUTHORIZATION OR SPECIAL PROVISION REQUIREMENTS.

PROJECT NAME:	ESSEX
PROJECT NUMBER:	STP 030-I(20)
FILE NAME: d07b096frm.dgn	PLOT DATE: 11-MAY-2009
PROJECT LEADER: JLS	DRAWN BY: MBL
DESIGNED BY: CAA/MBL	CHECKED BY: SDM
EROSION CONTROL NARRATIVE	SHEET 10 OF 27

PLANT LIST

QTY.	SIZE	COMMON NAME	BOTANICAL NAME	SPACING & COMMENTS
SEEDLINGS				
2~~13~~	5'-6' HT.	RED MAPLE	ACER RUBRUM	ARU
~~12~~	~~4'-5' HT.~~	~~COTTONWOOD~~	~~POPULOUS DELTOIDES~~	~~PDE~~
4~~8~~	5'-6' HT.	SUGAR MAPLE	ACER SACCHARUM	ASA
3~~24~~	5'-6' HT.	RED OAK	QUERCUS RUBRA	QRU
~~4~~	~~5'-6' HT.~~	~~BLACK CHERRY~~	~~PRUNUS SEROTINA~~	~~PSE~~
~~1~~	~~3' HT.~~	~~WHITE PINE~~	~~PINUS STROBUS~~	~~PST~~
LARGE TREES				
~~7~~	~~1-1/2" CAL.~~	~~RED MAPLE~~	~~ACER RUBRUM~~	~~AR~~
~~7~~	~~1-1/2" CAL.~~	~~SUGAR MAPLE~~	~~ACER SACCHARUM~~	~~AS~~
4~~6~~	1-1/2" CAL.	RED OAK	QUERCUS RUBRA	QR
SHRUBS				
84~~80~~	30" HEIGHT	GRAY DOGWOOD	CORNUS RACEMOSA	CR
64	30" HEIGHT	NANNYBERRY	VIBURNUM LENTAGO	VL

CONTRACTOR KEPT THE CLEARING LIMITS TIGHT TO WORK AREA NEGATING THE NEED FOR MOST OF THE TREES.

20' OF EXISTING PIPE LEFT IN PLACE AND FILLED WITH CONTROLLED DENSITY FILL.

NEW 12" UNDERDRAIN ATTACHED TO THE EXISTING

SGR W/STEEL POST

RELOCATE EXISTING FIBER OPTIC UTILITY (BY OTHERS)

2#3 FIBER OPTIC

11+00 12+00 13+00 14+00 15+00 15+91

SAVE TREE WITHIN CONSTRUCTION LIMITS

STONE FILL LIMIT (TYP.)

1 CV PROPERTIES, INC. JOINED BY NEW ENGLAND CENTRAL RAILROAD, INC.

3 PDE
5 QRU
ASA
4 QR
3 ASA
7 ARU
16' MIN.
ASA
2 QR
1 PDE
2 AS
16' MIN.
3 QRU
ARU
16' MIN.
4 PSE
4 AR
4 ARU
2 ASA
2 AS
3 QR
1 PST
7 QRU

2 ASA
4 QRU
4 PDE
2 ARU
4 QRU
2 ASA
12" TOPSOIL OVER STONE FILL
3 AR
1 ARU
4 PDE
4 QRU
3 AS
1 ASA
1 QR

HISTORIC DRAIN

P L

2 WINOOSKI VALLEY PARK DISTRICT

MAXIMUM CONSTRUCTION LIMITS TO ACCOMODATE HAUL ROAD. SEE NOTES 4 AND 5.

MAXIMUM CLEARING LIMITS SEE NOTE 6.

MAXIMUM CLEARING LIMITS SEE NOTE 6.

SAVE TREE WITHIN CONSTRUCTION LIMITS

BOTT OF WASHOUT

BEG WASHOUT

P L

BASE LINE POT 22+00

WOOD LINE

N

MAGNETIC

LEGEND

- EXISTING TREE TO BE PRESERVED
- DECIDUOUS SEEDLING
- EVERGREEN SEEDLING
- DECIDUOUS TREE
- NATIVE SHRUB BED WITH GRUBBING

0 20 40
SCALE IN FEET

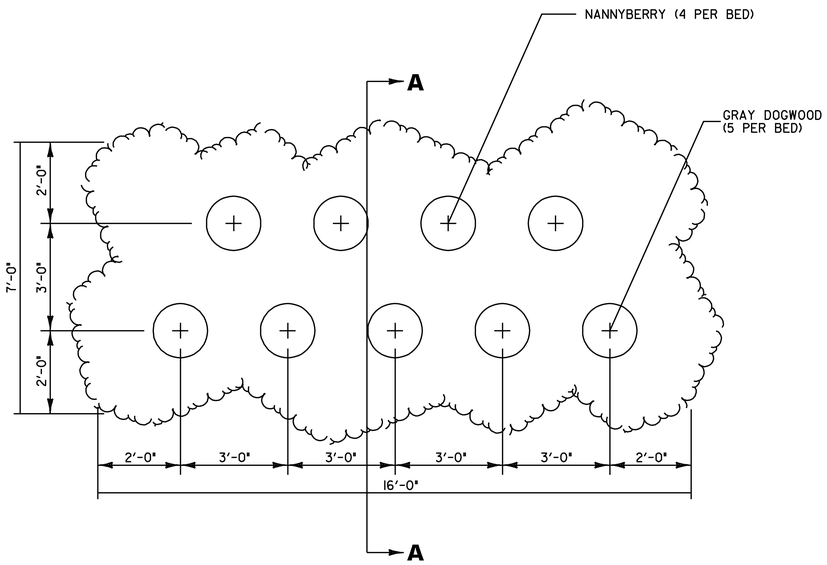
NOTES:

1. INSTALLATION OF SHRUBBERY SHALL BE DETERMINED BY THE RESIDENT ENGINEER.
2. PLANTINGS LAYOUT MAY VARY BUT A NATURAL AND RANDOM PATTERN IS PREFERRED.
3. ALL PROPOSED TREES PLANTED OUTSIDE OF STONED SLOPE SHALL BE INSTALLED NO CLOSER THAN 16' FROM EDGE OF STONED AREA.

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-I(20)

FILE NAME: de206land.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
LANDSCAPING PLAN

PLOT DATE: 29-APR-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 11 OF 27

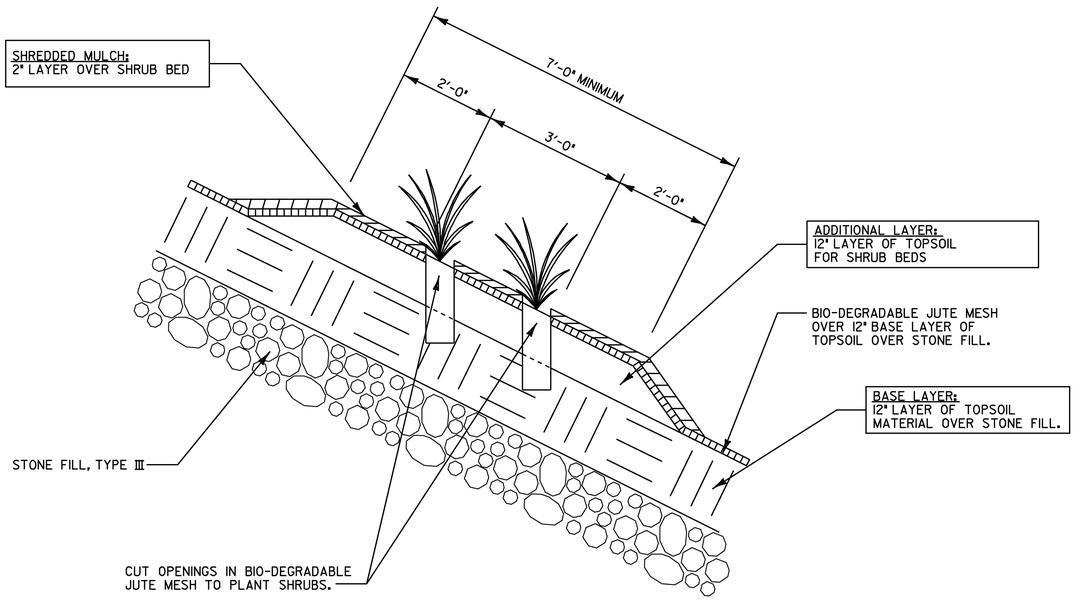


SHRUB BED DETAIL

NOT TO SCALE

SHRUB BED NOTES

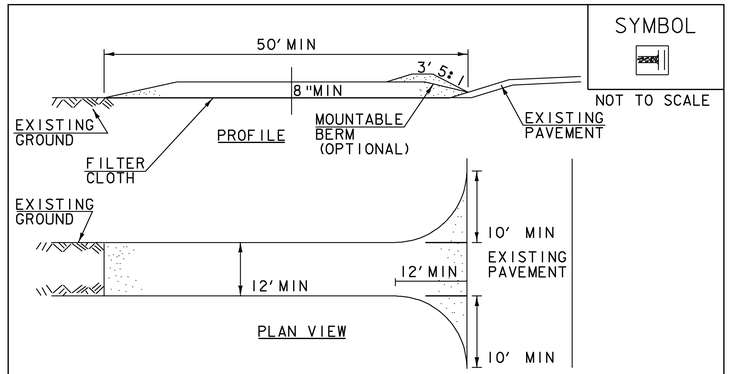
1. LOCATIONS ARE APPROXIMATE. FINAL LOCATION AND ELEVATIONS SHALL BE DETERMINED BY THE RESIDENT ENGINEER BASED ON ESTIMATED SLOPE CONDITIONS.
2. BED SHAPES MAY VARY ACCORDING TO SLOPE CONDITIONS AND BASED ON APPROVAL BY THE RESIDENT ENGINEER.
3. BED SHAPES ARE TO BE STAKED AND LAID OUT TO GIVE A NATURAL APPEARANCE.
4. PLANT AS SHOWN SO THE PLANTS ARE VERTICAL WITH SOIL RIDGE MOUND ON THE DOWNHILL SIDE TO RETAIN WATER.
5. WATER ALL PLANT MATERIAL AT TIME OF PLANTING. EACH TREE UNDER 4'-0" HEIGHT AND EACH SHRUB SHALL RECEIVE A MINIMUM OF 5 GALLONS OF WATER TWICE A WEEK.
6. SLOPE GRADIENT VARIES BETWEEN 1:2 AND 1:3.
7. THE LAYOUT FOR PLANTING POCKETS REPEATED A TOTAL OF 16 TIMES OVERALL.
8. ARRANGE SHRUBS IN ALTERNATING ROWS AS SHOW.



SECTION A-A

NOT TO SCALE

NOTE: SHREDDED MULCH AND BIO-DEGRADABLE JUTE MESH SHALL BE PAID FOR UNDER INDIVIDUAL PLANT ITEMS.



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
3. THICKNESS- NOT LESS THAN 8".
4. WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

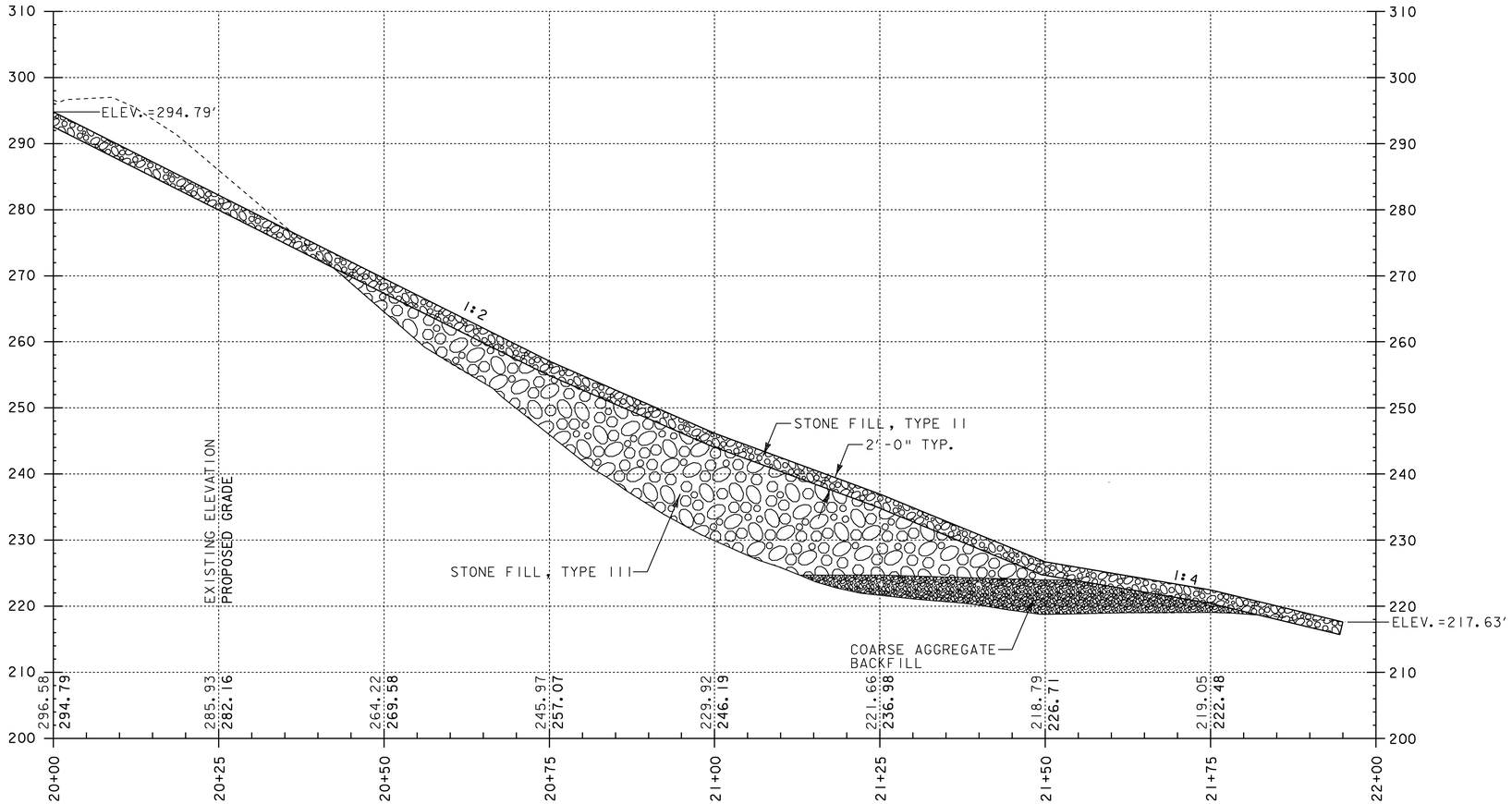
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

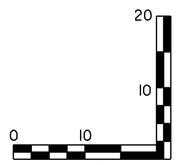
REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

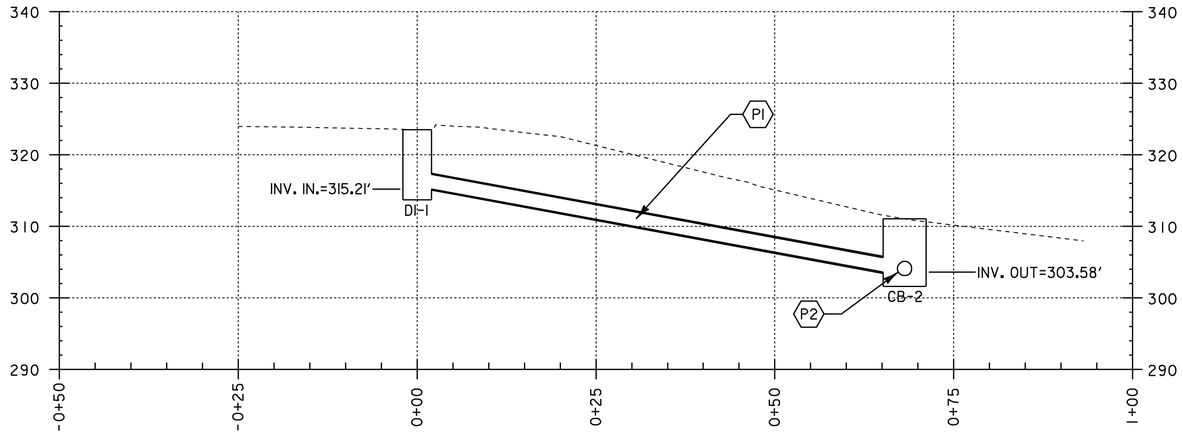
FILE NAME: d07b096frm.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
LANDSCAPING DETAILS

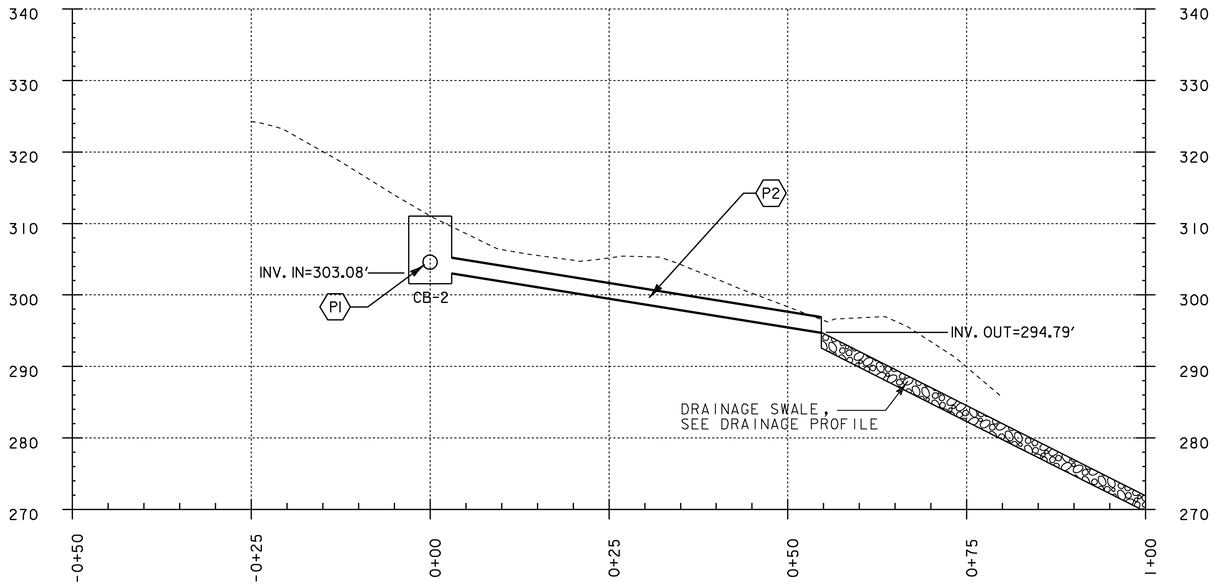
PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 12 OF 27

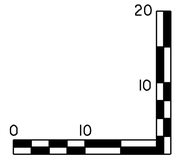




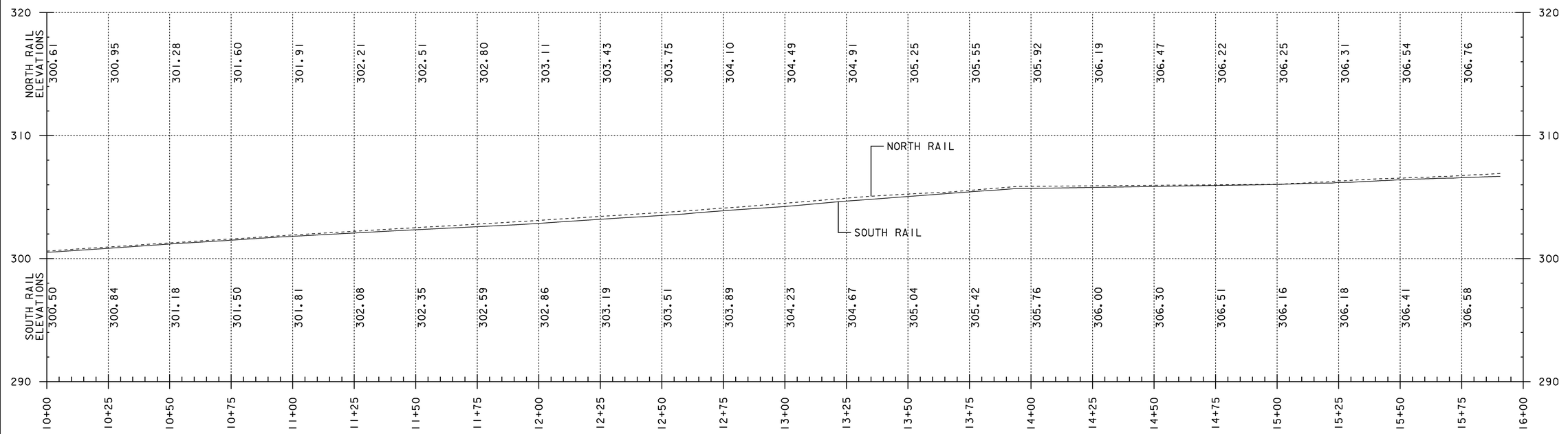
PROJECT NAME:	ESSEX
PROJECT NUMBER:	STP 030-1(20)
FILE NAME: de206xsl.dgn	PLOT DATE: 11-MAY-2009
PROJECT LEADER: JLS	DRAWN BY: MBL
DESIGNED BY: CAA/MBL	CHECKED BY: SDM
SWALE PROFILE	SHEET 13 OF 27

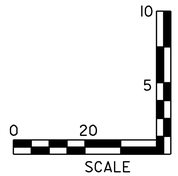






PROJECT NAME:	ESSEX
PROJECT NUMBER:	STP 030-1(20)
FILE NAME: de206xsl.dgn	PLOT DATE: 11-MAY-2009
PROJECT LEADER: JLS	DRAWN BY: MBL
DESIGNED BY: CAA/MBL	CHECKED BY: SDM
DRAINAGE PROFILES	SHEET 14 OF 27

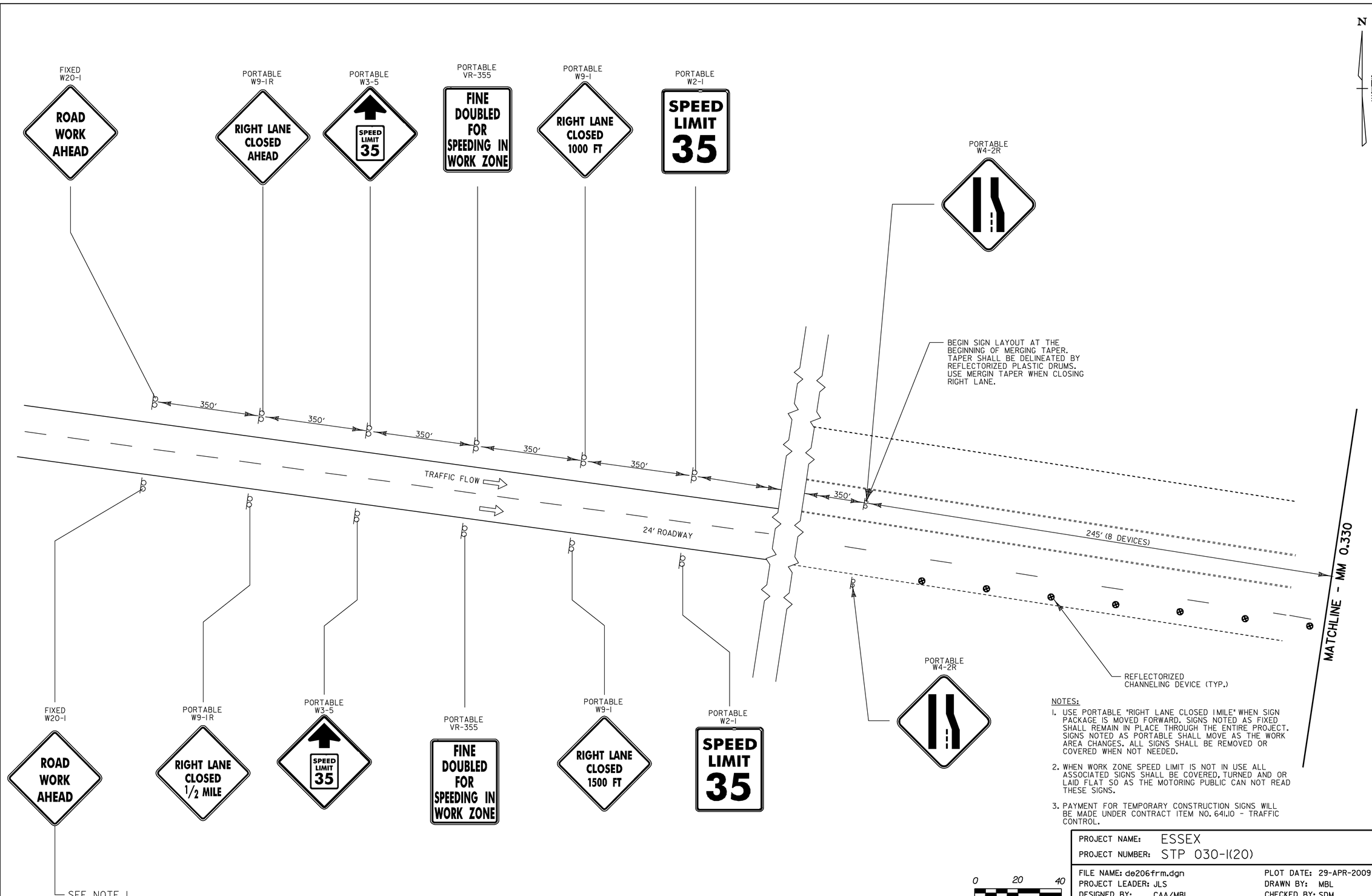




PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206xsl.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
TRACK PROFILE

PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 15 OF 27



NOTES:

1. USE PORTABLE "RIGHT LANE CLOSED 1 MILE" WHEN SIGN PACKAGE IS MOVED FORWARD. SIGNS NOTED AS FIXED SHALL REMAIN IN PLACE THROUGH THE ENTIRE PROJECT. SIGNS NOTED AS PORTABLE SHALL MOVE AS THE WORK AREA CHANGES. ALL SIGNS SHALL BE REMOVED OR COVERED WHEN NOT NEEDED.
2. WHEN WORK ZONE SPEED LIMIT IS NOT IN USE ALL ASSOCIATED SIGNS SHALL BE COVERED, TURNED AND OR LAID FLAT SO AS THE MOTORING PUBLIC CAN NOT READ THESE SIGNS.
3. PAYMENT FOR TEMPORARY CONSTRUCTION SIGNS WILL BE MADE UNDER CONTRACT ITEM NO. 641.10 - TRAFFIC CONTROL.

0 20 40
SCALE IN FEET

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206frm.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
TRAFFIC CONTROL PLAN 1

PLOT DATE: 29-APR-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 16 OF 27

MATCHLINE - MM 0.330

TEMPORARY 4 INCH WHITE LINE

DO NOT DISTURB
STOP

DO NOT DISTURB
ONE WAY

DO NOT DISTURB
B-B

MM 0.417
ONLY ONLY

N
MAGNETIC

ONLY

210' (4 DEVICES SPACED AT 70')

50'

60'

105'

SIGNAL

HERON

16'

MM 0.420

100' (6 DEVICES AT 20')

500'

MATCHLINE - MM 0.445

MM 0.330
ESSEX JUNCTION 2
EXPOSITION
BUSINESS DISTRICT

MM 0.360
SEE NOTE 6.
THRU TRAFFIC KEEP RIGHT

TEMPORARY TRAFFIC BARRIER

WORK ZONE

2X3' FIBEROPTIC BOX

SGR W/STONE

POTENTIAL ACCESS AREA PAID FOR UNDER ITEM NO. 900.645 (TEMP. ACCESS ROAD AND STAGING AREAS)

PLACE LAST CHANNELING DEVICE 100' BEYOND ANTICIPATED TERMINAL POINT OF DAYS WORK OR AS DETERMINED BY THE ENGINEER.

REFLECTORIZED CHANNELING DEVICE (TYP.)

TEMPORARY 4 INCH WHITE LINE

AT TOP OF PIPE & GROUND

HISTORIC DRAIN

18 COMP

MM 0.400

NOTES:

1. NO CONSTRUCTION SIGNS SHALL BE INSTALLED AS TO INTERFERE OR OBSTRUCT THE VIEW OF EXISTING TRAFFIC DEVICES AND STOPPING SIGHT DISTANCE.
2. THIS TEMPORARY TRAFFIC CONTROL PLAN COVERS WORK ASSOCIATED WITH THE REPLACEMENT OF THE DROP INLET AND ADJACENT DRAINAGE PIPE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A SEPARATE TEMPORARY TRAFFIC CONTROL PLAN FOR ALL OTHER WORK. ALL WORK AND EQUIPMENT ASSOCIATED WITH THESE TEMPORARY TRAFFIC CONTROL PLANS SHALL BE PAID FOR UNDER ITEM 641.10 - TRAFFIC CONTROL.
3. THE POTENTIAL ACCESS AREA IS SHOWN ON THIS PLAN AS AN OPTION TO THE CONTRACTOR.
4. ALL EXISTING SIGNS SHALL BE RETAINED. IF ANY EXISTING SIGNS NEED TO BE REMOVED DURING CONSTRUCTION AS DETERMINED BY ENGINEER, THESE SIGNS SHALL BE RESET IN THEIR PRE-EXISTING LOCATION AND CONDITION. THIS WORK SHALL BE PAID FOR UNDER 641.10-TRAFFIC CONTROL.
5. DUE TO THE LACK OF SHOULDER ON THE HIGHWAY, ARROW BOARDS SHALL NOT BE USED FOR TEMPORARY TRAFFIC CONTROL PURPOSES.
6. THRU TRAFFIC KEEP RIGHT SIGN SHALL BE COVERED FOR THE ENTIRE DURATION OF CONSTRUCTION.
7. THE LENGTH OF TIME THAT TEMPORARY TRAFFIC BARRIER IS TO BE USED SHALL BE MINIMIZED TO THE EXTENT POSSIBLE.
8. ALL TRAFFIC CONTROL DEVICES, INCLUDING TEMPORARY TRAFFIC BARRIER AND REFLECTORIZED CHANNEL DEVICES, SHALL BE REMOVED FROM THE ROADWAY NO LATER THAN AUGUST 27, 2009.
9. THE CONTRACTOR SHALL COORDINATE WITH THE CONTRACTOR AND RESIDENT ENGINEER OF THE CONCURRENT ROUTE 15 PAVING PROJECT (COLCHESTER-ESSEX STP 2616(1)) WITH REGARDS TO ANY CONSTRUCTION OR TRAFFIC CONTROL WORK ON VT 15.
10. W3-4 SIGNS ARE TO BE PLACED 100 FEET IN ADVANCE OF THE CONSTRUCTION AREA ON BOTH APPROACHES FROM THE TRAIL. EACH OF THESE SIGNS SHALL BE 24"X24" IN SIZE AND CONFORM TO M.U.T.C.D. STANDARDS. THE SIGNAGE SHALL BE PAID FOR UNDER ITEM NO. 641.10 - TRAFFIC CONTROL. FLAGGERS SHALL BE PAID FOR UNDER ITEM NO. 630.15 - FLAGGERS.
11. TO PROTECT PEDESTRIAN TRAFFIC ON THE WINOOSKI VALLEY PARK DISTRICT TRAIL FROM FALLING ROCK AND OTHER POTENTIAL CONSTRUCTION HAZARDS, THE CONTRACTOR SHALL PLACE A PEDESTRIAN FLAGGER ON THE TRAIL DURING POTENTIAL HAZARDOUS CONDITIONS, OR AS DIRECTED BY THE ENGINEER.
12. WORK IN THE ROADWAY FOR THE DROP INLET AND ASSOCIATED PIPE SHALL BE COMPLETED PRIOR TO ANY OTHER WORK.

0 20 40
SCALE IN FEET

PROJECT NAME:	ESSEX
PROJECT NUMBER:	STP 030-I(20)
FILE NAME: de206frm.dgn	PLOT DATE: 29-APR-2009
PROJECT LEADER: JLS	DRAWN BY: MBL
DESIGNED BY: CAA/MBL	CHECKED BY: SDM
TRAFFIC CONTROL PLAN 2	SHEET 17 OF 27

MATCHLINE - MM 0.445

MM 0.455

MM 0.485

MM 0.520

ONLY

ONLY

ONLY

ONLY

500'

SUSIE WILSON ROAD

N

MAGNETIC

MM 0.555

B-B

MM 0.470

TO
VERMONT
289

FIXED
G20-2a

END
ROAD WORK

MM 0.555

ONLY ONLY

0 20 40

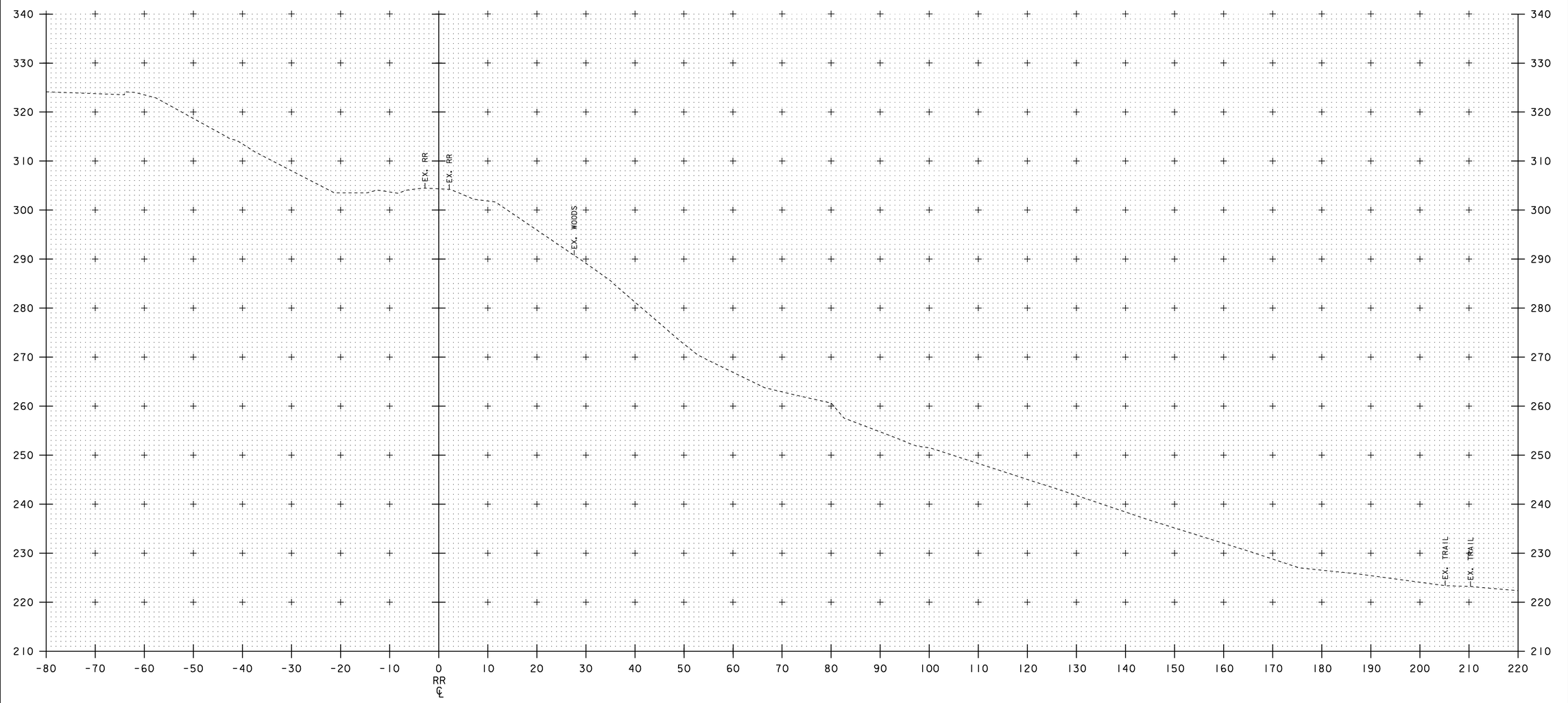
SCALE IN FEET

PROJECT NAME: ESSEX

PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206frm.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
TRAFFIC CONTROL PLAN 3

PLOT DATE: 29-APR-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 18 OF 27



13+00

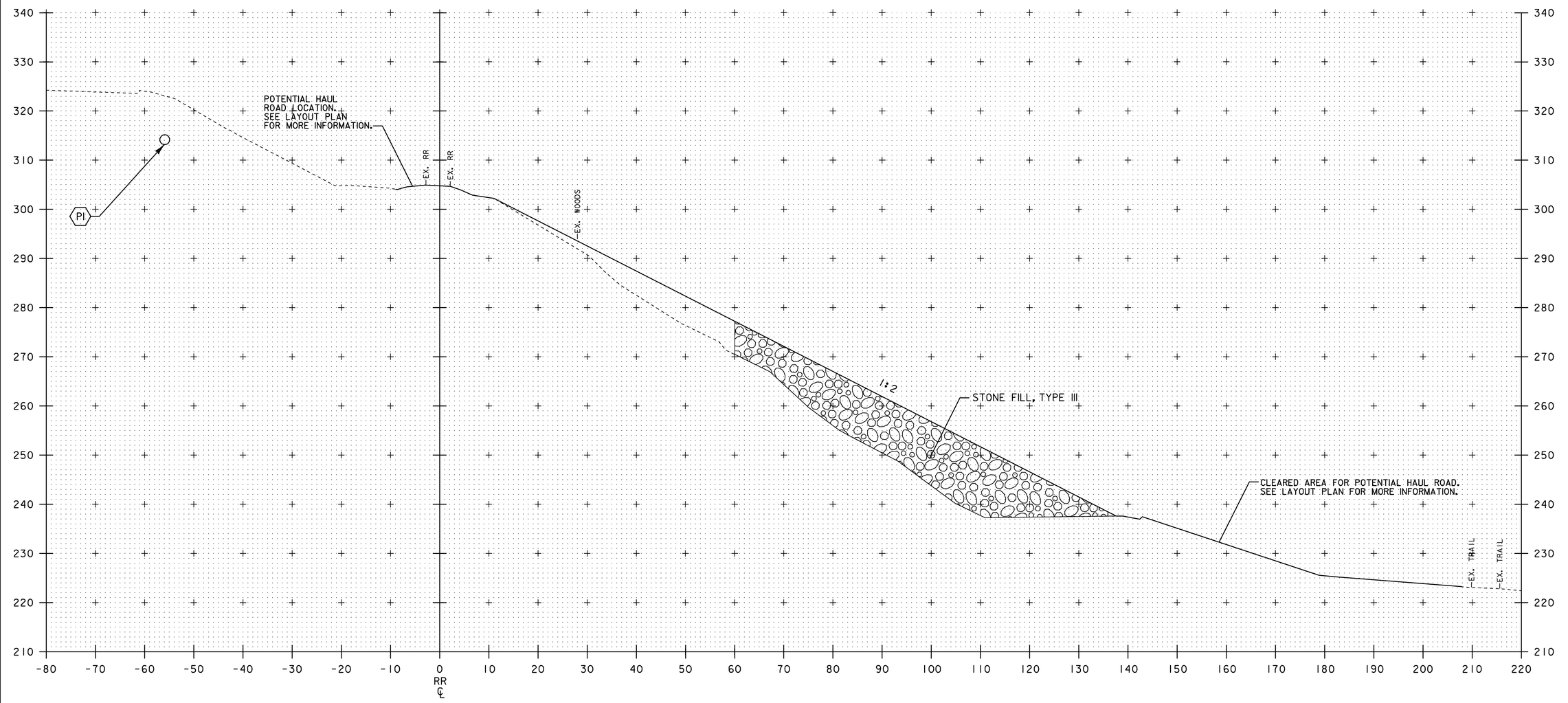
20
10
0 10
SCALE

STA. 13+00

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206xsl.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
CROSS SECTIONS 1

PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 19 OF 27



13+25

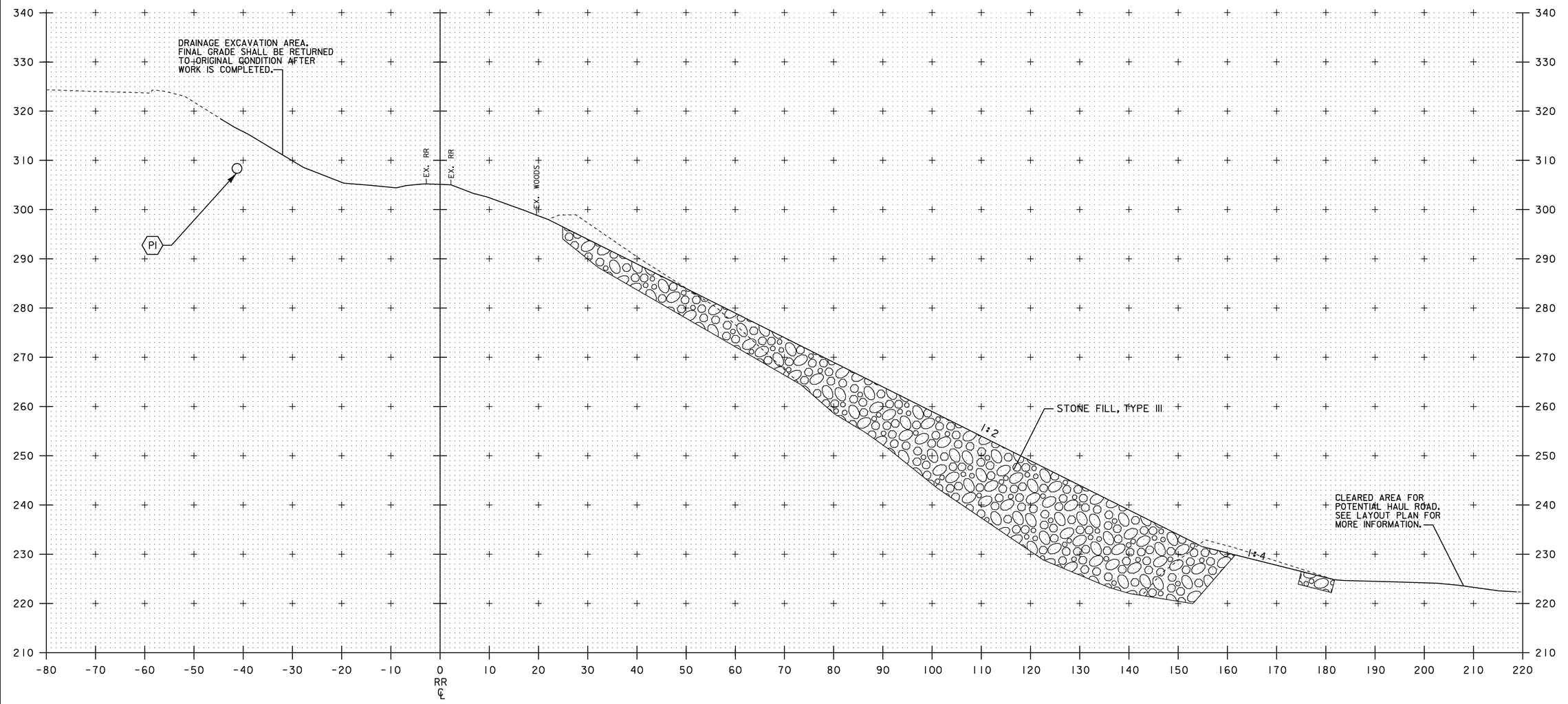
20
10
0 10
SCALE

STA. 13+25

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206xsl.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
CROSS SECTIONS 2

PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 20 OF 27



13+50

20
10
0 10
SCALE

STA. 13+50

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206xsl.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
CROSS SECTIONS 3

PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 21 OF 27

DRAINAGE EXCAVATION AREA.
FINAL GRADE SHALL BE RETURNED
TO ORIGINAL CONDITION AFTER
WORK IS COMPLETED.

EX. RR

EX. RR

EX. WOODS

1:2

STONE FILL, TYPE II

STONE FILL, TYPE III

1:4

U1

U2

U4

340 330 320 310 300 290 280 270 260 250 240 230 220 210 200

-80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220

RR ℄

13+75

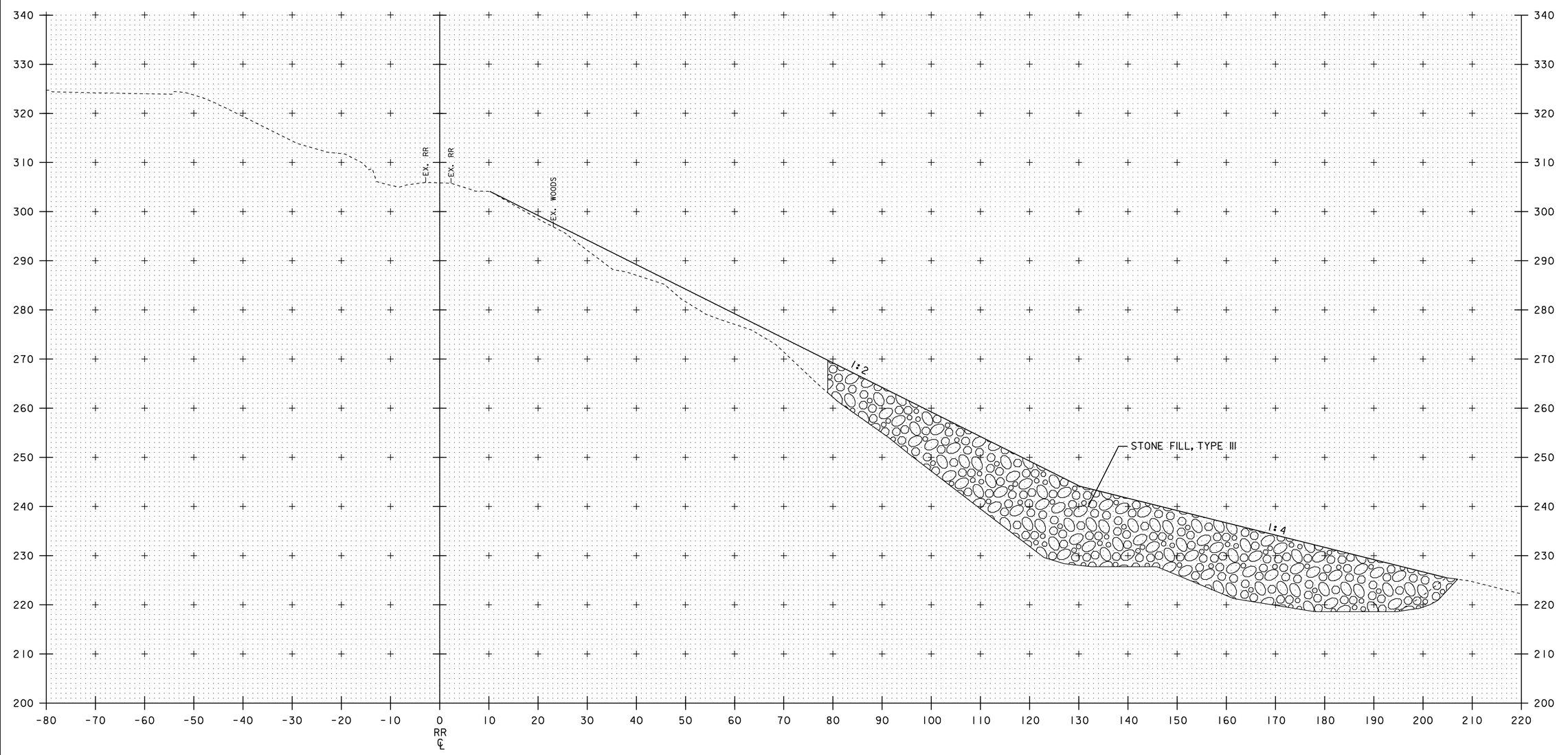
20 10 0 10 SCALE

STA. 13+75

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206xsl.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
CROSS SECTIONS 4

PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 22 OF 27



14+00

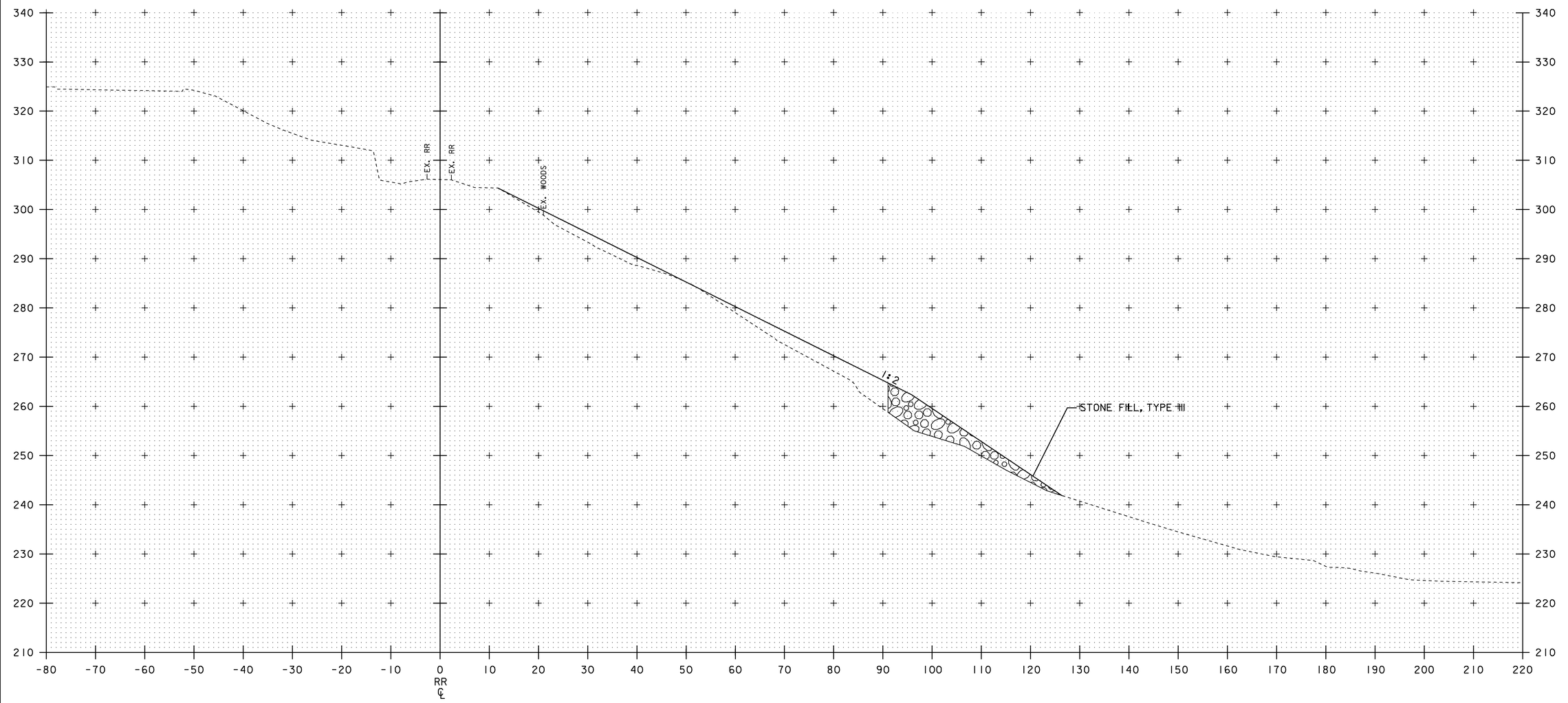
20
10
0 10
SCALE

STA. 14+00

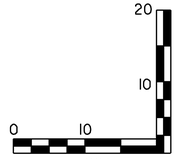
PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206xsl.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
CROSS SECTIONS 5

PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 23 OF 27



14+25

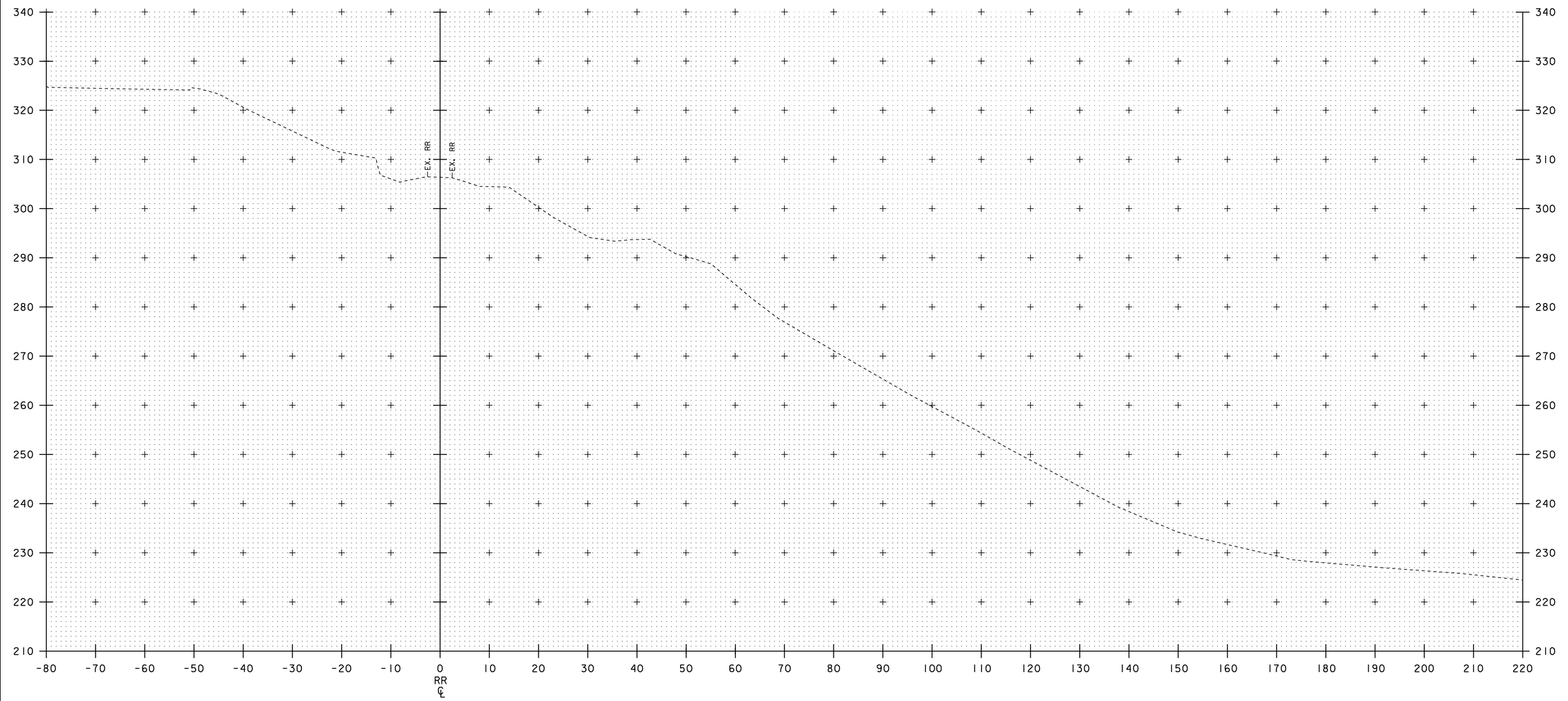


STA. 14+25

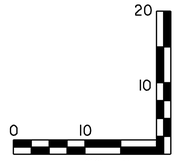
PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206xsl.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
CROSS SECTIONS 6

PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 24 OF 27



14+50

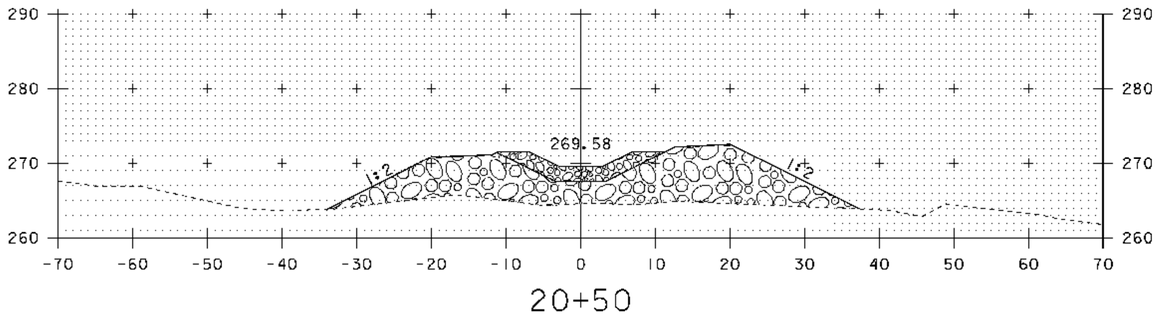


STA. 14+50

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206xsl.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
CROSS SECTIONS 7

PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 25 OF 27



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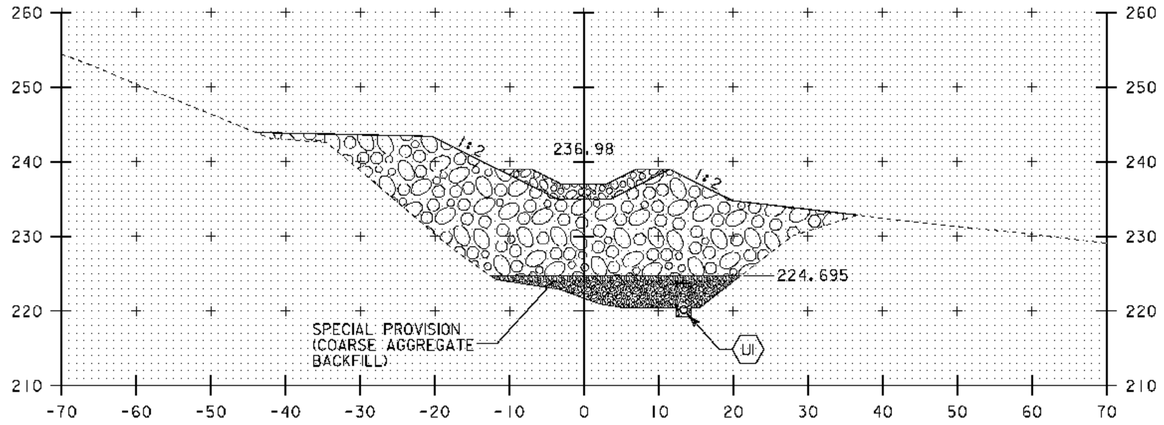
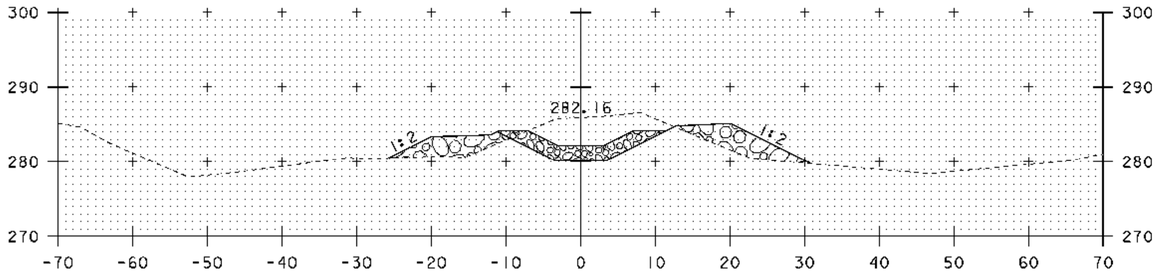
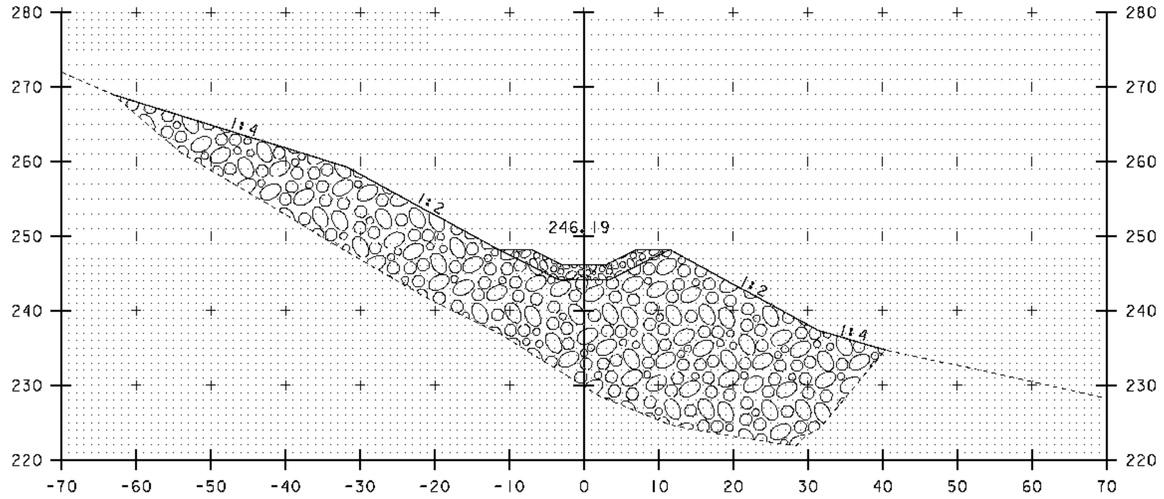


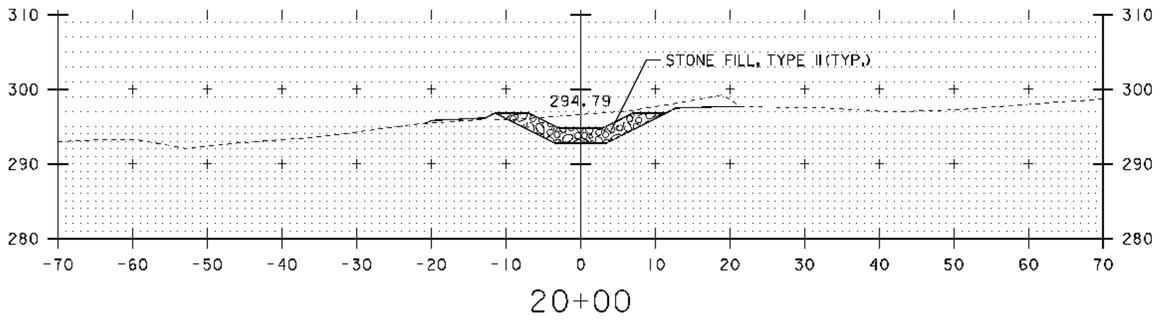
21+25



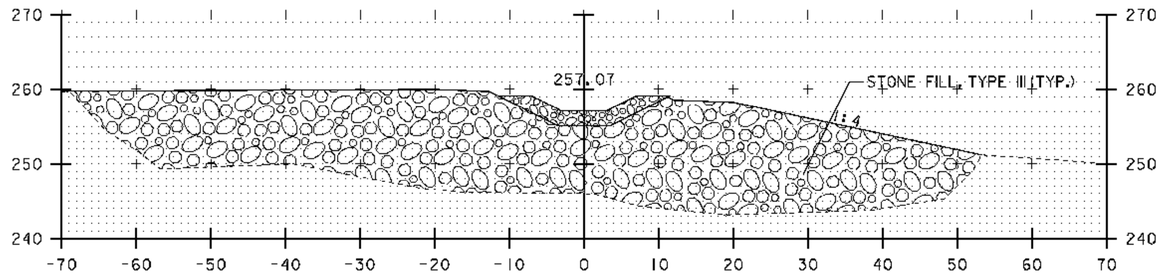
20+25



21+00

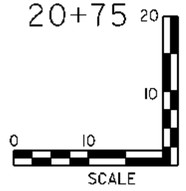


20+00



20+75

SECTIONS NOT USED
SEE BASE LINE SECTIONS

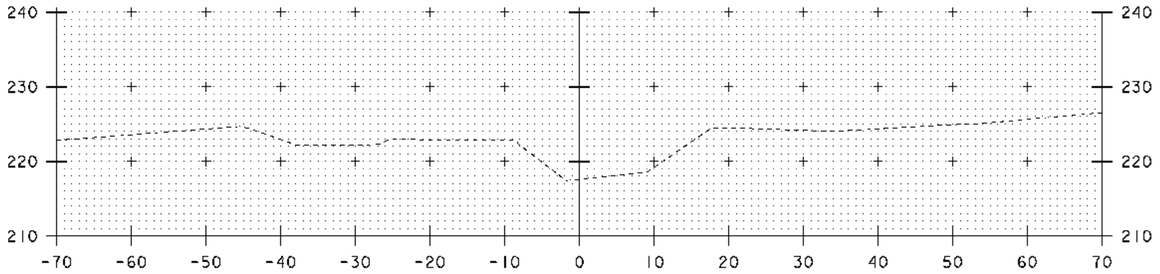


STA. 20+00 TO STA. 21+25

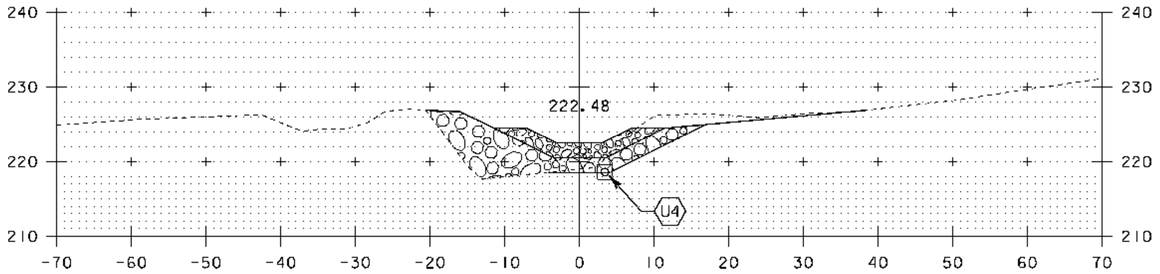
PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206xsl.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
CROSS SECTIONS 8

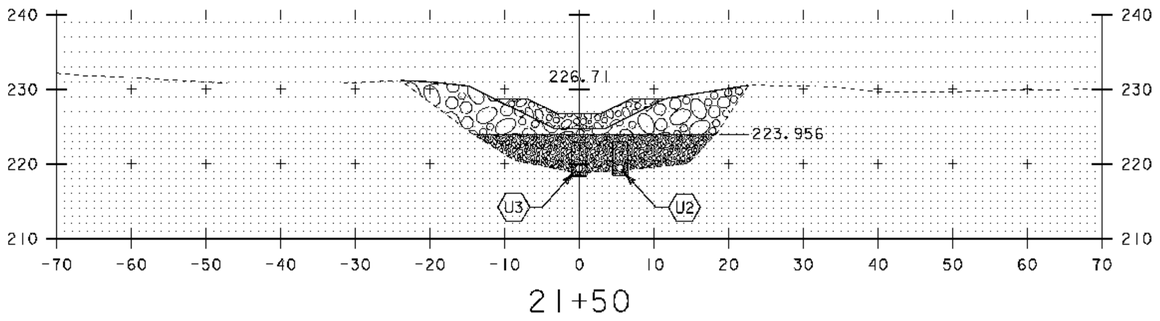
PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 26 OF 27



21+95

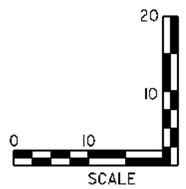


21+75



21+50

SECTIONS NOT USED
SEE BASE LINE SECTIONS



STA. 21+50 TO STA. 21+95

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(20)

FILE NAME: de206xsl.dgn
PROJECT LEADER: JLS
DESIGNED BY: CAA/MBL
CROSS SECTIONS 9

PLOT DATE: 11-MAY-2009
DRAWN BY: MBL
CHECKED BY: SDM
SHEET 27 OF 27

(12) (1.5×1.5)
AREA OF CATCH BASIN = 4.83 + (3.0) = 7.83 × 7.83 = 61.3 Ft²
AREA @ 100% = 5 Ft × 61.3 Ft² = 306.5 Ft³
AREA @ 150% = 6.9 Ft (AVE) × 61.3 Ft² = 423.0 × 1.5 = 634.5 Ft³
941 Ft³ × 1/27 = 34.85 cy WEF 8-14-09

PIPE (W) (D) (L)
AREA @ 100% = 5Ft × 5Ft × 2.3 = 57.5 Ft³
AREA @ 150% = 5Ft × 4.2 × 2.3 = 48.3 Ft³ × 1.5 = 72.5 Ft³
130.0 Ft³ × 1/27 = 4.81 cy ✓ RAE 10/14/09

TRENCH EARTH
AREA OF 100% - 5Ft × 57Ft (L) × 5Ft (WIDE) = 1425 Ft³
AREA OF 150% - (40 × 8.7/2.0) + (40 + 40.4/2 × 24) + (40.4 + 53.8/2 × 31) = 243.6 × 5 (W) = 1218 Ft² × 1.5 = 1827 Ft³
3252 Ft³ × 1/27 = 120.4 cy WEF 10-08-09 ✓ RAE 10/14/09

CATCH BASIN (61.3 Ft²)
AREA @ 100% 306.5 Ft³
AREA @ 150% 8.4 Ft (AVE) × 61.3 Ft² = 514.9 × 1.5 = 772.3 Ft³
1078.8 Ft³ × 1/27 = 40.0 cy WEF 10-08-09 ✓ RAE 10/14/09
1078.9

GRAN. BACKFILL
CB = 61.3 Ft² × 0.5 Ft × 1/27 = 1.1 cy
PIPE = 5 × 3.5 Ft × 35% = 2.5 cy

EXIST. CB
NEW CB
DI
INV. 315.21
INVERT 314.27 48
ELEV. 310.00
OUTLET 314.71

INVERT 48 314.21
ADJUSTED LIMIT - CULVERT SHORTER
OUTLET 302.8

INVERT 302.28 3
GRAN. BACKFILL UNDER CB
61.3 Ft² × 0.5 Ft × 1/27 = 1.1 cy ✓
WEF 10-08-09 RAE 10/14/09
LIMIT OF CB-2

STA. 13+12.28 LT
NEW 6 LF × 24" CPEP
NEW PRECAST REINFORCED CONCRETE CATCH BASIN W/ FRAME & GRATE
(W/ STEPS) (W/ 24" SUMP)

STA. 13+12.28 LT to 13+70.17 LT
NEW 6 3 LF × 24" CPEP
NEW PRECAST REINFORCED CATCH BASIN
(W/ STEPS) (W/ 24" SUMP)

REMOVAL TRENCH EARTH
AREA @ 100% - 5.0' (D) × 40.5' (L) × 3.0' (W) = 607.5 Ft³
AREA @ 150% - (53.7/2 + 38.1/2 × 35) + (68.2/2 + 58.8/2 × 15) + (52.0/2 + 34.2/2 × 10) = 173.9 Ft² × 3.0 Ft = 521.7 Ft³ × 1.5 = 782.6 Ft³
1398.1 Ft³ × 1/27 = 51.5 cy WEF 10-13-09 ✓ RAE 10/14/09

REMOVAL TRENCH EARTH
AREA @ 100% - (5 × 5) + (5.0+4.4/2 × 1) + (5.0+5.3/2 × 13) + (4.3+4.9/2 × 2) + (4.9+5.0/2 × 8) + (5.0+3.7/2 × 7) + (3.7+2.8/2 × 2) = 137.9
AREA @ 150% - (1.5+5.0/2 × 5) = 4.5 × 3 = 13.5 Ft² × 1.5

REMOVAL TRENCH ROCK - DI
5 × 4 × 10 = 200 Ft³ (EXT)
3 × 2 × 9 = 54 Ft³ (DI)
146 Ft³ × 1/27 = 5.4 cy

COMMON EXCAVATION STA 20+00

EXISTING PIPE @ STA. 13+12.28 LT & 13+59.44 LT
EXISTING PIPE @ STA 13+59.44 LT - 13+55.22 RT

ADDED 12 LF OF 12" U/D INTO CB-2

TRENCH EARTH
AREA OF 100% - 50 × 10 × 3 = 1504 Ft³
AREA OF 150% - (1.0+1.8/2 × 10) × 3.0 = 42.0 Ft²

STA. 13+
NEW 60 55

SAME ELEV. AS ABOVE
LEFT IN PLACE
FILLED W/ FLOWABLE FILL
ELEV 310.00

1.0'
0.5'
ELEV 220.00

U1
BEGIN UNDERDRAIN
NEW 12" × 42 LF UNDERDRAIN
TOP GEO. LINE
222.3 INV. 220.01
220.6 INV. 218.18
19.4 × 5.0 = 97.2
2.5 × 3 = 7.5 Ft²
54 × 3 = 162 Ft²
22 × 3 = 18.6 Ft²

0	28	5.7	134.8
28	12	7.5	
40	2	16.2	142.2
42		18.6	34.8

361.8 × 1/27 = 13.4 cy ✓
WEF 8-17-09
✓ RAE 10/14/09

U2
BEGIN UNDERDRAIN
NEW 12" × 24 28 LF UNDERDRAIN
END
TOP GEO. LINE
221.3 219.21
219.7 INV. 217.78
11.3 × 3 = 67.8 Ft²
5.7 × 3 = 17.1 Ft²
17 × 3 = 51 Ft²
20 × 3 = 60.2 Ft²

0	4	5.7	22.8
4	10	5.7	54.0
14	10	5.1	57.0
24		6.3	

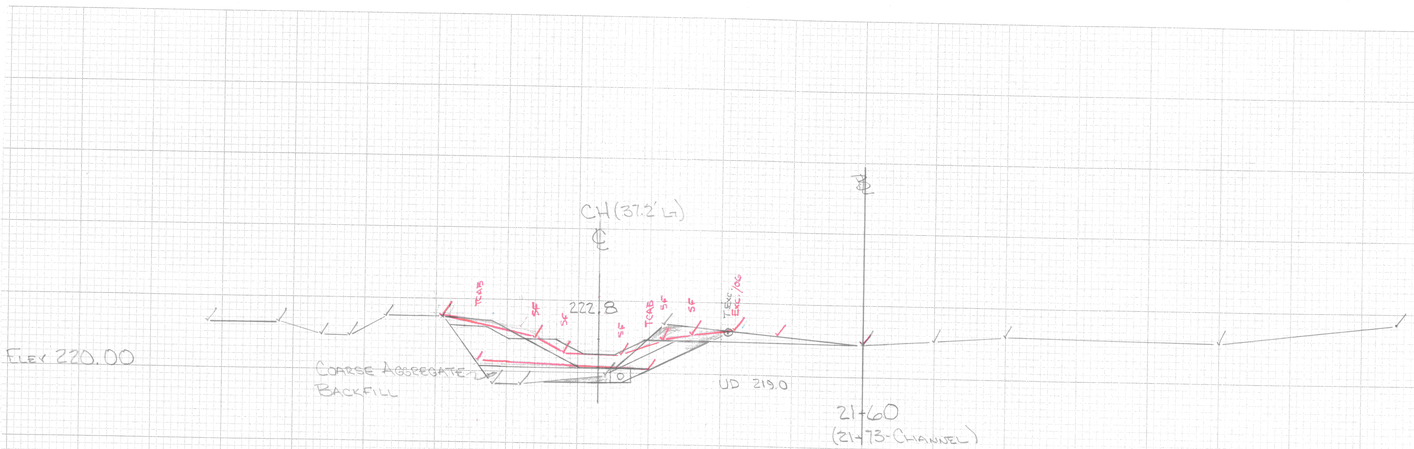
133.8 × 1/27 = 5.0 cy
WRF 8-17-09
✓ RAE 10/14/09

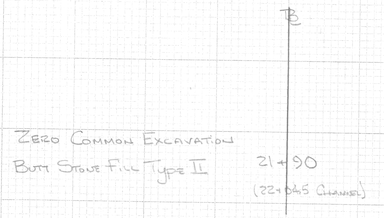
U-3
BEGIN UNDERDRAIN
END UNDERDRA
NEW 12" × 23 22 LF UNDERDRA
220.6 INV. 219.68
6.2 × 3 = 18.6 Ft²
3.2 × 3 = 9.6 Ft²
8.0 × 3 = 24.0 Ft²

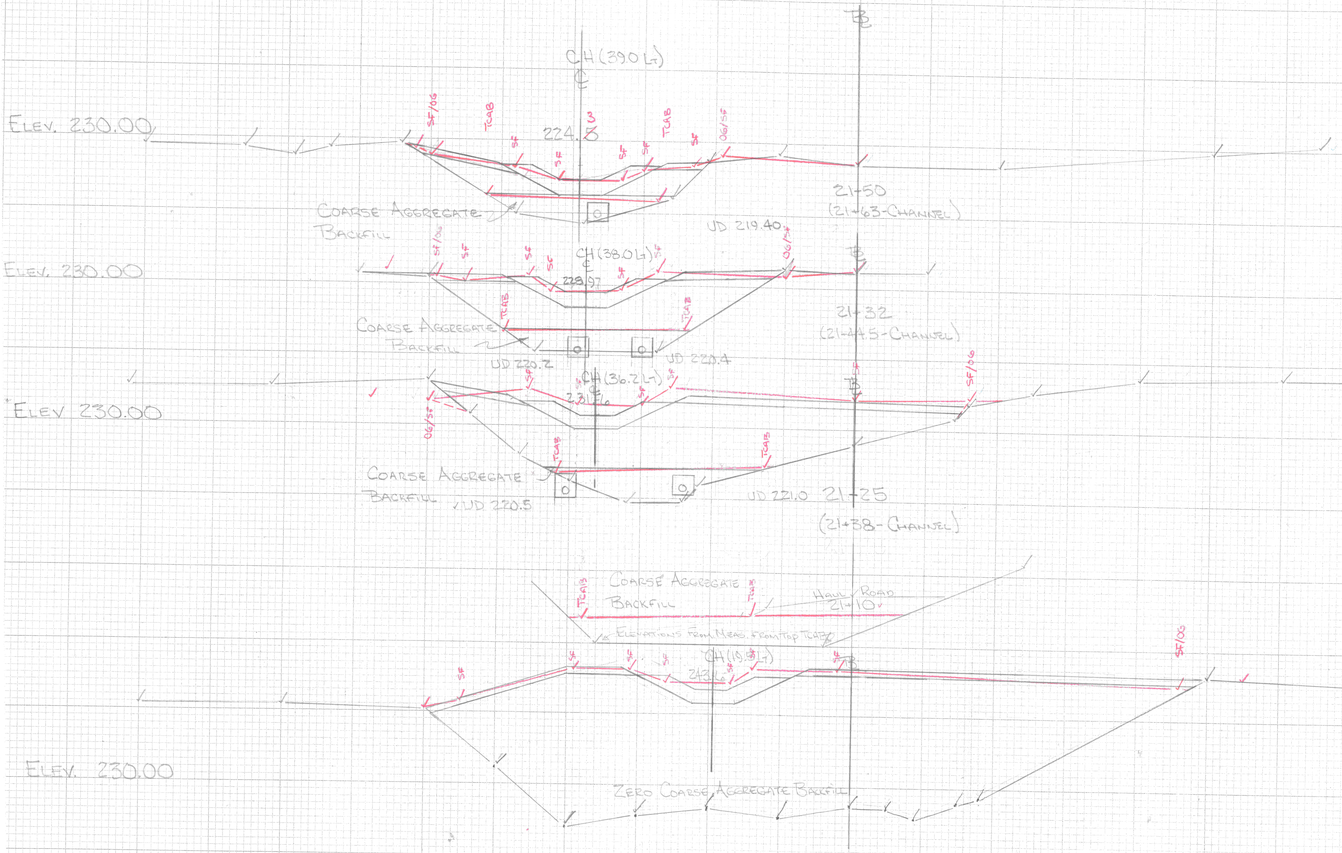
0	15	13.6	211.5
15	7	9.6	54.6
22	1	6.0	6.0
23		6.0	

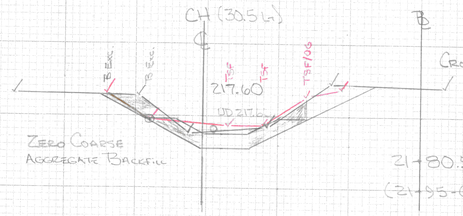
272.1 × 1/27 = 10.
WRF
✓ RAE

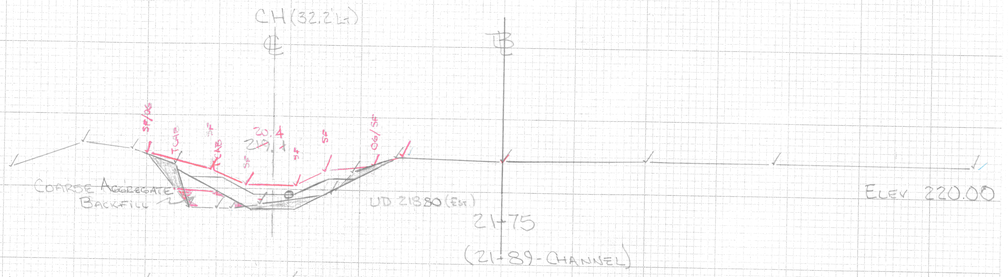
STANDARD ⊕ CROSS SECTION
TOKYO THE RICH
KEUFFEL & ESSER CO.
MADE IN U.S.A.









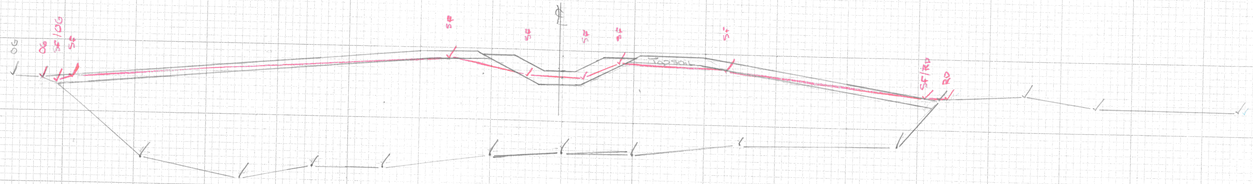


ESSEX
STP 030-1(20)
CHANNEL CROSS SECTIONS
SHEET # 2

STANDARD @ CROSS SECTION
X 10 TO 10 X10 TO THE INCH

KEUFFEL & ESSER CO.
MADE IN U.S.A.

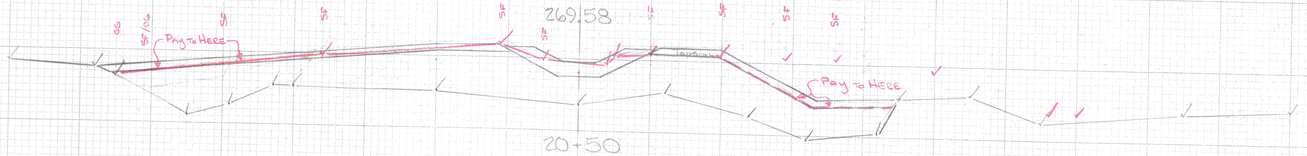
257.07



ELEV 250.00

20+75

269.58

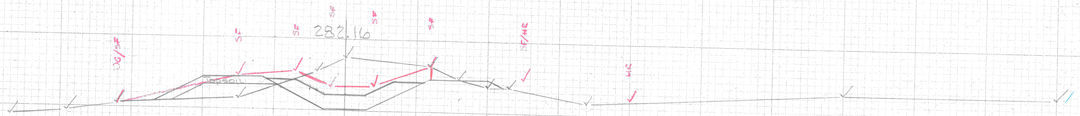


ELEV 270.00

20+50

20+25 20+43 20+50

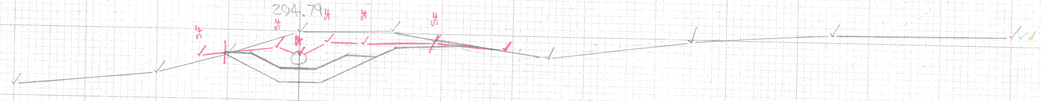
282.16



ELEV 290.00

20+25

294.79



ELEV 290.00

20+00

100 80 60 40 20 ℄ 20 40 60 80 100

19+95 - ZERO COMMON EXCAVATION
20+00 ZERO ~~BUFF~~ STONE FILL TYPE III

ESSEX
STP 030-(20)
CHANNEL CROSS SECTIONS
SHEET # 1

K&E STANDARD @ CROSS SECTION
10X10 TO THE INCH
KEUFFEL & ESSER CO.
MADE IN U.S.A.

K&E STANDARD @ CROSS SECTION
10X10 TO THE INCH
KEUFFEL & ESSER CO.
MADE IN U.S.A.