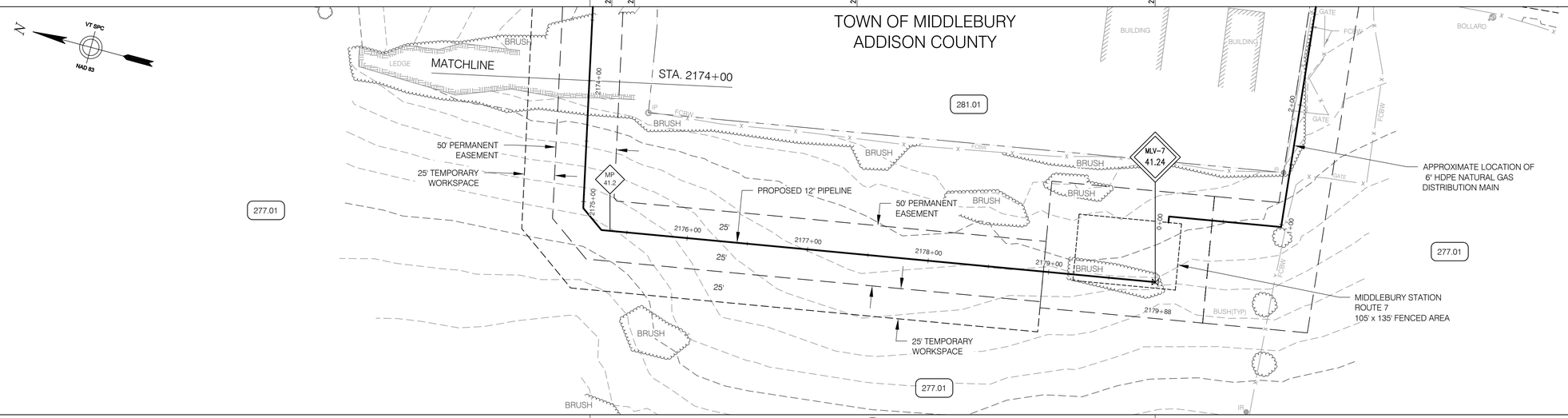
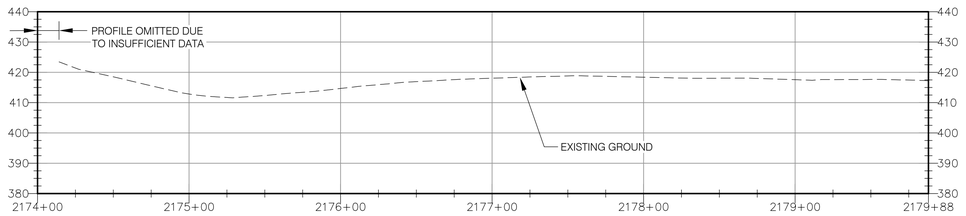
RIGHT–OF–WAY	MATCHLINE	277.01 N/F DELINEATION CORPORATION CORBIN, THOMAS	END
SURVEY DATA		S 77° 39' W 42'14" LT 2175+05 S 35° 24' W 45'07" LT 2175+29 S 09° 43' E 00'22" LT 2177+41 S 10° 05' E 2179+91	
ALIGNMENT DETAIL			
CONST. TYPE		1E	
PROFILE			
MATERIALS	MATCHLINE	1 588 FT	END
COATING		A	
CLASSIFICATION		3	
DESIGN FACTOR		0.5	

HORIZONTAL SCALE
50 25 0 50 100 150 feet

VERTICAL SCALE
25 12.5 0 25 50 75 feet

PIPE MATERIAL:
1 12.75" O.D. X 0.312" WT, API–5L, GR. X65, PSL–2, AND ADDITIONAL SPECIFICATIONS IN 192.112 — 588 FT
2 20" O.D. X 0.375" WT, API–5L, GR. B — 0 FT

PIPE COATING:
A EPOXY POLYETHYLENE 10/40 — 588 FT
B FBE, ABRASION RESISTANT OVERCOAT, 14–16 MILS/40 MILS, 54–56 MILS TOTAL — 0 FT
C FBE 14–16 MILS, W/ 1–1/2" REINFORCED CONCRETE W/ 140 LBS/FT³ — 0 FT

STATE OF VERMONT — DEPARTMENT OF PUBLIC SERVICE — NO. 97764 — CIVIL — PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
ANGP–D2–C–01	ALIGNMENT SHEET					DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
ANGP–T–G–021	STATION AND VALVE DETAILS					DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP–EPSC–085	EPSC PLAN					DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
G–001 – 010	COVER, INDEX, LEGEND & NOTES, AND CONSTRUCTION DETAILS					DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
ALIGNMENT SHEET

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

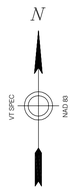
CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 50' | DWG. ANGP–T–C–085 | REV. 0

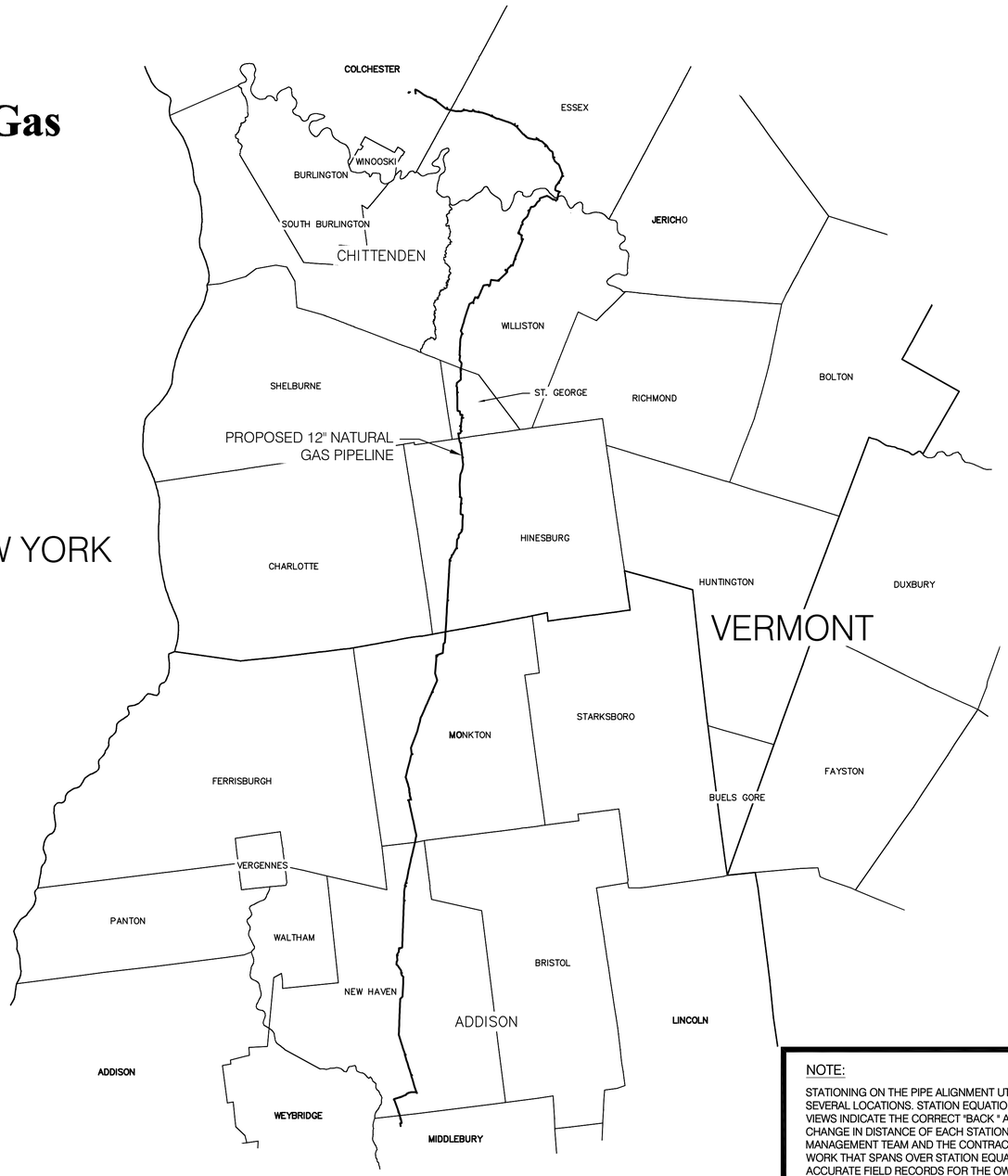
ADDISON NATURAL GAS PROJECT
TRANSMISSION MAINLINE

CHITTENDEN AND ADDISON COUNTIES
VERMONT

Vermont Gas



NEW YORK



SCALE 1" = 12,000'

DRAWING INDEX

DRAWING NUMBER	DRAWING TITLE
ANGP-T-G-001	COVER SHEET
ANGP-T-G-002	INDEX SHEET
ANGP-T-G-003	LEGEND & NOTES
ANGP-T-G-004 TO 006	CONSTRUCTION CONFIGURATION DETAILS
ANGP-T-G-007 TO 010	ACCESS ROAD DETAILS
ANGP-T-G-011	EPSC NOTES
ANGP-T-G-012 TO 020C	CONSTRUCTION DETAILS
ANGP-T-G-021	STATION AND VALVE DETAILS
ANGP-T-G-022	WILLISTON PIPEYARD
ANGP-T-G-023	PLANK ROAD PIPEYARD

DRAWING #	REV #	DRAWING TITLE
ANGP-EPSC-001A	1	EPSC PLAN
ANGP-EPSC-001B	1	EPSC PLAN
ANGP-EPSC-002	3	EPSC PLAN
ANGP-EPSC-003	2	EPSC PLAN
ANGP-EPSC-004	1	EPSC PLAN
ANGP-EPSC-005	3	EPSC PLAN
ANGP-EPSC-006	1	EPSC PLAN
ANGP-EPSC-007	1	EPSC PLAN
ANGP-EPSC-008	1	EPSC PLAN
ANGP-EPSC-009	1	EPSC PLAN
ANGP-EPSC-010	1	EPSC PLAN
ANGP-EPSC-011	1	EPSC PLAN
ANGP-EPSC-012	2	EPSC PLAN
ANGP-EPSC-013	1	EPSC PLAN
ANGP-EPSC-014	2	EPSC PLAN
ANGP-EPSC-015	3	EPSC PLAN
ANGP-EPSC-016	2	EPSC PLAN
ANGP-EPSC-017	1	EPSC PLAN
ANGP-EPSC-018	0	EPSC PLAN
ANGP-EPSC-019	0	EPSC PLAN
ANGP-EPSC-020	1	EPSC PLAN
ANGP-EPSC-021	1	EPSC PLAN
ANGP-EPSC-022	0	EPSC PLAN
ANGP-EPSC-023B	1	EPSC PLAN
ANGP-EPSC-024	1	EPSC PLAN
ANGP-EPSC-025	1	EPSC PLAN
ANGP-EPSC-026	0	EPSC PLAN
ANGP-EPSC-027	2	EPSC PLAN
ANGP-EPSC-028	1	EPSC PLAN
ANGP-T-C-028A	0	STREAM CROSSING PROFILE
ANGP-EPSC-029	1	EPSC PLAN
ANGP-EPSC-030	0	EPSC PLAN
ANGP-EPSC-031	1	EPSC PLAN
ANGP-EPSC-032	1	EPSC PLAN
ANGP-EPSC-033	1	EPSC PLAN
ANGP-EPSC-034	1	EPSC PLAN
ANGP-EPSC-035	1	EPSC PLAN
ANGP-EPSC-036	1	EPSC PLAN
ANGP-EPSC-037	0	EPSC PLAN
ANGP-EPSC-038	0	EPSC PLAN
ANGP-EPSC-039	0	EPSC PLAN
ANGP-T-C-039A	0	STREAM CROSSING PROFILE
ANGP-EPSC-040	1	EPSC PLAN
ANGP-EPSC-041	2	EPSC PLAN
ANGP-EPSC-042	2	EPSC PLAN
ANGP-T-C-042A	0	STREAM CROSSING PROFILE
ANGP-EPSC-043	2	EPSC PLAN
ANGP-EPSC-044	0	EPSC PLAN

DRAWING #	REV #	DRAWING TITLE
ANGP-EPSC-045	0	EPSC PLAN
ANGP-EPSC-046	0	EPSC PLAN
ANGP-EPSC-047	1	EPSC PLAN
ANGP-EPSC-048	1	EPSC PLAN
ANGP-EPSC-049	2	EPSC PLAN
ANGP-EPSC-050	2	EPSC PLAN
ANGP-EPSC-051	3	EPSC PLAN
ANGP-T-C-051A	0	STREAM CROSSING PROFILE
ANGP-EPSC-052	1	EPSC PLAN
ANGP-EPSC-053	0	EPSC PLAN
ANGP-EPSC-054	0	EPSC PLAN
ANGP-EPSC-055	1	EPSC PLAN
ANGP-EPSC-056	0	EPSC PLAN
ANGP-EPSC-057	0	EPSC PLAN
ANGP-EPSC-058	0	EPSC PLAN
ANGP-EPSC-059	1	EPSC PLAN
ANGP-EPSC-060	1	EPSC PLAN
ANGP-EPSC-061A	2	EPSC PLAN
ANGP-T-C-061AA	0	STREAM CROSSING PROFILE
ANGP-EPSC-061B	2	EPSC PLAN
ANGP-EPSC-062	2	EPSC PLAN
ANGP-EPSC-063	2	EPSC PLAN
ANGP-EPSC-064	0	EPSC PLAN
ANGP-EPSC-065	0	EPSC PLAN
ANGP-T-C-065A	0	STREAM CROSSING PROFILE
ANGP-EPSC-066	0	EPSC PLAN
ANGP-EPSC-067	0	EPSC PLAN
ANGP-EPSC-068	1	EPSC PLAN
ANGP-EPSC-069	1	EPSC PLAN
ANGP-EPSC-070	1	EPSC PLAN
ANGP-EPSC-071	0	EPSC PLAN
ANGP-EPSC-072	0	EPSC PLAN
ANGP-EPSC-073	0	EPSC PLAN
ANGP-EPSC-074	3	EPSC PLAN
ANGP-EPSC-075	5	EPSC PLAN
ANGP-EPSC-076	2	EPSC PLAN
ANGP-EPSC-077	1	EPSC PLAN
ANGP-EPSC-078	1	EPSC PLAN
ANGP-EPSC-079	2	EPSC PLAN
ANGP-EPSC-080	0	EPSC PLAN
ANGP-EPSC-081	2	EPSC PLAN
ANGP-EPSC-082A	0	EPSC PLAN
ANGP-EPSC-082B	0	EPSC PLAN
ANGP-EPSC-083A	0	EPSC PLAN
ANGP-EPSC-083B	0	EPSC PLAN
ANGP-EPSC-084A	0	EPSC PLAN
ANGP-EPSC-084B	1	EPSC PLAN
ANGP-EPSC-085	0	EPSC PLAN

NOTE:

STATIONING ON THE PIPE ALIGNMENT UTILIZES STATION EQUATIONS IN SEVERAL LOCATIONS. STATION EQUATION CALL-OUTS NOTED ON THE PLAN VIEWS INDICATE THE CORRECT "BACK " AND "AHEAD" STATIONS AS WELL AS THE CHANGE IN DISTANCE OF EACH STATION EQUATION. THE CONSTRUCTION MANAGEMENT TEAM AND THE CONTRACTOR SHOULD PROPERLY DOCUMENT WORK THAT SPANS OVER STATION EQUATIONS IN ORDER TO PROVIDE ACCURATE FIELD RECORDS FOR THE OWNER.

NOTE:

THE ALIGNMENT AND EPSC PLAN SETS DATED 05/2016 SUPERSEDE ALL PREVIOUSLY "ISSUED FOR CONSTRUCTION" PLAN SETS AND INCORPORATE ALL PROJECT CHANGES SUBSEQUENT TO THE 2015 "ISSUED FOR CONSTRUCTION" PLAN SETS DATED 04/02/15. THE PLAN CHANGES ARE INDICATED BY REVISION CLOUDS AND/OR DENOTED IN THE REVISION BOX, WITH THE EXCEPTION OF THE FOLLOWING MODIFICATIONS: REMOVAL OF THE CATHODIC PROTECTION TEST LEAD LOCATIONS, THE ADDITIONAL SHEETS FOR TRENCH BREAKER LOCATIONS, THE ADDITIONAL SHEETS FOR DEPTH OF COVER, AND THE ADDITIONAL SHEETS FOR PIPE PROFILES AT JURISDICTIONAL STREAM CROSSINGS.

STATE OF VERMONT — MICHAEL E. HOLTHAUS — NO. 97764 — CIVIL — PROFESSIONAL ENGINEER

4

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
		4	GJM	BCK		IFC 2016 EDITS (05/2016)	DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
		3	BCK	TDB		CP TEST LEAD EDIT (9/14/15)	DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
		2	GJM	TDB		PLAN SET ISSUED FOR COLLATERAL PERMIT AMENDMENTS (6/30/15)	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
		1	BCK	TDB		COMPLETE PLAN SET RE-ISSUE (6/15/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
COVER SHEET

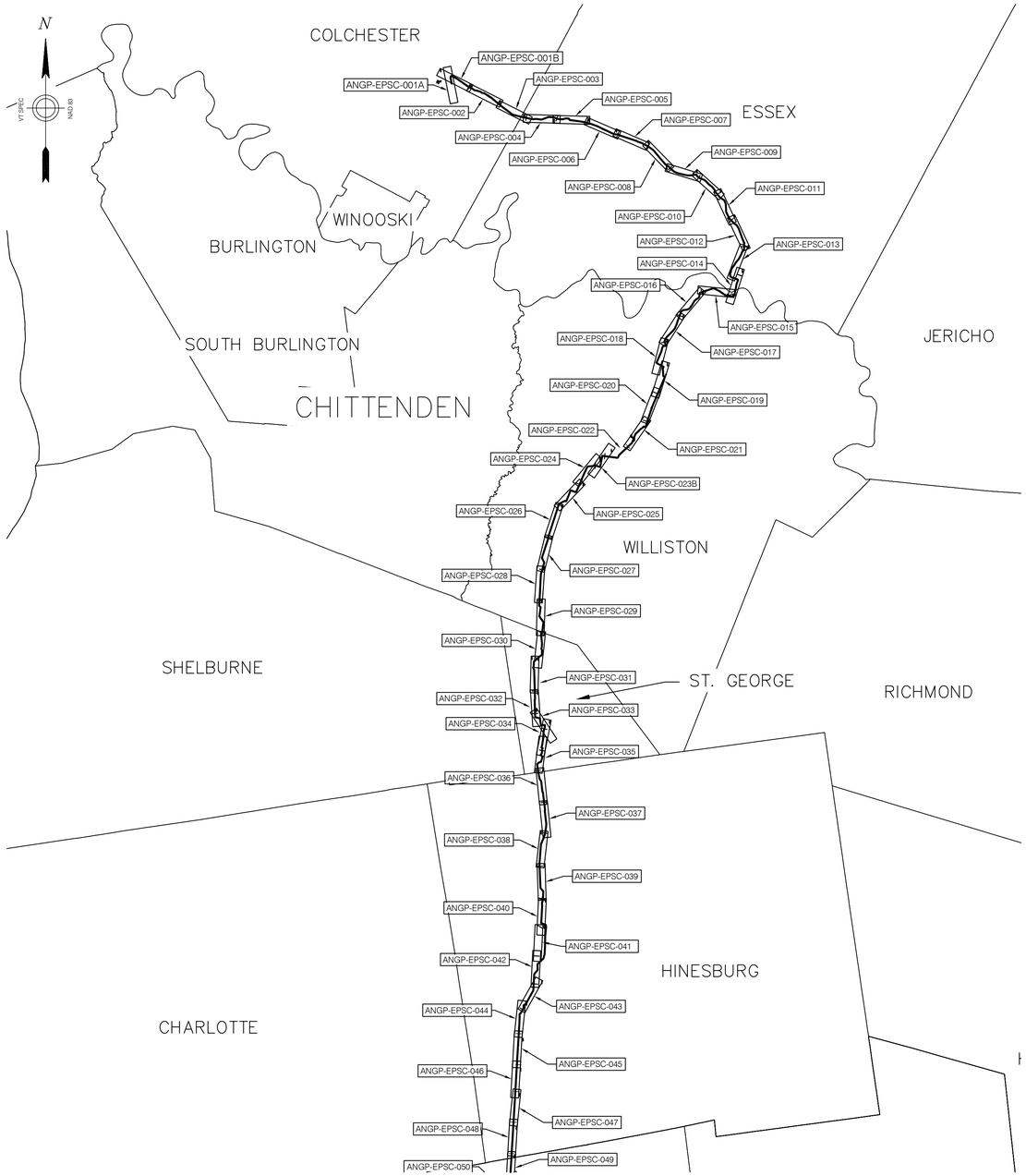
LOC. CHITTENDEN & ADDISON COUNTIES

Vermont Gas

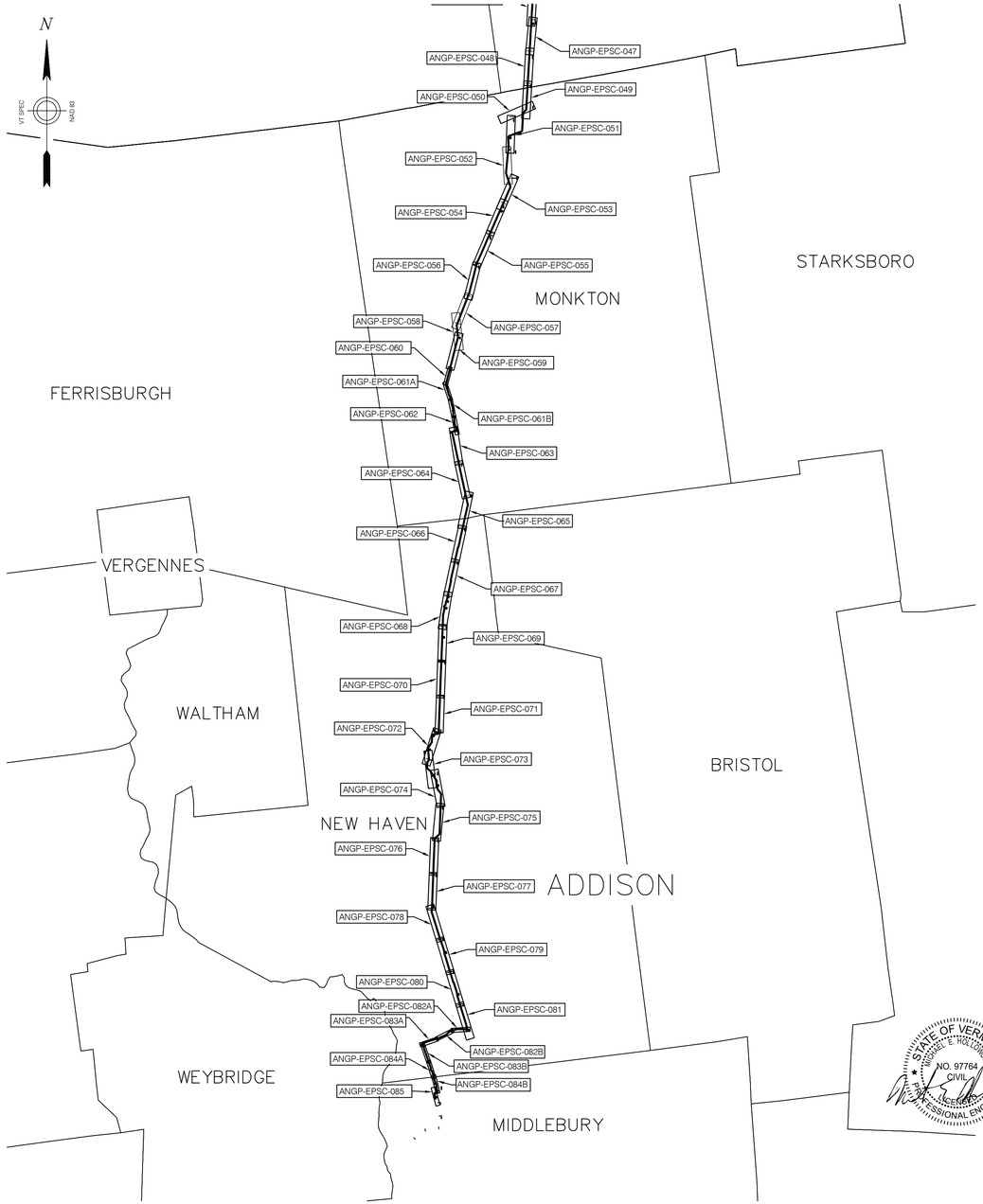
CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 • www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP-T-G-001 | REV. 4

CHITTENDEN AND ADDISON COUNTIES
VERMONT



SCALE 1" = 500'



SCALE 1" = 500'

STATE OF VERMONT
MICHAEL E. PRATT-CORREA
NO. 97764
CIVIL
PROFESSIONAL ENGINEER

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
INDEX SHEET

LOC. CHITTENDEN & ADDISON COUNTIES

YEAR: 2016 | W.O. | SCALE: 1"=500' | DWG. ANGP-T-G-002 | REV. 0

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com

CHITTENDEN AND ADDISON COUNTIES
VERMONT

QUANTITIES

MATERIAL QUANTITIES (FT)

		PIPE		COATING				PIPE		COATING		
		12.75" O.D. X 0.312" WT, API-5L, GR. X65, PSL-2, AND ADDITIONAL SPECIFICATIONS IN 192.112	20" O.D. X 0.375" WT, API-5L, GR. B	EPOXY POLYETHYLENE 10/40	ABRASION RESISTANT COATING, 40 MILS, FBE W/ POWERCRETE OVERCOAT	EPOXY POLYETHYLENE 10/40, W/ 1-1/2" REINFORCED CONCRETE W/ 140 LBS/FT³		12.75" O.D. X 0.312" WT, API-5L, GR. X65, PSL-2, AND ADDITIONAL SPECIFICATIONS IN 192.112	20" O.D. X 0.375" WT, API-5L, GR. B	EPOXY POLYETHYLENE 10/40	ABRASION RESISTANT COATING, 40 MILS, FBE W/ POWERCRETE OVERCOAT	EPOXY POLYETHYLENE 10/40, W/ 1-1/2" REINFORCED CONCRETE W/ 140 LBS/FT³
		1	2	A	B	C		1	2	A	B	C
SHEET NUMBERS	ANGP-T-C-001A	577'	0'	156'	0'	421'	ANGP-T-C-045	2700'	0'	2685'	0'	15'
	ANGP-T-C-001B	1950'	0'	1637'	0'	313'	ANGP-T-C-046	2350'	0'	485'	1245'	620'
	ANGP-T-C-002	2950'	0'	1385'	896'	669'	ANGP-T-C-047	2561'	0'	326'	2235'	0'
	ANGP-T-C-003	2706'	0'	99'	2607'	0'	ANGP-T-C-048	2700'	0'	1971'	380'	349'
	ANGP-T-C-004	2700'	0'	2090'	510'	100'	ANGP-T-C-049	2450'	0'	1450'	0'	1000'
	ANGP-T-C-005	2682'	0'	2215'	467'	0'	ANGP-T-C-050	2250'	0'	2012'	0'	238'
	ANGP-T-C-006	2857'	0'	2857'	0'	0'	ANGP-T-C-051	1652'	0'	577'	0'	1075'
	ANGP-T-C-007	2750'	0'	1689'	0'	1061'	ANGP-T-C-052	2800'	0'	2187'	0'	613'
	ANGP-T-C-008	2694'	0'	2119'	0'	575'	ANGP-T-C-053	2000'	0'	1773'	0'	227'
	ANGP-T-C-009	2806'	0'	2631'	0'	175'	ANGP-T-C-054	2637'	0'	2369'	0'	268'
	ANGP-T-C-010	2250'	0'	1953'	0'	297'	ANGP-T-C-055	2900'	0'	2671'	0'	229'
	ANGP-T-C-011	2604'	0'	2604'	0'	0'	ANGP-T-C-056	2700'	0'	1281'	250'	1169'
	ANGP-T-C-012	2900'	0'	2748'	0'	152'	ANGP-T-C-057	2500'	0'	0'	2500'	0'
	ANGP-T-C-013	2977'	0'	2513'	0'	464'	ANGP-T-C-058	1000'	0'	575'	175'	250'
	ANGP-T-C-014	2160'	0'	757'	940'	463'	ANGP-T-C-059	2837'	0'	1411'	975'	451'
	ANGP-T-C-015	2750'	121'	1788'	0'	962'	ANGP-T-C-060	1400'	0'	1295'	105'	0'
	ANGP-T-C-016	3000'	0'	2618'	0'	382'	ANGP-T-C-061A	1300'	0'	997'	0'	303'
	ANGP-T-C-017	2667'	0'	2165'	0'	502'	ANGP-T-C-061B	1525'	0'	1475'	0'	50'
	ANGP-T-C-018	2495'	0'	2148'	0'	347'	ANGP-T-C-062	1225'	0'	1125'	0'	100'
	ANGP-T-C-019	2800'	0'	2714'	0'	86'	ANGP-T-C-063	2942'	0'	2493'	0'	449'
	ANGP-T-C-020	2550'	0'	2031'	0'	519'	ANGP-T-C-064	2850'	0'	1159'	0'	1691'
	ANGP-T-C-021	2927'	0'	1962'	0'	965'	ANGP-T-C-065	2650'	0'	955'	0'	1695'
	ANGP-T-C-022	2438'	0'	1315'	0'	1123'	ANGP-T-C-066	2900'	0'	604'	0'	2296'
	ANGP-T-C-023B	1604'	0'	456'	880'	268'	ANGP-T-C-067	2850'	0'	1462'	1150'	238'
	ANGP-T-C-024	2350'	0'	2043'	0'	307'	ANGP-T-C-068	2767'	0'	1887'	529'	351'
	ANGP-T-C-025	2966'	0'	2384'	0'	582'	ANGP-T-C-069	2949'	0'	2949'	0'	0'
	ANGP-T-C-026	2900'	0'	2900'	0'	0'	ANGP-T-C-070	2888'	0'	1995'	0'	893'
	ANGP-T-C-027	2970'	0'	2841'	0'	129'	ANGP-T-C-071	3000'	0'	2952'	0'	48'
	ANGP-T-C-028	2650'	0'	2350'	0'	300'	ANGP-T-C-072	2834'	0'	2764'	0'	70'
	ANGP-T-C-029	3000'	0'	2204'	0'	796'	ANGP-T-C-073	1600'	0'	1398'	0'	202'
	ANGP-T-C-030	2437'	0'	1977'	0'	460'	ANGP-T-C-074	2734'	0'	1824'	615'	295'
	ANGP-T-C-031	2869'	0'	2869'	0'	0'	ANGP-T-C-075	2950'	0'	1733'	425'	792'
	ANGP-T-C-032	1950'	0'	1333'	0'	617'	ANGP-T-C-076	2900'	0'	0'	0'	2900'
	ANGP-T-C-033	2050'	0'	1340'	0'	710'	ANGP-T-C-077	2900'	0'	981'	0'	1919'
	ANGP-T-C-034	1887'	0'	1813'	0'	74'	ANGP-T-C-078	2700'	0'	2342'	0'	358'
	ANGP-T-C-035	2018'	0'	1382'	0'	636'	ANGP-T-C-079	2860'	0'	2556'	0'	304'
	ANGP-T-C-036	2850'	0'	2799'	0'	51'	ANGP-T-C-080	2879'	0'	2871'	0'	8'
	ANGP-T-C-037	2579'	0'	2431'	0'	148'	ANGP-T-C-081	2240'	0'	1144'	530'	566'
	ANGP-T-C-038	2900'	0'	2863'	0'	37'	ANGP-T-C-082A	1200'	0'	888'	0'	312'
	ANGP-T-C-039	2961'	0'	1553'	0'	1408'	ANGP-T-C-082B	1450'	0'	1218'	0'	232'
	ANGP-T-C-040	2977'	0'	1699'	675'	603'	ANGP-T-C-083A	1496'	0'	974'	0'	522'
	ANGP-T-C-041	2910'	0'	2711'	0'	199'	ANGP-T-C-083B	1450'	0'	1196'	0'	254'
	ANGP-T-C-042	2002'	0'	1748'	0'	254'	ANGP-T-C-084A	1400'	0'	1400'	0'	0'
	ANGP-T-C-043	2484'	0'	1475'	0' TL	1009'	ANGP-T-C-084B	1496'	0'	1200'	0'	296'
	ANGP-T-C-044	2111'	0'	1908'	0'	203'	ANGP-T-C-085	588'	0'	588'	0'	0'
							TOTAL =	217575'	121'	157471'	18089'	42015'

NOTE:

STATIONING ON THE PIPE ALIGNMENT UTILIZES STATION EQUATIONS IN SEVERAL LOCATIONS. STATION EQUATION CALL-OUTS NOTED ON THE PLAN VIEWS INDICATE THE CORRECT "BACK " AND "AHEAD" STATIONS AS WELL AS THE CHANGE IN DISTANCE OF EACH STATION EQUATION. THE CONSTRUCTION MANAGEMENT TEAM AND THE CONTRACTOR SHOULD PROPERLY DOCUMENT WORK THAT SPANS OVER STATION EQUATIONS IN ORDER TO PROVIDE ACCURATE FIELD RECORDS FOR THE OWNER.

LEGEND

PROPOSED GAS LINE
GAS LINE STATIONING — 314+00
PROPERTY LINE
TOWN LINE
EDGE OF PAVEMENT
RAILROAD
CONTOUR (10-FOOT INT.) — 510
CONTOUR (2-FOOT INT.)
FENCE
GUARDRAIL
OVERHEAD WIRES — OHW
DRAIN LINE — D
DRAIN LINE > 12" Ø — D
SEWER LINE — S
WATER LINE — W
GAS LINE — G
ELECTRICAL LINE — E
VELCO ACCESS ROADS — 3

TELEPHONE LINE — T
STONEWALL
BRUSH LINE
TREE LINE
IRON PIN
CONCRETE/GRANITE BOUND
UTILITY MANHOLE — E S S E C
CATCH BASIN — CTB
ELECTRIC POLE STRUCTURES — 53
UTILITY POLE
LIGHT POST
GUY ANCHOR
WATER GATE — WV
WELL
GAS GATE — GV
HYDRANT
MAIL BOX — MB

TRAFFIC SIGN
TRAFFIC SIGNAL
GATE POST / BOLLARD
MARKER POST — MP
VENT
DECIDUOUS TREE
CONIFEROUS TREE
EXISTING STRUCTURE
DITCH LINE
PROPOSED TEST STATION — 3 S
PROPOSED GAS VALVE — GV
SPOT GRADE — X 546
SAND BAG
GEOTECHNICAL SOIL BORINGS — SB-1
MILE POST — M.P. MILE

LINE LIST — XXXXXX
TEST LEAD (2-WIRE) — TL — 2
TEST LEAD (4-WIRE) — 4TL
WATER SURFACE INDICATOR
PERMANENT EASEMENT
TEMPORARY WORKSPACE
FEMA BLSF ZONE
CENTERLINE OF STREAM
TEMPORARY STREAM IMPACT
50' WETLAND BUFFER
TEMPORARY WETLAND IMPACT
TEMPORARY WETLAND BUFFER IMPACT
WETLAND AREA
PROPOSED EROSION AND SEDIMENT CONTROLS
WETLAND FLAG — WF 1
AS-BUILT 12" TRANSMISSION LINE
BAT TREE — BT — 2

ABBREVIATIONS

A.	ASSUMED	ELFC	ELECTRIC FENCE	PCCSP	POLYMER COATED CORRUGATED STEEL PIPE
ABD.	ABANDON	EXIST. (OR EX.)	EXISTING	(P)	PROPOSED
ADJ.	ADJUST	FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY	R	RADIUS OF CURVATURE/RIGHT
AG, AGR	AGRICULTURAL	FOMK	FIBER OPTIC MARK	(R)	RECORD
APPROX.	APPROXIMATE	FB	FLUSHING BASIN	RCP	REINFORCED CONCRETE PIPE
ARCH.	ARCHAEOLOGICAL	GG	GAS GATE	RD.	ROAD
ATWS	ADDITIONAL TEMPORARY WORKSPACE	GMK	GAS LINE – MARKED	REC.	RECORD LOCATION
BWF	BARBED WIRE FENCE	GMP	GREEN MOUNTAIN POWER	REM.	REMOVE
BND.	BOUND	GSO	GAS SHUT OFF	RET.	RETAIN
BCC	BITUMINOUS CONCRETE CURB	GRAN.	GRANITE	RET. WALL	RETAINING WALL
BIT. CONC.	BITUMINOUS CONCRETE	GC	GRANITE CURB	RMDL	REMODEL
℄	BASELINE	GRV	GRAVEL	RT	RIGHT
BLDG.	BUILDING	GDWY	GRAVEL DRIVEWAY	R.O.W., R/W	RIGHT–OF–WAY
BLSF	BORDERING LAND SUBJECT TO FLOODING	GRL	GUARDRAIL	RR	RAILROAD
B.O.	BY OTHERS	HDPE	HIGH DENSITY POLYETHYLENE PIPE	R&R	REMOVE AND RESET
B.W.	BOTTOM OF WALL	HDD	HORIZONTAL DIRECTIONAL DRILL	R&S	REMOVE AND STACK
BWLL	BROKEN WHITE LANE LINE	HMA	HOT MIX ASPHALT	S.B.	STONE BOUND
CHH	CABLE HANDHOLE	HOR.	HORIZONTAL	SMH	SEWER MANHOLE
CMK	CABLE MARK	HSE	HOUSE	SMK	SEWER LINE – MARKED
CPED	CABLE PEDESTAL	HYD.	HYDRANT	S.W.	SIDEWALK
C/O	CARE OF	I. (OR INV.)	INVERT	ST.	STREET
CTB	CATCH BASIN	IPL	INTERNATIONAL PAPER LATERAL	STA.	STATION
CTB/DI	CATCH BASIN WITH DROP INLET	IPX	INTERNATIONAL PAPER EXTENTION	SWEL	SOLID WHITE EDGE LINE
CEM.	CEMENT	LT	LEFT	SWLL	SOLID WHITE LANE LINE
CLDI	CEMENT LINED DUCTILE IRON PIPE	L	LENGTH OF CURVE/LEFT	SYCL	SINGLE YELLOW CENTERLINE
CLFC	CHAIN LINK FENCE	LBS	POUNDS	SYLL	SINGLE YELLOW LANE LINE
C.I.	CURB INLET	L.P.	LIGHT POLE	SHW	STONE HEADWALL
℄	CENTERLINE	L.F.	LINEAR FEET	STPL	STOP LINE
℄ CONST.	CENTERLINE OF CONSTRUCTION	MH	MANHOLE	T	TANGENT/TRUCK PERCENTAGE
CONC.	CONCRETE	MLV	MAIN LINE VALVE	TAN.	TANGENT DISTANCE OF CURVE
CC	CONCRETE CURB	M.P.	MILE POST	TEMP.	TEMPORARY
CDWY	CONCRETE DRIVEWAY	MHD	MASS HIGHWAY BOUND	TMH	TELEPHONE MANHOLE
CHW	CONCRETE HEADWALL	MSE	MECHANICALLY STABILIZED EARTH	TMK	TELEPHONE LINE – MARKED
CPD	CONCRETE PAD	MPOST	METAL POST	TPED	TELEPHONE PEDESTAL
CON	CONIFEROUS TREE	MWELL	MONITORING WELL	TL	TEST LEAD
CONST.	CONSTRUCT(ION)	NAD	NORTH AMERICAN DATUM	TWR	TOWER
CU	CONTINUATION UNKNOWN	NTS	NOT TO SCALE	TWY	TRAVELED WAY
CMP	CORRUGATED METAL PIPE	N/F	NOW OR FORMERLY	TSP	TRAFFIC SIGNAL POLE
CPP	CORRUGATED PLASTIC PIPE	ODWY	OTHER DIRT DRIVEWAY	T.W.	TOP OF WALL
DSWL	DASHED SINGLE WHITE LINE	OTFC	OTHER FENCE	TYP.	TYPICAL
DSYL	DASHED SINGLE YELLOW LINE	PAVT.	PAVEMENT	UTC	UTILITY COVER
DEC	DECIDUOUS TREE	PED	PEDESTRIAN	UTP, UP	UTILITY POLE
DDWY	DIRT DRIVEWAY	PDWY	PAVED DRIVEWAY	VT SPC	VERMONT STATE PLANE COORDINATE
DDYL	DOUBLE DASHED YELLOW LINE	P.C.	POINT OF CURVATURE	VEC	VERMONT ELECTRIC COOPERATIVE
D	DRAIN	P.C.C.	POINT OF COMPOUND CURVATURE	VELCO	VERMONT ELECTRIC POWER COMPANY
DMH	DRAINAGE MANHOLE	PGL	PROFILE GRADE LINE	VERT.	VERTICAL
DTWY	DIRT TRAVELED WAY	P.I.	POINT OF INTERSECTION	WMK	WATER LINE – MARKED
DWY	DRIVEWAY	(PAS)	PRIME AGRICULTURAL SOIL	W.M.	WATER METER/WATER MAIN
DYCL	DOUBLE YELLOW CENTERLINE	ℙ, P/L	PROPERTY LINE	WSO	WATER SHUT OFF
EOP	EDGE OF PAVEMENT	PM	PARKING METER	WV	WATER VALVE
E	ELECTRIC	PWWY	PAVED WALKWAY	WIF	WIRE FENCE
EBOX	ELECTRIC BOX	P.R.C.	POINT OF REVERSE CURVATURE	WDFC	WOOD FENCE
EHH	ELECTRIC HANDHOLE	P.C.	POINT OF CURVATURE	WPOST	WOOD POST
EMK	ELECTRIC LINE – MARKED	PLA	PLANTER	X–ING	CROSSING
ELEV. (OR EL)	ELEVATION	P.T.	POINT OF TANGENCY		

CONSTRUCTION NOTES

1. PROPOSED PIPE IS 12.75" O.D. ITS WALL THICKNESS AND PROTECTIVE COATINGS VARY DEPENDING ON CLASS DETERMINATION AND SITE CONDITIONS.

2. AREAS WHERE THE PIPE IS INSTALLED IN ROCK TRENCH SHALL REQUIRE THE EPOXY POLYETHYLENE 10/40 COATED PIPE TO BE WRAPPED WITH TUFF N NUFF ROCK SHIELD. CONTRACTOR TO IDENTIFY AND DOCUMENT THESE AREAS DURING INSTALLATION.

3. ALL CONSTRUCTION MUST CONFORM TO FEDERAL SPECIFICATIONS, PART 192 IN TITLE 49 CFR AND APPLICABLE, STATE AND LOCAL REGULATIONS.

4. ALL CONSTRUCTION SIGNING, DRUMS, BARRICADES AND OTHER DEVICES SHALL CONFORM WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) INCLUDING ALL REVISIONS AND ADENDA.

5. ALL VEHICLES ARE TO BE HIGHLY VISIBLE USING ROTATING BEACONS AND BE MARKED BY USE OF TRAFFIC CONES.

6. VERMONT GAS SYSTEMS SHALL NOTIFY EACH ABUTTER AT LEAST 48 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY OBSTRUCTION OF ACCESS.

7. CONTRACTOR SHALL MAINTAIN 1–FOOT MINIMUM CLEARANCE BETWEEN PROPOSED PIPELINES AND OTHER UTILITIES.

8. CONTRACTOR SHALL REMOVE AND REPLACE EXISTING RIGHT OF WAY FENCE AS NECESSARY.

9. CONTRACTOR SHALL SUPPLY TEMPORARY ROAD SIGNS AS NECESSARY.

10. ALL TRENCH EXCAVATION PROTECTION SYSTEMS SHALL BE IN COMPLIANCE WITH OSHA SPECIFICATIONS.

11. CONTRACTOR MUST CONFIRM WITH OWNER AND ENGINEER THAT ALL PERMITS AND RIGHTS OF WAY HAVE BEEN OBTAINED, REVIEWED, AND UNDERSTOOD BEFORE CONSTRUCTING IN ANY AREA.

12. THE PIPE COATING TYPE, LOCATION AND LENGTH IDENTIFIED ON THE DRAWINGS IS TO BE VERIFIED PRIOR TO CONSTRUCTION BASED ON ACTUAL FIELD CONDITIONS. THE CONTRACTOR SHALL PROVIDE THE APPROPRIATE PIPE COATING TYPE, LOCATION AND LENGTH AS DETERMINED BY THE CONSTRUCTION MANAGER BASED ON ACTUAL CONDITIONS.

GENERAL NOTES

1.TOPOGRAPHICAL DETAIL SHOWN HEREON IS THE RESULT OF SURVEY CONDUCTED BY CHA IN THE SUMMER AND FALL OF 2012 AND THE COMPILATION OF EXISTING TOPOGRAPHIC DATA PROVIDED BY THE VERMONT AGENCY OF TRANSPORTATION (VTRANS) AND THE VERMONT TRANSMISSION COMPANY (VELCO).

2. PROPERTY LINES SHOWN HEREON ARE BASED ON TAX MAP AND DO NOT REPRESENT A PROPERTY LINE RETRACEMENT SURVEY EFFORT.

3. LOCATION OF ANY IDENTIFIED UNDERGROUND UTILITIES IS APPROXIMATE ONLY, AND IS NOT WARRANTED TO BE CORRECT. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT INDICATED ON THESE PLANS. ALL EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR FOR SERVICE, SIZE, INVERT ELEVATIONS, LOCATION, ETC. CONTRACTOR MUST NOTIFY DIG–SAFE VERMONT AT 811 AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION.

4. SURVEY WAS CONDUCTED IN VERMONT ZONE, NAD83 HORIZONTAL COORDINATE SYSTEM. ELEVATIONS ARE BASED ON NAVD 88 AND REFERENCED TO TEMPORARY BENCHMARKS AS SHOWN ON THE PLANS.

5. ENVIRONMENTAL CONDITIONS INFORMATION SHOWN IS THE RESULT OF SURVEY CONDUCTED BY VHB IN 2013 AND 2014.

6. THE LOCUS LIES IN VARIOUS FIRM ZONES, DESCRIBED ON THE FOLLOWING COMMUNITY PANEL NUMBERS: 5007C0143 D, 5007C0144 D, 5007C0163 D, 5007C0164 D, 5007C0277 D, 5007C0281 D, 5007C0279 D, 5007C0290 D, 5001670005 A, 5001670010 A, 5000090002 A, 5000090004 A, AND 5000080003 A

7. THE PURPOSE OF THIS PLAN SET IS TO IDENTIFY TO THE APPROPRIATE PERMITTING AGENCIES THE PROPOSED LOCATION FOR A NATURAL GAS PIPELINE AND ITS LOCATION RELATIVE TO TOPOGRAPHICAL FEATURES, EXISTING, AND PROPOSED UTILITIES.

8. CONTRACTOR MUST CONFIRM WITH OWNER AND ENGINEER THAT ALL PERMITS AND R.O.W. HAVE BEEN OBTAINED BEFORE CONSTRUCTING IN ANY AREA.

STATE OF VERMONT — MICHAEL E. HOLLOWAY — NO. 97764 — CIVIL — LICENSED PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION
		3	GJM	BCK		IFC 2016 EDITS (05/2016)
		2	BCK	TDB		CP TEST LEAD EDIT (9/14/15)
		1	BCK	TDB		PILLSBURY REROUTE & REDMOND RD. HDD CHANGE (6/05/15)

		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

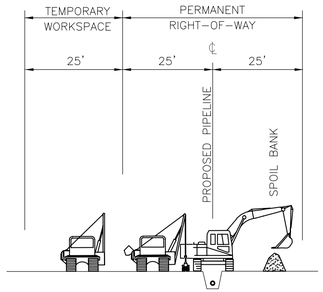
VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
LEGEND & NOTES

LOC. CHITTENDEN & ADDISON COUNTIES

Vermont Gas

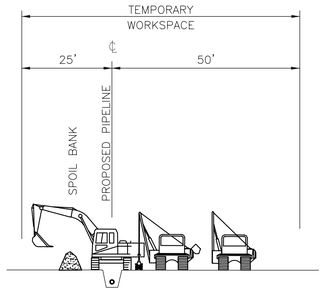
CHA — 38 Eastwood Drive, Suite 105, South Burlington, VT 05403, Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: N/A | DWG. ANGP–T–G–003 | REV. 3



CONSTRUCTION TYPE 1A
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR 75' CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP–T–G–015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



CONSTRUCTION TYPE 1B
NOT TO SCALE

NOTE:
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2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
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4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
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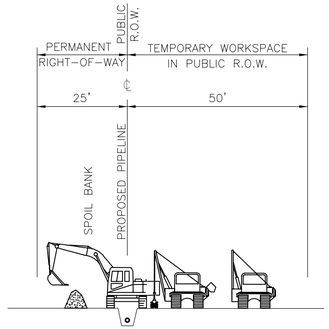

CONSTRUCTION TYPE 1C
NOT TO SCALE

NOTE:
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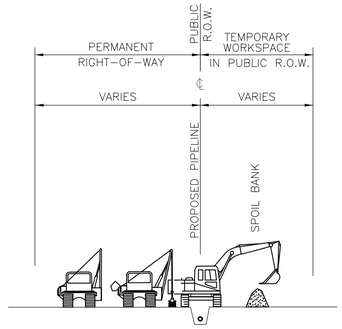

CONSTRUCTION TYPE 1D
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR VARIABLE CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
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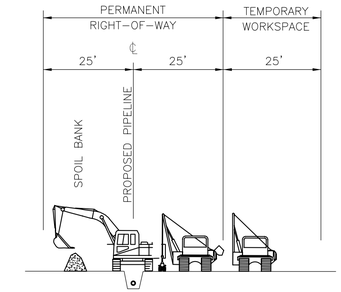

CONSTRUCTION TYPE 1E
NOT TO SCALE

NOTE:
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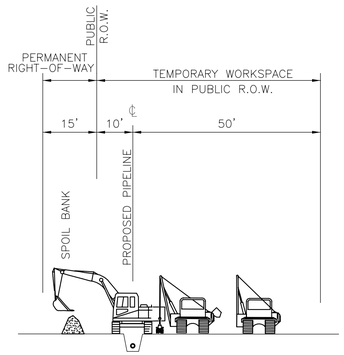

CONSTRUCTION TYPE 1F
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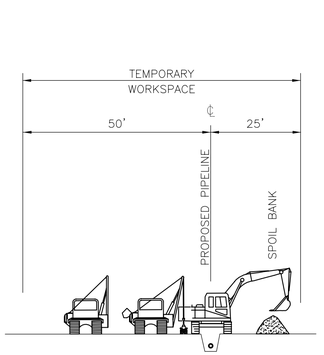

CONSTRUCTION TYPE 1G
NOT TO SCALE

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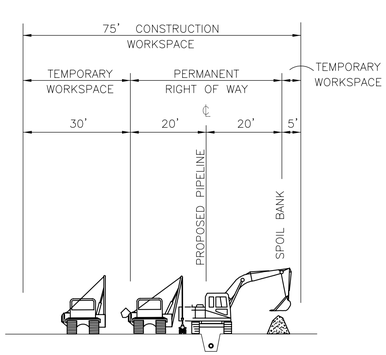

CONSTRUCTION TYPE 1H
NOT TO SCALE

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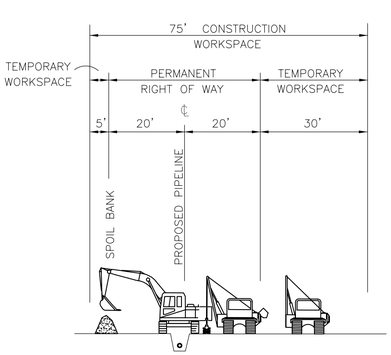

CONSTRUCTION TYPE 1J
NOT TO SCALE

NOTE:
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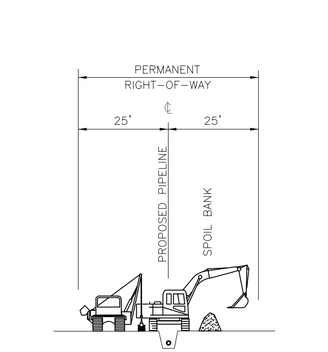

CONSTRUCTION TYPE 2A
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR 50' CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
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5. SEE DETAIL #7 ON ANGP–T–G–015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION	BID		CONSTRUCTION	
							INITIALS	DATE	INITIALS	DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION CONFIGURATION DETAILS

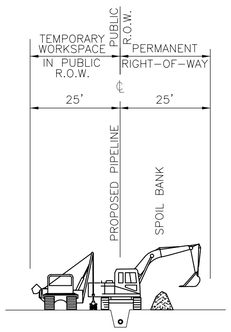
LOC. CHITTENDEN & ADDISON COUNTIES

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP–T–G–004 | REV. 0

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com



CONSTRUCTION TYPE 2B
NOT TO SCALE

NOTE:
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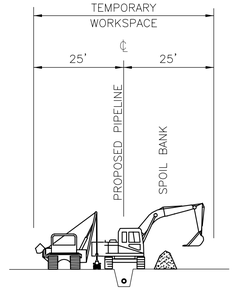
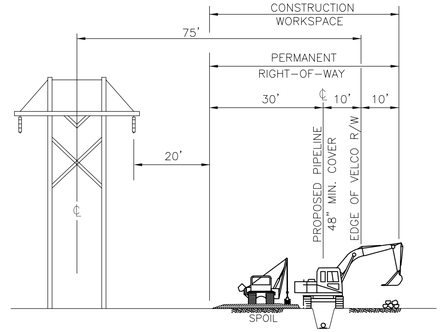
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP-T-G-015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



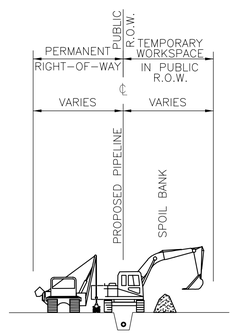
CONSTRUCTION TYPE 2C
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR 50' CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP-T-G-015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



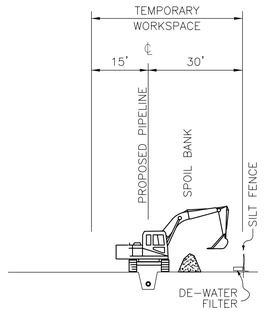
CONSTRUCTION TYPE 2D
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR 50' CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. 10-FOOT TEMPORARY WORKSPACE TO THE WEST OF VELCO ROW REPLACED BY 20-FOOT WORKROAD CORRIDOR LOCATED TO THE EAST OF VELCO STRUCTURES FROM STATION 1639+90 TO 1666+50.



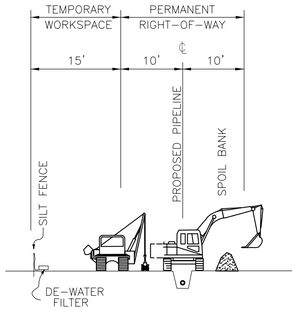
CONSTRUCTION TYPE 2E
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR VARIABLE CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP-T-G-015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



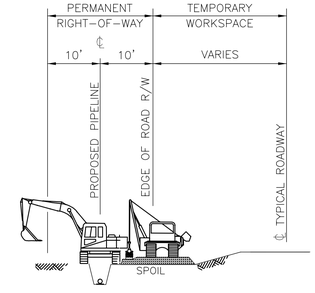
CONSTRUCTION TYPE 3
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR ROADSIDE CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP-T-G-015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



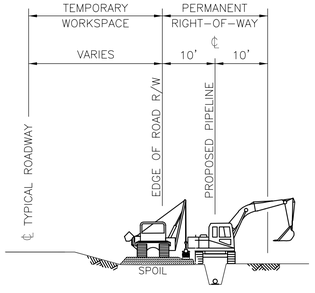
CONSTRUCTION TYPE 3A
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR ROADSIDE CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP-T-G-015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



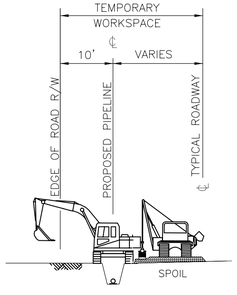
CONSTRUCTION TYPE 4A
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR ROADSIDE CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP-T-G-015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



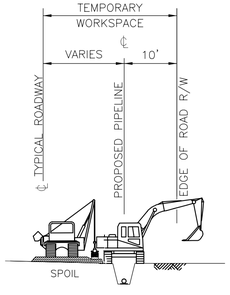
CONSTRUCTION TYPE 4B
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR ROADSIDE CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP-T-G-015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



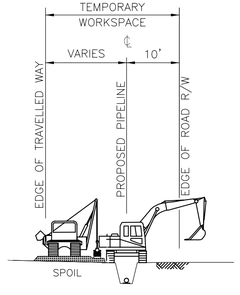
CONSTRUCTION TYPE 4C
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR ROADSIDE CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP-T-G-015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



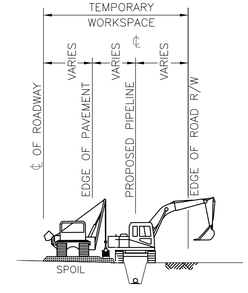
CONSTRUCTION TYPE 4D
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR ROADSIDE CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP-T-G-015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



CONSTRUCTION TYPE 4E
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR ROADSIDE CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP-T-G-015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



CONSTRUCTION TYPE 4F
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR ROADSIDE CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP-T-G-015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.

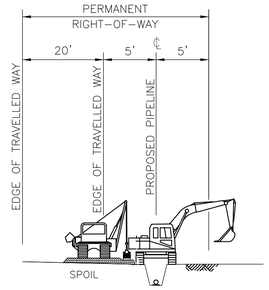
DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION CONFIGURATION DETAILS
LOC. CHITTENDEN & ADDISON COUNTIES
YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP-T-G-005 | REV. 0

Vermont Gas

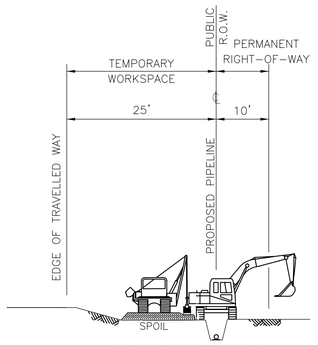
VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com



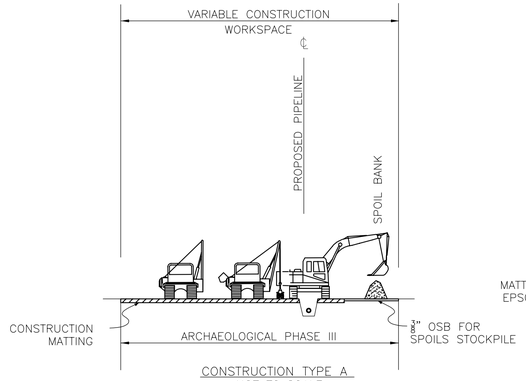
CONSTRUCTION TYPE 4G
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR ROADSIDE CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP–T–G–015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



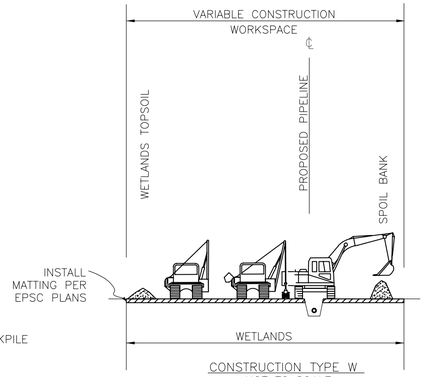
CONSTRUCTION TYPE 4H
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR ROADSIDE CONSTRUCTION SPACE AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP–T–G–015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



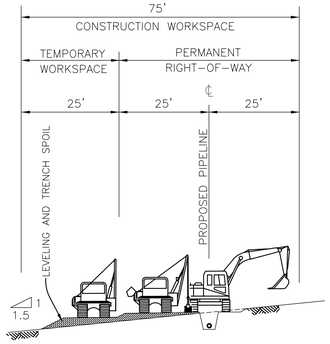
CONSTRUCTION TYPE A
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR VARIABLE CONSTRUCTION SPACE IN "ARCHAEOLOGICAL PHASE III" AREAS AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE. THE PHASE III AREAS ARE AS FOLLOWS: VT–AD–483, LOCUS 2 (8/14/2013), VT–CH–414 (8/14/2013), VT–AD–456, LOCUS 3, VT–AD–1559, VT–AD–138, LOCUS 2 (8/14/2013), VT–AD–87, LOCUS 2 (8/14/2013), 1 VT–AD–446, VT–AD–793, VT–AD–808 LOCUS 1 AND 2, VT–CH–103, VT–AD–1625.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT & EPSC SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. SEE ALIGNMENT & EPSC SHEETS FOR LOCATIONS OF THIS CONSTRUCTION CONFIGURATION.
4. WHEN BACKFILLING, SOILS SHALL BE REPLACED IN ORDER THEY WERE EXCAVATED, WITH TOPSOIL AS UPPER LAYER FILL AND COMPACT SUBSOIL TO DEPTH OF ADJACENT NATIVE SUBSOIL/TOPSOIL INTERFACE. REPLACE TOPSOIL AS UPPER LAYER AND BLEND TO EXISTING GRADE OF UNDISTURBED SOILS. DISPOSE OF EXCESS SUBSOIL AT SUITABLE LOCATION AS APPROVED BY THE OSPC.
5. SEE EPSC PLAN "ADDITIONAL ENVIRONMENTAL NOTES" FOR ADDITIONAL INSTRUCTIONS RELATED TO CONSTRUCTION IN "ARCHAEOLOGICAL PHASE III" AREAS, INCLUDING FINAL STABILIZATION NOTES.
6. SEE DETAIL #7 ON ANGP–T–G–015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



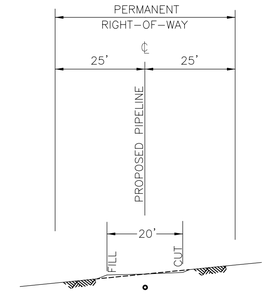
CONSTRUCTION TYPE W
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR VARIABLE CONSTRUCTION SPACE IN WETLANDS AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT & EPSC SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. SEE ALIGNMENT & EPSC SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
4. WHEN BACK–PILING, SOILS SHALL BE REPLACED IN ORDER THEY WERE EXCAVATED, WITH TOPSOIL AS UPPER LAYER FILL AND COMPACT SUBSOIL TO DEPTH OF ADJACENT NATIVE SUBSOIL/TOPSOIL INTERFACE. REPLACE TOPSOIL AS UPPER LAYER AND BLEND TO EXISTING GRADE OF UNDISTURBED SOILS. DISPOSE OF EXCESS SUBSOIL AT SUITABLE LOCATION AS APPROVED BY THE OSPC.
5. SEE EPSC PLAN "ADDITIONAL ENVIRONMENTAL NOTES" FOR ADDITIONAL INSTRUCTIONS RELATED TO CONSTRUCTION IN WETLANDS, INCLUDING FINAL STABILIZATION NOTES.
6. SEE DETAIL #7 ON ANGP–T–G–015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



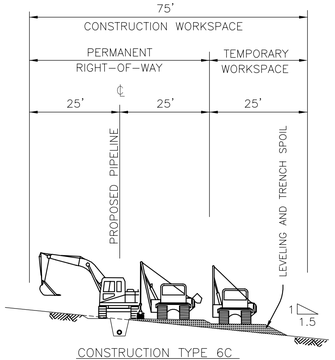
CONSTRUCTION TYPE 6A
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR SIDE HILL SLOPE CONSTRUCTION AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP–T–G–015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



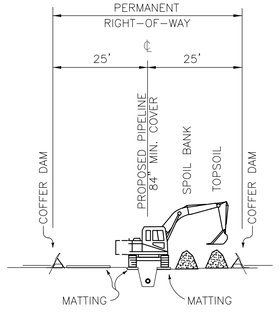
CONSTRUCTION TYPE 6B
NOT TO SCALE
POST CONSTRUCTION

NOTE:
1. THIS CONFIGURATION IS FOR SIDE HILL SLOPE CONSTRUCTION AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. SEE DETAIL #7 ON ANGP–T–G–015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



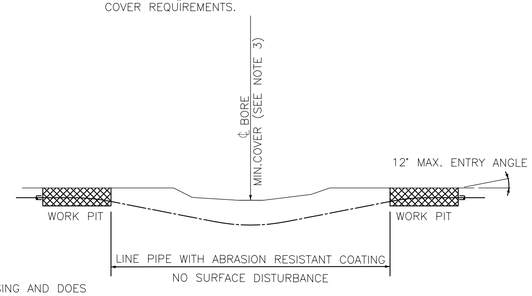
CONSTRUCTION TYPE 6C
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR SIDE HILL SLOPE CONSTRUCTION AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
5. SEE DETAIL #7 ON ANGP–T–G–015 FOR PIPELINE MINIMUM COVER REQUIREMENTS.



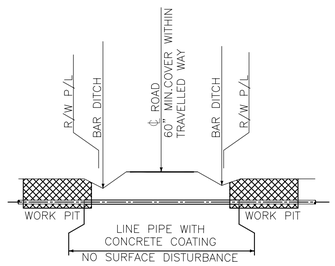
CONSTRUCTION TYPE 7
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR STREAM CROSSING AND DOES NOT DEPICT ADDITIONAL TEMP. WORKSPACE.
2. ADDITIONAL TEMP. WORKSPACE HAS BEEN TYPICALLY INCORPORATED ON THE ALIGNMENT SHEETS FOR AREAS SUCH AS ROAD, RIVER/STREAM/WATERBODY, AND ARCHEOLOGICAL SITE CROSSINGS WHERE HORIZONTAL DIRECTIONAL DRILL CONSTRUCTION HAS BEEN PROPOSED.
3. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS) IN THE SOIL TYPE BAND OF THE EPSC SHEETS, SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.
4. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.



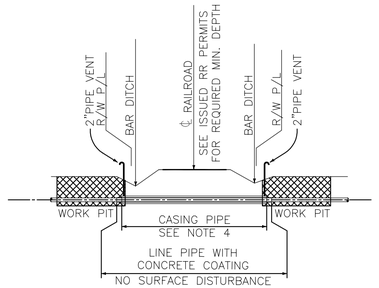
CONSTRUCTION TYPE 8
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR OPTIONAL STREAM OR ROAD CROSSING HORIZONTAL DIRECTIONAL DRILL.
2. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
3. SEE TABLE ON ANGP–T–G–020 FOR COVER REQUIREMENTS.



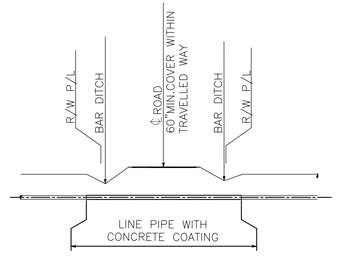
CONSTRUCTION TYPE 9
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR UNCASED ROAD CROSSING CONSTRUCTION.
2. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION AND MATERIAL SPECIFICATIONS.
3. SEE SITE SPECIFIC SOIL BORING DETAILS FOR ADDITIONAL INFORMATION.
4. BORE HOLE SHALL NOT EXCEED THE PIPE DIAMETER BY MORE THAN ONE AND ONE HALF (1–1/2) INCHES.



CONSTRUCTION TYPE 10
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR CASED ROAD AND RAILROAD CROSSING CONSTRUCTION.
2. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION AND MATERIAL SPECIFICATIONS.
3. SEE SITE SPECIFIC SOIL BORING DETAILS FOR ADDITIONAL INFORMATION.
4. ANNULUS FILLED WITH DIELECTRIC MATERIAL PER VT GAS SPECIFICATIONS FOR ABRASION RESISTANT COATED CARRYING PIPE ONLY. DIELECTRIC MATERIAL SHALL NOT FILL THE ANNULUS SPACE WHERE CONCRETE COATED CARRYING PIPE IS SPECIFIED.
5. THE BORE HOLE SHALL NOT EXCEED THE CASING DIAMETER BY MORE THAN ONE AND ONE HALF (1–1/2) INCHES.



CONSTRUCTION TYPE 11
NOT TO SCALE

NOTE:
1. THIS CONFIGURATION IS FOR OPEN CUT ROAD CROSSING CONSTRUCTION.
2. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION AND MATERIAL SPECIFICATIONS.
3. SEE SITE SPECIFIC SOIL BORING DETAILS FOR ADDITIONAL INFORMATION.
4. COMPACTION AND RESTORATION TO TOWN AND VT GAS SPECIFICATIONS.

NOTE:
1. CONSTRUCTION TYPE 5 NOT USED.

STATE OF VERMONT
MICHAEL E. HOLCOMBE
NO. 97764
CIVIL
ACCEPTANCE
PROFESSIONAL ENGINEER

							BID		CONSTRUCTION	
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
		1	BCK	TDB		DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION	INITIALS	DATE	INITIALS	DATE

ADDED ARCH. SITES (6/08/15)

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION CONFIGURATION DETAILS

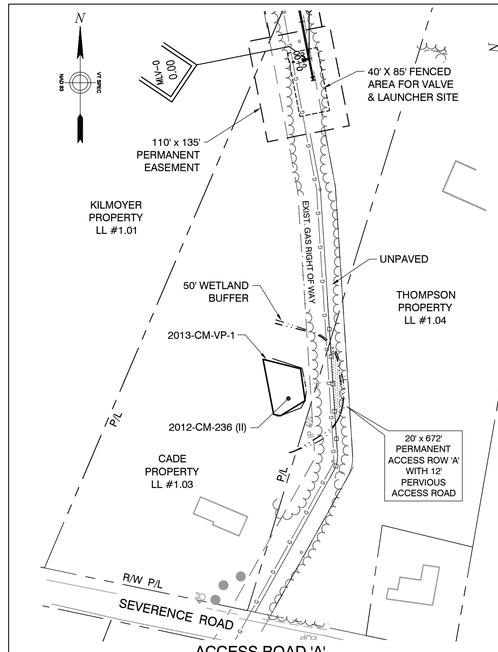
LOC. CHITTENDEN & ADDISON COUNTIES

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP–T–G–006 | REV. 1

Vermont Gas

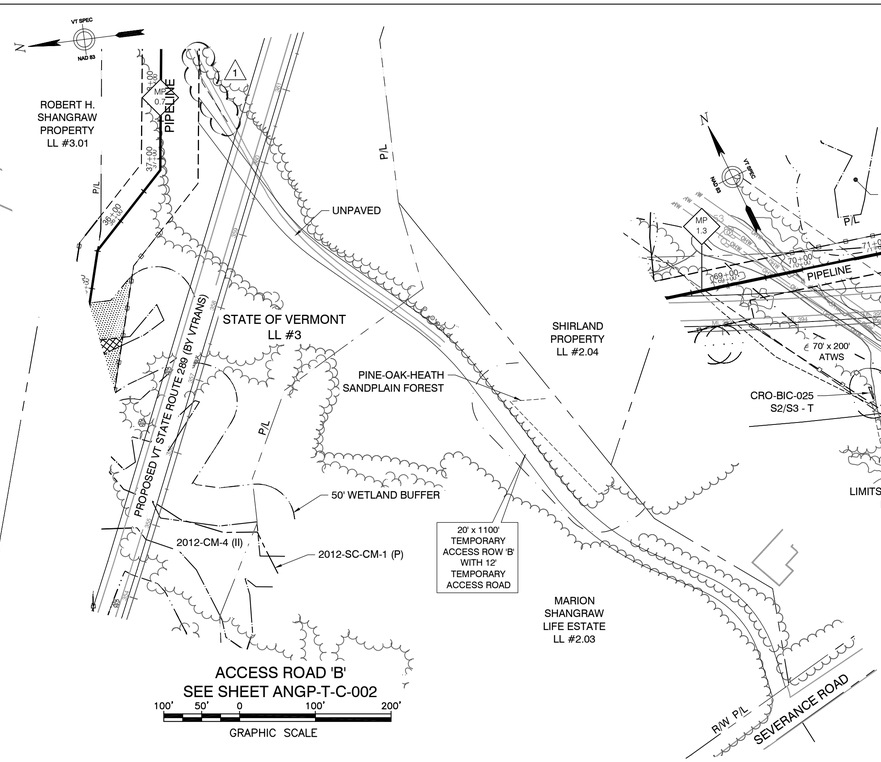
VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com



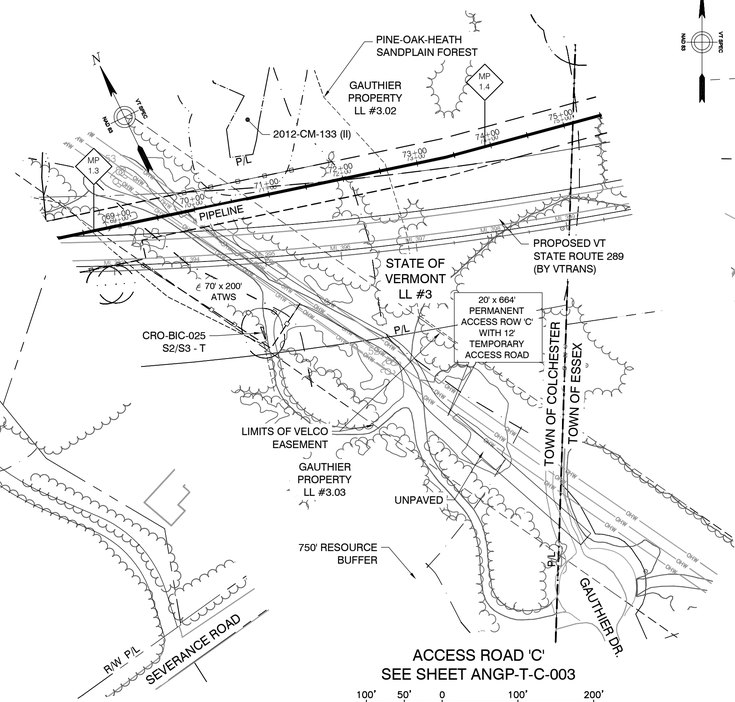
ACCESS ROAD 'A'
SEE SHEET ANGP-T-C-001A

100' 50' 0 100' 200'
GRAPHIC SCALE



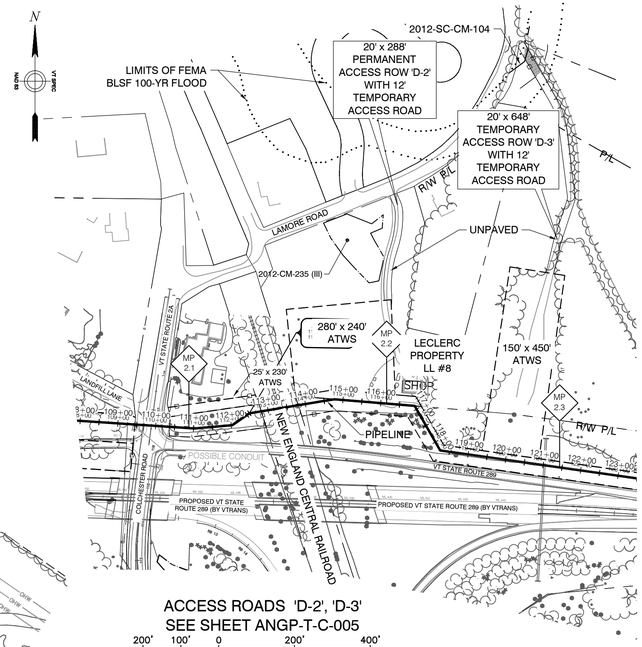
ACCESS ROAD 'B'
SEE SHEET ANGP-T-C-002

100' 50' 0 100' 200'
GRAPHIC SCALE



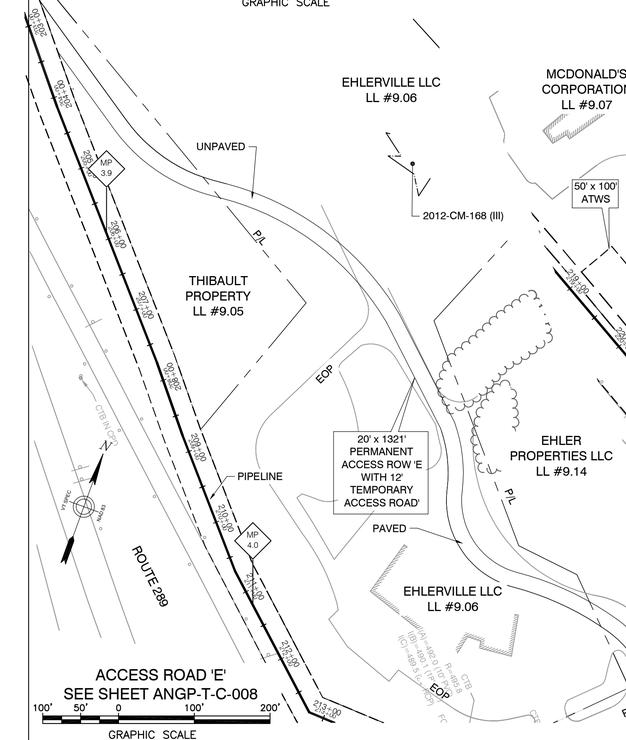
ACCESS ROAD 'C'
SEE SHEET ANGP-T-C-003

100' 50' 0 100' 200'
GRAPHIC SCALE



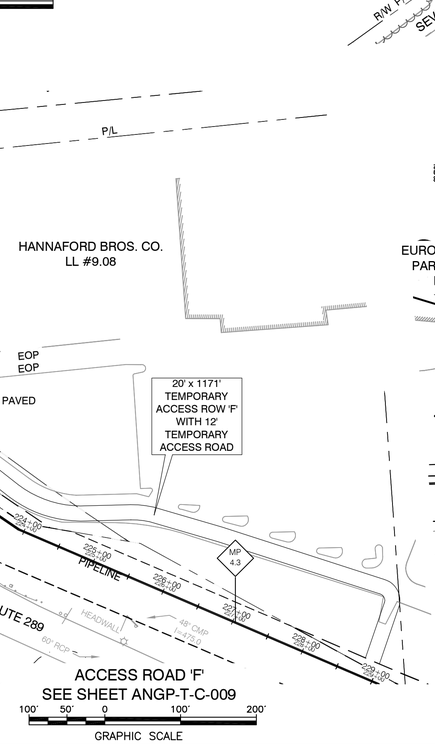
ACCESS ROADS 'D-2', 'D-3'
SEE SHEET ANGP-T-C-005

200' 100' 0 200' 400'
GRAPHIC SCALE



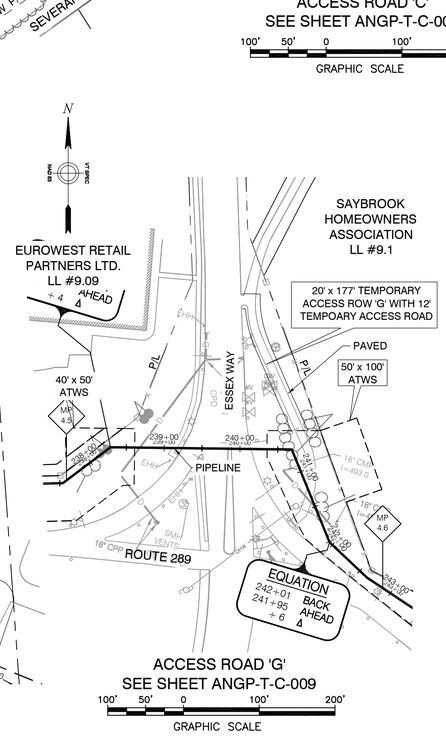
ACCESS ROAD 'E'
SEE SHEET ANGP-T-C-008

100' 50' 0 100' 200'
GRAPHIC SCALE



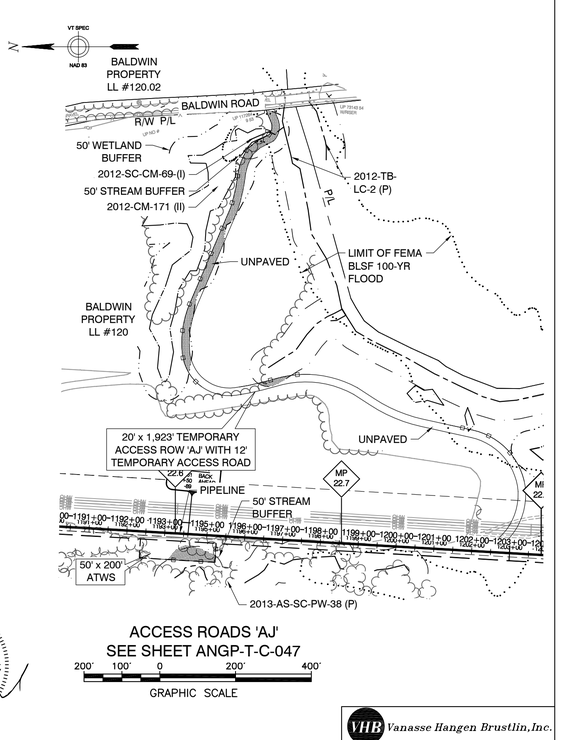
ACCESS ROAD 'F'
SEE SHEET ANGP-T-C-009

100' 50' 0 100' 200'
GRAPHIC SCALE



ACCESS ROAD 'G'
SEE SHEET ANGP-T-C-009

100' 50' 0 100' 200'
GRAPHIC SCALE



ACCESS ROADS 'AJ'
SEE SHEET ANGP-T-C-047

200' 100' 0 200' 400'
GRAPHIC SCALE

STATE OF VERMONT
MICHAEL E. HOLLOWAY
NO. 97764
CIVIL
LICENSED
PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

CHA
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South Burlington, VT 05403
Main: (802) 735-0572 - www.chacompanies.com

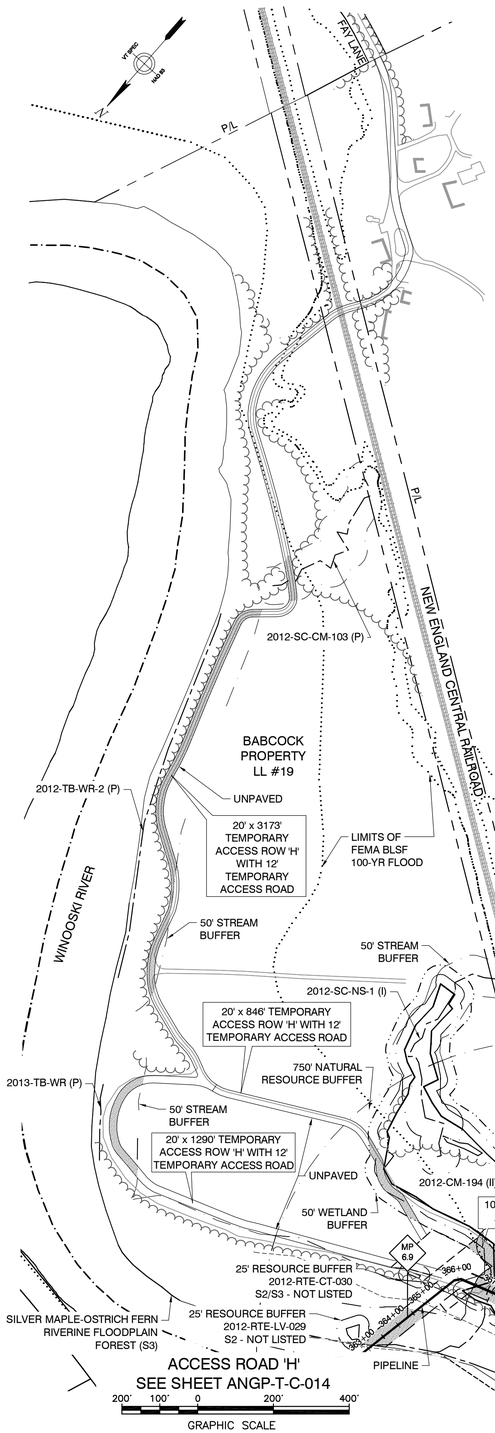
DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID		CONSTRUCTION	
								INITIALS	DATE	INITIALS	DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
							DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
							DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
		1	GJM	BCK		IFC 2016 EDITS (05/2016)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
ACCESS ROAD DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

Vermont Gas

YEAR: 2016 | W.O. | SCALE: AS NOTED | DWG. ANGP-T-G-007A | REV. 1


VT SPEC
NAD 83
N
FAY LANE
P/L
NEW ENGLAND CENTRAL RAILROAD
2012-SC-CM-103 (P)
BABCOCK
PROPERTY
LL #19
2012-TB-WR-2 (P)
UNPAVED
20' x 3173'
TEMPORARY
ACCESS ROW 'H'
WITH 12'
TEMPORARY
ACCESS ROAD
LIMITS OF
FEMA BLSF
100-YR FLOOD
WINOOSKI RIVER
50' STREAM
BUFFER
DEER
WINTERING
AREA
2012-NS-2 (II)
2012-SC-NS-1 (I)
20' x 846' TEMPORARY
ACCESS ROW 'H' WITH 12'
TEMPORARY ACCESS ROAD
750' NATURAL
RESOURCE BUFFER
2013-TB-WR (P)
20' x 1290' TEMPORARY
ACCESS ROW 'H' WITH 12'
TEMPORARY ACCESS ROAD
2012-CM-194 (II)
100' x 200'
ATWS
50' WETLAND
BUFFER
MP
6.9
25' RESOURCE BUFFER
2012-RTE-CT-030
S2/S3 - NOT LISTED
25' RESOURCE BUFFER
2012-RTE-LV-029
S2 - NOT LISTED
SILVER MAPLE-OSTRICH FERN
RIVERINE FLOODPLAIN
FOREST (S3)
PIPELINE
366+00
367+00
368+00
369+00
370+00
371+00
372+00
373+00
374+00
375+00
376+00
377+00
378+00
379+00
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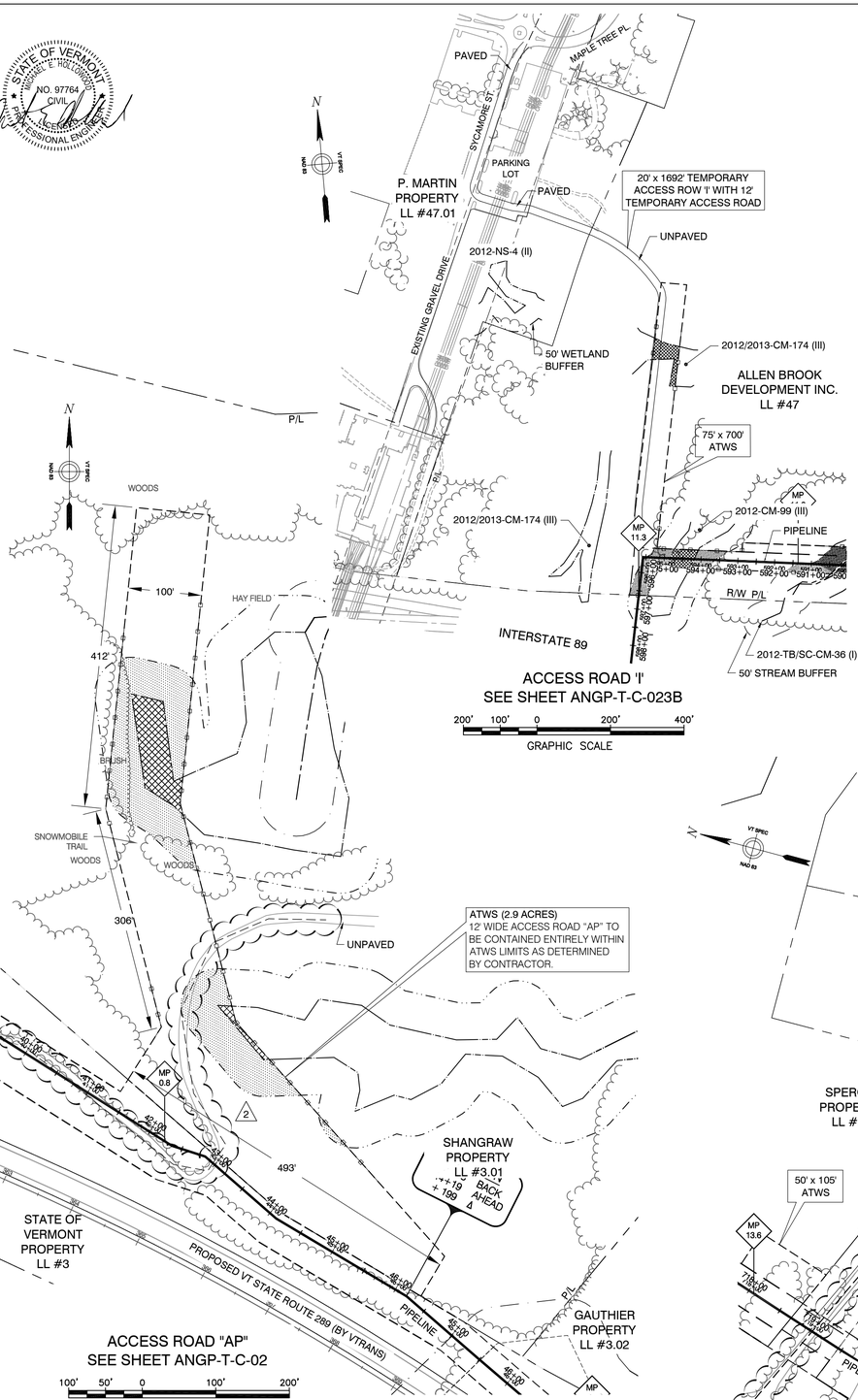
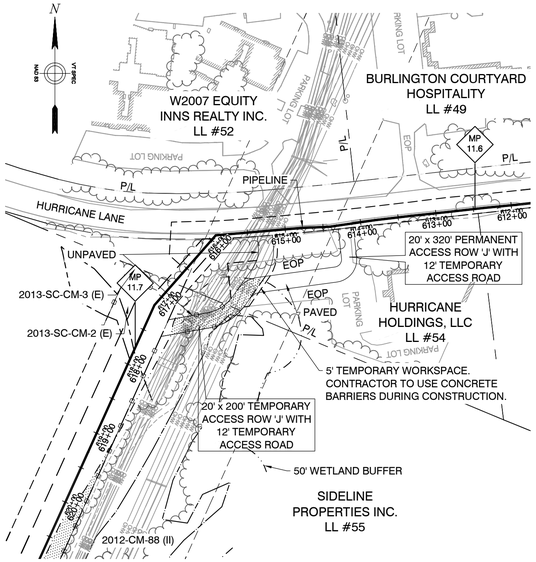
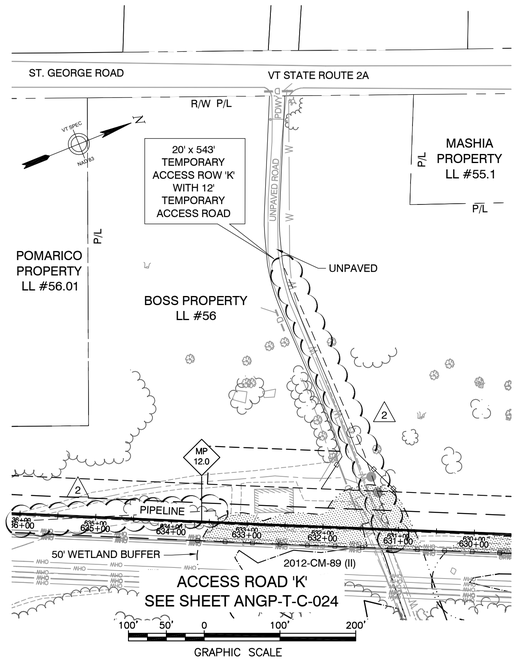
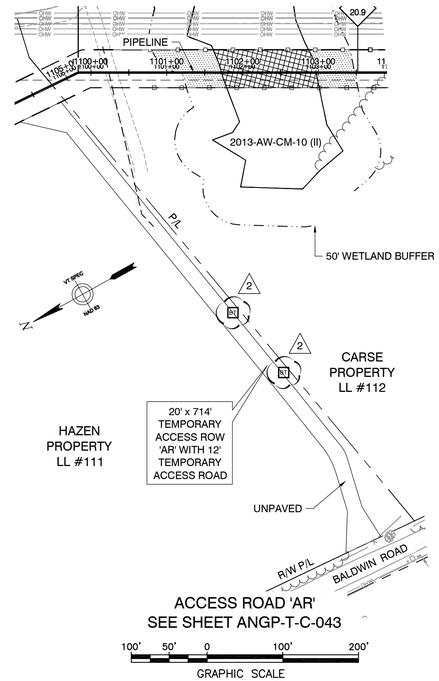
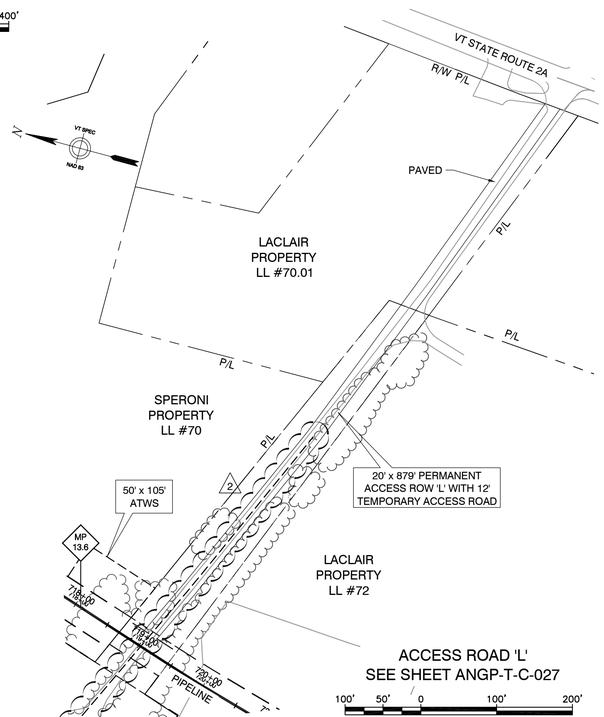
STATE OF VERMONT
MICHAEL E. HOLLINGSWORTH
NO. 97764
CIVIL
LICENSED
PROFESSIONAL ENGINEER

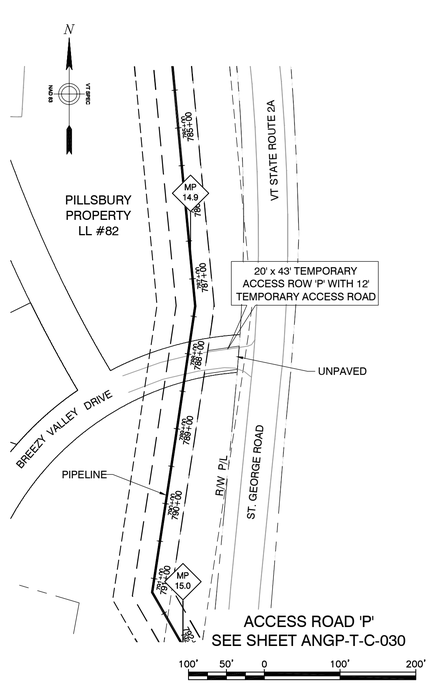


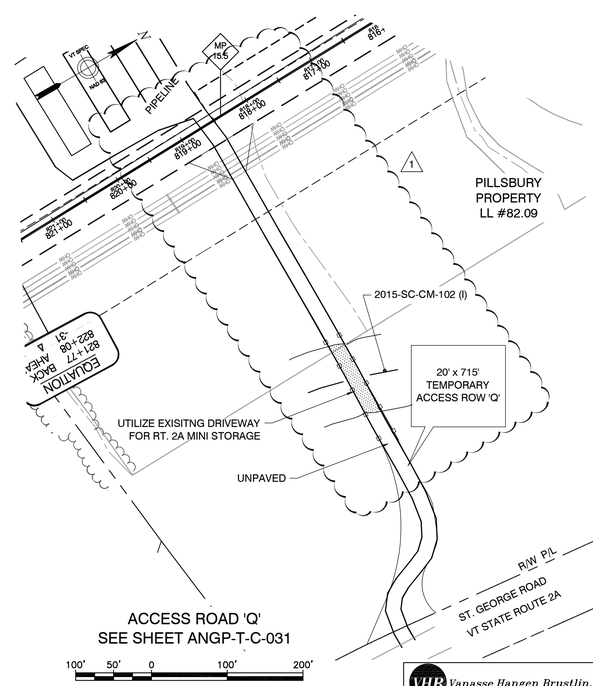












VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
		2	GJM	BCK	IFC 2016 EDITS (05/2016)
		1	BCK	TDB	PILLSBURY REROUTE AND ADDED NR DATA (6/05/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

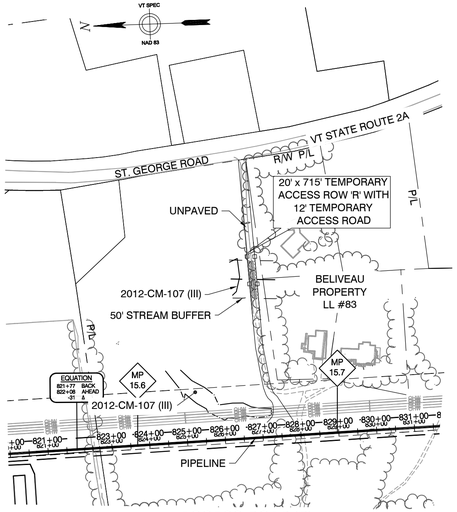
VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
ACCESS ROAD DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

Vermont Gas

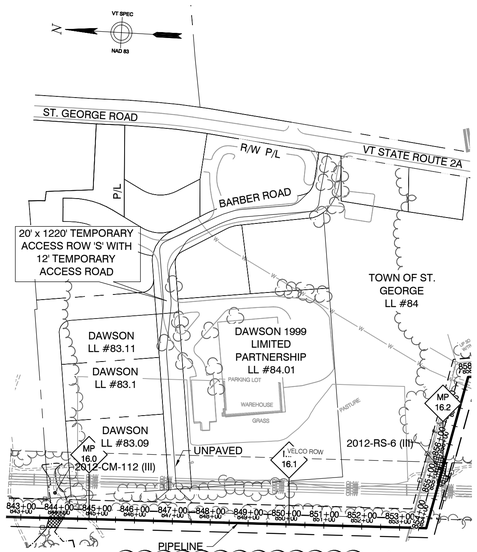
CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: AS NOTED | DWG. ANGP-T-G-008 | REV. 2



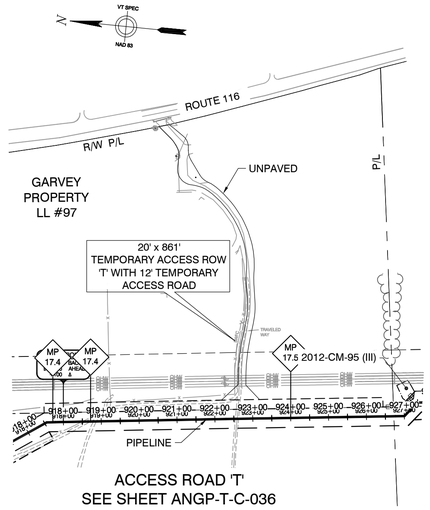
ACCESS ROAD 'R'
SEE SHEET ANGP-T-C-031

200' 100' 0 200' 400'
GRAPHIC SCALE



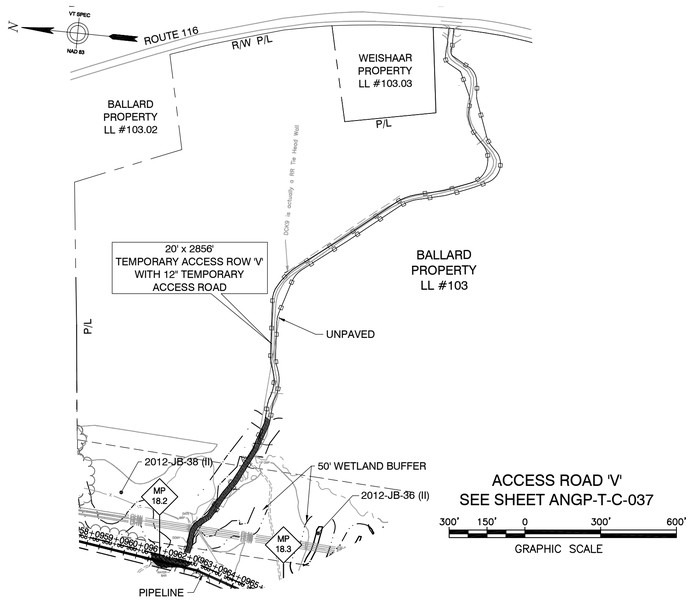
ACCESS ROAD 'S'
SEE SHEET ANGP-T-C-032

200' 100' 0 200' 400'
GRAPHIC SCALE



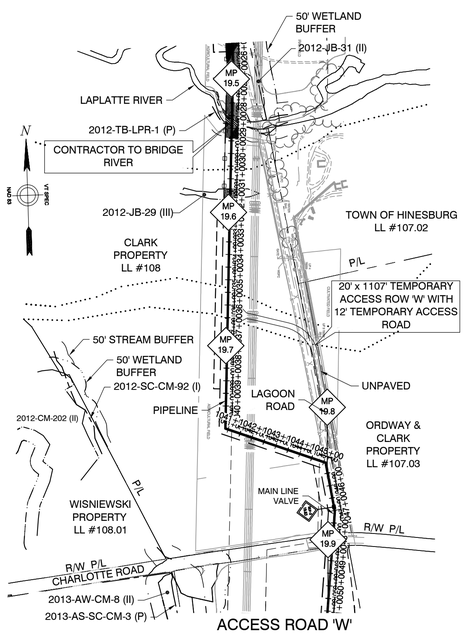
ACCESS ROAD 'T'
SEE SHEET ANGP-T-C-036

200' 100' 0 200' 400'
GRAPHIC SCALE



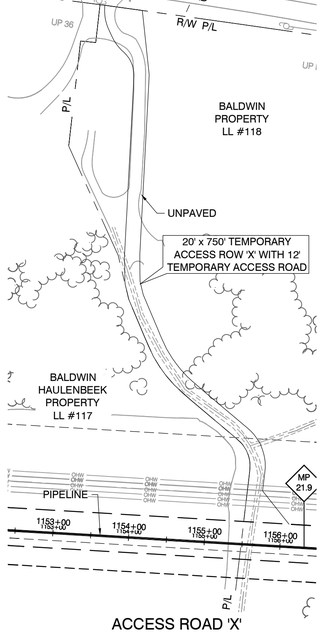
ACCESS ROAD 'V'
SEE SHEET ANGP-T-C-037

300' 150' 0 300' 600'
GRAPHIC SCALE



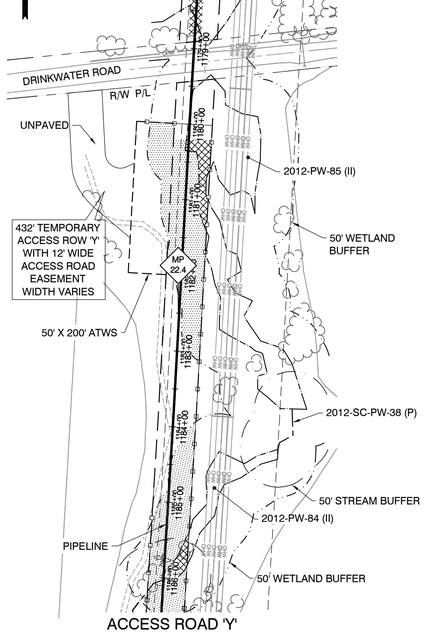
ACCESS ROAD 'W'
SEE SHEET ANGP-T-C-040

300' 150' 0 300' 600'
GRAPHIC SCALE



ACCESS ROAD 'X'
SEE SHEET ANGP-T-C-045

100' 50' 0 100' 200'
GRAPHIC SCALE



ACCESS ROAD 'Y'
SEE SHEET ANGP-T-C-046

100' 50' 0 100' 200'
GRAPHIC SCALE

ACCESS ROAD 'AA'
SEE SHEET ANGP-T-C-049

100' 50' 0 100' 200'
GRAPHIC SCALE

STATE OF VERMONT
JEFFREY E. HOLCOMB
NO. 97764
CIVIL
LICENSED
PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
		1	BCK	TDB	VHB EDITS (6/09/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

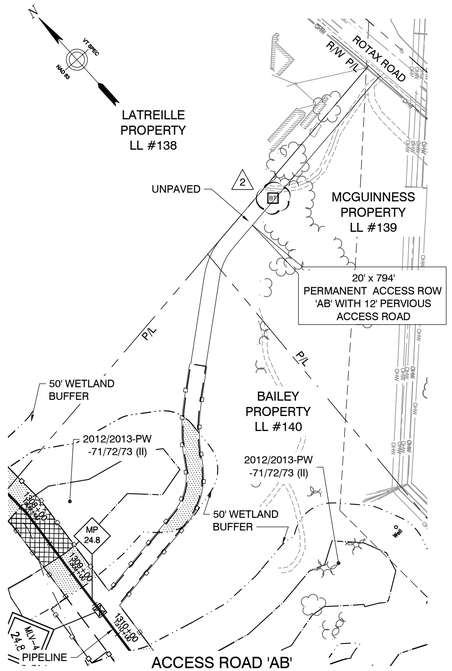
VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
ACCESS ROAD DETAILS

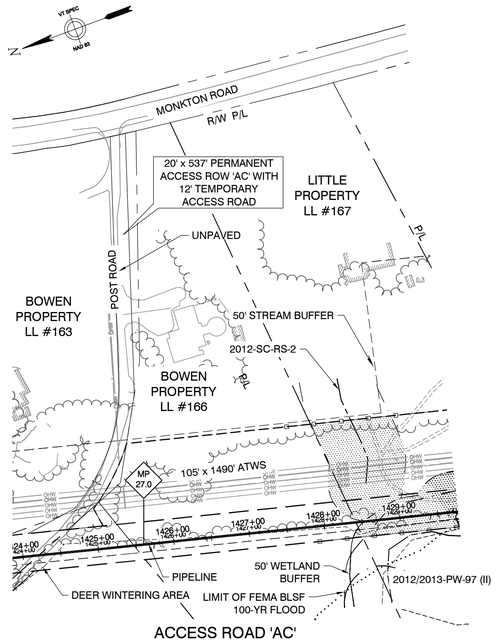
LOC. CHITTENDEN & ADDISON COUNTIES

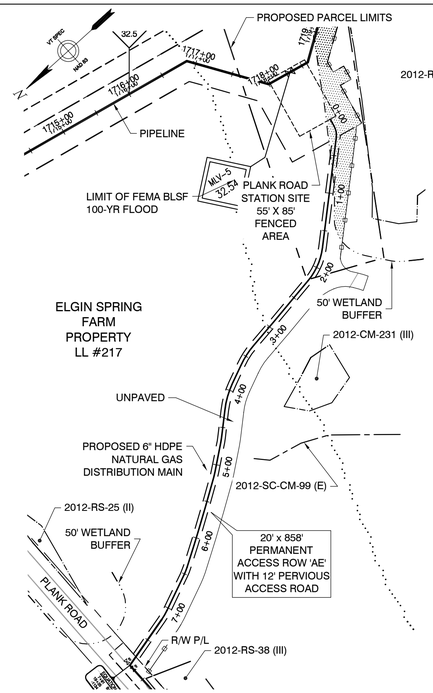
Vermont Gas

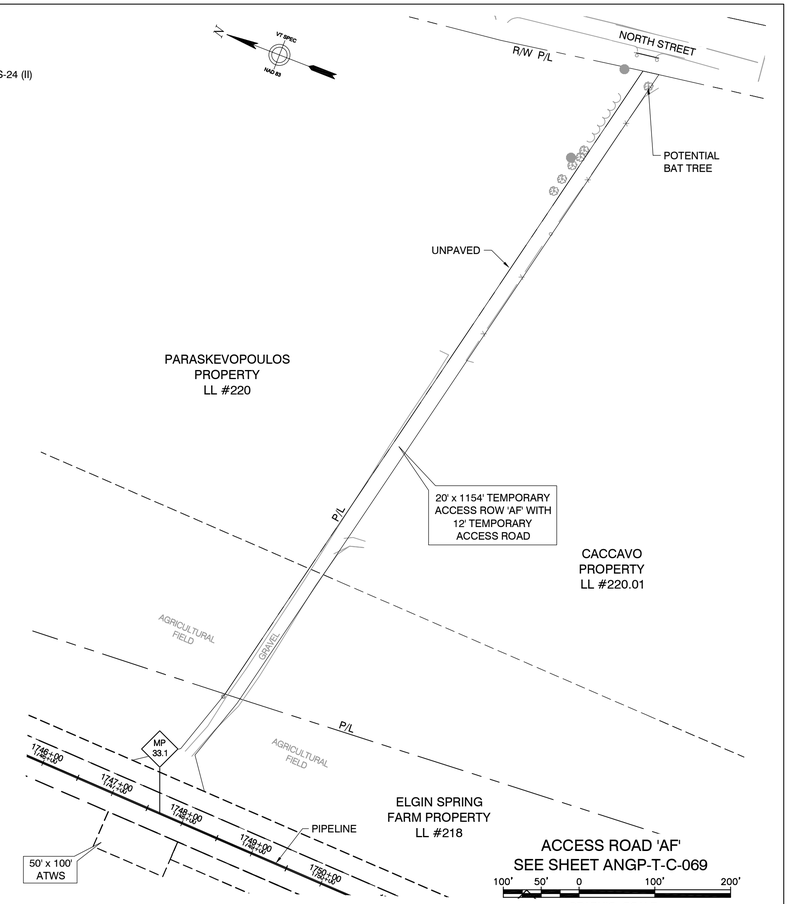
CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com

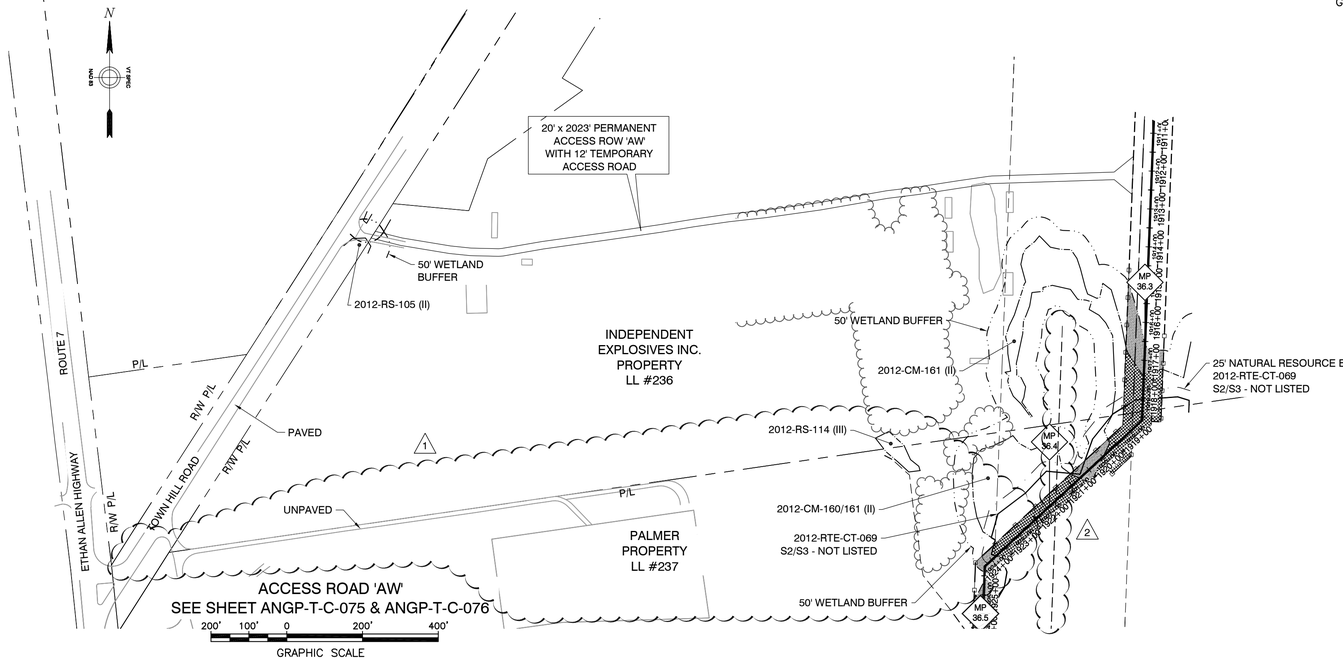
YEAR: 2016 | W.O. | SCALE: AS NOTED | DWG. ANGP-T-G-009 | REV. 1











Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
							DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
		2	GJM	BCK		IFC 2016 EDITS (05/2016)	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
		1	BCK	TDB		ACCESS ROAD "AG" REMOVED (5/14/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
ACCESS ROAD DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

Vermont Gas

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YEAR: 2016	W.O.	SCALE: AS NOTED	DWG. ANGP-T-G-010	REV. 2

CHITTENDEN AND ADDISON COUNTIES
VERMONT

CONSTRUCTION EPSC NOTES:

1. MAXIMUM CONCURRENT EARTH DISTURBANCE IS **40 ACRES** WITH EXCEPTIONS (SEE NOTE 3).
2. TOTAL DURATION OF EXPOSED SOIL IS **21 DAYS** MAXIMUM WITH EXCEPTIONS (SEE NOTE 3).
3. CONSTRUCTION WITHIN INDIAN BROOK, ALLEN BROOK, AND OTTER CREEK WATERSHEDS MUST:
   a. LIMIT NUMBER OF MAINLINE WORK CREWS TO ONE PER WATERSHED, WITH A MAXIMUM OF **10 ACRES** OF SOIL DISTURBANCE AT ONE TIME WITHIN THAT WATERSHED.
   b. TEMPORARILY OR PERMANENTLY STABILIZE EXPOSED SOILS WITHIN **7 DAYS** OF INITIAL EARTH DISTURBANCE, WITH THE EXCEPTION OF EXPOSED SOILS WITHIN OFF-CORRIDOR ACCESS ROADS AND ON-CORRIDOR ACCESS ROUTES TO BE UTILIZED WITHIN 24 HOURS AND HAVE SUFFICIENT EPSC MEASURES IN PLACE; THESE AREAS MAY REMAIN OPEN FOR UP TO 14 DAYS (SEE "TEMPORARY AND FINAL STABILIZATION NOTES" 1 AND 2.)
4. PRIOR TO STUMPING AND GRUBBING, LOGGING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH ACCEPTABLE MANAGEMENT PRACTICES FOR MAINTAINING WATER QUALITY ON LOGGING JOBS IN VERMONT (AMPS, 2006). STUMPING AND GRUBBING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH THE PROJECTS CONSTRUCTION STORMWATER DISCHARGE PERMIT AND EPSC PLAN. NO STUMPING/GRUBBING IN WETLANDS, CLASS II WETLAND BUFFERS, RARE THREATENED AND ENDANGERED (RTE) PLANT LOCATIONS, OR SIGNIFICANT COMMUNITIES WITH EXCEPTION OF PIPELINE TRENCH CORRIDOR, WHERE APPLICABLE.
5. EPSC MEASURES SHALL BE INSTALLED PURSUANT TO THE CONSTRUCTION PHASE STORMWATER DISCHARGE PERMIT FOR THE PROJECT, THE EPSC PLAN, THE VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL (2006, AMENDED 2008), VERMONT EROSION PREVENTION AND SEDIMENT CONTROL FIELD GUIDE (2006), AND OTHER RELEVANT PROJECT PERMITS.
6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS SHALL COMPLY WITH THE FOLLOWING:

CONSTRUCTION DEMARCATION:

   a. CONSTRUCTION DEMARCATION TO BE INSTALLED ALONG PERIMETER OF LIMITS OF DISTURBANCE PER THE EPSC PLAN.
   b. DEMARCATION IS NOT TO CROSS ACTIVE ACCESS ROUTES.
   c. WITHIN 50 FEET OF A WATER RESOURCE AREA, DEMARCATION MUST INCLUDE:
      - 2 TO 3 ROWS OF STAKED (OR STAPLED) 3-INCH ORANGE BARRIER MESH TAPE,
      - ORANGE CONSTRUCTION FENCE, OR
      - ORANGE SNOW FENCE.
   d. GREATER THAN 50 FEET FROM A WATER RESOURCE AREA, DEMARCATION MAY INCLUDE:
      - ONE ROW OF STAKED (OR STAPLED) 3 INCH ORANGE BARRIER MESH TAPE, OR
      - ORANGE FLAGGING.

PERIMETER CONTROLS:

   a. PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SEDIMENT RUNOFF AND/OR SOIL EROSION.
   b. PERIMETER CONTROLS ARE NOT TO CROSS ACTIVE ACCESS ROUTES OR PERENNIAL FLOW PATHS (E.G., A STREAM).
   c. PARTICULAR CARE IS TO BE TAKEN WHEN INSTALLING PERIMETER CONTROLS IN A WETLAND.
   d. WITHIN 50 FEET OF A WATER RESOURCE AREA, PERIMETER CONTROLS MUST INCLUDE:
      - REINFORCED SILT FENCE - TO BE REINFORCED WITH WIRE MESH, STAKED HAYBALES, STAKED FIBER ROLLS, EROSION CONTROL MIX BERMS, OR WOOD CHIP BERMS.
   e. GREATER THAN 50 FEET FROM A WATER RESOURCE AREA, PERIMETER CONTROLS MAY INCLUDE:
      - SILT FENCE (NON-REINFORCED)
      - STAKED FIBER ROLLS
      - EROSION CONTROL MIX BERMS, OR
      - WOOD CHIP BERMS

7. PROJECT DEMARCATION OF AN AREA SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES WITHIN THAT AREA. AN EXCEPTION IS LAND DISTURBANCE THAT MAY BE NEEDED TO ACCESS THE AREA WITH EQUIPMENT IN ORDER TO INSTALL THE EPSC MEASURES.
8. EPSC MEASURES INTENDED TO PROVIDE PERIMETER CONTROL AND/OR TRAP SEDIMENT SHALL BE MADE FUNCTIONAL PRIOR TO UPSLOPE LAND DISTURBANCE, WITH THE EXCEPTION OF THOSE LAND DISTURBING ACTIVITIES THAT ARE NECESSARY TO INSTALL THESE MEASURES.
9. RESOURCE AREAS (E.G., WETLANDS, STREAMS, BUFFERS, RTE PLANT SPECIES, ARCHEOLOGICALLY SENSITIVE AREAS, ETC.) SHALL BE FLAGGED PRIOR TO ANY CONSTRUCTION RELATED ACTIVITIES WITHIN CLOSE PROXIMITY TO THOSE AREAS.
10. PROJECT AREAS THAT ARE BORDERED BY ROADWAYS ON ONE SIDE MAY NOT HAVE RESOURCE AREAS FLAGGED ON THE OTHER (NON-PROJECT) SIDE OF THE ROAD.
11. CONSTRUCTION WITHIN RESOURCE AREA BOUNDARIES SHALL BE CONDUCTED PURSUANT TO THE EPSC PLAN AND APPLICABLE ENVIRONMENTAL PERMIT CONDITIONS.
12. ACCESS THROUGH WETLANDS REQUIRES USE OF CONSTRUCTION MATS PER THE EPSC PLAN.
13. VEGETATED BUFFERS SHALL BE MAINTAINED FOR WATER BODIES (E.G., WETLANDS AND STREAMS) PURSUANT TO THE EPSC PLAN AND APPLICABLE ENVIRONMENTAL PERMIT CONDITIONS.
14. ALL OTHER VEGETATION (OUTSIDE BUFFER AREAS AND RESOURCE AREAS) SHALL BE PROTECTED AND MAINTAINED TO THE EXTENT PRACTICABLE.
15. ACCESS ROUTES, LAYDOWN/STAGING AREAS, AND WORK SPACES ARE SHOWN ON THE EPSC PLAN. ANY OTHER ACCESS ROUTES, LAYDOWN/STAGING AREAS, AND/OR WORK SPACES MUST BE AUTHORIZED BY THE OSPC PRIOR TO THEIR USE.
16. WHERE THERE ARE EXISTING CULVERTS WITHIN TEMPORARY ACCESS ROUTES, PROTECTION (E.G., STONE ON FABRIC OR CONSTRUCTION MATS) MAY BE REQUIRED TO MAINTAIN THEIR INTEGRITY.
17. ANY STONE AND/OR GEOTEXTILE FABRIC THAT IS USED TO PROVIDE A STABILIZED SURFACE IN ACCESS ROUTES, LAYDOWN/STAGING AREAS, WORK SPACES, ETC., DURING CONSTRUCTION MUST BE REMOVED AND ANY EXPOSED SOIL STABILIZED ONCE AREAS ARE NO LONGER NEEDED.
18. FLAGGING AND SIGNAGE (E.G., "NO ACCESS") SHALL BE PLACED AT THOSE LOCATIONS WHERE OFF-RIGHT-OF-WAY ACCESS MAY INADVERTENTLY BE USED (E.G., EXISTING FARM ROADS) BUT THAT ARE OTHERWISE NOT APPROVED FOR PROJECT ACCESS.
19. AREAS OF DISTURBANCE THAT SLOPE TOWARDS BORDERING ROADSIDES SHALL HAVE AN APPROPRIATE SEDIMENT BARRIER (E.G., SILT FENCE) SPANNING THE EDGE OF DISTURBANCE TO MINIMIZE WASH-OFF OF SEDIMENT INTO ROADWAYS OR ROADSIDE DITCHES.
20. STABILIZED CONSTRUCTION ENTRANCES SHALL BE MAINTAINED REGULARLY TO CONTROL EQUIPMENT AND VEHICLES FROM TRACKING MATERIAL OFF SITE AND ONTO ROADWAYS.
21. CONDUCT ROUTINE SWEEPING OF ROADWAYS AS NEEDED.
22. BLASTING SHALL BE CONDUCTED PURSUANT TO THE PROJECTS **BLASTING PLAN**.
23. IN AREAS WHERE HORIZONTAL DIRECTIONAL DRILLING (HDD) IS TO OCCUR, EPSC MEASURES ARE TO BE INSTALLED PER THIS EPSC PLAN. CONTRACTOR TO BE RESPONSIBLE FOR LEGAL DISPOSAL OF ALL WASTE MATERIALS.
24. IN ADVANCE OF FORECASTED RAINFALL OR SNOWMELT, EPSC MEASURES SHALL BE INSPECTED AND REPAIRED, AS NEEDED.
25. TO THE EXTENT PRACTICABLE, SURFACE FLOW SHALL BE DIVERTED AWAY FROM EXPOSED SOILS.
26. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH A SEDIMENT TRAPPING DEVICE AND DISCHARGED IN A MANNER THAT DOES NOT RESULT IN IMPACTS TO WATER QUALITY OR CONTRIBUTE TO EROSION.
27. WATER GENERATED DURING HYDROSTATIC TESTING IS TO BE FILTERED AS NEEDED AND DISPOSED OF IN AN UPLAND LOCATION, AT LEAST 50 FEET (MINIMUM) FROM RESOURCE AREAS, AND IN A MANNER THAT DOES NOT CAUSE SOIL EROSION.
28. SEDIMENT REMOVED FROM SEDIMENT CONTROL PRACTICES SHALL BE DISPOSED OF IN AN UPLAND AREA AND OUTSIDE WETLAND AND STREAM BUFFERS, WITH STABILIZATION VIA SEED AND MULCH FOLLOWING DISPOSAL OF MATERIAL.
29. DUST CONTROL SHALL BE HANDLED VIA WATER OR CALCIUM CHLORIDE APPLICATION TO ROADWAYS AND OTHER AREAS WHERE DUST MAY BE GENERATED.

PRE-CONSTRUCTION AND PERMITTING NOTES:

1. A PRE-CONSTRUCTION CONFERENCE WITH THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION (VT DEC), THE ON-SITE PLAN COORDINATOR (OSPC), AND THE EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) SPECIALIST SHALL BE HELD PRIOR TO INITIATING CONSTRUCTION ACTIVITIES.
2. THE NAME AND DAYTIME PHONE NUMBER OF THE OSPC SHALL BE PROVIDED IN WRITING TO VT DEC PRIOR TO THE START OF CONSTRUCTION.
3. THE NAME, ADDRESS, DAYTIME PHONE NUMBER, AND BASIC QUALIFICATIONS OF THE EPSC SPECIALIST SHALL BE PROVIDED IN WRITING TO VT DEC PRIOR TO THE START OF CONSTRUCTION.
4. ALL PARTIES ASSOCIATED WITH CONSTRUCTION ACTIVITIES WHO MEET EITHER OF THE FOLLOWING TWO CRITERIA OF "PRINCIPAL OPERATOR" MUST OBTAIN COVERAGE AS A CO-PERMITTEE UNDER THE CONSTRUCTION STORMWATER DISCHARGE PERMIT FOR THE PROJECT PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES BY THAT OPERATOR:
   a. THE PARTY HAS OPERATIONAL CONTROL OVER CONSTRUCTION PLANS AND SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO THE ABILITY TO MAKE MODIFICATIONS TO THOSE PLANS AND SPECIFICATIONS; OR
   b. THE PARTY HAS CONTINUOUS DAY-TO-DAY OPERATIONAL CONTROL OF THOSE ACTIVITIES AT THE PROJECT THAT ARE NECESSARY TO ENSURE COMPLIANCE WITH THE EPSC PLAN FOR THE SITE OR OTHER PERMIT CONDITIONS (E.G., THEY ARE AUTHORIZED TO DIRECT WORKERS AT A SITE TO CARRY OUT ACTIVITIES REQUIRED BY THE EPSC PLAN OR COMPLY WITH OTHER PERMIT CONDITIONS).
5. THE NOTICE OF AUTHORIZATION (NOA) ISSUED BY VT DEC SHALL BE POSTED IN A LOCATION THAT IS VISIBLE TO THE PUBLIC (E.G., NEAR THE CONSTRUCTION ENTRANCE).
6. A COPY OF THE EPSC PLAN SHALL BE MAINTAINED ON-SITE DURING NORMAL WORKING HOURS FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE OF FINAL STABILIZATION. THE EPSC PLAN SHALL BE MADE AVAILABLE TO VT DEC UPON REQUEST.
7. PERMISSION MUST BE GRANTED BY VT DEC PRIOR TO USE OF ANY SUPPORT ACTIVITIES THAT MAY OCCUR OUTSIDE OF THE APPROVED PROJECT BOUNDARIES (E.G., USE OF WASTE OR BORROW AREAS).

TEMPORARY AND FINAL STABILIZATION NOTES:

1. DURING REGULAR CONSTRUCTION SEASON (APRIL 15 TO OCTOBER 15), ALL AREAS OF EARTH DISTURBANCE MUST BE STABILIZED WITHIN **21 DAYS** OF INITIAL DISTURBANCE WITH EXCEPTIONS (SEE "CONSTRUCTION EPSC NOTES' #3). AFTER THIS INITIAL 21-DAY PERIOD, ALL EARTH DISTURBANCE AREAS MUST BE STABILIZED BY THE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS:
   a. WORK IS TO CONTINUE IN THAT AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS.
   b. WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION (I.E., NO OUTLET FOR STORMWATER) WITH A DEPTH OF 2 FEET OR GREATER (E.G., UNDERGROUND LINE INSTALLATION).
2. DURING WINTER CONSTRUCTION SEASON (OCTOBER 15 TO APRIL 15), ALL AREAS OF EARTH DISTURBANCE MUST BE STABILIZED BY THE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS:
   a. WORK IS TO CONTINUE IN THAT AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS.
   b. WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION (I.E., NO OUTLET FOR STORMWATER) WITH A DEPTH OF 2 FEET OR GREATER (E.G., UNDERGROUND LINE INSTALLATION).
3. TEMPORARY STABILIZATION OF EXPOSED SOILS SHALL GENERALLY BE ACHIEVED BY MULCH (E.G., HAY/STRAW, COMPOST, WOOD CHIPS, WOOD STUMP GRINDINGS, AND/OR EROSION CONTROL MIX), SEED AND MULCH, AND/OR HYDROSEEDING WITH MULCH TACKIFIER TO PROVIDE COMPLETE COVER AT LEAST UNTIL PERMANENT STABILIZATION.
4. PERMANENT STABILIZATION OF EXPOSED SOILS SHALL BE ACHIEVED BY 70% VEGETATIVE COVER, STONE, ASPHALT, BEDROCK, OR OTHER PERMANENT MATERIAL (E.G., WOOD CHIPS) THAT PROVIDES COMPLETE COVER.
5. STEEP SIDESLOPES (>3:1) SHALL BE PERMANENTLY STABILIZED WITH STONE OR SEED/ROLLED EROSION CONTROL PRODUCT (RECP). SIDESLOPES <-3:1 MAY BE STABILIZED WITH SEED AND MULCH AND/OR HYDROSEEDING (OR BONDED FIBER MATRIX) WITH MULCH TACKIFIER. NOTE: 70 PERCENT VEGETATIVE COVER MUST BE REACHED TO ATTAIN PERMANENT STABILIZATION.
6. AREAS THAT HAVE REACHED TEMPORARY OR FINAL STABILIZATION SHALL NOT BE CONSIDERED PART OF TOTAL AREA OF EARTH DISTURBANCE.
7. APPROPRIATE SEED MIX SHALL BE APPLIED TO DESIGNATED AREAS PER THE EPSC PLAN'S SEED SPECIFICATIONS (ALSO SEE "ADDITIONAL ENVIRONMENTAL NOTES' #23). SEEDING PRIOR TO WINTER MUST BE COMPLETED BY SEPTEMBER 15 UNLESS WEATHER PERMITS SEED APPLICATION AND GERMINATION AFTER SEPTEMBER 15.
8. AREAS TO BE STABILIZED FOR WINTER THAT DO NOT HAVE ESTABLISHED VEGETATION BY OCTOBER 15 SHALL BE STABILIZED BY ANCHORED MULCH AT THE WINTER APPLICATION RATE OR OTHER APPROVED STABILIZATION MEASURES (E.G., ROLLED EROSION CONTROL PRODUCT). DORMANT SEEDING WITH WINTER RYE MAY BE BE APPLIED TO ACCOMMODATE EARLY SPRING GERMINATION.
9. ALL TEMPORARY EPSC MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY EPSC MEASURES ARE NO LONGER NEEDED.

RELEVANT VT DEC DEFINITIONS (GP 3-9020, APPENDIX C):

"COMMENCEMENT OF CONSTRUCTION ACTIVITIES" - THE INITIAL DISTURBANCE OF SOILS ASSOCIATED WITH CLEARING, GRADING, OR EXCAVATING ACTIVITIES OR OTHER CONSTRUCTION-RELATED ACTIVITIES (E.G., STOCKPILING OF FILL MATERIAL).

"CONSTRUCTION AND CONSTRUCTION-RELATED ACTIVITIES" - ALL CLEARING, GRADING, EXCAVATION, AND STOCKPILING ACTIVITIES THAT WILL RESULT IN THE DISTURBANCE OF ONE OR MORE ACRE OF LAND AREA. EARTH DISTURBANCE THAT IS A NORMAL PART OF THE LONG-TERM USE OR MAINTENANCE OF A PROPERTY IS NOT COVERED BY [THE PERMIT] (E.G., MINING OPERATIONS, DIRT ROAD REGRADING, ROUTINE ROAD RESURFACING).

"CONSTRUCTION SITE" - THE LAND OR WATER AREA WHERE ANY FACILITY OR ACTIVITY IS PHYSICALLY LOCATED OR CONDUCTED, INCLUDING ADJACENT LAND USED IN CONNECTION WITH THE FACILITY OR ACTIVITY OR THE AREA OF EARTH DISTURBANCE DIRECTLY ASSOCIATED WITH THE PERMITTED ACTIVITY.

"DISTURBED EARTH" - ANY SOIL ON A CONSTRUCTION SITE OR ASSOCIATED SUPPORT ACTIVITIES (E.G., STAGING AREA, BORROW AREA, DISPOSAL SITE FOR EXCESS FILL) THAT IS EXPOSED TO EROSIVE EFFECTS OF WIND, RAIN, OR RUNOFF DUE TO CONSTRUCTION OR CONSTRUCTION RELATED ACTIVITIES.

"FINAL STABILIZATION" - ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND EITHER OF THE TWO FOLLOWING CRITERIA ARE MET:
1. A UNIFORM (E.G., EVENLY DISTRIBUTED, WITHOUT LARGE BARE AREAS) PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70 PERCENT OF THE NATIVE BACKGROUND VEGETATIVE COVER FOR THE AREA HAS BEEN ESTABLISHED ON ALL UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES, OR
2. EQUIVALENT FINAL STABILIZATION MEASURES (SUCH AS THE USE OF GRAVEL, RIPRAP, GABIONS, OR GEOTEXTILES) HAVE BEEN EMPLOYED.

"PRINCIPAL OPERATOR" - ANY PARTY ASSOCIATED WITH A CONSTRUCTION PROJECT THAT MEETS EITHER OF THE FOLLOWING TWO CRITERIA:
1. THE PARTY HAS OPERATIONAL CONTROL OVER CONSTRUCTION PLANS AND SPECIFICATIONS INCLUDING, BUT NOT LIMITED TO, THE ABILITY TO MAKE MODIFICATIONS TO THOSE PLANS AND SPECIFICATIONS; OR
2. THE PARTY HAS DAY-TO-DAY OPERATIONAL CONTROL OF THOSE ACTIVITIES AT A PROJECT WHICH ARE NECESSARY TO ENSURE COMPLIANCE WITH A EPSC PLAN FOR THE SITE OR OTHER PERMIT CONDITIONS (E.G., THEY ARE AUTHORIZED TO DIRECT WORKERS AT A SITE TO CARRY OUT ACTIVITIES REQUIRED BY THE EPSC PLANNER COMPLY WITH OTHER PERMIT CONDITIONS).

"STORMWATER" - STORMWATER RUNOFF, SNOWMELT RUNOFF, AND SURFACE RUNOFF AND DRAINAGE.

"STORMWATER DISCHARGE-RELATED ACTIVITIES" - ACTIVITIES THAT CAUSE, CONTRIBUTE TO, OR RESULT IN STORMWATER POINT SOURCE POLLUTANT DISCHARGES, INCLUDING BUT NOT LIMITED TO: EXCAVATION, SITE DEVELOPMENT, GRADING AND OTHER SURFACE DISTURBANCE ACTIVITIES; AND MEASURES TO CONTROL STORMWATER INCLUDING THE SITING, CONSTRUCTION AND OPERATION OF BMPS TO CONTROL, REDUCE OR PREVENT STORMWATER POLLUTION.

"TEMPORARY STABILIZATION" - PROTECTING SOILS IN AREAS WHERE ADDITIONAL SOIL DISTURBANCE ACTIVITIES FROM EROSION BY RAINFALL, RUNOFF, OR WIND, WITH A SURFACE COVER, INCLUDING, BUT NOT LIMITED TO, ESTABLISHMENT OF GROUND VEGETATION, APPLICATION OF MULCH, ROLLED EROSION CONTROL PRODUCTS, GRAVELING OR PAVING.

"VEGETATED BUFFER" - ANY UNDISTURBED AREA BETWEEN A CONSTRUCTION SITE AND A RECEIVING WATER THAT CONSISTS OF A NATURAL VEGETATED GROUND SURFACE (E.G., TREES, SHRUBS, DUFF LAYER, GRASSES AND OTHER GROUND PLANTS). THIS DOES NOT INCLUDE LAWNS OR ANY AREA OF CONCENTRATED FLOW (E.G., DITCHES, SWALES).

"WATERS OF THE STATE" - ALL RIVERS, STREAMS, CREEKS, BROOKS, RESERVOIRS, PONDS, LAKES, SPRINGS, AND ALL BODIES OF SURFACE WATERS, ARTIFICIAL OR NATURAL, WHICH ARE CONTAINED WITHIN, FLOW THROUGH OR BORDER UPON THE STATE OF VERMONT OR ANY PORTION OF IT.

WINTER CONSTRUCTION NOTES:

1. WINTER CONSTRUCTION SEASON IS DEFINED BY VT DEC AS OCTOBER 15 TO APRIL 15.
2. THE FOLLOWING WINTER CONSTRUCTION CONDITIONS APPLY TO THOSE CONSTRUCTION ACTIVITIES INVOLVING EARTH DISTURBANCE BETWEEN OCTOBER 15 AND APRIL 15:
   a. FOR AREAS STABILIZED BY VEGETATION, SEED SHALL BE APPLIED NO LATER THAN SEPTEMBER 15 UNLESS WEATHER PERMITS SEED APPLICATION AND GERMINATION AFTER SEPTEMBER 15.
   b. MULCH SHALL BE APPLIED AT DOUBLE THE REGULAR CONSTRUCTION SEASON RATE OR ROUGHLY 2 INCHES OF MULCH WITH 80 TO 90% COVER. MULCH SHALL BE TRACKED IN OR STABILIZED WITH NETTING.
   c. ENLARGE ACCESS POINTS AS NEEDED TO PROVIDE SPACE FOR SNOW STOCKPILING.
   d. LIMITS OF DISTURBANCE SHALL BE MOVED OR REPLACED TO REFLECT BOUNDARY OF WINTER WORK, AS NEEDED.
   e. CLEARED SNOW SHALL BE PLACED DOWN GRADIENT OF ALL AREAS OF DISTURBANCE WHERE FEASIBLE.
   f. SNOW SHALL NOT BE PLACED IN STORMWATER TREATMENT STRUCTURES (E.G., BASINS).
   g. TO THE EXTENT PRACTICABLE, A MINIMUM 25-FOOT BUFFER FROM PERIMETER CONTROLS (E.G., SILT FENCE) SHALL BE MAINTAINED TO ALLOW FOR SNOW CLEARING AND MAINTENANCE.
   h. FOR AREAS OF DISTURBANCE WITHIN 100 FEET OF RECEIVING WATERS, SILT FENCE SHALL BE REINFORCED OR ELSE REPLACED WITH PERIMETER DIKES, SWALES, OR OTHER PRACTICES RESISTANT TO THE FORCES OF SNOW LOADS, AS NEEDED.
   i. DRAINAGE STRUCTURES ARE TO BE KEPT OPEN AND FREE OF SNOW AND ICE DAMS WHERE FEASIBLE.
   j. EPSC MEASURES THAT REQUIRE SOIL DISTURBANCE TO INSTALL (E.G., SILT FENCE) SHALL BE INSTALLED PRIOR TO GROUND FREEZING.
   k. SNOW AND ICE SHALL BE REMOVED TO LESS THAN 1 INCH THICKNESS PRIOR TO STABILIZATION, TO EXTENT FEASIBLE.
   l. A 10 TO 20-FOOT WIDE STONE PAD SHALL BE USED IN AREAS WHERE CONSTRUCTION VEHICLE TRAFFIC IS ANTICIPATED (E.G., AROUND THE PERIMETER OF A BUILDING) WHERE APPLICABLE.
   m. TO ENSURE COVER OF DISTURBED SOIL IN ADVANCE OF A SNOWMELT EVENT, AREAS OF DISTURBED SOIL SHALL BE STABILIZED AT THE END OF EACH WORKDAY, UNLESS:
      i. WORK IS TO CONTINUE WITHIN THE AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS OR
      ii. WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION (I.E., NO OUTLET) WITH A DEPTH OF 2 FEET OR GREATER (E.G., UTILITY TRENCHES).

ADDITIONAL ENVIRONMENTAL NOTES:

1. SOIL TYPE SYMBOLS ON THE EPSC PLAN CORRESPOND TO USDA NATURAL RESOURCES CONSERVATION SERVICE (NRCS) SOIL SERIES AND NAMES.
2. MAPPED WETLANDS AND THEIR BUFFERS (IF CLASS II) ARE DEPICTED ON THE EPSC PLAN AS EXAMPLE "2012-PW-72". CODES REPRESENT: DELINEATION YEAR- DELINEATOR INITIALS-WETLAND NUMBER. MAPPED WETLANDS WITHIN THE PROJECT AREA ARE TO BE FLAGGED PRIOR TO CONSTRUCTION.
3. IMPACTS TO CLASS II WETLANDS AND THEIR 50-FOOT BUFFERS ARE SUBJECT TO SPECIFIC AUTHORIZATIONS AND CONDITIONS OF THE INDIVIDUAL VERMONT WETLAND PERMIT.
4. IMPACTS TO ALL JURISDICTIONAL WATERS OF THE U.S. (INCLUDING STREAMS, RIVERS, WETLANDS, ETC.) ARE SUBJECT TO SPECIFIC AUTHORIZATIONS AND CONDITIONS OF THE INDIVIDUAL DEPARTMENT OF THE ARMY (USACE) SECTION 404 AND SECTION 10 PERMITS, AND THE RELATED VT DEC SECTION 401 WATER QUALITY CERTIFICATION.
5. CONSTRUCTION MATS ARE TO BE INSTALLED IN WETLANDS TO PROVIDE STABLE AREAS FOR EQUIPMENT ACCESS, EQUIPMENT AND MATERIAL STAGING, AND SOIL STOCKPILING.
6. IN RESOURCE AREAS, MINIMIZE DURATION THAT MATS ARE IN PLACE TO EXTENT POSSIBLE. SEE "RTE MATTING DETAIL" ON SHEET ANGP-T-G-015 FOR ADDITIONAL INSTRUCTIONS.
7. CONSTRUCTION MATS THAT BECOME COVERED WITH SOIL AND/OR CONSTRUCTION DEBRIS SHOULD BE CLEANED AND THE MATERIALS REMOVED AND DISPOSED OF IN AN UPLAND LOCATION. THE MATERIAL SHOULD NOT BE SCRAPED OR SHOVELED INTO THE RESOURCE AREA.
8. CONSTRUCTION MATS THAT BECOME IMBEDDED MUST BE RESET OR LAYERED TO PREVENT MUD FROM COVERING THEM OR WATER PASSING OVER THEM.
9. CONSTRUCTION MATS SHOULD BE CLEANED BEFORE TRANSPORT TO ANOTHER WETLAND LOCATION TO REMOVE SOIL AND ANY INVASIVE PLANT SPECIES, SEED STOCK OR PLANT MATERIAL. CLEANING METHODS INCLUDE BUT ARE NOT LIMITED TO SHAKING OR DROPPING MATS IN A CONTROLLED MANNER WITH A PIECE OF MACHINERY TO KNOCK OFF ATTACHED SOIL AND DEBRIS, SPRAYING WITH WATER OR AIR, AND SWEEPING.
10. CONSTRUCTION MAT BRIDGES ARE TO BE USED FOR STREAM AND DITCH CROSSINGS (WHERE NOT HORIZONTALLY DIRECTIONALLY DRILLED) REGARDLESS OF WHETHER OR NOT THERE IS ACTIVE FLOW. AT "DRY" CROSSINGS WHERE THERE IS NO FLOW OCCURRING OR ANTICIPATED, CONSTRUCTION MATS MAY BE PLACED DIRECTLY ONTO THE GROUND IN ORDER TO PREVENT EXCESSIVE RUTTING, PROVIDED STREAM BANKS AND BOTTOMS ARE NOT ADVERSELY ALTERED.
11. MAPPED STREAMS AND THEIR BUFFERS ARE DEPICTED ON THE EPSC PLAN AS EXAMPLES "2012-SC-CM-3" OR "2012-TB-JB-7". CODES REPRESENT: DELINEATION YEAR-STREAM FLAGGING TYPE (SC=STREAM CENTER, TB=TOP-OF-BANK)-DELINEATOR INITIALS-RESOURCE NUMBER. MAPPED STREAMS WITHIN THE PROJECT AREA ARE TO BE FLAGGED PRIOR TO CONSTRUCTION.
12. MAPPED RARE, THREATENED, AND ENDANGERED (RTE) PLANT SPECIES AND THEIR BUFFERS ARE DEPICTED ON THE EPSC PLAN BY THEIR NAME (OR CODE). RTE PLANT SPECIES INDIVIDUALS OR MAPPED POLYGONS THAT ARE "LISTED" AND THEIR ASSIGNED BUFFERS ARE TO BE AVOIDED. RTE PLANT SPECIES THAT ARE "NOT LISTED" AND ASSOCIATED BUFFERS ARE TO BE AVOIDED TO THE EXTENT PRACTICABLE WITH EXCEPTION OF "2012-RTE-CT-030" WHICH IS TO BE PROTECTED WITH ORANGE FENCING AND AVOIDED (SHEET ANGP-EPSC-014).
13. ACCESS THROUGH MAPPED ARCHAEOLOGICALLY-SENSTITIVE AREAS, HISTORICALLY-SENSITIVE AREAS, AND SIGNIFICANT NATURAL COMMUNITIES ARE TO BE CONDUCTED PER RELEVANT ENVIRONMENTAL PERMITS AND PER THIS EPSC PLAN.
14. MAPPED ARCHEOLOGICAL AREAS OUTSIDE OF THE PROJECT CORRIDOR MAY NOT BE FLAGGED.
15. DEBRIS FROM TREE CLEARING TO FOLLOW SPECIFIC DISPOSAL CONDITIONS FROM APPLICABLE ENVIRONMENTAL PERMITS. WHERE NO SPECIFIC CONDITIONS APPLY, TREE AND BRUSH DEBRIS FROM INITIAL CLEARING SHOULD BE DISPOSED OF IN A MANNER WHICH DOES NOT HAVE THE EFFECT OF PLACING FILL IN WETLAND, WATERS, OR BUFFERS, AND DOES NOT IMPEDE NATURAL HYDROLOGY. SPECIFICALLY:
   a. NO CLEARING MACHINERY TO BE PLACED IN WETLAND THAT WILL BE MATTED DURING CONSTRUCTION;
   b. DO NOT LEAVE ANY DEBRIS (SLASH, TOPS, LOGS) IN SURFACE WATERS
   c. IF WETLANDS ARE SMALL, DEBRIS TO BE PULLED OUT OF WETLAND AREA AND STOCKPILED OR CHIPPED IN UPLAND AREAS OUTSIDE OF CLASS II WETLAND BUFFERS;
   d. CHIP CUT SLASH AND TOPS AND BLOW IN UPLAND AREAS, OUTSIDE OF CLASS II WETLAND BUFFERS, OR USE FOR MULCH PROTECTION OUTSIDE OF CLASS II WETLAND BUFFERS;
   e. IF WETLANDS ARE LARGE (AND DEBRIS REMOVAL IS DIFFICULT), PLAN TO BUCK UP LOGS AND REDUCE SLASH/TOP SIZE BY CUTTING - IF FLOW PATHS ARE APPARENT WITHIN THE WETLAND, ORIENT DEBRIS PARALLEL WITH FLOW DIRECTION.
16. ANY STUMPS AND/OR OTHER WOODY DEBRIS THAT IS DISPOSED OF OFF-SITE SHALL BE PLACED IN UPLAND, NON-WETLAND, NON WET AREA LOCATIONS.
17. DISTURBANCE AND CONSTRUCTION ACTIVITIES ASSOCIATED WITH APPROVED TEMPORARY STREAM CROSSINGS MUST BE COMPLETED AND STABILIZED AS SOON AS PRACTICABLE. STREAM CROSSINGS SHALL BE PERFORMED ACCORDING TO THE FOLLOWING GUIDELINES:
   a. STREAM CROSSINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE ENVIRONMENTAL PERMITS AND THE APPROVED EPSC STREAM CROSSING DETAILS. EPSC MEASURES SHALL BE IMPLEMENTED PRIOR TO EARTH DISTURBING ACTIVITIES AT STREAM CROSSINGS TO MINIMIZE DISCHARGE OF SEDIMENT TO RECEIVING WATERS.
   b. MATERIALS EXCAVATED FROM STREAM CHANNELS SHALL BE SEGREGATED AND STOCKPILED ON GEOSYTHETIC OR SIMILAR PRODUCT SEPARATELY FROM TOPSOIL AND SUBSURFACE SPOIL MATERIALS. UPON COMPLETION OF PIPELINE INSTALLATION, STREAM CHANNEL AND STREAM BANK SUBSTRATE PROFILES (SOIL HORIZONS) SHALL BE RESTORED TO THE MAXIMUM EXTENT PRACTICABLE.
   c. FOLLOWING COMPLETION OF WORK AND REMOVAL OF MATTING AND TEMPORARY BRIDGES, STREAM BANK STABILIZATION SHALL BE PERFORMED ACCORDING TO THE STREAM BANK RESTORATION WITH RECP AND STREAM BANK RESTORATION WITH COIR LOG DETAILS. DISTURBED STREAM BANK AND BUFFER AREAS WITHIN 50 FEET OF THE STREAM CHANNEL SHALL BE RESTORED. APPLY COIR LOG DETAIL TO SITES WHERE STREAM BANK IS DISTURBED OR TRENCHED THROUGH DURING PIPELINE INSTALLATION AND SOIL MATERIAL COMPOSITION PERMITS STAKES TO BE DRIVEN.
   d. TO PREVENT DITCHING AND EROSION THROUGH THE RESTORED PIPELINE TRENCH, WATERBARS SHALL BE INSTALLED AT THE TOP OF SLOPES TO INTERCEPT AND DIVERT RUNOFF.
   e. APPLICATION OF RIPRAP FOR BANK STABILIZATION MUST COMPLY

CONSTRUCTION DEMARCATION:

1. CONSTRUCTION DEMARCATION TO BE INSTALLED ALONG PERIMETER OF LIMITS OF DISTURBANCE PER THE EPSC PLAN.
2. DEMARCATION IS NOT TO CROSS ACTIVE ACCESS ROUTES.
3. WITHIN AT LEAST 50 FEET OF A WATER RESOURCE AREA, DEMARCATION MUST INCLUDE:
   a. 2 TO 3 ROWS OF STAKED (OR STAPLED) 3 INCH ORANGE BARRIER MESH TAPE OR ROPE,
   b. ORANGE CONSTRUCTION FENCE, OR
   c. ORANGE SNOW FENCE.
   d. OTHER INTERCHANGEABLE AND/OR DEC APPROVED MEASURE.
4. GREATER THAN AT LEAST 50 FEET FROM WATER RESOURCE AREAS, DEMARCATION MAY INCLUDE:
   a. ONE ROW OF STAKED (OR STAPLED) 3 INCH ORANGE BARRIER MESH TAPE OR ROPE, OR
   b. ORANGE FLAGGING OR PAINT.
   c. OTHER INTERCHANGEABLE AND/OR DEC APPROVED MEASURE.

1 Construction Demarcation Table

12/12

N.T.S. Source: VHB LD_

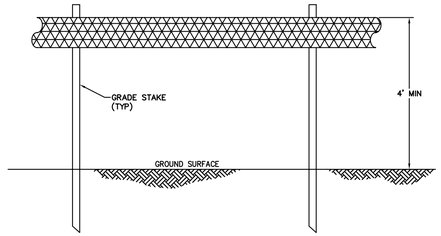
PERIMETER CONTROLS:

1. PERIMETER CONTROLS ARE TO BE INSTALLED ON DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SEDIMENT RUNOFF AND/OR SOIL EROSION.
2. PERIMETER CONTROLS ARE NOT TO CROSS ACTIVE ACCESS ROUTES (E.G., ROADS) OR ACTIVE FLOW PATHS (E.G., A STREAM).
3. PARTICULAR CARE IS TO BE TAKEN WHEN INSTALLING PERIMETER CONTROLS IN A WETLAND.
4. WITHIN AT LEAST 50 FEET OF WATER RESOURCE AREAS, PERIMETER CONTROLS MUST INCLUDE:
   a. REINFORCED SILT FENCE – TO BE REINFORCED WITH WIRE MESH, STAKED HAYBALES, STAKED FIBER ROLLS, EROSION CONTROL MIX BERMS, OR WOOD CHIP BERMS.
   b. STONE BERMS
   c. OTHER INTERCHANGEABLE AND/OR DEC–APPROVED MEASURE.
5. GREATER THAN AT LEAST 50 FEET FROM WATER RESOURCE AREAS, PERIMETER CONTROLS MAY INCLUDE:
   a. SILT FENCE (NON–REINFORCED)
   b. STAKED FIBER ROLLS
   c. EROSION CONTROL MIX BERMS
   d. OTHER INTERCHANGEABLE AND/OR DEC–APPROVED MEASURE.

2 Perimeter Control Table

12/12

N.T.S. Source: VHB LD_



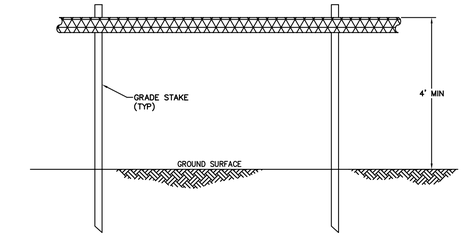
Notes:

1. BARRIER MESH TAPE OR ROPE SHALL BE INSTALLED ALONG THE PERIMETER OF THE PROJECT AREA TO DEMARCATE THE LIMIT OF DISTURBANCE. NO EARTHWORK OR STORAGE OF MATERIALS SHALL BE CONDUCTED BEYOND THIS LIMIT WITHOUT PRIOR APPROVAL FROM THE OSPC.
2. USE 3" ORANGE BARRIER MESH TAPE OR 1/2" YELLOW POLYPROPYLENE ROPE.
3. WITHIN 50' OF WATER RESOURCE AREAS, USE 2–3 ROWS OF TAPE OR ROPE. BEYOND 50' OF WATER RESOURCE AREAS USE 1 ROW OF TAPE OR ROPE.
4. TAPE OR ROPE MAY BE FASTENED TO STAKES, TREES, OR OTHER APPROPRIATE FIXED OBJECTS.
5. PROJECT DEMARCATION SHALL NOT CROSS ACTIVE ACCESS ROUTES (E.G. ROADS). PROJECT DEMARCATION MAY CROSS RESOURCES AREAS WITH EXCEPTION OF LARGER WATER BODIES WHERE IT IS NOT FEASIBLE OR ADVISABLE.
6. PROJECT DEMARCATION SHALL REMAIN IN PLACE AND BE MAINTAINED/REPLACED AS NEEDED UNTIL FINAL STABILIZATION IN THE AREA HAS BEEN ACHIEVED.

3 Barrier Mesh Tape or Rope

12/12

N.T.S. Source: VHB LD_



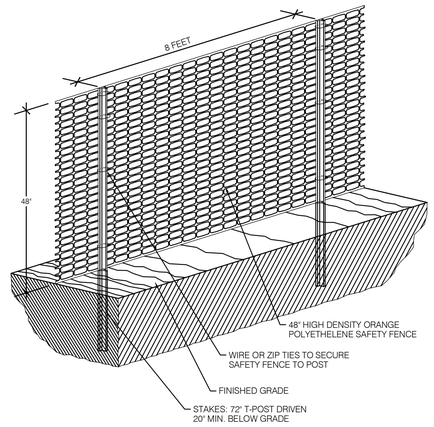
Notes:

1. BARRIER FLAGGING OR PAINT SHALL BE INSTALLED ALONG THE PERIMETER OF THE PROJECT AREA TO DEMARCATE THE LIMIT OF DISTURBANCE. NO EARTHWORK OR STORAGE OF MATERIALS SHALL BE CONDUCTED BEYOND THIS LIMIT WITHOUT PRIOR APPROVAL FROM THE OSPC.
2. FLAGGING OR PAINT MAY BE FASTENED TO STAKES, TREES, OR OTHER APPROPRIATE FIXED OBJECTS.
3. PROJECT DEMARCATION SHALL NOT CROSS ACTIVE ACCESS ROUTES (E.G. ROADS). PROJECT DEMARCATION MAY CROSS RESOURCE AREAS WITH THE EXCEPTION OF LARGER WATER BODIES WHERE IT IS NOT FEASIBLE OR ADVISABLE.
4. PROJECT DEMARCATION SHALL REMAIN IN PLACE AND BE MAINTAINED/REPLACED AS NEEDED UNTIL FINAL STABILIZATION IN THE AREA HAS BEEN ACHIEVED.

4 Barrier Flagging or Paint

12/12

N.T.S. Source: VHB LD_



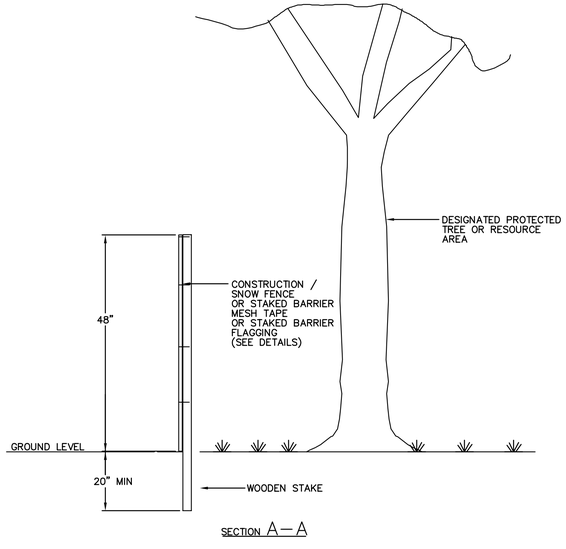
Notes:

1. CONSTRUCTION/SNOW FENCE SHALL BE INSTALLED WITHIN 50' OF A WATER RESOURCE, (STREAM, BROOK, LAKE, POND, ETC.) UNLESS THE AREA IS DENSELY WOODED, IN WHICH CASE 2 TO 3 ROWS OF ORANGE BARRIER MESH TAPE OR ROPE MAY BE USED.
2. CONSTRUCTION/SNOW FENCE SHALL NOT CROSS ACTIVE ACCESS ROUTES (E.G. ROADS). CONSTRUCTION/SNOW FENCE MAY CROSS RESOURCE AREAS WITH THE EXCEPTION OF LARGER WATER BODIES WHERE IT IS NOT FEASIBLE OR ADVISABLE.
3. CONSTRUCTION/SNOW FENCE SHALL REMAIN IN PLACE AND BE MAINTAINED/REPLACED AS NEEDED UNTIL FINAL STABILIZATION IN THE AREA HAS BEEN ACHIEVED.

5 Construction/Snow Fence

12/12

N.T.S. Source: VHB LD_651



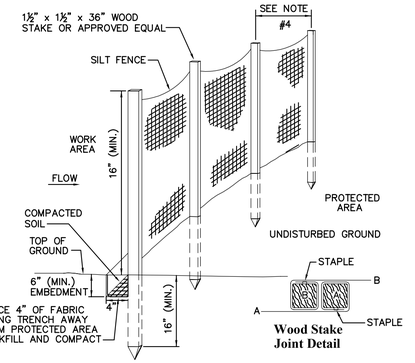
NOTES:

1. MINIMUM DISTANCE BETWEEN RESOURCE AND BARRIER SHALL BE 25' UNLESS OTHERWISE DIRECTED BY OSPC.
2. RESOURCES REQUIRING PROTECTION FOR ALL SIDES WILL BE BOXED WITH A MINIMUM OF 4 PANELS.
3. BARRIER MAY BE CONSTRUCTION/SNOW FENCE, STAKED BARRIER MESH TAPE, OR STAKED BARRIER FLAGGING. (SEE DETAILS.)
4. BARRIER TO REMAIN IN PLACE UNTIL CONSTRUCTION ACTIVITIES IN AREA ARE COMPLETE OR AS AS OTHERWISE DIRECTED BY OSPC.

6 Wetland, RTE, and Vegetation Protection Barrier

12/12

N.T.S. Source: CHA LD_



Notes:

1. SEE DETAIL # 2 ON SHEET ANGP–T–G–012 FOR LIST OF APPROPRIATE PERIMETER CONTROLS TO USE.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. FOR FILTER CLOTH FENCE WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4 FT. FOR FILTER CLOTH FENCE WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6 FT.
4. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER–LAPPED BY 6 INCHES AND FOLDED.
5. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE OR APPROVED EQUIVALENT.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT AND DISPOSED OF IN AN UPLAND AREA.
7. PERIMETER CONTROLS SHALL NOT CROSS ACTIVE ACCESS ROUTES (E.G., ROADS) OR ACTIVE FLOW PATHS (E.G., LARGER STREAMS/RIVERS).
8. PERIMETER CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED/REPLACED AS NEEDED UNTIL FINAL STABILIZATION IN THE AREA HAS BEEN ACHIEVED.

7 Silt Fence

12/12

N.T.S. Source: VHB LD_650VT

STATE OF VERMONT — ENGINEER — NO. 97764 — CIVIL — PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

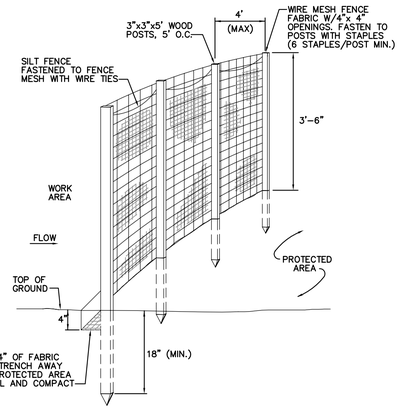
VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com

YEAR: 2016	W.O.	SCALE: NOTED	DWG. ANGP–T–G–012	REV. 0



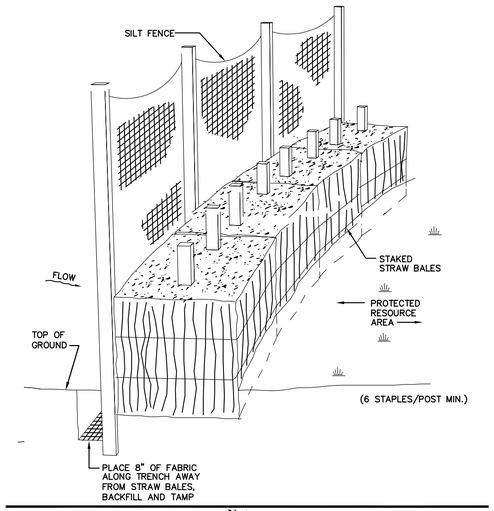
Notes:

1. SEE DETAIL #2 ON SHEET ANGP-T-G-012 FOR LIST OF APPROPRIATE PERIMETER CONTROLS TO USE
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. FOR FILTER CLOTH FENCE WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4 FT. FOR FILTER CLOTH FENCE WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6 FT.
4. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6 INCHES AND FOLDED.
5. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE OR APPROVED EQUIVALENT.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT AND DISPOSED OF IN AN UPLAND AREA.
7. PERIMETER CONTROLS SHALL NOT CROSS ACTIVE ACCESS ROUTES (E.G., ROADS) OR ACTIVE FLOW PATHS (E.G., LARGER STREAMS/RIVERS).
8. PERIMETER CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED/REPLACED AS NEEDED UNTIL FINAL STABILIZATION IN THE AREA HAS BEEN ACHIEVED.

1 Reinforced Silt Fence with Wire Mesh

12/12

N.T.S. Source: VHB LD_651



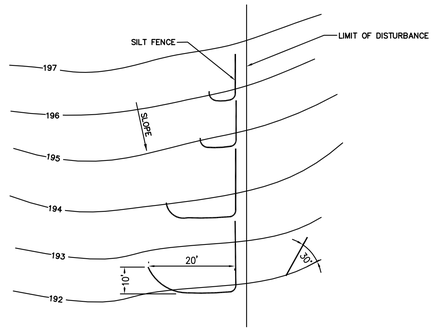
Notes:

1. SEE DETAIL # 2 ON SHEET ANGP-T-G-012 FOR LIST OF APPROPRIATE PERIMETER CONTROLS TO USE
2. SEE SILT FENCE DETAIL AND NOTES FOR INSTALLATION SPECIFICATIONS FOR SILT FENCE.
3. SEE STAKED HAY BALE DETAIL AND NOTES FOR INSTALLATION SPECIFICATIONS FOR STAKED STRAW BALES. SEEDLESS STRAW BALES ARE TO BE USED IN RESOURCE AREAS AND THEIR BUFFERS; DO NOT USE HAY BALES.
4. STAKED STRAW BALES MAY BE INTERCHANGED WITH STAKED FIBER ROLLS.
5. PERIMETER CONTROLS SHALL NOT CROSS ACTIVE ACCESS ROUTES (E.G., ROADS) OR ACTIVE FLOW PATHS (E.G., LARGER STREAMS/RIVERS).
6. PERIMETER CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED/REPLACED AS NEEDED UNTIL FINAL STABILIZATION IN AREA HAS BEEN ACHIEVED.

2 Reinforced Silt Fence with Staked Straw Bales

12/12

N.T.S. Source: VHB LD_



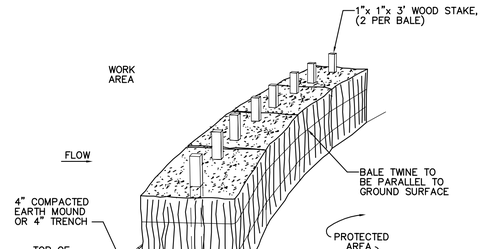
Notes:

1. SILT FENCE SHALL BE INSTALLED IN SHORTER RUNS WITH "J-HOOKS" TO AVOID CONCENTRATION OF FLOWS AT ONE LOCATION BY TRAPPING RUNOFF AT MULTIPLE POINTS ALONG A SLOPE.
2. MINIMUM WIDTH OF J-HOOK RECOMMENDED AT 20 FT WITH A DEPTH OF 10 FT. WHERE SPACE IS LIMITED (E.G., ALONG NARROW RIGHTS OF WAY), NARROWER HOOKS CAN BE USED WITH A HIGHER SPACING FREQUENCY.
3. START DOWN-GRADIENT SILT FENCE LINE AS CLOSE AS POSSIBLE TO UP-GRADIENT J-HOOK.
4. SEE SILT FENCE NOTES FOR INSTALLATION SPECIFICATIONS.

3 Silt Fence "J-Hooks"

12/12

N.T.S. Source: VHB LD_



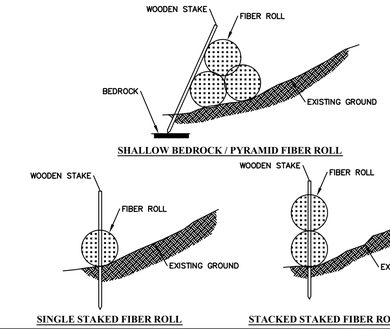
Notes:

1. ENSURE BALES ARE TRENCHED INTO THE GROUND (4" MIN) OR A 4" COMPACTED EARTH MOUND IS PRESENT ON UP GRADIENT SIDE OF BARRIER.
2. ENSURE BALES ARE INSTALLED SO ROPE RUNS PARALLEL TO GROUND.
3. ENSURE STAKES ARE PROPERLY HAMMERED IN, LEAVING ~ 4" OF EXPOSURE ABOVE THE BALE.
4. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ½ OF THE OVERALL HEIGHT. DISPOSE OF IN AN UPLAND AREA AWAY FROM WATER FLOW.
5. MAINTAIN AND REPLACE HAY BALES AS NEEDED.

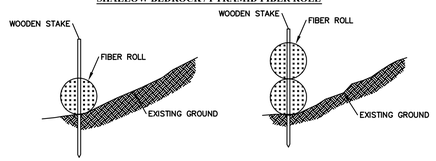
4 Staked Hay Bales

12/12

N.T.S. Source: VHB LD_653



SHALLOW BEDROCK / PYRAMID FIBER ROLL



SINGLE STAKED FIBER ROLL **STACKED STAKED FIBER ROLL**

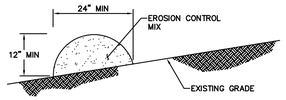
Notes:

1. SEE DETAIL # 2 ON SHEET ANGP-T-G-012 FOR LIST OF APPROPRIATE PERIMETER CONTROLS TO USE.
2. FIBER ROLL SHALL BE PLACED IN SHALLOW TRENCH UP TO 4", WHERE FEASIBLE, PLACING SOIL REMOVED FROM TRENCH BEHIND THE ROLL.
3. FIBER ROLLS SHALL BE ANCHORED WITH 2" BY 2" WOODEN STAKES (36" LONG), OR SIMILAR, WHERE FEASIBLE, EITHER INSTALLED THROUGH CENTER OF ROLL (AS SHOWN) OR PLACED ON BOTH SIDES OF ROLL.
4. STAKES TO BE PLACED 4 FT APART, MINIMUM.
5. SINGLE OR DOUBLE STACKED STAKED FIBER ROLLS TO BE INSTALLED WHERE SOIL DEPTH ALLOWS. WHERE SHALLOW TO BEDROCK, PYRAMID FIBER ROLLS TO BE UTILIZED WITH STAKES, AS FEASIBLE.
6. FIBER ROLLS TO BE REPLACED OR REPLENISHED AS NEEDED DURING ACTIVE EARTH WORK.
7. PERIMETER CONTROLS SHALL NOT CROSS ACTIVE ACCESS ROUTES (E.G., ROADS) OR ACTIVE FLOW PATHS (E.G., STREAMS/RIVERS).
8. PERIMETER CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED/REPLACED AS NEEDED UNTIL FINAL STABILIZATION IN THE AREA HAS BEEN ACHIEVED.

5 Staked Fiber Roll

12/12

N.T.S. Source: VHB LD_



Notes:

COMPOSITION

EROSION CONTROL MIX BERM SHALL CONSIST PRIMARILY OF ORGANIC MATERIAL AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK AND/OR ACCEPTABLE MANUFACTURED PRODUCTS. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS ARE NOT ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX.

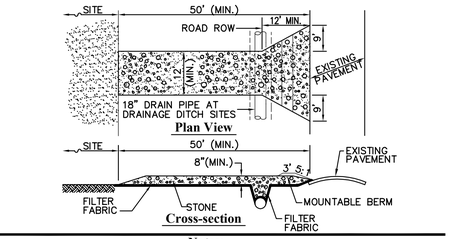
INSTALLATION

1. SEE DETAILS # 2 ON SHEET ANGP-T-G-012 FOR LIST OF APPROPRIATE PERIMETER CONTROLS TO USE.
2. THE BERM SHALL BE PLACED ALONG A RELATIVELY LEVEL CONTOUR.
3. EXISTING GROUND SHALL BE PREPARED AS NEEDED SUCH THAT THE BERM LIES NEARLY FLAT ALONG THE GROUND TO AVOID THE CREATION OF VOIDS AND BRIDGES IN ORDER TO MINIMIZE THE POTENTIAL OF WASH OUTS UNDER THE BERM.
4. ON SLOPES < 5% OR AT THE BOTTOM OF STEEPER SLOPES (<2:1) UP TO 20' LONG, THE BERM MUST BE A MINIMUM OF 12" HIGH, AS MEASURED ON THE UPHILL SIDE OF THE BERM, AND A MINIMUM OF 2 FT. WIDE. ON LONGER OR STEEPER SLOPES, THE BERM SHALL BE WIDER TO ACCOMMODATE ADDITIONAL FLOW.
5. BERM MAY BE INSTALLED IN PLACE OF SILT FENCE EXCEPT IN, BUT NOT LIMITED TO, THE FOLLOWING AREAS: WETLAND AREAS, AT POINTS OF CONCENTRATED FLOW, BELOW STORMWATER OUTFALLS, AROUND CATCH BASINS AND CLOSED STORM SYSTEMS AND AT THE BOTTOM OF STEEP SLOPES THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM. BERM MAY BE USED IN WETLAND BUFFER AREAS BUT MAY NOT BE USED IN WETLANDS AREA.
6. PERIMETER CONTROLS SHALL NOT CROSS ACTIVE ACCESS ROUTES (E.G., ROADS) OR ACTIVE FLOW PATHS (E.G., LARGER STREAMS RIVERS).
7. PERIMETER CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED/REPLACED AS NEEDED UNTIL FINAL STABILIZATION IN AREA HAS BEEN ACHIEVED.

6 Erosion Control Mix Berm

12/12

N.T.S. Source: VHB LD_



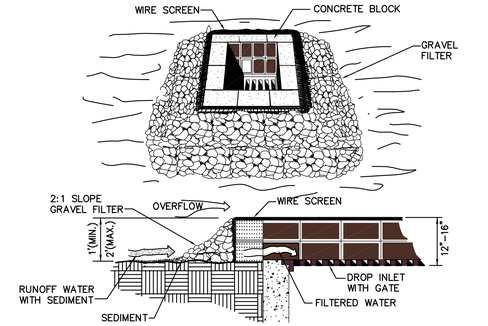
Notes:

1. STONE SIZE: USE 1 TO 4 INCH DIAMETER STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH: NOT LESS THAN 50 FEET.
3. THICKNESS: NOT LESS THAT 8 INCHES.
4. WIDTH: EXIT WIDTH SHALL BE A TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. GEOTEXTILE: MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER: ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION EXITS SHALL BE PIPED BENEATH THE EXIT. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE: THE EXIT 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. MAINTENANCE MAY REQUIRE TOP DRESSING W/ADDITIONAL AGGREGATE.
8. WHEN WHEEL/EQUIPMENT 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.
10. STABILIZED CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO FINAL FINISH MATERIALS BEING INSTALLED.

7 Stabilized Construction Exit

12/12

N.T.S. Source: VHB LD_



Notes:

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2" MINIMUM BELOW THE REST OF THE INLET AND BLOCKS SHALL BE PLACED AGAINST THE INLET FOR SUPPORT.
2. CONCRETE BLOCKS SHOULD BE PLACED LENGTHWISE ON THEIR SIDES IN A SINGLE ROW AROUND THE PERIMETER OF THE INLET. THE ENDS OF EACH BLOCK SHOULD BE ABUTTING. THE HEIGHT OF THE BARRIER CAN BE VARIED DEPENDING ON THE DESIGN BY STACKING VARIOUS COMBINATIONS OF DIFFERENT SIZED BLOCKS. THE BARRIER SHOULD BE A MINIMUM OF 12 INCHES HIGH AND A MAXIMUM OF 16 INCHES HIGH.
3. HARDWARE CLOTH OR ½" WIRE MESH SHOULD BE PLACED OVER THE OPENINGS OF THE CONCRETE BLOCKS AND EXTENDED AT LEAST 12 INCHES AROUND THE OPENING TO PREVENT AGGREGATE FROM BEING TRANSPORTED THROUGH THE OPENINGS IN THE BLOCK.
4. USE CLEAN STONE OR GRAVEL ½" TO ¾" IN DIAMETER PLACED 2" BELOW TOP OF THE BLOCK ON A 2H:1V SLOPE OR FLATTER.
5. A 1 FOOT THICK LAYER OF FILTER STONE WILL BE PLACED AGAINST THE 3" STONE.
6. MAXIMUM DRAINAGE AREA PER SEDIMENT TRAP IS 1 ACRE.
7. BLOCK AND GRAVEL DROP INLET SEDIMENT FILTER SHALL BE CONSTRUCTED IN PAVED AREAS.

8 Block and Gravel Drop Inlet Sediment Filter (Paved Areas)

10/13

N.T.S. Source: VHB LD_

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION

	BID		CONSTRUCTION	
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
	INITIALS	DATE	INITIALS	DATE

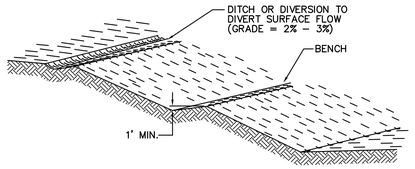
VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

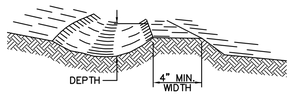
Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP-T-G-013 | REV. 0



PLAN VIEW
N.T.S.



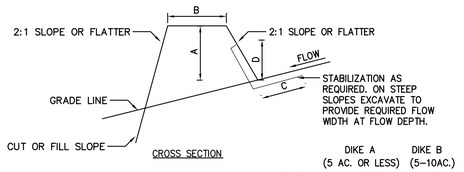
CROSS–SECTION
N.T.S.

Notes:

1. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE DIVERSION.
2. THE DIVERSION SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET CRITERIA SPECIFIED HEREIN, AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
3. FILLS SHALL BE COMPACTED AS NEEDED TO PREVENT UNEQUAL SETTLEMENT THAT WOULD CAUSE DAMAGE IN THE COMPLETED DIVERSION.
4. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED FOLLOWING FINISHED GRADING.
5. SILT FENCE OR HAY BALES SHALL BE PLACED AT THE OUTLET OF EACH STRUCTURE.

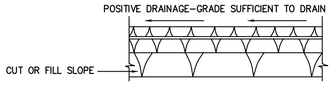
1 Diversion Swale and Bench

N.T.S. Source: VHB 12/12 LD_



CROSS SECTION

	DIKE A (5 AC. OR LESS)	DIKE B (5–10AC.)
A – DIKE HEIGHT	18"	36"
B – DIKE WIDTH	24"	36"
C – FLOW WIDTH	48"	60"
D – FLOW DEPTH	8"	15"



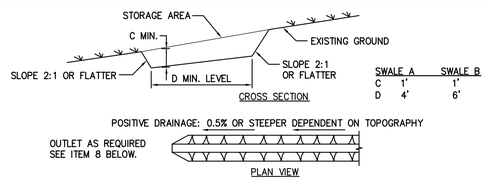
CONSTRUCTION SPECIFICATIONS

1. ALL DIKES SHALL BE COMPACTED BY EARTH–MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES BE FLATTER IF DESIRED TO FACILITATE CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR MULCH IF NOT IN SEEDING SEASON, (B) PER THE FOLLOWING CHART

TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC OR LESS)	B(5 AC – 10 AC)
1	0.5%–3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1%–5.0%	SEED AND STRAW MULCH	SEED AND COVER USING RECP
3	5.1%–8.0%	SEED AND COVER WITH RECP	LINED WITH 4–8" RIP–RAP OR GEOTEXTILE
4	8.1%–20.0%	LINED WITH 4–8" RIP–RAP	ENGINEERED DESIGN

2 Earth Dike

N.T.S. Source: VHB / VT S+S EPSC 12/12 LD_



CROSS SECTION

	SWALE A	SWALE B
C	1'	1'
D	4'	6'

POSITIVE DRAINAGE: 0.5% OR STEEPER DEPENDENT ON TOPOGRAPHY

PLAN VIEW

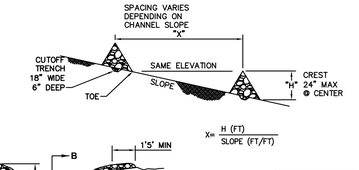
CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON–EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. STABILIZATION SHALL BE AS PER THE FLOW CHANNEL STABILIZATION CHART BELOW:

TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC OR LESS)	B(5 AC – 10 AC)
1	0.5%–3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1%–5.0%	SEED AND STRAW MULCH	SEED AND COVER USING RECP
3	5.1%–8.0%	SEED AND COVER WITH RECP	LINED WITH 4–8" RIP–RAP OR GEOTEXTILE
4	8.1%–20.0%	LINED WITH 4–8" RIP–RAP	ENGINEERED DESIGN

3 Temporary Swale

N.T.S. Source: VHB / VT S+S EPSC 12/12 LD_



SECTION 'A-A'

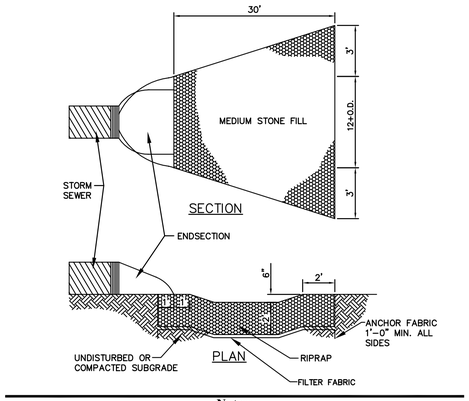
SECTION 'B-B'

Notes:

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN USING A WELL GRADED STONE MATRIX 2 TO 9 INCHES IN SIZE.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
6. MAXIMUM DRAINAGE AREA ABOVE CHECK DAM SHALL NOT EXCEED 2 AC.

4 Stone Check Dam

N.T.S. Source: VHB / VT S+S EPSC 12/12 LD_

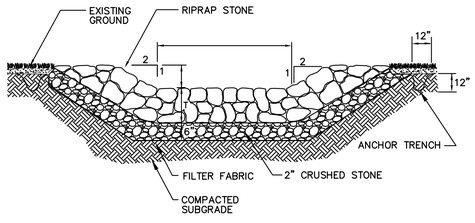


Notes:

1. OUTLET PROTECTION MAY BE DONE BY USING ROCK RIP–RAP, GROUTED RIP–RAP, OR GABIONS.
2. STONE SIZE SHALL BE A WELL GRADED MIXTURE SO THAT 50% OF THE STONE SIZE, BY WEIGHT, SHALL BE LARGER THAN THE d50 SIZE DETERMINED USING THE CHARTS.

5 Outlet Protection

N.T.S. Source: CHA 12/12 LD_



Notes:

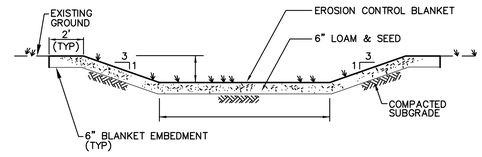
1. MIN. CAPACITY SHALL CARRY PEAK FLOW RATE DURING 10–YR, 24–HR STORM EVENT.
2. MAX SIZE OF RIPRAP STONE SHALL BE:

VEL (FPS)	DMAX (IN.)
5.0	6
8.5	12
10	18
12	24
15	36

3. FOUNDATION AREA SHALL BE CLEARED OF TREES, STUMPS, ROOTS, SOD, LOOSE ROCK, OR OTHER OBJECTIONABLE MATERIAL.
4. OUTLET STABILIZATION MAY BE NEEDED TO PREVENT EROSION.

6 Stone-lined Swale

N.T.S. Source: VHB 12/12 LD_358

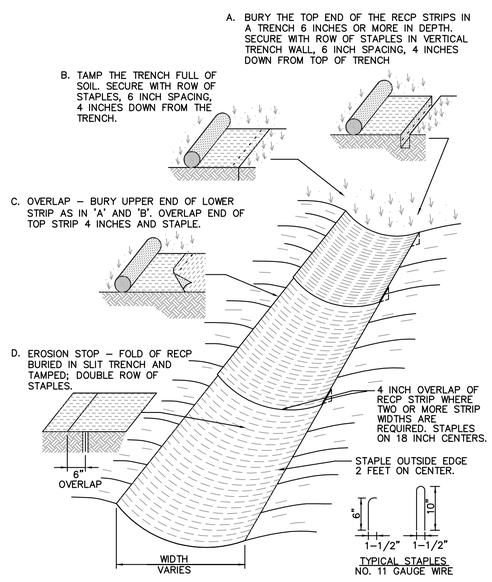


Notes:

1. NOT TO BE USED IN AREAS WHERE FLOW VOLUME AND RATES MAY CAUSE EROSION AND SHOULD OTHERWISE BE CONVEYED VIA STONE–LINED SWALE.
2. FOUNDATION AREA SHALL BE CLEARED OF TREES, STUMPS, ROOTS, SOD, LOOSE ROCK, OR OTHER OBJECTIONABLE MATERIAL.
3. INSTALL TEMPORARY COVER (E.G., MULCH) TO PROTECT AREA WHILE SEED IS GERMINATING.
4. SEE SEEDING SPECIFICATIONS FOR SEED TYPES AND SEED APPLICATION RATES.

7 Grassed Swale

N.T.S. Source: VHB 12/12 LD_171



1. INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS
2. RECP TO BE BIODEGRADABLE; NO NYLON MESH. SEE SHEET ANGP–T–G–017 FOR RECP SPECIFICATIONS.

8 Rolled Erosion Control Blanket (RECP) - Swale Installation

N.T.S. Source: VHB 12/12 LD_

STATE OF VERMONT – MICHAEL E. HOLLOWAY – NO. 97764 – CIVIL – LICENSED PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID		CONSTRUCTION	
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
							INITIALS	DATE	INITIALS	DATE

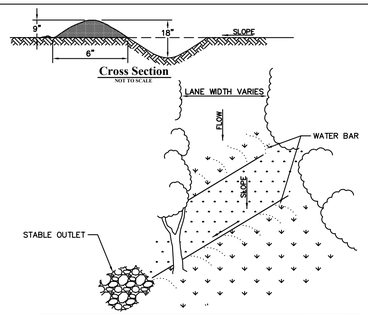
VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP–T–G–014 | REV. 0



Construction Specifications

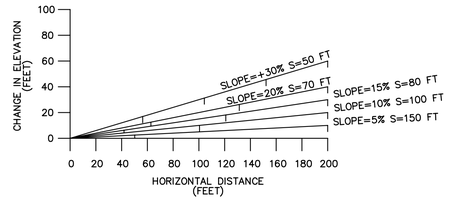
1. INSTALL THE WATER BAR AS SOON AS THE RIGHT OF WAY IS CLEARED AND GRADED.
2. DISK OR STRIP THE SOD FROM THE BASE FOR THE CONSTRUCTED RIDGE BEFORE PLACING FILL.
3. TRACK THE RIDGE TO COMPACT IT TO THE DESIGN CROSS SECTION.
4. THE OUTLET SHALL BE LOCATED ON AN UNDISTURBED AREA. FIELD SPACING WILL BE ADJUSTED TO USE THE MOST STABLE OUTLET AREAS. OUTLET PROTECTION WILL BE PROVIDED WHEN NATURAL AREAS ARE NOT ADEQUATE.
5. FOR PERMANENT WATER BARS, VEHICLE CROSSING SHALL BE STABILIZED WITH GRAVEL. EXPOSED AREAS SHALL BE SEEDED AND MULCHED. FOR TEMPORARY WATER BARS, VEHICLE CROSSING SHALL BE COMPACTED AND MAINTAINED PER THESE SPECIFICATIONS. FOLLOWING THEIR USE, WATER BARS SHALL BE REGRADED TO MATCH PRE-CONSTRUCITON CONDITIONS. TOPSOIL SHALL BE RE-APPLIED THEN ALL AREAS OF EXPOSED SOIL SHALL BE FULLY STABILIZED PER THE EPSC PLAN.
6. INSPECT WATER BARS FOR EROSION DAMAGE AND SEDIMENT. CHECK OUTLET AREAS AND MAKE REPAIRS AS NEEDED TO RESTORE OPERATION.
7. SPACING:

SLOPE (%)	SPACING (FT)
<5	125
5-10	100
10-20	75
20-35	50
>35	25

1 Water Bars

10/13

N.T.S. Source: Vermont Standards and Specs for EPSC 2006 LD_



NOTE: S = TRENCH BREAKER SPACING

NOTES:

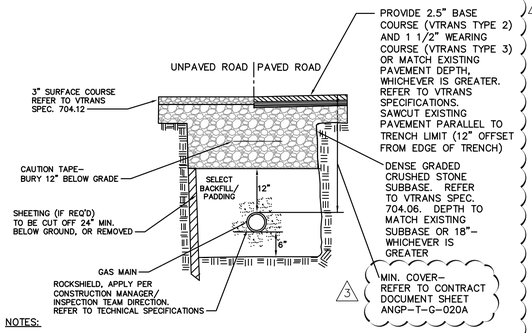
1. PERMANENT TRENCH BREAKER SANDBAGS SHALL NOT BE FILLED WITH TOPSOIL.
2. SPACINGS SHOWN ARE RECOMMENDED MINIMUM GUIDELINES. OSPC REPRESENTATIVE MAY ADJUST SPACING IN THE FIELD WITH PRIOR WRITTEN APPROVAL OF OWNER.
3. ONE TRENCH BREAKER IS REQUIRED AT ALL STREAM BANKS AND AT WETLAND BOUNDARIES.
4. REFER TO SHEETS ANGP-T-G-020B AND 020C FOR APPROXIMATE TRENCH BREAKER LOCATIONS.

3

2 Permanent Trench Break Spacing Guideline

12/12

N.T.S. Source: CHA LD_



NOTES:

1. REFER TO TECHNICAL SPECIFICATIONS FOR BOTH GENERAL AND SELECT/PADDING BACKFILL REQUIREMENTS.
2. IN RESOURCE AREAS (E.G. WETLANDS AND PAS AREAS) GENERAL BACKFILL SHALL BE NATIVE MATERIAL TO MATCH PROFILE DEPTH OF ADJACENT NATIVE, UNDISTURBED SUBSOIL/SURFACE SOIL INTERFACE. EXCESS SUBSOIL TO BE PROPERLY DISPOSED OF AND STABILIZED.
3. THE OWNER SHALL PROVIDE TESTING SERVICES TO INSURE THAT THE IN-PLACE DENSITY OF THE BACKFILL MEETS REQUIREMENTS DETERMINED IN THE SPECIFICATIONS.
4. ALL TRENCH CONSTRUCTION SHALL CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
5. FOR PIPE SUPPORT METHODS AND OTHER PIPE-IN-TRENCH REQUIREMENTS, REFER TO TECHNICAL SPECIFICATIONS.

3 Typical Trench Detail-Roadways and Driveways

11/14

N.T.S. Source: CHA LD_

CHA PLAN SHEET #	TOWN	PROJECT COMPONENT	PLANT ID CODE	STATE RANK	MATTING LOCATIONS (STATION)
ANGP-EPSC-014	WILLISTON	TRANSMISSION (ACCESS ROAD)	2012-RTE-CT-03 1	S2/S3	366+50 TO 368+75 AND ON ACCESS ROAD
ANGP-EPSC-022	WILLISTON	TRANSMISSION	2012-RTE-CT-08 4	S2/S3	562+50 TO 563+75
ANGP-EPSC-039	HINESBURG	TRANSMISSION	2012-RTE-CT-08 0	S2/S3	992+80 TO 993+50
ANGP-EPSC-039	HINESBURG	TRANSMISSION	2012-RTE-CT-08 1	S2/S3	1001+20 TO 1002+20
ANGP-EPSC-039	HINESBURG	TRANSMISSION	2012-RTE-CT-08 2	S2/S3	1003+50 TO 1005+80
ANGP-EPSC-040	HINESBURG	TRANSMISSION	2012-RTE-CT-04 1	S2/S3	1021+20 TO 1023+00
ANGP-EPSC-051	MONKTON	TRANSMISSION	2012-RTE-ACT-0 83	S2/S3	1302+10 TO 1307+90
ANGP-EPSC-066	NEW HAVEN	TRANSMISSION	2012-RTE-CT-05 1	S2/S3	1649+50 TO 1652+00
ANGP-EPSC-066	NEW HAVEN	TRANSMISSION	2012-RTE-CT-06 1	S2/S3	1665+50
ANGP-EPSC-066	NEW HAVEN	TRANSMISSION	2012-RTE-AT-05 3	S1	1659+60
ANGP-EPSC-066	NEW HAVEN	TRANSMISSION	2012-RTE-LV-05 4	S2	1659+60
ANGP-EPSC-066	NEW HAVEN	TRANSMISSION	2012-RTE-AT-06 3	S1	1669+70 TO 1670+50
ANGP-EPSC-075, 079, 077	NEW HAVEN	TRANSMISSION	2012-RTE-CT-06 9	S2/S3	1918+00 TO 1966+50
ANGP-EPSC-V011	FERRISBURGH	DISTRIBUTION MAIN	2012-RTE-CT-06 8	S2/S3	118+80 TO 119+10

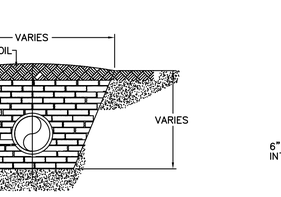
Notes:

1. INSTALL CONSTRUCTION MATS ON STATION LOCATIONS LISTED IN TABLE TO PROTECT RARE PLANT SPECIES.
2. LIMIT DURATION OF MATTING DURING GROWING SEASON TO EXTENT PRACTICABLE.
3. REMOVE MATTING IMMEDIATELY FOLLOWING THEIR USE. FOR EXAMPLE, WHERE MATTING IS USED FOR TEMPORARY STOCKPILING OF SOIL FROM TRENCHING OPERATIONS, REMOVE MATTING IMMEDIATELY FOLLOWING BACKFILL OPERATIONS.
4. AT A MINIMUM, MATTING IS NOT TO BE LEFT IN PLACE FOR MORE THAN 28 DAYS WHERE FEASIBLE.
5. REFER TO ADDITIONAL ENVIRONMENTAL NOTE 12 ON SHEET ANGP-T-G-011

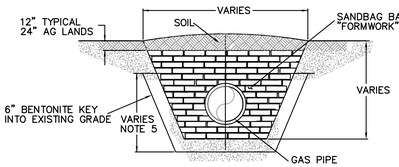
4 RTE Matting Table

09/13

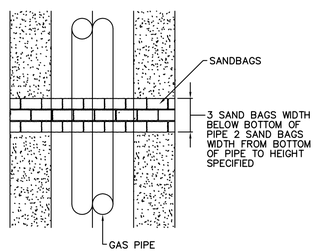
N.T.S. Source: VHB



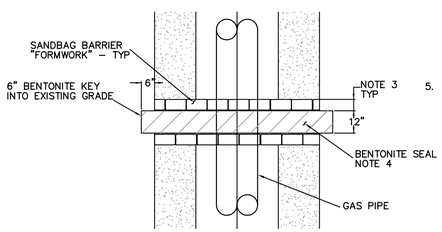
PROFILE VIEW



PROFILE VIEW



PLAN VIEW
SAND BAG TRENCH BREAKER



PLAN VIEW
TRENCH BREAKER WITH BENTONITE

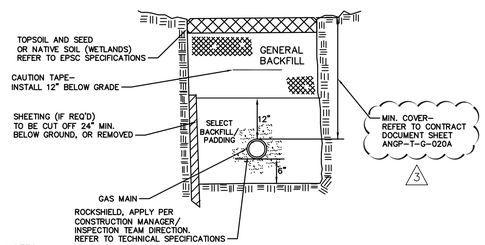
NOTES:

1. PERMANENT TRENCH BREAKER WITH BENTONITE SEAL IS INTENDED TO PROHIBIT WATER FLOW THROUGH THE BREAKER.
2. PERMANENT TRENCH BREAKER WITH BENTONITE SEAL TO BE INSTALLED AT EDGE OF WETLANDS AND STREAMS.
3. SAND BAG BARRIER WIDTH SHALL BE MINIMUM 1 BAG WIDE AND/OR AS FIELD DETERMINED TO PROVIDE STABILITY.
4. BENTONITE IS TO BE INSTALLED IN THE VOID SPACE BETWEEN THE SANDBAG BARRIER "FORMWORK" IN SUCH A MANNER TO COMPLETELY SURROUND THE PIPE AND FILL THE VOID FROM THE BOTTOM OF THE TRENCH TO A HEIGHT 6" ABOVE THE LEVEL OF IMPORTED PADDING MATERIAL WHICH IS INSTALLED ON THE EXTERIOR SIDE OF THE SANDBAG BARRIER IN THE WETLAND ZONE.
5. AFTER BENTONITE PLACEMENT, INSTALL SAND BAGS ON TOP OF THE PERMANENT TRENCH BREAKER AND BENTONITE SEAL TO THE REQUIRED HEIGHT PER DETAIL 2 AND BACKFILL EXTERIOR SIDES OF SAND BAG BARRIERS.

5 Permanent Trench Break or Sandbags

12/12

N.T.S. Source: CHA LD_



NOTES:

1. REFER TO TECHNICAL SPECIFICATIONS FOR BOTH GENERAL AND SELECT/PADDING BACKFILL REQUIREMENTS.
2. IN RESOURCE AREAS (E.G. WETLANDS AND PAS AREAS) GENERAL BACKFILL SHALL BE NATIVE MATERIAL TO MATCH PROFILE DEPTH OF ADJACENT NATIVE, UNDISTURBED SUBSOIL/SURFACE SOIL INTERFACE. EXCESS SUBSOIL TO BE PROPERLY DISPOSED OF AND STABILIZED.
3. THE OWNER SHALL PROVIDE TESTING SERVICES TO INSURE THAT THE IN-PLACE DENSITY OF THE BACKFILL MEETS REQUIREMENTS DETERMINED IN THE SPECIFICATIONS.
4. ALL TRENCH CONSTRUCTION SHALL CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
5. FOR PIPE SUPPORT METHODS AND OTHER PIPE-IN-TRENCH REQUIREMENTS, REFER TO TECHNICAL SPECIFICATIONS.

6 Typical Trench Detail-Cross Country

11/14

N.T.S. Source: CHA LD_

3

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
		3	GJM	BCK		IFC 2016 EDITS (05/2016)	DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
		2	BCK	TDB		TRENCH DETAIL UPDATE (1/6/16)	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
		1	BCK	TDB		DEPTH OF COVER UPDATE (6/11/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

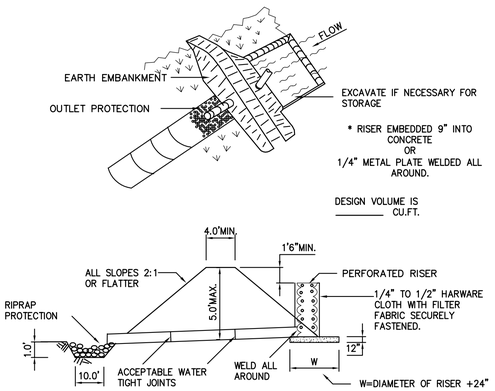
LOC. CHITTENDEN & ADDISON COUNTIES

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP-T-G-015 | REV. 3

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com



EMBANKMENT SECTION THRU RISER

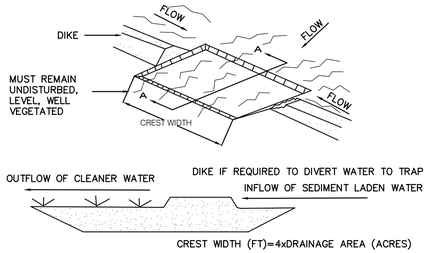
CONSTRUCTION SPECIFICATIONS

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. VOLUME OF SEDIMENT STORAGE SHALL BE 3600 CUBIC FEET PER ACRE OF CONTRIBUTORY DRAINAGE.
4. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND STABILIZED.
5. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
6. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
7. THE STRUCTURE SHALL BE REMOVED AND AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
8. ALL FILL SLOPES SHALL BE 2:1 OR FLATTER; CUT SLOPES 1:1 OR FLATTER.
9. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
10. THE TOP 2/3 OF THE RISER SHALL BE PERFORATED WITH ONE (1) INCH DIAMETER HOLES OR SLITS SPACED SIX (6) INCHES VERTICALLY AND HORIZONTALLY AND PLACED IN THE CONCAVE PORTION OF PIPE. NO HOLES WILL BE ALLOWED WITHIN SIX (6) INCHES OF THE HORIZONTAL BARREL.
11. THE RISER SHALL BE WRAPPED WITH 1/4 TO 1/2 INCH HARDWARE CLOTH WIRE THEN WRAPPED WITH FILTER CLOTH (HAVING AN EQUIVALENT SIEVE SIZE OF 40-80). THE FILTER CLOTH SHALL EXTEND SIX (6) INCHES ABOVE THE HIGHEST HOLE AND SIX (6) INCHES BELOW THE LOWEST HOLE. WHERE ENDS OF THE FILTER CLOTH COME TOGETHER, THEY SHALL BE OVER-LAPPED, FOLDED AND STAPLED TO PREVENT BYPASS.
12. STRAPS OR CONNECTING BANDS SHALL BE USED TO HOLD THE FILTER CLOTH AND WIRE FABRIC IN PLACE. THEY SHALL BE PLACED AT THE TOP AND BOTTOM OF THE CLOTH.
13. FILL MATERIAL AROUND THE PIPE SPILLWAY SHALL BE HAND COMPACTED IN FOUR (4) INCH LAYERS. A MINIMUM OF TWO (2) FEET OF HAND COMPACTED BACKFILL SHALL BE PLACED OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
14. THE RISER SHALL BE ANCHORED WITH EITHER A CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOTATION. FOR CONCRETE BASED THE DEPTH SHALL BE TWELVE (12) INCHES WITH THE RISER EMBEDDED NINE (9) INCHES. A 1/4 INCH MINIMUM THICKNESS STEEL PLATE SHALL BE ATTACHED TO THE RISER BY A CONTINUOUS WELD AROUND THE BOTTOM TO FORM A WATERTIGHT CONNECTION AND THEN PLACE TWO (2) FEET OF STONE, GRAVEL, OR TAMPED EARTH ON THE PLATE.

1 Pipe Outlet Sediment Trap

12/12

N.T.S. Source: VHB / VT S+S EPSC LD_



SECTION A – A
EXCAVATED GRASS OUTLET SEDIMENT TRAP

CONSTRUCTION SPECIFICATIONS

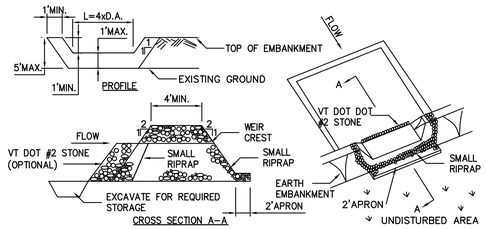
1. VOLUME OF SEDIMENT STORAGE SHALL BE 1800 CUBIC FEET PER ACRE OF CONTRIBUTORY DRAINAGE AREA.
2. MINIMUM CREST WIDTH SHALL BE 4 x DRAINAGE AREA
3. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
4. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
5. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION SHALL BE MINIMIZED.
6. THE SEDIMENT TRAP SHALL BE REMOVED AND AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
7. ALL CUT SLOPES SHALL BE 1:1 OR FLATTER.

MAXIMUM DRAINAGE AREA: 5 ACRES

2 Grass Outlet Sediment Trap

12/12

N.T.S. Source: VHB / VT S+S EPSC LD_



CONSTRUCTION SPECIFICATIONS

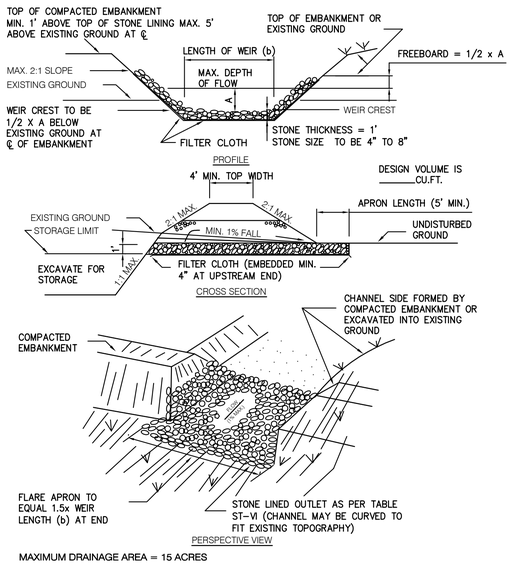
1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
4. THE STONE USED IN THE OUTLET SHALL BE SMALL RIPRAP 4"-8" ALONG WITH A 1' THICKNESS OF 2" AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED FILTER CLOTH IN THE RIPRAP.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMEN- SIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND AS REQUIRED BY THE PERMIT.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
8. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

MAXIMUM DRAINAGE AREA 5 ACRES

3 Stone Outlet Sediment Trap

12/12

N.T.S. Source: VHB / VT S+S EPSC LD_



MAXIMUM DRAINAGE AREA = 15 ACRES

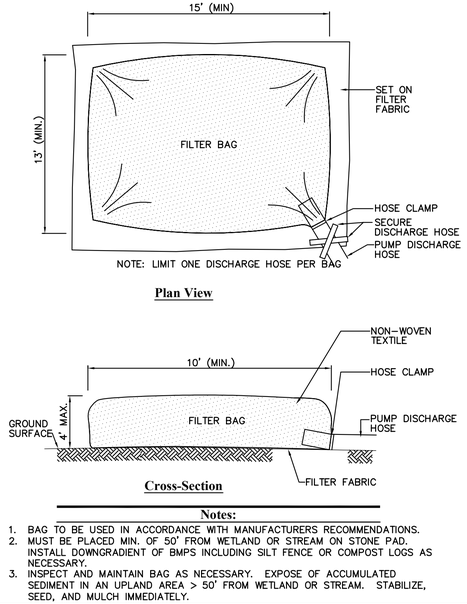
CONSTRUCTION SPECIFICATIONS

1. THE AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED. MAXIMUM HEIGHT OF EMBANKMENT SHALL BE FIVE (5) FEET, MEASURED AT CENTERLINE OF EMBANKMENT.
3. ALL FILL SLOPES SHALL BE 2:1 OR FLATTER, CUT SLOPES 1:1 OR FLATTER.
4. ELEVATION OF THE TOP OF ANY DIKE DIRECTING WATER INTO TRAP MUST EQUAL OR EXCEED THE HEIGHT OF EMBANKMENT.
5. STORAGE AREA PROVIDED SHALL BE FIGURED BY COMPUTING THE VOLUME AVAILABLE BEHIND THE OUTLET CHANNEL UP TO AN ELEVATION OF ONE (1) FOOT BELOW THE LEVEL WEIR CREST.
6. FILTER CLOTH SHALL BE PLACED OVER THE BOTTOM AND SIDES OF THE OUTLET CHANNEL PRIOR TO PLACEMENT OF STONE. SECTIONS OF FABRIC MUST OVERLAP AT LEAST ONE (1) FOOT WITH SECTION NEAREST THE ENTRANCE PLACED ON TOP. FABRIC SHALL BE EMBEDDED AT LEAST SIX (6) INCHES INTO EXISTING GROUND AT ENTRANCE OUTLET CHANNEL.
7. STONE USED IN THE OUTLET CHANNEL SHALL BE FOUR (4) TO EIGHT (8) INCH RIPRAP. TO PROVIDE A FILTERING EFFECT, A LAYER OF FILTER CLOTH SHALL BE EMBEDDED ONE (1) FOOT WITH SECTION NEAREST ENTRANCE PLACED ON TOP. FABRIC SHALL BE EMBEDDED AT LEAST SIX (6) INCHES INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.
8. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
9. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRED AS NEEDED.
10. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
11. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
12. DRAINAGE AREA FOR THIS PRACTICE IS LIMITED TO 15 ACRES OR LESS.

4 Riprap Outlet Sediment Trap

12/12

N.T.S. Source: VHB / VT S+S EPSC LD_



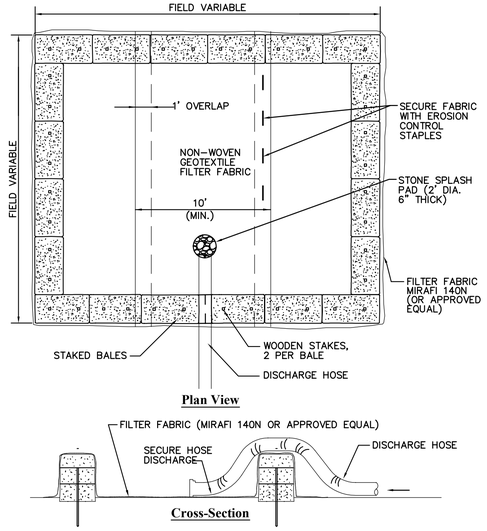
Notes:

1. BAG TO BE USED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
2. MUST BE PLACED MIN. OF 50' FROM WETLAND OR STREAM ON STONE PAD. INSTALL DOWNGRADIENT OF BMP'S INCLUDING SILT FENCE OR COMPOST LOGS AS NECESSARY.
3. INSPECT AND MAINTAIN BAG AS NECESSARY. EXPOSE OF ACCUMULATED SEDIMENT IN AN UPLAND AREA > 50' FROM WETLAND OR STREAM. STABILIZE, SEED, AND MULCH IMMEDIATELY.

5 Dewatering Filter Bag

12/12

N.T.S. Source: VHB LD_



Notes:

1. NUMBERS OF BALES MAY VARY DEPENDING ON SITE CONDITIONS.
2. BASIN TO BE SIZED TO PREVENT DISCHARGE WATER FROM OVERTOPPING BASIN.
3. MUST BE PLACED MIN OF 50' FROM WETLAND OR STREAM, PREFERABLY IN A VEGETATED AREA.

6 Dewatering Straw Bale Basin

12/12

N.T.S. Source: VHB LD_

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

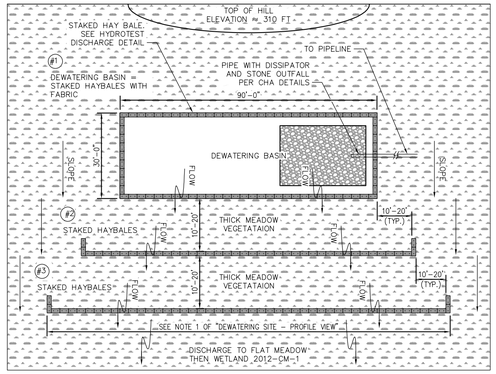
VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

Vermont Gas

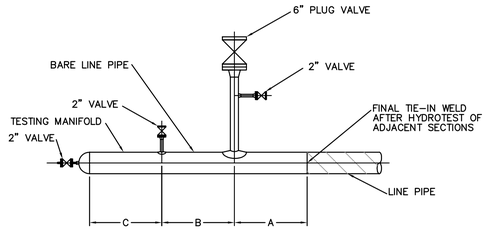
CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 • www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP-T-G-016 | REV. 0



1 **Dewatering Site - Plan View** 09/13

N.T.S. Source: VHB



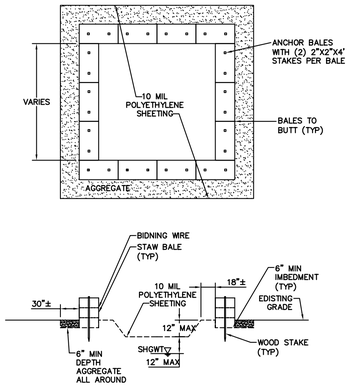
(ANSI CLASS 600 MINIMUM)
SEE NOTES 1-6

NOTES:

1. DIMENSIONS A, B & C ARE DEPENDENT ON PIPE DIAMETER & PIG LENGTH AND ARE TO BE DETERMINED BY CONTRACTOR.
2. FOR MANIFOLD TEST LOCATIONS & DISCHARGE LOCATIONS REFER TO EM&CP DRAWINGS.
3. TEST WATER SHALL BE TRANSFERRED BY PUMPING FROM ONE TEST SECTION TO THE NEXT ADJACENT TEST SECTION THROUGH THE 6" PIPE BRANCH AND MAKE-UP PIPING BETWEEN TEST SECTIONS. USE OF "HARD PIPING" & UNIONS IS RECOMMENDED.
4. FINAL TIE-IN WELD(S) BETWEEN TEST SECTIONS TO BE 100% RADIOGRAPHED.
5. TAP AND BRANCH SIZES AND VALVES FOR MANIFOLD ARE CONCEPTUAL AND SHALL BE DESIGNED BY CONTRACTOR TO BE COMPATIBLE WITH TEST EQUIPMENT AND PIPING.

2 **Typical Hydrastatic Test Manifold** 12/12

N.T.S. Source: CHA LD_



Notes:

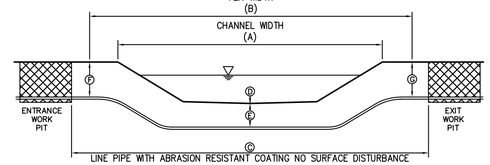
1. CONTAINMENT MUST BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.
2. CONTAINMENT DEVICES MUST BE SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.
3. WASHOUT MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE WASHOUT IS 75% FULL.
4. WASHOUT AREA(S) SHALL BE INSTALLED IN A LOCATION EASILY ACCESSIBLE BY CONCRETE TRUCKS.
5. ONE OR MORE AREAS MAY BE INSTALLED ON THE CONSTRUCTION SITE AND MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
6. AT LEAST WEEKLY REMOVE ACCUMULATION OF SAND AND AGGREGATE AND DISPOSE OF PROPERLY.
7. PLACE 50' FROM RIVER OR STREAM.

3 **Concrete Washout Area** 12/12

N.T.S. Source: VHB LD_

MILEPOST	STREAM NAME	CHANNEL WIDTH (A)	FEH WIDTH (B)	HDD LENGTH (C)	CHANNEL ELEV. (D)	ELEV. BELOW CHANNEL (E)	ENTRY ELEV. (F)	EXIT ELEV. (G)
0.99	INDIAN BROOK	4	100	2,339	208 [1]	< 198	< 208	< 208
1.52	INDIAN BROOK	15	125	1,530	188 [2]	< 178	< 188	< 188
6.75	WINOOSKI RIVER (SECTION 10 WATERS)	320	N/A (1,195)	900	263 [3]	< 238	< 275	< 275
19.47	LAPLATTE RIVER	30	360	640	317 [2]	< 307	< 317	< 317
22.86	LEWIS CREEK	80	435	2,500	310 [1]	< 300	< 310	< 310
32.30	LITTLE OTTER CREEK	35	240	1,680	267 [1]	< 260	< 267	< 267
35.85	UNNAMED TRIB. TO LITTLE OTTER CREEK	4	640	1,010	303 [2]	< 293	< 303	< 303
39.30	NEW HAVEN RIVER	120	785	530	245 [2]	< 235	< 245	< 245
DISTRIBUTION MAIN 30+00	UNNAMED TRIB TO LITTLE OTTER CREEK	8	N/A (108)	300	261 [1]	< 254	< 261	< 261

1. CHANNEL ELEVATION BASED ON CONTOURS SHOWN ON EPSC PLAN PROVIDED BY CHA, INC. DATED 02/28/2013 AND NOT ASSESSED IN THE FIELD BY VHB.
2. CHANNEL ELEVATION BASED ON CONTOURS SHOWN ON EPSC PLAN PROVIDED BY CHA, INC. DATED 02/28/2013 AND MODIFIED BASED ON FIELD ASSESSMENT BY VHB.
3. CHANNEL ELEVATION BASED ON BATHYMETRIC SURVEY PROVIDED BY COLER & COLANTONIO DATED 12/12/2012 AND NOT ASSESSED IN THE FIELD BY VHB.

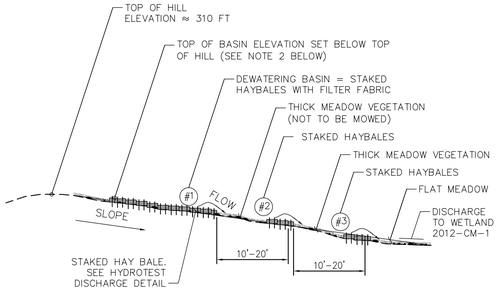


Notes:

1. THIS CONFIGURATION IS FOR HORIZONTAL DIRECTIONAL DRILL OF STREAM CROSSINGS AS SHOWN ON PROJECT PLANS. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
2. TOP OF PIPELINE MUST BE AT LEAST AS DEEP AS THE CHANNEL BOTTOM (DIMENSION D) THROUGHOUT THE FLUVIAL EROSION HAZARD (FEH) CORRIDOR.
3. MINIMUM SEPARATION BETWEEN THE TOP OF PIPELINE AND THE CHANNEL BOTTOM (DIMENSION E) MUST BE AT LEAST 7 FEET.
4. ELEVATIONS PROVIDED ARE BASED ON APPROXIMATE NAVD 88 DATUM AND MUST BE FIELD VERIFIED PRIOR TO INSTALLATION OF PIPELINE.
5. FEH CORRIDOR IS LISTED AS NOT APPLICABLE (N/A) WHERE THE STREAM CROSSES OR IS ADJACENT TO AN EXISTING ROADWAY OR OTHER INFRASTRUCTURE THAT RESULTS IN RIVER MANAGEMENT CONSTRAINTS AT THAT LOCATION. FEH CORRIDOR WIDTHS AT THESE LOCATIONS ARE SHOWN FOR INFORMATION PURPOSES ONLY.

4 **Horizontal Directional Drill (HDD) Stream Crossing - Typical Section**

N.T.S. SOURCE 4/13



Notes:

1. THE DEWATERING SITE SHALL CONSIST OF THREE ROWS OF STAKED HAYBALES. THE TOP ROW SHALL BE ENCLOSED TO ACT AS A BASIN WITH FILTER FABRIC AND STONE OUTFALL AT THE DISCHARGE OUTLET. EACH DOWNSLOPE ROW OF HAYBALES SHALL BE CONSECUTIVELY LONGER THAN THE ROW UPSLOPE OF IT AS PER THE PLAN VIEW DETAIL. THE BOTTOM ROW IS TO EXTEND ACROSS THE ENTIRE WIDTH OF THE DENSELY VEGETATED MEADOW
2. THE HIGHEST ELEVATION OF THE TOP ROW OF HAY BALES SHALL BE LOWER THAN THE ELEVATION AT THE TOP OF THE HILL TO ENSURE DISCHARGE DOES NOT FLOW OVER THE HILL.
3. DURING TESTING, THE CONTRACTOR SHALL HAVE ADDITIONAL STONE, HAYBALES, AND STAKES ON SITE FOR USE IF ADDITIONAL EPSC MEASURES ARE NEEDED.
4. SEE HYDROTEST DISCHARGE DETAIL FOR DEWATERING BASIN INSTALLATION SPECIFICATIONS.
5. SEE HAY BALE BARRIER DETAIL FOR STAKED HAYBALE INSTALLATION SPECIFICATIONS.
6. MEADOW IS NOT TO BE MOWED PRIOR TO USE FOR FILTERING FLOW.

5 **Dewatering Site - Profile View** 09/13

N.T.S. Source: VHB

PRODUCT DESCRIPTION	MATERIAL COMPOSITION	LONGEVITY (MONTHS)	SLOPE APPLICATIONS*		CHANNEL APPLICATIONS*	MINIMUM TENSILE STRENGTH 1 kN/m(lbs/ft)
			MAXIMUM GRADIENT (H: V)	C FACTOR 2,5	MAXIMUM SHEAR STRESS 3,4,6 Pa (lbs/ft²)	
MULCH CONTROL NETS	MESH OR WOVEN BIODEGRADABLE NATURAL FIBER NETTING.	3	5:1	≤ 0.10	12 (0.25)	0.073 (5)
		12	5:1	≤ 0.10	12 (0.25)	0.073 (5)
		24	5:1	≤ 0.10	12 (0.25)	0.36 (25)
NETLESS ROLLED EROSION CONTROL BLANKETS	NATURAL FIBERS MECHANICALLY INTERLOCKED TOGETHER TO FORM A RECP.	3	4:1	≤ 0.10	24 (0.5)	0.073 (5)
		12	4:1	≤ 0.10	24 (0.5)	0.073 (5)
SINGLE-NET EROSION CONTROL BLANKETS	PROCESSED BIODEGRADABLE NATURAL FIBERS MECHANICALLY BOUND TOGETHER BY A SINGLE NATURAL FIBER NETTING OF PROCESSED NATURAL YARNS OR TWINES WOVEN INTO A CONTINUOUS MATRIX.	3	3:1	≤ 0.15	72 (1.5)	0.73 (50)
		12	3:1	≤ 0.15	72 (1.5)	0.73 (50)
DOUBLE-NET EROSION CONTROL BLANKETS	PROCESSED BIODEGRADABLE NATURAL FIBERS MECHANICALLY BOUND TOGETHER BETWEEN TWO NATURAL FIBER NETTING OF PROCESSED NATURAL YARNS OR TWINES WOVEN INTO A CONTINUOUS MATRIX.	3	2:1	≤ 0.20	84 (1.75)	1.09 (75)
		12	2:1	≤ 0.20	84 (1.75)	1.09 (75)
		24	1.5:1	≤ 0.25	96 (2.00)	1.45 (100)
		36	1:1	≤ 0.25	108 (2.25)	1.82 (125)

* "C" FACTOR AND SHEAR STRESS FOR MULCH CONTROL NETTINGS MUST BE OBTAINED WITH NETTING USED IN CONJUNCTION WITH PRE-APPLIED MATERIAL.

1 MINIMUM AVERAGE ROLL VALUES, MACHINE DIRECTION USING EROSION CONTROL TECHNOLOGY COUNCIL (ECTC) MOD. ASTM D 5035.

2 "C" FACTOR CALCULATED AS RATIO OF SOIL LOSS FROM RECP PROTECTED SLOPE (TESTED AT SPECIFIED OR GREATER GRADIENT, H:V) TO RATIO OF SOIL LOSS FROM UNPROTECTED (CONTROL) PLOT IN LARGE-SCALE TESTING. THESE PERFORMANCE TEST VALUES SHOULD BE SUPPORTED BY PERIODIC BENCH SCALE TESTING UNDER SIMILAR TEST CONDITIONS AND FAILURE CRITERIA USING ECTC TEST METHOD #2.

3 REQUIRED MINIMUM SHEAR STRESS RECP (UNVEGETATED) CAN SUSTAIN WITHOUT PHYSICAL DAMAGE OR EXCESS EROSION (> 12.7mm (0.5 IN) SOIL LOSS) SURING A 30-MINUTE FLOW EVENT IN LARGE-SCALE TESTING. THESE PERFORMANCE TEST VALUES SHOULD BE SUPPORTED BY PERIODIC BENCH SCALE TESTING UNDER SIMILAR TEST CONDITIONS AND FAILURE CRITERIA USING ECTC TEST METHOD #3.

4 THE PERMISSIBLE SHEAR STRESS LEVELS ESTABLISHED FOR EACH PERFORMANCE CATEGORY ARE BASED ON HISTORICAL EXPERIENCE WITH PRODUCTS CHARACTERIZED BY MANNINGS ROUGHNESS COEFFICIENTS IN THE RANGE OF 0.01 – 0.05.

5 ACCEPTABLE LARGE SCALE TEST METHODS MAY INCULDE ASTM D 6459, ECTC TEST METHOD #2 OR OTHERINDEPENDENT TESTING DEEMED ACCEPTABLE BY THE DEC.

6 RECOMMENDED ACCEPTABLE LARGE-SCALE TESTING PROTOCOL MAY INCLUDE ASTM D 6440, ECTC TEST METHOD #3 OR OTHER INDEPENDENT TESTING DEEMED ACCEPTABLE BY THE DEC.

6 **Specifications for Temporary RECP**

N.T.S. Source: VT S+S EPSC

TYPE	PRODUCT DESCRIPTION	MATERIAL COMPOSITION	SLOPE APPLICATIONS	CHANNEL APPLICATIONS	MINIMUM TENSILE STRENGTH2,3 kN/m (lbs/ft)
			MAXIMUM GRADIENT	MAXIMUM SHEAR STRESS4,5,6 Pa(lbs/ft²)	
A	TURF REINFORCED MAT	NON-DEGRADABLE SYNTHETIC FIBERS, FILAMENTS, NETS, WIRE MESH AND/OR OTHER ELEMENTS, PROCESSED INTO A PERMANENT THREE-DIMENSIONAL MATRIX OF SUFFICIENT THICKNESS. TRM'S, WHICH MAY BE SUPPLEMENTED WITH DEGRADABLE COMPONENTS ARE DESIGNED TO IMPART IMMEDIATE EROSION PROTECTION, ENHANCED VEGETATION ESTABLISHMENT AND PROVIDE LONG-TERM FUNCTIONALITY BY PERMANENTLY REINFORCING VEGETATION DURING AND AFTER MATURATION. NOTE: TRM'S ARE TYPICALLY USED IN HYDRAULIC APPLICATIONS, SUCH AS HIGH FLOW DITCHES AND CHANNELS, STEEP SLOPES, STREAM BANKS, AND SHORELINES, WHERE EROSIVE FORCES MAY EXCEED THE LIMITS OF NATURAL, UNREINFORCED VEGETATION OR IN AREAS WHERE LIMITED VEGETATION ESTABLISHMENT IS ANTICIPATED.	0.5:1	288 (6.0)	1.82 (125)
B	TURF REINFORCED MAT		0.5:1	384 (8.0)	2.19 (150)
C	TURF REINFORCED MAT		0.5:1	480 (10.0)	2.55 (175)

PERMANENT1 – ALL CATEGORIES OF TURF REINFORCEMENT MAT (TRM) MUST HAVE A MINIMUM THICKNESS OF 6.35mm (0.25 INCHES) PER ASTM D 6525 AND U.V. STABILITY OF 80% PER ASTM D 4355 (500 HOURS EXPOSURE)

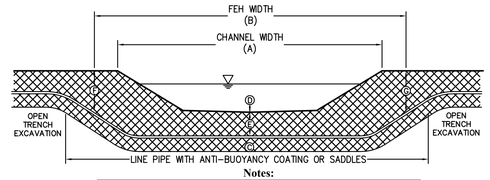
1. FOR TRMS CONTAINING DEGRADABLE COMPONENTS ALL PROPERTY VALUES MUST BE OBTAINED ON THE NON-DEGRADABLE PORTION OF THE MATTING ALONE.
2. MINIMUM AVERAGE ROLL VALUES, MACHINE DIRECTION ONLY FOR TENSILE STRENGTH DETERMINATION USING ASTM D 6818 (SUPERSEDES MOD. ASTM D 5035 FOR RECP'S).
3. FIELD CONDITIONS WITH HIGH LOADING AND/OR HIGH SURVIVABILITY REQUIREMENTS MAY WARRANT THE USE OF A TRM WITH A TENSILE STRENGTH OF 44 k/N/m(3,000 lb/ft) OR GREATER.
4. REQUIRED MINIMUM SHEAR STRESS TRM (FULLY VEGETATED) CAN SUSTAIN WITHOUT PHYSICAL DAMAGE OR EXCESS EROSION (>12.7mm (0.5 in.) SOIL LOSS) DURING A 30-MINUTE FLOW EVENT IN LARGE SCALE TESTING. THESE PERFORMANCE TEST VALUES SHOULD BE SUPPORTED BY PERIODIC BENCH SCALE TESTING UNDER SIMILAR TEST CONDITIONS AND FAILURE CRITERIA USING ECTC TEST METHOD #3.
5. ACCEPTABLE LARGE-SCALE TESTING PROTOCOL MAY INCLUDE ASTM D 6460 ECTC TEST METHOD #3 OR OHER INDEPENDENT TESTING DEEMED ACCEPTABLE BY THE DEC.

7 **Specifications for Permanent RECP**

N.T.S. Source: VT S+S EPSC

MILEPOST	STREAM NAME	CHANNEL WIDTH (A)	FEH WIDTH (B)	CHANNEL ELEV. (C)	ELEV. BELOW CHANNEL (D)	ENTRY ELEV. (E)	EXIT ELEV. (F)
3.62	INDIAN BROOK	7	N/A (185)	430 [2]	< 420	< 430	< 430
6.60	ALDER BROOK	35	N/A (150)	281 [1]	< 274	< 281	< 281
10.32	ALLEN BROOK	35	360	376 [2]	< 366	< 376	< 376
13.79	SUCKER BROOK	15	120	371 [2]	< 364	< 371	< 371
18.93	UNNAMED TRIBUTARY TO LAPLATTE RIVER	4	N/A (310)	328 [1]	< 321	< 328	< 328
20.45	UNNAMED TRIBUTARY TO LAPLATTE RIVER	4	185	364 [2]	< 357	< 364	< 364
24.40	UNNAMED TRIBUTARY TO LEWIS CREEK	6	106	437 [2]	< 430	< 437	< 437
29.11	UNNAMED TRIBUTARY TO LITTLE OTTER CREEK	8	N/A (400)	364 [2]	< 357	< 364	< 364
30.94	UNNAMED TRIBUTARY TO LITTLE OTTER CREEK	4	200	267 [2]	< 260	< 267	< 267

1. CHANNEL ELEVATION BASED ON CONTOURS SHOWN ON EPSC PLAN PROVIDED BY CHA, INC. DATED 02/28/2013 AND MODIFIED BASED ON FIELD ASSESSMENT BY VHB.
2. CHANNEL ELEVATION BASED ON CONTOURS SHOWN ON EPSC PLAN PROVIDED BY CHA, INC. DATED 02/28/2013 AND NOT ASSESSED IN THE FIELD BY VHB.



Notes:

1. THIS CONFIGURATION IS FOR OPEN TRENCH EXCAVATION OF STREAM CROSSINGS AS SHOWN ON PROJECT PLANS. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
2. THE INFORMATION PROVIDED IN THIS TABLE WAS UTILIZED FOR PERMITTING. ACCURATE PIPELINE PROFILE DRAWINGS HAVE BEEN CREATED THAT SHOW THE INTENT OF THIS TABLE USING FIELD VERIFIED SURVEY. CONTRACTOR SHALL REFERENCE SHEETS ANGPT-C-028A, 039A, 042A, 051A, 061AA, AND 065A FOR CONSTRUCTION.
3. TOP OF PIPELINE MUST BE AT LEAST AS DEEP AS THE CHANNEL BOTTOM (DIMENSION D) THROUGHOUT THE FLUVIAL EROSION HAZARD (FEH) CORRIDOR.
4. MINIMUM SEPARATION BETWEEN THE TOP OF PIPELINE AND THE CHANNEL BOTTOM (DIMENSION E) MUST BE AT LEAST 7 FEET.
5. ELEVATIONS PROVIDED ARE BASED ON APPROXIMATE NAVD 88 DATUM AND MUST BE FIELD VERIFIED PRIOR TO INSTALLATION OF PIPELINE.
6. FEH CORRIDOR IS LISTED AS NOT APPLICABLE (N/A) WHERE THE STREAM CROSSES OR IS ADJACENT TO AN EXISTING ROADWAY OR OTHER INFRASTRUCTURE THAT RESULTS IN RIVER MANAGEMENT CONSTRAINTS AT THAT LOCATION. FEH CORRIDOR WIDTHS AT THESE LOCATIONS ARE SHOWN FOR INFORMATION PURPOSES ONLY.
7. RESTORE DISTURBED CHANNEL, STREAM BANKS, AND APPROACHES FOLLOWING PIPELINE INSTALLATION PER EPSC PLAN.

8 **Open Trench Stream Crossing - Typical Section** 04/13

N.T.S. Source: VHB

STATE OF VERMONT
REGISTERED PROFESSIONAL ENGINEER
NO. 97764
CIVIL
ACCEPTED

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
		2	BCK	TDB	VHB EDITS (12/10/15)
		1	BCK	TDB	VHB EDITS (6/09/15)

	BID		CONSTRUCTION	
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
	INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP-T-G-017 | REV. 2

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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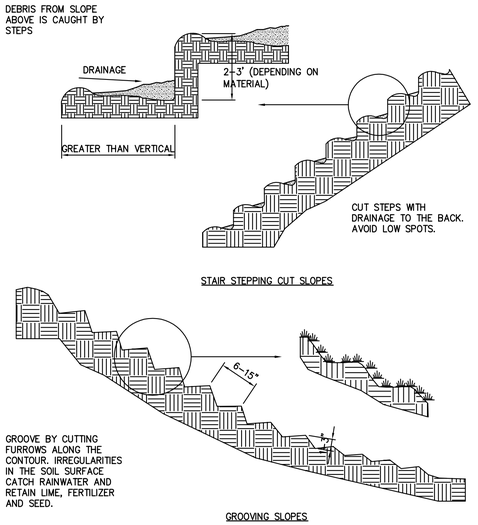
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com



1 Surface Roughening

12/12

N.T.S. Source: VHB LD_

MULCH MATERIAL AND APPLICATION

MULCH MATERIAL	QUALITY STANDARDS	PER 1,000 SQ-FT	PER ACRE	DEPTH OF APPLICATION
WOOD CHIPS OR SHAVINGS	AIR DRIED; FREE OF OBJECTIONABLE MATERIAL	500 – 900 LBS	10 – 20 TONS	2" – 7"
WOOD FIBER CELLULOSE (PARTIALLY DIGESTED WOOD FIBERS)	MADE FROM NATURAL WOOD USUALLY WITH GREEN DYE AND DISPERSING AGENT	50 LBS	2,000 LBS	N/A
GRAVEL, CRUSHED STONE OR SLAG	WASHED; SIZE 2B OR 3A – 1 1/2"	9 CY	405 CY	3"
HAY OR STRAW	AIR-DRIED; FREE OF UNDESIRABLE SEEDS AND COARSE MATERIALS	90 – 100 LBS, 2-3 BALES	2 TONS (100-120 BALES)	COVER ABOUT 90% SURFACE
COMPOST	UP TO 3" PIECES, MODERATELY TO HIGHLY STABLE	3 – 9 CY	3 – 9 CY	1-3"
Erosion Control Mix	WELL-GRADED MIXTURE OF PARTICLE SIZES. ORGANIC CONTENT BETWEEN 80-100% DRY WEIGHT. PARTICLE SIZE SHALL PASS 6" SCREEN (100%)	*Slopes 3(Hz.):1(Vert.) = 2 inch depth plus additional 1/2 inch depth per 20 ft. of slope up to 100 ft. **Slopes between 3(Hz.):1(Vert.) and 2(Hz.):1(Vert.) = 4 inch depth plus additional 1/2 inch per 20 ft. of slope up to 100 ft. ***Slopes steeper than 2(Hz.):1(Vert.) applicability to specific site and mulch depth to be reviewed and approved prior to use by OPSC or EPSC Specialist		

Notes:

1. APPLY TACKIFIER AS NEEDED TO MINIMIZE POTENTIAL FOR MULCH TO BLOW AWAY.
2. MULCH MUST NOT CONTAIN INVASIVE PLANT SPECIES. (SEEDS OR SEEDLINGS)
3. TACKIFIER MAY BE WATER, NETTING, OR SIMILAR.
4. OTHER THAN EROSION CONTROL MIX, MULCH IS NOT TO BE INSTALLED ON SLOPES > 3:1.

2 Mulch Table

12/12

N.T.S. Source: VHB LD_

TEMPORARY SEEDING

1. AREA TO BE SEEDED MUST BE ROUGH GRADED AND SLOPES PHYSICALLY STABLE.
2. SEEDING METHOD TO RESULT IN GOOD SOIL TO SEED CONTACT.
3. AFTER SEEDING, MULCH THE AREA WITH HAY OR STRAW AT 2 TONS/AC (APPROX 90 LBS/1,000 SF OR 2 BALES/1,000 SF); SEE MULCH DETAIL AND SPECIFICATIONS.
4. MULCH ANCHORING MAY BE NEEDED WHERE WIND OR AREAS OF CONCENTRATED WATER ARE POSSIBLE.
5. WOOD FIBER HYDROMULCH OR OTHER SPRAYABLE PRODUCTS APPROVED FOR EROSION CONTROL MAY BE USED IF APPLIED ACCORDING TO MANUFACTURERS' SPECIFICATIONS.

PERMANENT SEEDING

1. SEE SEEDDING SPECIFICATIONS FOR RECOMMENDED SEED MIXES. USE RIPARIAN AND WETLAND SEEDING MIX WITHIN 50 FEET OF STREAM CROSSINGS AND IN DISTURBED WETLAND AREAS. USE UPLAND NATURAL COMMUNITY MIX WITHIN AREAS IDENTIFIED AS SIGNIFICANT NATURAL COMMUNITIES. USE PERMANENT SEEDING MIX FOR ALL OTHER DISTURBED UPLAND AREAS. SEE VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL FOR ADDITIONAL SEED MIXTURES.
2. AREA TO BE SEEDED MUST BE ROUGH GRADED AND SLOPES PHYSICALLY STABLE; CHISELING OR DISKING MAY BE NEEDED IF SOIL IS COMPACTED.
3. SEEDING METHOD TO RESULT IN GOOD SOIL TO SEED CONTACT.
4. PERMANENT SEEDING TO OCCUR PRIOR TO SEPTEMBER 15TH UNLESS WEATHER PERMITS SEEDING BEYOND SEPTEMBER 15TH.
5. AFTER SEEDING, MULCH THE AREA WITH HAY OR STRAW AT 2 TONS/AC (APPROX 90 LBS/1,000 SF OR 2 BALES/1,000 SF); SEE MULCH DETAIL AND SPECIFICATIONS.
6. MULCH ANCHORING MAY BE NEEDED WHERE WIND OR AREAS OF CONCENTRATED WATER ARE POSSIBLE.
7. WOOD FIBER HYDROMULCH OR OTHER SPRAYABLE PRODUCTS APPROVED FOR EROSION CONTROL MAY BE USED IF APPLIED ACCORDING TO MANUFACTURERS' SPECIFICATIONS.
8. IRRIGATION MAY BE NEEDED TO FACILITATE GRASS GROWTH AND ESTABLISH ADEQUATE GRASS COVER.

3 Seeding Notes

12/12

N.T.S. Source: VHB LD_

TEMPORARY SEEDING MIX

TYPE	SEASON	RATE (LBS/ACRE)
RYEGRASS (ANNUAL OR PERENNIAL)	APRIL 15 – SEPTEMBER 15	20
"AROOSTOOK" WINTER RYE	SEPTEMBER 15 – APRIL 15	90

PERMANENT SEEDING MIX*

TYPE	SEASON	RATE (LBS/ACRE)
BIRDSFOOT TREFOIL(1)**	APRIL 15 – SEPTEMBER 15	5
COMMON WHITE CLOVER (1)**	APRIL 15 – SEPTEMBER 15	8
TALL FESCUE (2)	APRIL 15 – SEPTEMBER 15	10
REDTOP (3)	APRIL 15 – SEPTEMBER 15	2
RYEGRASS (PERENNIAL) (3)	APRIL 15 – SEPTEMBER 15	5

*PERMANENT SEEDING MIX IS A COMBINATION OF BIRDSFOOT TREFOIL OR COMMON WHITE CLOVER PLUS TALL FESCUE PLUS REDTOP OR RYEGRASS (PERENNIAL). I.E. PERMANENT SEEDING MIX = (1) + (2) + (3). (SEE PAGE 4.27 OF THE VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL.)
** ADD INOCULANT IMMEDIATELY PRIOR TO SEEDING

RIPARIAN AND WETLAND SEEDING MIX

TYPE	SEASON	RATE (LBS/ACRE)
"WET MEADOW AND DETENTION BASIN"* OR APPROVED EQUAL	APRIL 15 –SEPTEMBER 15	35

*SEED SPECIFIED IS FROM VERMONT WETLAND PLANT SUPPLY AND COMPOSED OF THE FOLLOWING SPECIES: PANICUM VIRGATUM, ELYMUS VIRGINICUS, FESTUCA RUBRA, CAREX VULPINOIDEA, CAREX SCOPARIA, SCIRPUS CYPERINUS, SCIRPUS ATROVIRENS, BIDENS CERNUA, EUPATORIUM PERFOLIATUM, EUPATORIADELPHUS MACULATUS, JUNCUS EFFUSUS, ONOCLEA SENSIBILIS, VERBENA HASTATA, SYMPHYOTRICHUM NOVAE-ANGLIAEA

UPLAND NATURAL COMMUNITY MIX

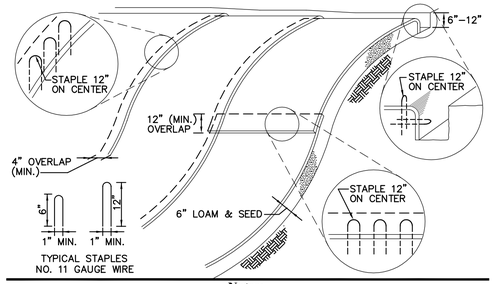
TYPE	SEASON	RATE (LBS/ACRE)
"VERMONT CONSERVATION AND WILDLIFE"* OR APPROVED EQUIVALENT	APRIL 15 –SEPTEMBER 15	25

*SEED SPECIFIED IS, IN PART, FROM VERMONT WETLAND PLANT SUPPLY AND COMPOSED OF THE FOLLOWING SPECIES: ELYMUS VIRGINICUS, FESTUCA RUBRA, SCHIZACHYRIUM SCOPARIUM, ANDROPOGON GERARDII, PANICUM CLANDESTINUM, SORGHASTRUM NUTANS, ASCLEPIA SYRIACA, VERBENA HASTATA, EUPATORIUM FISTULOSUM, EUTHAMIA GRAMINIFOLIA, SOLIDAGO JUNCEA, SYMPHYOTRICHUM NOVAE-ANGLIAE
NOTE: SEE MIX SHOULD EXCLUDE BOTH CHAMAECRISTA FASCICULATA AND HELIOPSIS HELIANTHOIDES, WHICH ARE BOTH COMMONLY INCLUDED IN THIS COMMERCIAL MIX.

4 Seeding Specifications

06/13

N.T.S. Source: VHB LD_

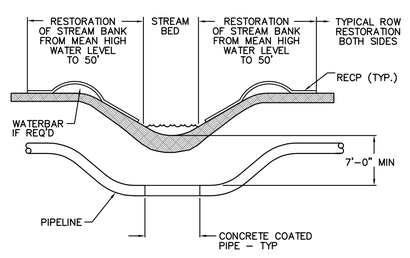


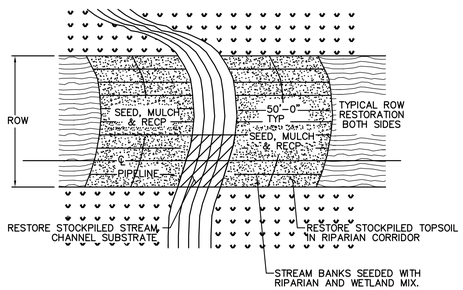
Notes:

1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY TOP SOIL, FERTILIZER, LIME AND 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 PREVENTION AND SEDIMENT CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE, DO NOT STRETCH AND ENSURE CLOSE CONTACT WITH THE GROUND SURFACE..
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.
6. BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6" TO 12" DEEP TRENCH BACKFILL AND COMPACT TRENCH AFTER STAPLING.
7. ROLL THE BLANKET DOWN IN THE DIRECTION OF THE WATER FLOW.
8. THE EDGES OF BLANKETS MUST BE STAPLED WITH APPROX. 4" OVERLAP WHERE 2 OR MORE STRIP WIDTHS ARE REQUIRED.
9. WHEN BLANKETS MUST BE SPLICED, PLACE UPPER BLANKET END OVER LOWER END WITH 12" (MIN.) OVERLAP AND STAPLE BOTH TOGETHER.
10. METHOD OF INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS. SEE SHEET ANGP-T-G-017 FPR RECP SPECIFICATIONS

5 Rolled Erosion Control Blanket (RECP) - Slope Installation

N.T.S. Source: VHB LD_680-vt





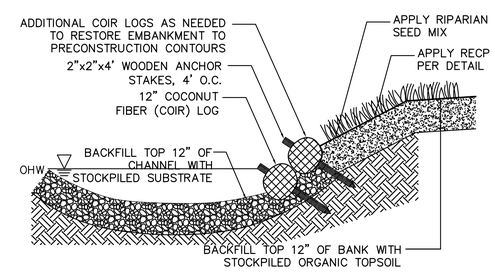
Notes:

1. SEE SHEET ANGP-T-G-017 FOR RECP SPECIFICATIONS

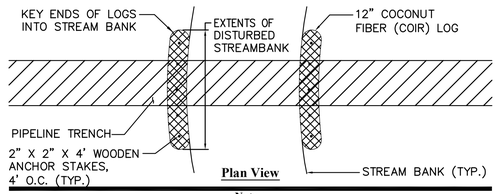
6 Streambank Restoration with RECP

12/12

N.T.S. Source: CHA LD_



Channel Section



Plan View

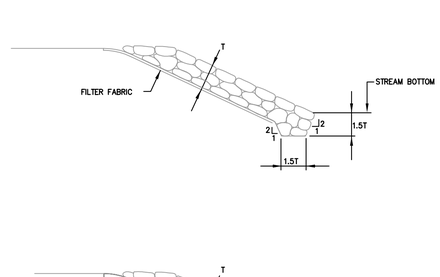
Notes:

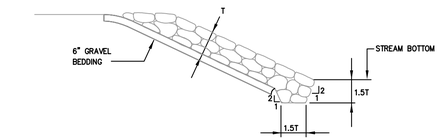
1. APPLY COIR LOG DETAIL TO SITES WHERE STREAMBANK IS DISTURBED OR TRENCHED THROUGH DURING PIPELINE INSTALLATION AND BANK COMPOSITION PERMITS STAKES TO BE DRIVEN
2. INSTALL ROLLED EROSION CONTROL PRODUCT (RECP) PRIOR TO INSTALLATION OF COIR LOGS
3. PLACE COIR LOG IN 2" DEEP TRENCH ALONG SLOPE OF EMBANKMENT AND STAKE INTO PLACE THROUGH RCEP
4. KEY-IN COIR LOG BOTH UPSTREAM AND DOWNSTREAM FROM PIPELINE TRENCH TO MAKE COIR LOG FLUSH WITH STREAMBANK IN ORDER TO PREVENT UNRAVELING OF BANK DURING HIGH FLOW EVENTS.
5. COIR LOG MESH TO CONSIST OF BIODEGRADABLE MATERIAL.

7 Streambank Restoration with Coir Logs

6/13

N.T.S. Source: VHB





T = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NO LESS THAN 6 INCHES.

8 Streambank Stabilization with Rip Rap

12/12

N.T.S. Source: VHB LD_

STATE OF VERMONT MICHAEL E. HOLLOWAY NO. 97764 CIVIL LICENSED PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com

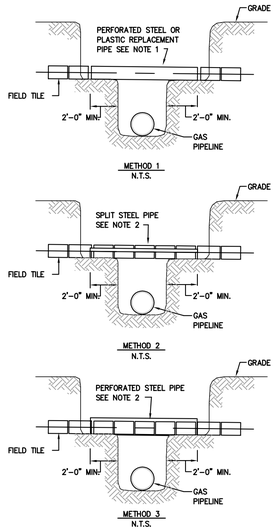
DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID		CONSTRUCTION	
							INITIALS	DATE	INITIALS	DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

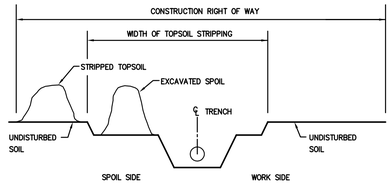
Vermont Gas

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP-T-G-018 | REV. 0

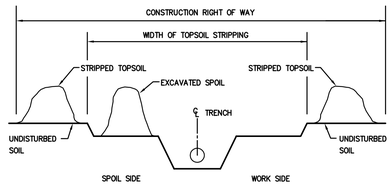


NOTES:
1. REPLACEMENT PIPE TO BE AS NEAR AS POSSIBLE TO THE DIAMETER OF THE FIELD TILE.
2. STEEL CARRIER PIPE TO HAVE INSIDE DIAMETER AS NEAR AS POSSIBLE TO THE OUTSIDE DIAMTER OF THE FIELD TILE.
3. MAINTAIN ORIGINAL FLOW LINE OF FIELD TILE IN ALL METHODS.

1 Typical Drain Tile Protection
N.T.S. Source: VHB 12/12 LD_



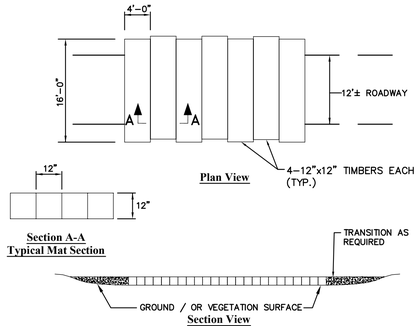
DITCH PLUS SPOILSIDE TOPSOIL SEGREGATION
N.T.S.



FULL RIGHT OF WAY TOPSOIL STRIPPING
N.T.S.

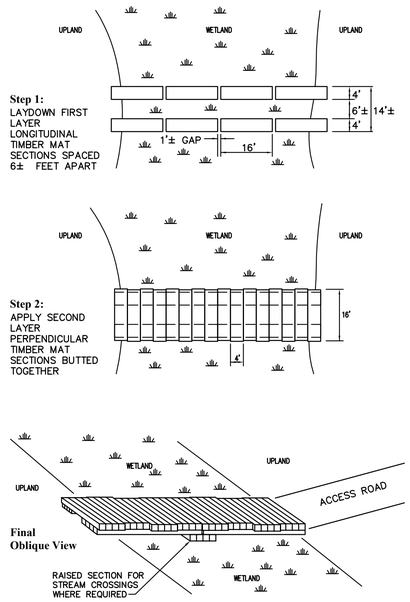
NOTES: 1. TOPSOIL MAY BE STORED IN LOCATIONS AS SHOWN ABOVE OR AT OTHER LOCATIONS WITHIN THE CONSTRUCTION ROW.
2. SEE SHEET ANGP-T-G-015 FOR TRENCH BACK-FILLING DETAIL AND SPECIFICATIONS

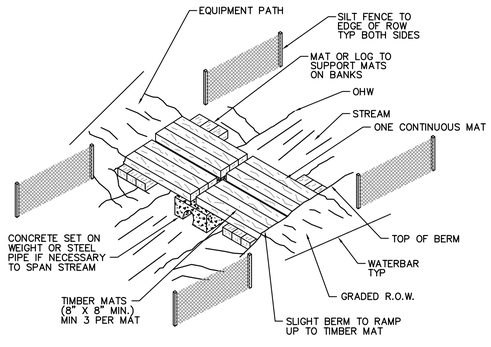
2 Topsoil Segregation
N.T.S. Source: VHB 12/12 LD_



Notes:
1. TO BE INSTALLED WHERE NECESSARY IN WETLAND FOR ACCESS FOR CONSTRUCTION. ALTERNATIVE CONSTRUCTION MATTING (E.G., RUBBER MATS) MAY BE SUBSTITUTED FOR TIMBER MATTING.
2. PREPARATION FOR INSTALLATION OF TIMBER MATS WILL CONSIST OF CUTTING TALL WOODY SPECIES AND TRIMMING SHRUBS IF CONDITIONS REQUIRE. VEGETATION ROOT MASS IS TO REMAIN UNDISTURBED. MATS TO BE PLACED TO MAINTAIN NATURAL SOIL CONTOURS/CONDITIONS.
3. TIMBER SECTIONS TO BE SECURED TOGETHER WITH NO SPACES BY BOLTS, NAILS, STRAPS OR OTHER APPROPRIATE METHODS.
4. TIMBER MATS TO BE REMOVED UPON COMPLETION OF PROJECT AND AREA RESTORED TO NEAR ORIGINAL CONDITIONS PER EPSC PLANS
5. SNOW/ICE REMOVAL BY MECHANICAL METHODS: NO DEICING SALT OR CHEMICALS TO BE USED. LIGHT APPLICATION OF SAND FOR TRACTION ACCEPTABLE SO AS RESIDUE DOES NOT ACCUMULATE IN WETLAND.
6. MATS ARE TO BE IN PLACE FOR MINIMUM DURATION FEASIBLE.

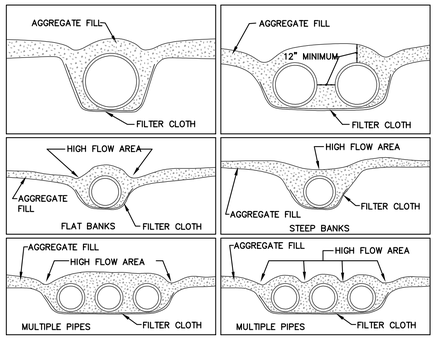
3 Construction Matting - Timber Mat Typ.
N.T.S. Source: VHB 12/12 LD_



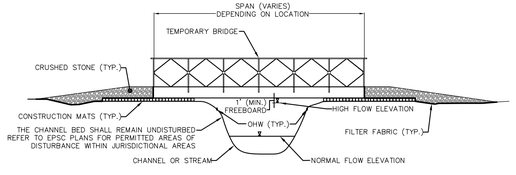


NOTES:
1. THERE IS TO BE NO UNNECESSARY MOVEMENT OF EQUIPMENT THROUGH WATER.
2. TIMBER MATS TO BE POSITIONED TO RUN FROM TOP OF BANK TO TOP OF BANK WHERE POSSIBLE. AT MINIMUM, THE TIMBER MAT BRIDGE SHALL SPAN THE ORDINARY HIGH WATER (OHW) WIDTH OF THE CHANNEL.
3. TIMBER MATS SHALL BE CLEANED OF SEDIMENT PRIOR TO EACH INSTALLATION.
4. TIMBER MATS SHOULD BE INSTALLED SO THERE ARE NO GAPS BETWEEN MATS.

4 Construction Mat Bridge
N.T.S. Source: CHA 12/12 LD_

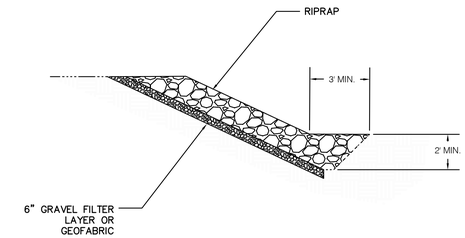


5 Temporary Access Culverts
N.T.S. Source: VHB 12/12 LD_



NOTES:
1. BRIDGE SHALL BE DESIGNED TO PROVIDE A CLEAR SPAN THAT IS EQUAL TO OR GREATER THAN OHW AT THE CROSSING SITE.
2. NO MATERIALS SHALL BE PLACED IN THE CHANNEL BELOW OHW WITHOUT PRIOR AUTHORIZATION.
3. BRIDGE SHALL BE DESIGNED TO CARRY THE MAXIMUM ANTICIPATED CONSTRUCTION LOADS. HOWEVER SHALL NOT BE LESS THAN AASHTO HS-25 LOADING CRITERIA.
4. BRIDGE SHALL BE DESIGNED SUCH THAT A MINIMUM ONE FOOT (1 FT) OF FREE BOARD EXISTS BETWEEN THE LOWEST MEMBER AND THE ANTICIPATED HIGH FLOW (Q25) WATER ELEVATION.
5. ADDITIONAL LOAD BEARING DEVICES BEYOND CONSTRUCTION MATTING MAY BE REQUIRED. THE CONTRACTOR SHALL CONDUCT A GEOTECHNICAL ANALYSIS OF EACH BRIDGE SITE TO DETERMINE THE NECESSARY BEARING CAPACITY OF SOILS AND TO DETERMINE THE MINIMUM DISTANCE BETWEEN BEARING SURFACES AND THE TOP OF STREAM/CHANNEL BANK.
6. APPROACH GRADES SHALL BE AS DEEMED NECESSARY BY THE CONTRACTOR.

6 Temporary Bridge Detail
N.T.S. Source: VHB LD_



Notes:
1. MINIMUM THICKNESS SHALL BE 1.5X MAX STONE DIAMETER, BUT IN NO CASE < 6".
2. THE TOE OF RIP RAP SHALL BE KEYED IN STABLE FOUNDATION @ IT'S BASE.
3. STONE SIZE SHOULD BE BASED ON ANGLE OF REPOSE FOR SPECIFIC SIZE. (FIG 4.3 P 4.38)

7 Riprap Slope Protection
N.T.S. Source: VHB 12/12 LD_

STATE OF VERMONT — MICHAEL E. HOLCOMB — NO. 97764 — CIVIL — LICENSED PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP-T-G-019 | REV. 0

NOTES:

1. USE DIVERSION FLUME STREAM CROSSING ON WATER COURSES WITH LIMITED STREAM FLOW TO PREVENT SEDIMENTATION AND INTERRUPTION OF STREAM FLOW DURING CONSTRUCTION. THIS METHOD IS APPROPRIATE IN LOCATIONS WHERE FISH PASSAGE IS A CONCERN.

2. SCHEDULE CONSTRUCTION DURING LOW FLOW PERIOD, IF POSSIBLE.

3. THIS DETAIL REPRESENTS ONE POSSIBLE CONFIGURATION OF CONSTRUCTION ELEMENTS WITHIN THE TEMPORARY AND PERMANENT ROW. ALTERNATE CONFIGURATIONS OF CONSTRUCTION ELEMENTS BETWEEN THE UPSTREAM AND DOWNSTREAM DIVERSION STRUCTURES ARE ALLOWABLE SO LONG AS APPROPRIATE MEASURES ARE MAINTAINED TO PROTECT WATER QUALITY .

4. SET UP STEEL OR HDPE PIPE AS SHOWN, OR USE PRACTICAL ALTERNATIVES. PIPE (OR PIPES) MUST BE SIZED TO HAVE TWICE THE CAPACITY OF ANTICIPATED FLOW. DEPENDING ON STREAM FLOW, DIG SUMP HOLE TO CONCENTRATE WATER AT INTAKE.

5. INSTALL UPSTREAM DAM COMPOSED OF SANDBAGS, METAL PLATING OR A COMBINATION OF BOTH. INSTALL DOWNSTREAM DAM, IF REQUIRED, TO KEEP STREAM BED DRY.

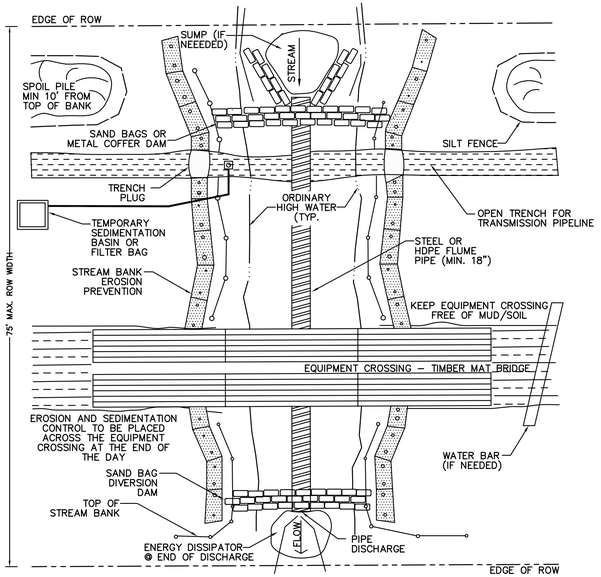
6. AFTER DAMS ARE IN PLACE, IT MAY BE NECESSARY TO USE A SUMP PUMP AND DEWATERING FILTER BAG TO KEEP WORK AREA DRY.

7. ALL MECHANIZED EQUIPMENT TO PERFORM WORK FROM ADJACENT TOP OF BANK AREAS. MAT STREAM IF WORK TO OCCUR IN STREAM CHANNEL.

8. EXCAVATE TRENCH AND LOWER IN PIPE UNDER DIVERSION FLUME. MOVE FLUME AS REQUIRED OR DISCONNECT IF TEMPORARY FLOW BLOCKAGE IS ACCEPTABLE. BACKFILL TRENCH.

9. DISMANTLE DOWNSTREAM DAM, THEN UPSTREAM DAM.

10. RESTORE DISTURBED CHANNEL, STREAM BANKS AND APPROACHES FOR A MINIMUM DISTANCE OF AT LEAST 50 FT. FROM THE STREAM EDGES AND PERMANENTLY STABILIZE WITHIN 1 DAY OF INITIAL RESTORATION. REFER TO THE STREAMBANK RESTORATION DETAIL FOR RESTORATION REQUIREMENTS.



1 Diversion Flume Stream Crossing

12/12

N.T.S.

Source: VHB

LD_

NOTES:

1. USE DAM AND PUMP METHOD ON WATER COURSES WITH LIMITED STREAM FLOW TO PREVENT SEDIMENTATION AND INTERRUPTION OF STREAM FLOW DURING CONSTRUCTION.

2. SCHEDULE CONSTRUCTION DURING LOW FLOW PERIOD, IF POSSIBLE.

3. THIS DETAIL REPRESENTS ONE POSSIBLE CONFIGURATION OF CONSTRUCTION ELEMENTS WITHIN THE TEMPORARY AND PERMANENT ROW. ALTERNATE CONFIGURATIONS OF CONSTRUCTION ELEMENTS BETWEEN THE UPSTREAM AND DOWNSTREAM DIVERSION STRUCTURES ARE ALLOWABLE SO LONG AS APPROPRIATE MEASURES ARE MAINTAINED TO PROTECT WATER QUALITY .

4. SET UP PUMP AND HOSE AS SHOWN, OR USE PRACTICAL ALTERNATIVES. PUMP SHOULD HAVE TWICE THE PUMPING CAPACITY OF ANTICIPATED FLOW. HAVE STANDBY PUMP ON SITE. DEPENDING ON STREAM FLOW, DIG SUMP HOLE TO CONCENTRATE WATER AT INTAKE.

5. USE TEMPORARY SEDIMENTATION BASIN OR FILTER BAG PRIOR TO DISCHARGING WATER BACK TO STREAM.

6. INSTALL UPSTREAM DAM COMPOSED OF SANDBAGS, METAL PLATING OR A COMBINATION OF BOTH, INSTALL DOWNSTREAM DAM, IF REQUIRED, TO KEEP STREAM BED DRY.

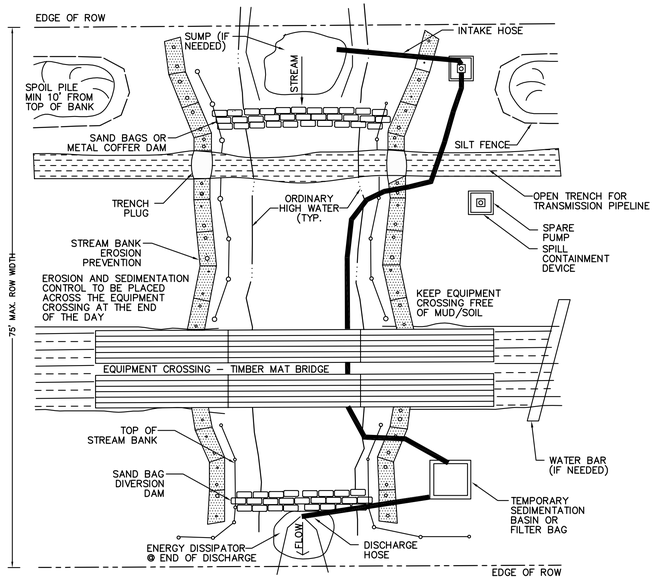
7. AFTER DAMS ARE IN PLACE, IT MAY BE NECESSARY TO USE ADDITIONAL PUMPS TO HANDLE STREAM FLOW.

8. EXCAVATE TRENCH AND LOWER IN PIPE UNDER HOSE. BACKFILL TRENCH.

9. ALL MECHANIZED EQUIPMENT TO PERFORM WORK FROM TEMPORARY BRIDGE OR ADJACENT TOP OF BANK AREAS. USE TIMBER MATS IS TO OCCUR IN STREAM CHANNEL.

10. DISMANTLE DOWNSTREAM DAM, THEN UPSTREAM DAM.

11. RESTORE DISTURBED CHANNEL, STREAM BANKS AND APPROACHES FOR A MINIMUM DISTANCE OF AT LEAST 50 FT. FROM THE STREAM EDGES AND PERMANENTLY STABILIZE WITHIN 1 DAY OF INITIAL RESTORATION. REFER TO THE STREAMBANK RESTORATION DETAIL FOR RESTORATION REQUIREMENTS.



2 Open Trench Stream Crossing - Dam and Pump Around

12/12

N.T.S.

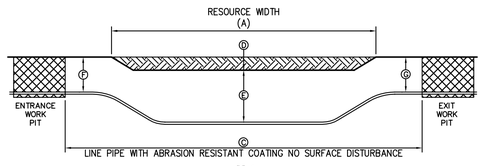
Source: VHB

LD_

MILEPOST	RESOURCE NAME	RESOURCE AREA WIDTH (A)	HDD LENGTH (C)	DEPTH OF RESOURCE AREA. (D)	ELEV. BELOW RESOURCE (E)	ENTRY ELEV. (F)	EXIT ELEV. (G)
28.2	VT-AD-1560 VT-AD-1561	300	775	400	< 393	396	396
28.57	VT-AD-1562	200	375	406	<399	412	412
35.77	VT-AD-806	160	950	310	< 303	323	323

1

MILEPOST	WETLAND ID	WETLAND WIDTH (A)	BUFFER WIDTH (B)	HDD LENGTH (C)	UNCON. MATERIAL ELEV. (D)	CONSOL. MATERIAL ELEV. (E)	ENTRY ELEV. (F)	EXIT ELEV. (G)
22.1	2012-CM-84 2012-PW-85	1,110	1,520	1,600	398	< 391	424	404
27.3	2012-PW-67 RTE-PS-045	2,300	2,450	2,270	358	< 356	< 376	< 400



Notes:

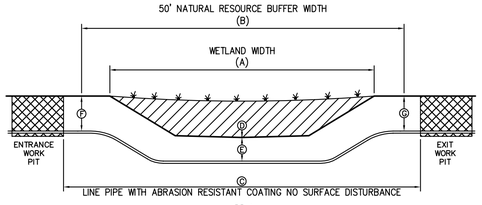
1. THIS CONFIGURATION IS FOR HORIZONTAL DIRECTIONAL DRILL OF UPLAND NATURAL AND CULTURAL (ARCHAEOLOGICAL) RESOURCE SITES AS SHOWN ON PROJECT PLANS. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
2. MINIMUM SEPARATION BETWEEN THE TOP OF PIPELINE AND THE CHANNEL RESOURCE BOTTOM (DIMENSION E) MUST BE AT LEAST 2 FEET.
3. ELEVATIONS PROVIDED ARE BASED ON APPROXIMATE NAVD 88 DATUM AND MUST BE FIELD VERIFIED PRIOR TO INSTALLATION OF PIPELINE.

3 Horizontal Directional Drill (HDD) Upland Natural / Cultural Resource - Typical Section

04/13

N.T.S.

Source: VHB



Notes:

1. THIS CONFIGURATION IS FOR HORIZONTAL DIRECTIONAL DRILL OF WETLAND CROSSINGS AS SHOWN ON PROJECT PLANS. SEE ALIGNMENT SHEETS FOR LOCATIONS OF THIS CONFIGURATION.
2. TOP OF PIPELINE MUST BE BELOW THE DEPTH OF PEAT OR OTHER UNCONSOLIDATED ORGANIC MATERIALS (DIMENSION D) THROUGHOUT THE LENGTH OF THE DRILL.
3. MINIMUM SEPARATION BETWEEN THE UNCONSOLIDATED MATERIAL AND THE TOP OF PIPELINE (DIMENSION E) MUST BE AT LEAST 2 FEET.
4. ELEVATIONS PROVIDED ARE BASED ON APPROXIMATE NAVD 88 DATUM AND MUST BE FIELD VERIFIED PRIOR TO INSTALLATION OF PIPELINE.

4 Horizontal Directional Drill (HDD) Wetland Crossing - Typical Section

04/13

N.T.S.

Source: VHB

SPACE INTENTIONALLY LEFT BLANK

SPACE INTENTIONALLY LEFT BLANK

STATE OF VERMONT
ROBERT E. HOLLINGSHEAD
NO. 97764
CIVIL
LICENSED
PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

							BID		CONSTRUCTION	
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
		1	BCK	TDB		ADDED ARCH. SITE (6/08/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP-T-G-020 | REV. 1

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com

Begin Station	End Station	Min. Depth (ft.)	Reason	Notes
553+00	584+87	4		
584+87	585+08	5	STREAM 2012-SC-CM-34 (I)	
585+08	587+96	4		
587+96	590+46	5	STREAMS 2012-TB-CM-35 (P) and 2012-TB/SC-CM-36 (P)	
590+46	596+50	4		
596+50	605+25	N/A	I-89 HDD	Refer to VTRANS Permit plans for depth of cover in this area
605+25	606+00	5	Paved/Travelled Way	
606+00	606+60	5	Paved Road/Driveway	
606+60	614+00	5	Paved/Travelled Way	
614+00	616+25	4	Paved Crossing/VELCO	Includes VELCO access point
616+25	617+22	4		
617+22	618+06	5	STREAMS 2013-SC-CM-3 (E) and 2013-SC-CM-2 (E)	
618+06	628+00	4		
628+00	645+00	4	VELCO Access	
645+00	651+25	4		
651+25	653+50	4	VELCO	
653+50	655+25	4	Agriculture	
655+25	656+25	N/A	State Road Crossing - St. George Road (Route 2A)	Refer to VTRANS Permit plans for depth of cover in this area
656+25	659+75	4		
659+75	662+25	4	VELCO	
662+25	673+00	4		
673+00	692+25	4		
692+25	712+75	4	VELCO	
712+75	718+25	4		
718+25	719+75	4	VELCO/VELCO Access	
719+75	723+43	4	Agriculture	
723+43	728+63	Varies	FEH STREAM 2012-TB-SB-01 (P) - Sucker Brook	See Detail - DWG. ANGP-T-C-028A
728+63	732+00	4	VELCO Access / Agriculture	
732+00	755+50	4		
755+50	756+25	4, 5	Road Crossing - Lincoln Road	4' in ditch line, 5' under road
756+25	767+75	4		
767+75	787+75	4	VTRANS/Agriculture/VELCO Access	
787+75	788+25	4, 5	Road Crossing - Breezy Valley Drive	4' in ditch line, 5' under road
788+25	792+25	4	Agricultural	
792+25	795+75	4	VTRANS	Along Route 2A
795+75	798+75	4		
798+75	832+81	4	VELCO/Agriculture	
832+81	832+91	5	STREAM 2012-DITCH-CM-40 (D)	
832+91	838+25	4	VELCO / Agriculture	
838+25	853+75	4		
853+75	855+50	4	VELCO	
855+50	863+75	4		
863+75	884+30	4	VELCO Access / VTRANS	See VTRANS Permit plans for details
884+30	887+00	5	Landowner Condition - Peet (LL #86)	
887+00	887+75	N/A	State Road Crossing - St. George Road (Route 2A)	Refer to VTRANS Permit plans for depth of cover in this area
887+75	892+75	4		
892+75	893+75	N/A	State Road Crossing - Hinesburg Road (Route 116)	Refer to VTRANS Permit plans for depth of cover in this area
893+75	900+75	4		
900+75	902+50	4	VELCO	
902+50	904+67	4		
904+67	904+83	5	STREAM 2012-SC-PW-42 (P)	
904+83	910+25	4		
910+25	911+25	4	Agricultural	
911+25	915+50	4		
915+50	927+25	4	Agricultural / Landowner Condition - Garvey (LL #97)	
927+25	943+25	4	VELCO / Agriculture	
943+25	947+75	4		
947+75	948+25	4,5	Road Crossing - Hickory Place	4' in ditch line, 5' under road
948+25	957+50	4		
957+50	979+50	4	Agricultural	
979+50	997+93	4		
997+93	999+01	Varies	FEH STREAM 2012-SC-JB-10 (P) - Unnamed tributary to Laplatte River	See Detail - DWG. ANGP-T-C-039A
999+01	999+25			
999+25	1000+25	4,5	Road Crossing - Shelburne Falls Road	4' in ditch line, 5' under road
1000+25	1004+50	4	Landowner Condition - Fortin (LL #106)	

Begin Station	End Station	Min. Depth (ft.)	Reason	Notes
1004+50	1010+50	4	VELCO Access / Landowner Condition - Fortin (LL #106)	Station Equation in area - 1004+50 is adjacent to LL111/LL112 Boundary
1010+50	1015+50	4	Landowner Condition - Fortin (LL #106)	
1015+50	1023+00	4	VELCO/Agriculture	
1023+00	1025+75	4	VELCO / Agriculture / Landowner Condition - Clark (LL #108)	
1025+75	1032+50	Varies	HDD - LaPlatte River	
1032+50	1047+75	4	VELCO / Agriculture / Landowner Condition - Clark (LL #108)	
1047+75	1048+50	4,5	Road Crossing - Charlotte Road	4' in ditch line, 5' under road
1048+50	1079+38	4	VELCO/Agriculture	
1079+38	1080+53	Varies	FEH STREAM 2015-SC-1 (P)	See Detail - DWG. ANGP-T-C-042A
1080+53	1104+80	4	VELCO/Agriculture	
1104+80	1113+00	4	VELCO / Agriculture / Landowner Condition - UVM and State Ag. College (LL #112)	
1113+00	1114+00	4	Landowner Condition - UVM and State Ag. College (LL #112)	
1114+00	1114+75	4,5	Road Crossing - Baldwin Road	4' in ditch line, 5' under road
1114+75	1117+25	4	Landowner Condition - Thibault (LL #116)	
1117+25	1123+25	4	VELCO / Landowner Condition - Thibault (LL #116)	
1123+25	1175+25	4	Landowner Condition - Thibault (LL #116)	
1125+75	1167+75	4	VELCO / Agriculture / Landowner Condition - Baldwin (LL #117) and Baldwin (LL #118)	
1167+75	1180+20	Varies	HDD - Drinkwater Road Complex / Landowner Condition - Baldwin (LL #117) and Baldwin (LL #118)	
1180+20	1185+97	4	VELCO/Agriculture	
1185+97	1186+20	5	STREAM 2012-SC-PW-38 (P)	
1186+20	1195+15	4	VELCO/Agriculture	
1195+15	1221+30	Varies	HDD - Lewis Creek / Landowner Condition - Mobbs (LL #121)	
1221+30	1268+45	4	VELCO / Agriculture / Landowner Condition - Ames (LL #124)	
1268+45	1268+55	5	STREAM 2012-DITCH-PW-30 (D)	
1268+55	1270+74	4	VELCO/Agriculture	
1270+74	1271+88	5	STREAM 2012-SC-PW-29 (I)	
1271+88	1287+63	4	Agriculture	
1287+63	1288+71	Varies	STREAM 2012/2015-TB/SC-PW-28 (P)	See Detail - DWG. ANGP-T-C-051A
1288+71	1293+50	4	Agriculture	
1293+50	1294+25	4,5	Road Crossing - Rotax Road	4' in ditch line, 5' under road
1294+25	1320+00	4	Agriculture	
1320+00	1329+50	4		
1329+50	1340+25	4	Agriculture	
1340+25	1343+00	4		
1343+00	1357+75	4	VELCO / Agriculture	
1357+75	1361+30	4	VELCO / Agriculture / Landowner Condition - Mejia and Lauer (LL #151)	
1361+30	1378+25	4	VELCO / Agriculture	
1378+25	1378+75	4,5	Road Crossing - Stilson Road (Paper Street)	4' in ditch line, 5' under road
1378+75	1397+25	4	VELCO/Agriculture	
1397+25	1397+75	4,5	Road Crossing - Hollow Road	4' in ditch line, 5' under road
1397+75	1405+24	4	VELCO/Agriculture	
1405+24	1406+63	5	STREAM 2012-TB/SC-RS-3 (P)	
1406+63	1424+00	4	VELCO/Agriculture	
1424+00	1424+50	4,5	Road Crossing - Post Road	4' in ditch line, 5' under road
1424+50	1427+96	4	VELCO/Agriculture	
1427+96	1429+06	5	STREAM 2012-SC-RS-2 (I)	
1429+06	1433+51	4	VELCO/Agriculture	
1433+51	1434+92	5	STREAM 2012-TB/SC-RS-1 (P)	
1434+92	1439+50	4	VELCO/Agriculture	
1439+50	1468+75	Varies	HDD - Monkton Swamp / Landowner Condition -Boisse (LL #178.02, 178.04, 178.05)	
1468+75	1490+25	4	VELCO / Agriculture / Landowner Condition - Boisse (LL #178.02, 178.04, 178.05)	
1490+25	1497+75	Varies	HDD - Archaeology Site VT-AD-1560 and Monkton Road / Landowner Condition - Huizenga (LL #176)	
1497+75	1503+45	4	VELCO / Agriculture / Landowner Condition - Huizenga (LL #176)	
1503+45	1503+61	5	STREAM 2012-DITCH-PW-26 (D)	
1503+61	1508+75	4	VELCO / Agriculture / Landowner Condition - Huizenga (LL #176)	
1508+75	1512+04	Varies	HDD - Archaeology Site VT-AD-1562 / Landowner Condition - Huizenga (LL #176)	
1512+04	1514+82	4	VELCO / Agriculture / Landowner Condition - Huizenga (LL #176)	
1514+82	1525+50	5	VELCO / Agriculture / Landowner Condition - Hurlburt (LL #181)	
1525+50	1536+14	5	Landowner Condition - Hurlburt (LL #181)	

Begin Station	End Station	Min. Depth (ft.)	Reason	Notes
1536+14	1537+40	Varies	STREAM 2012-TB-JB-7 (P)	See Detail - DWG. ANGP-T-C-061AA, Minimum 5 feet deep
1537+40	1547+25	5	Landowner Condition - Hurlburt (LL #181)	
1547+25	1547+75	5	Road Crossing - Old Stage Road	
1547+75	1553+25	5	Landowner Condition - Hurlburt (LL #181)	
1553+25	1553+75	5	Road Crossing - Old Stage Road	
1553+75	1565+26	5	Landowner Condition - Hurlburt (LL #181)	
1565+26	1565+50	5	STREAM 2013-AS-SC-RS-1 (I)	
1565+50	1566+00	5	Road Crossing - Old Stage Road	
1566+00	1580+32	5	VELCO / Agriculture / Landowner Condition - Hurlburt (LL #192)	
1580+32	1588+00	5	VELCO / Agriculture / Landowner Condition - Hurlburt (LL #196)	
1588+00	1588+75	5	Road Crossing - Parks-Hurlburt Road	
1588+75	1633+35	5	VELCO/Agriculture / Landowner Condition - Hurlburt (LL #196)	
1633+35	1635+35	Varies	FEH Stream 2012-SC-RS-5a (P) and 2012-SC-RS-5 (P)	See Detail - DWG. ANGP-T-C-065A
1635+35	1642+50	5	VELCO/Agriculture / Landowner Condition - Hurlburt (LL #196)	
1642+50	1696+00	4	VELCO / Agriculture / Landowner Condition - Choiniere (LL #213)	
1696+00	1712+80	Varies	HDD - Little Otter Creek and Plank Road, VELCO	Landowner Condition - Smith (LL #215) and Four Hill Farms (LL #216) Minimum 4 feet
1712+80	1768+00	4	VELCO Access/Agriculture	
1768+00	1768+75	4,5	Road Crossing - Quary Road	4' in ditch line, 5' under road
1768+75	1775+00	4	Agriculture	
1775+00	1780+20	4		
1780+20	1784+00	4	Landowner Condition - Smith (LL #222)	
1784+00	1786+25	4	Agriculture / Landowner Condition - Smith (LL #222)	
1786+25	1787+25	4	Landowner Condition - Smith (LL #222)	
1787+25	1793+00	4	Agriculture / Landowner Condition - Smith (LL #222)	
1793+00	1794+25	4	Landowner Condition - Smith (LL #222)	
1794+25	1798+50	4	Agriculture / Landowner Condition - Smith (LL #222)	
1798+50	1799+50	4	Landowner Condition - Smith (LL #223)	
1799+50	1841+75	4	Agriculture / Landowner Condition - Smith (LL #223) and Four Hills Farm (LL #225)	
1841+75	1842+75	N/A	Road Crossing - VT State Route 117	Refer to VTRANS Permit plans for depth of cover in this area
1842+75	1863+47	4	VELCO/VELCO Access/Agricultural	
1863+47	1865+48	5	STREAM 2012-SC-CM-63 (I)	
1865+48	1881+50	4	VELCO/VELCO Access/Agricultural	
1881+50	1882+25	4,5	Road Crossing - Town Hill Road	4' in ditch line, 5' under road
1882+25	1888+85	4	VELCO/Agriculture	
1888+85	1899+25	Varies	HDD - Archaeology Site VT-AD-806	Need to be 5 feet under STREAM 2012-TB-CM-62 (P), Need to be 5 feet deep Landowner Condition - Independent Explosives (LL #236)
1899+25	1930+25	4	VELCO / VELCO Access / Agricultural / Landowner Condition - Independent Explosives (LL #236) and Palmer (LL #237)	
1930+25	1939+30	4	Landowner Condition - Middlebury Area Land Trust (LL #238)	
1939+30	1957+50	4		
1957+50	2001+92	4	Agriculture/VELCO Access	
2001+92	2001+98	5	STREAM 2012-SC-CM-61 (E)	
2001+98	2010+50	4	Agriculture/VELCO Access	
2010+50	2012+75	4,5	Road Crossing - Hunt Road	4' in ditch line, 5' under road
2012+75	2020+97	4	VELCO / Agriculture / Landowner Condition - Sturtevant (LL #248)	
2020+97	2029+49	5	VELCO / Agriculture / Landowner Condition - Four Hill Farms (LL #249)	
2029+49	2047+50	5	VELCO / Agriculture / Landowner Condition - Four Hill Farms (LL #252)	
2047+50	2058+00	4	VELCO / Agriculture	
2058+00	2058+69	4	Landowner Condition - Miller and Burke (LL #254)	
2058+69	2058+81	5	STREAM 2012-SC-CM-59 (E)	
2058+81	2059+00	4	Landowner Condition - Miller and Burke (LL #254)	
2059+00	2068+00	4	Agriculture / Landowner Condition - Miller and Burke (LL #254)	
2068+00	2069+50	4	Landowner Condition - Miller and Burke (LL #254)	
2069+50	2070+50	4	Agriculture / Landowner Condition - Miller and Burke (LL #254)	
2070+50	2071+75	4	Landowner Condition - Miller and Burke (LL #254)	

Begin Station	End Station	Min. Depth (ft.)	Reason	Notes
2071+75	2074+80	4	Agriculture / Landowner Condition - Miller and Burke (LL #254)	
2074+80	2080+10	Varies	HDD - New Haven River	Minimum 4 feet of cover Landowner Condition - Miller and Burke (LL #254), Minimum 5 feet of cover Landowner Condition - Four Hill Farms (LL #255)
2080+10	2087+50	5	Agriculture / Landowner Condition - Four Hill Farms (LL #255)	
2087+50	2091+85	5	Landowner Condition - Four Hill Farms (LL #255)	
2091+85	2092+15	5	STREAM 2012-TB/SC-PW-7 (P)	
2092+15	2096+35	5	Landowner Condition - Four Hill Farms (LL #255)	
2096+35	2096+65	5	STREAM 2012-TB/SC-PW-6 (P)	
2096+65	2105+28	5	Landowner Condition - Four Hill Farms (LL #255)	
2105+28	2109+10	4		
2109+10	2109+40	5	STREAM 2012-SC-PW-5 (I)	
2109+40	2113+00	5	Landowner Condition - Four Hill Farms (LL #255)	
2113+00	2113+30	5	STREAM 2012-TB-PW-4 (I)	
2113+30	2126+75	4		
2126+75	2179+88	N/A	Along Vermont State Road	Refer to VTRANS Permit plans for depth of cover in this area, 5 feet under streams

1 DEPTH OF COVER TABLE

N.T.S.

SOURCE: CHA/VHB/VGS

05/2016

VHB Vanasse Hangen Brustlin, Inc.

							BID			CONSTRUCTION	
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
		1	GJM	BCK	IFC PLAN EDITS (05/2016)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 • www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP-T-G-020A | REV. 1

Station	Type	Comments
556+65	SAND	
558+16	SAND	
559+66	SAND	
560+63	SAND	
562+30	BENTONITE	
563+35	BENTONITE	
571+00	BENTONITE	
582+92	BENTONITE	
584+80	BENTONITE	
585+25	BENTONITE	
586+21	BENTONITE	
587+27	BENTONITE	
588+37	BENTONITE	
588+78	BENTONITE	
589+18	SAND	
590+00	BENTONITE	
590+39	BENTONITE	
591+87	SAND	
594+06	BENTONITE	
594+97	BENTONITE	
616+31	SAND	
617+76	SAND	
619+31	SAND	
620+81	SAND	
622+31	SAND	
623+79	SAND	
625+30	SAND	
626+80	SAND	
628+30	SAND	
629+81	SAND	
631+26	BENTONITE	
631+55	BENTONITE	
632+81	SAND	
634+30	SAND	
635+81	SAND	
637+31	SAND	
638+81	SAND	
640+57	SAND	
640+94	SAND	
641+95	SAND	
642+93	SAND	
643+94	SAND	
644+94	SAND	
646+17	SAND	
647+66	SAND	
649+17	SAND	
651+07	SAND	
652+52	BENTONITE	
653+16	BENTONITE	
654+84	SAND	
660+29	SAND	
661+29	SAND	
662+30	SAND	
683+77	SAND	
685+27	SAND	
686+78	SAND	
688+28	SAND	
689+79	SAND	
691+29	SAND	
692+77	SAND	
694+29	SAND	
695+77	SAND	
697+27	SAND	
698+78	SAND	
700+28	SAND	
701+78	SAND	
703+27	SAND	
704+27	SAND	
706+20	BENTONITE	
707+00	BENTONITE	
707+91	SAND	
709+27	SAND	
710+32	SAND	
726+82	BENTONITE	
728+11	BENTONITE	
731+39	SAND	
753+49	BENTONITE	
754+68	BENTONITE	
763+13	SAND	
765+50	BENTONITE	

Station	Type	Comments
766+70	BENTONITE	
779+19	BENTONITE	
780+18	BENTONITE	
787+68	SAND	
799+53	BENTONITE	
799+86	BENTONITE	
800+91	SAND	
802+40	SAND	
803+91	SAND	
805+41	SAND	
806+34	SAND	
810+67	SAND	
811+47	SAND	
812+25	SAND	
813+06	SAND	
813+86	SAND	
814+83	SAND	
815+41	SAND	
816+26	SAND	
832+77	BENTONITE	
833+64	BENTONITE	
838+50	BENTONITE	
840+36	BENTONITE	
843+67	BENTONITE	
844+20	BENTONITE	
854+78	BENTONITE	
855+66	BENTONITE	
866+91	SAND	
870+39	SAND	
871+95	SAND	
878+41	SAND	
879+93	SAND	
881+42	SAND	
882+92	SAND	
884+41	SAND	
885+90	SAND	
887+42	SAND	
888+96	SAND	
890+49	SAND	
893+44	SAND	
894+93	SAND	
896+45	SAND	
898+05	SAND	
899+56	SAND	
901+04	SAND	
902+55	BENTONITE	
905+65	BENTONITE	
945+26	SAND	
946+79	SAND	
948+29	SAND	
949+81	SAND	
951+30	SAND	
952+78	SAND	
955+18	SAND	
956+00	SAND	
957+03	SAND	
958+04	SAND	
959+01	SAND	
960+05	SAND	
961+02	SAND	
995+65	BENTONITE	
1004+23	BENTONITE	
1005+00	BENTONITE	
1014+16	BENTONITE	
1023+10	BENTONITE	
1078+51	BENTONITE	
1080+19	BENTONITE	
1087+77	BENTONITE	
1088+03	BENTONITE	
1100+77	BENTONITE	
1101+68	BENTONITE	
1102+05	BENTONITE	
1103+05	BENTONITE	
1103+88	SAND	
1104+68	SAND	
1105+50	SAND	
1106+30	SAND	
1107+14	SAND	
1107+91	SAND	
1108+70	SAND	

Station	Type	Comments
1109+50	SAND	
1110+32	SAND	
1111+14	SAND	
1111+92	SAND	
1112+71	SAND	
1113+22	SAND	
1114+02	SAND	
1114+82	SAND	
1116+37	BENTONITE	
1118+41	BENTONITE	
1119+95	SAND	
1121+44	SAND	
1122+93	SAND	
1124+44	SAND	
1124+89	SAND	
1126+58	SAND	
1128+12	SAND	
1129+08	SAND	
1130+59	SAND	
1131+70	SAND	
1135+40	SAND	
1136+43	SAND	
1137+41	SAND	
1138+40	SAND	
1139+39	SAND	
1140+40	SAND	
1141+41	SAND	
1142+41	SAND	
1143+55	BENTONITE	
1143+85	BENTONITE	
1149+73	SAND	
1150+57	SAND	
1158+77	SAND	
1159+93	SAND	
1161+19	SAND	
1162+42	SAND	
1163+68	SAND	
1164+93	SAND	
1166+20	SAND	
1167+12	SAND	
1180+41	BENTONITE	
1184+61	SAND	
1185+86	SAND	
1188+55	SAND	
1189+97	SAND	
1191+49	SAND	
1192+98	SAND	
1222+24	SAND	
1223+70	SAND	
1225+21	SAND	
1226+68	SAND	
1227+82	SAND	
1233+97	BENTONITE	
1234+25	BENTONITE	
1238+67	BENTONITE	
1240+03	BENTONITE	
1243+93	BENTONITE	
1246+28	BENTONITE	
1247+72	BENTONITE	
1249+97	BENTONITE	
1258+54	BENTONITE	
1260+25	BENTONITE	
1263+17	BENTONITE	
1263+93	BENTONITE	
1271+13	BENTONITE	ELEVATION DATA IS SPORADIC IN THIS LOCATION. VGS CONSTRUCTION MANAGEMENT TO DETERMINE LOCATION OF SAND TRENCH BREAKERS IN FIELD.
1271+45	BENTONITE	
1288+00	BENTONITE	
1288+29	BENTONITE	
1297+30	BENTONITE	
1301+00	BENTONITE	
1301+77	BENTONITE	
1302+70	BENTONITE	
1303+78	BENTONITE	
1306+46	BENTONITE	
1307+81	BENTONITE	
1308+77	BENTONITE	
1310+74	BENTONITE	
1313+38	BENTONITE	
1314+20	BENTONITE	
1314+92	BENTONITE	

Station	Type	Comments
1356+97	BENTONITE	
1357+42	BENTONITE	
1359+49	BENTONITE	
1360+35	BENTONITE	
1372+82	SAND	
1374+31	SAND	
1380+74	SAND	
1381+62	SAND	
1382+54	SAND	
1383+45	SAND	
1384+33	SAND	
1385+45	SAND	
1386+93	SAND	
1388+41	SAND	
1389+94	SAND	
1391+45	SAND	
1392+93	SAND	
1394+59	SAND	
1395+56	SAND	
1396+62	SAND	
1398+16	BENTONITE	
1399+18	BENTONITE	
1399+93	SAND	
1402+65	SAND	
1403+90	SAND	
1405+15	SAND	
1405+71	BENTONITE	
1405+95	BENTONITE	
1406+30	SAND	
1406+82	SAND	
1407+62	SAND	
1408+41	SAND	
1409+20	SAND	
1410+05	SAND	
1410+79	SAND	
1411+60	SAND	
1412+43	SAND	
1413+21	SAND	
1414+01	SAND	
1414+85	SAND	
1415+64	SAND	
1416+25	SAND	
1417+78	SAND	
1418+08	SAND	
1418+93	SAND	
1419+86	SAND	
1420+75	SAND	
1421+68	SAND	
1422+56	SAND	
1423+43	SAND	
1424+36	SAND	
1425+27	SAND	
1426+14	SAND	
1427+07	SAND	
1427+96	SAND	
1428+85	SAND	
1429+64	BENTONITE	
1433+85	BENTONITE	
1436+41	BENTONITE	
1439+00-1463+00	ELEVATION DATA IS SPORADIC IN THIS LOCATION. VGS CONSTRUCTION MANAGEMENT TO DETERMINE LOCATION OF SAND TRENCH BREAKERS IN FIELD.	
1472+42	BENTONITE	
1473+74	BENTONITE	
1503+85	BENTONITE	
1506+89	BENTONITE	
1536+26	BENTONITE	ELEVATION DATA IS SPORADIC IN THIS LOCATION. VGS CONSTRUCTION MANAGEMENT TO DETERMINE LOCATION OF SAND TRENCH BREAKERS IN FIELD.
1537+46	BENTONITE	
1538+20	SAND	
1539+73	SAND	
1541+20	SAND	
1541+95	SAND	
1544+02	SAND	
1545+51	SAND	
1547+05	SAND	
1548+52	SAND	
1549+35	SAND	
1550+87	SAND	
1552+35	SAND	
1553+86	SAND	
1555+35	SAND	

1 TRENCH BREAKER LOCATION

N.T.S.

05/2016

SOURCE: CHA

NOTE: THE FOLLOWING APPROXIMATE STATIONS ARE THE MINIMUM LOCATIONS FOR BOTH SAND AND BENTONITE TRENCH BREAKERS FOR SEGMENT 2 & 3 OF THE ADDISON NATURAL GAS PROJECT. THIS LIST WAS CREATED USING INFORMATION FROM DETAILS #2 AND #5 ON DRAWING ANGP-T-G-015 REV. 2 FROM THE PLAN SET TITLED "ADDISON NATURAL GAS PROJECT TRANSMISSION MAINLINE" DATED 04-02-15. THE CONSTRUCTION MANAGEMENT TEAM/INSPECTORS SHOULD REVIEW ACTUAL FIELD CONDITIONS AND DIRECT THE CONTRACTOR TO INSTALL ADDITIONAL TRENCH BREAKERS AS NECESSARY TO SUPPLEMENT THE LISTED AREAS.

STATE OF VERMONT — WILLIAM E. RUSLOSKI — NO. 97764 — CIVIL — PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
		1	GJM	BCK	IFC PLAN EDITS (05/2016)

		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP-T-G-020B | REV. 1

Station	Type	Comments
1579+24	BENTONITE	
1579+89	BENTONITE	
1581+19	BENTONITE	
1581+45	BENTONITE	
1601+39	BENTONITE	
1610+06	BENTONITE	
1633+54	BENTONITE	
1635+00	BENTONITE	
1640+39	BENTONITE	
1667+50	BENTONITE	
1669+58	BENTONITE	
1670+48	BENTONITE	
1680+37	BENTONITE	
1680+71	BENTONITE	
1685+24	BENTONITE	
1685+61	BENTONITE	
1719+44	BENTONITE	
1720+47	SAND	
1721+33	BENTONITE	
1722+07	SAND	
1722+86	SAND	
1723+67	SAND	
1724+48	SAND	
1725+29	SAND	
1726+10	SAND	
1726+86	SAND	
1775+00	BENTONITE	
1776+08	BENTONITE	
1778+63	BENTONITE	
1779+70	BENTONITE	
1781+32	BENTONITE	
1782+58	BENTONITE	
1786+17	BENTONITE	
1787+25	BENTONITE	
1793+44	BENTONITE	
1794+12	BENTONITE	
1846+53	SAND	
1847+97	SAND	
1849+50	SAND	
1851+02	SAND	
1852+26	BENTONITE	
1852+79	BENTONITE	
1854+01	SAND	
1855+52	SAND	
1857+01	SAND	
1863+63	SAND	
1864+40	BENTONITE	
1864+56	BENTONITE	
1865+10	SAND	
1868+50	SAND	
1869+29	SAND	
1871+64	BENTONITE	
1872+00	BENTONITE	
1884+00-1919+29	ELEVATION DATA IS SPORADIC IN THIS LOCATION. VGS CONSTRUCTION MANAGEMENT TO DETERMINE LOCATION OF SAND TRENCH BREAKERS IN FIELD.	
1917+27	BENTONITE	
1923+24	BENTONITE	
1928+39	BENTONITE	
1965+95	BENTONITE	
1971+79	BENTONITE	
1973+50	BENTONITE	
1998+48	SAND	
1999+22	SAND	
2001+41	SAND	
2002+92	SAND	
2004+39	SAND	
2005+85	BENTONITE	
2006+22	BENTONITE	
2009+41	BENTONITE	
2010+30	BENTONITE	
2010+98	SAND	
2012+51	SAND	
2014+06	SAND	
2015+53	SAND	
2017+06	SAND	
2018+55	SAND	
2058+50	BENTONITE	
2058+75	BENTONITE	
2068+30	BENTONITE	

Station	Type	Comments
2069+16	BENTONITE	
2070+23	BENTONITE	
2072+87	BENTONITE	
2091+82	BENTONITE	ELEVATION DATA IS SPORADIC IN THIS LOCATION. VGS CONSTRUCTION MANAGEMENT TO DETERMINE LOCATION OF SAND TRENCH BREAKERS IN FIELD.
2092+18	BENTONITE	
2096+25	BENTONITE	
2096+48	SAND	
2096+67	BENTONITE	
2097+93	SAND	
2099+44	SAND	
2100+90	SAND	
2102+46	SAND	
2103+94	SAND	
2105+43	SAND	
2106+96	SAND	
2108+43	SAND	
2109+14	BENTONITE	
2109+39	BENTONITE	
2109+93	SAND	
2111+42	SAND	
2113+00	BENTONITE	
2113+24	BENTONITE	
2120+77	BENTONITE	
2121+38	BENTONITE	
2142+22	BENTONITE	
2144+64	BENTONITE	
2162+30	BENTONITE	
2162+48	BENTONITE	
2174+62	SAND	

1 TRENCH BREAKER LOCATION

N.T.S.

05/2016

SOURCE: CHA

NOTE: THE FOLLOWING APPROXIMATE STATIONS ARE THE MINIMUM LOCATIONS FOR BOTH SAND AND BENTONITE TRENCH BREAKERS FOR SEGMENT 2 & 3 OF THE ADDISON NATURAL GAS PROJECT. THIS LIST WAS CREATED USING INFORMATION FROM DETAILS #2 AND #5 ON DRAWING ANGP-T-G-015 REV. 2 FROM THE PLAN SET TITLED "ADDISON NATURAL GAS PROJECT TRANSMISSION MAINLINE" DATED 04-02-15. THE CONSTRUCTION MANAGEMENT TEAM/INSPECTORS SHOULD REVIEW ACTUAL FIELD CONDITIONS AND DIRECT THE CONTRACTOR TO INSTALL ADDITIONAL TRENCH BREAKERS AS NECESSARY TO SUPPLEMENT THE LISTED AREAS.

STATE OF VERMONT — REGISTERED PROFESSIONAL ENGINEER — NO. 97764 — CIVIL

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
							DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
							DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
		1	GJM	BCK		IFC PLAN EDITS (05/2016)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

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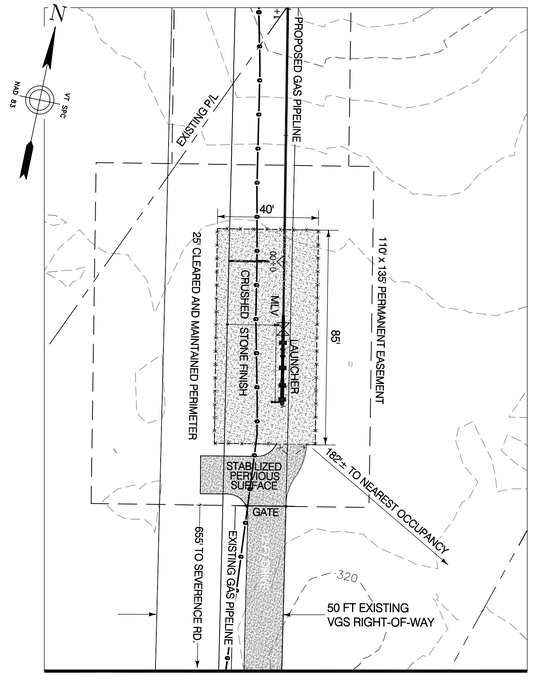
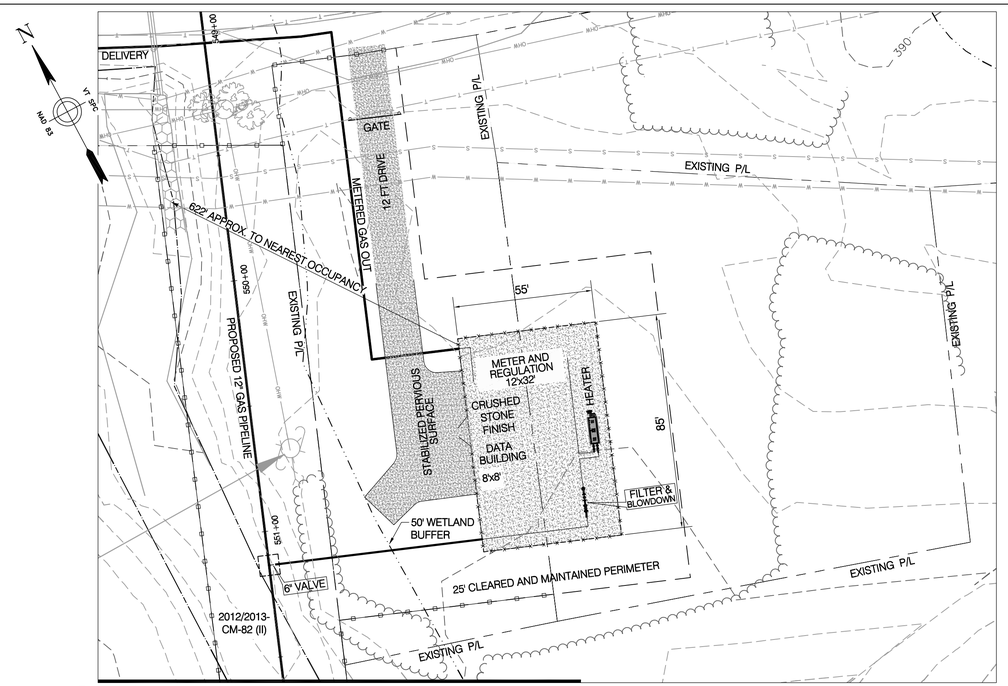
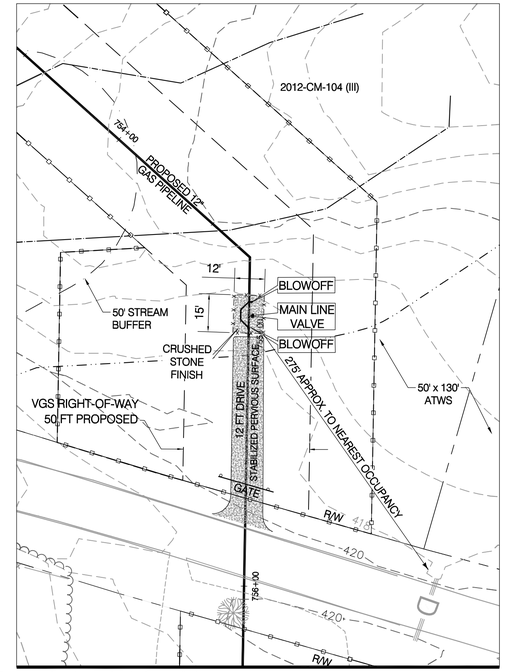
YEAR: 2016 | W.O. | SCALE: NOTED | DWG. ANGP-T-G-020C | REV. 1



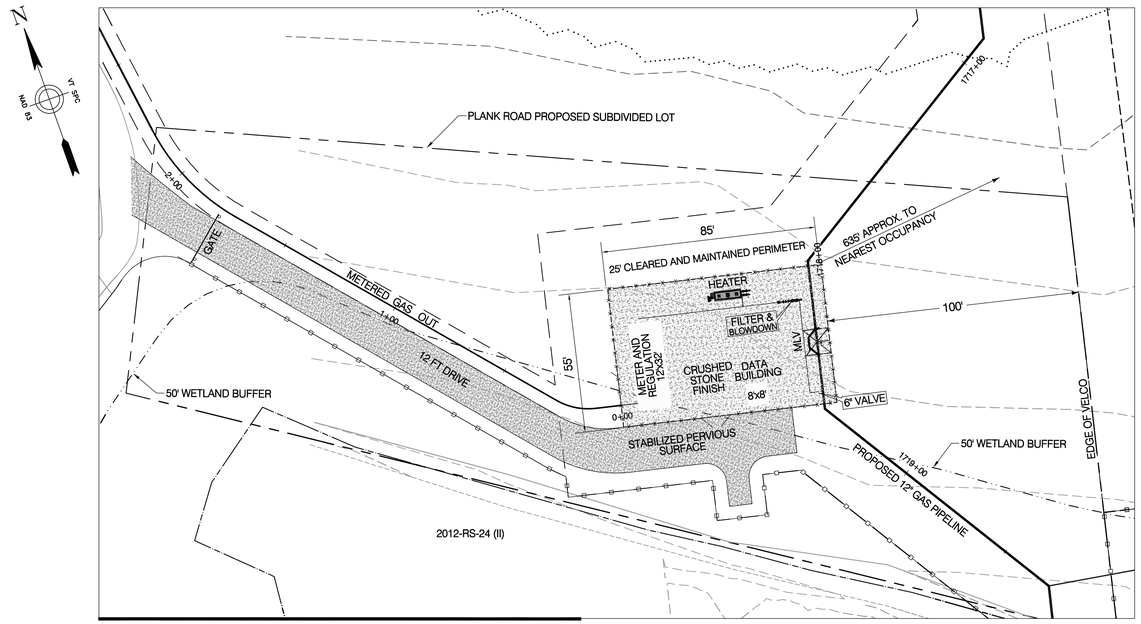
1 Colchester Tie-In 4/30
Scale: 1"=30'



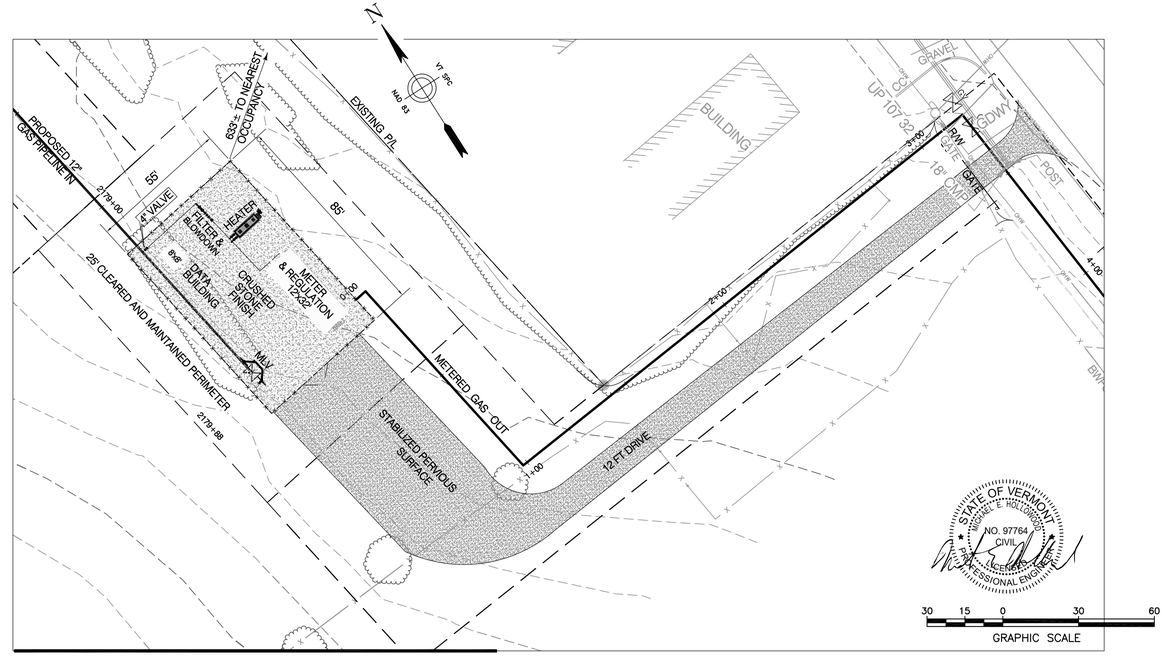
2 Williston Road Station 4/30
1"=30'



3 Typical Main Line Valve 4/30
1"=30' LD_



4 Plank Road Station 4/30
Scale: 1"=30' LD_



5 Middlebury Station RT 7 4/30
Scale: 1"=30' LD_

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION
15-713-G-500	TYPICAL MAIN LINE VALVE					
15-713-G-400	COLCHESTER TIE IN					
15-713-G-300	MIDDLEBURY STATION RT 7					
15-713-G-200	PLANK ROAD STATION					
15-713-G-100	WILLISTON ROAD STATION					

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
STATION AND VALVE DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

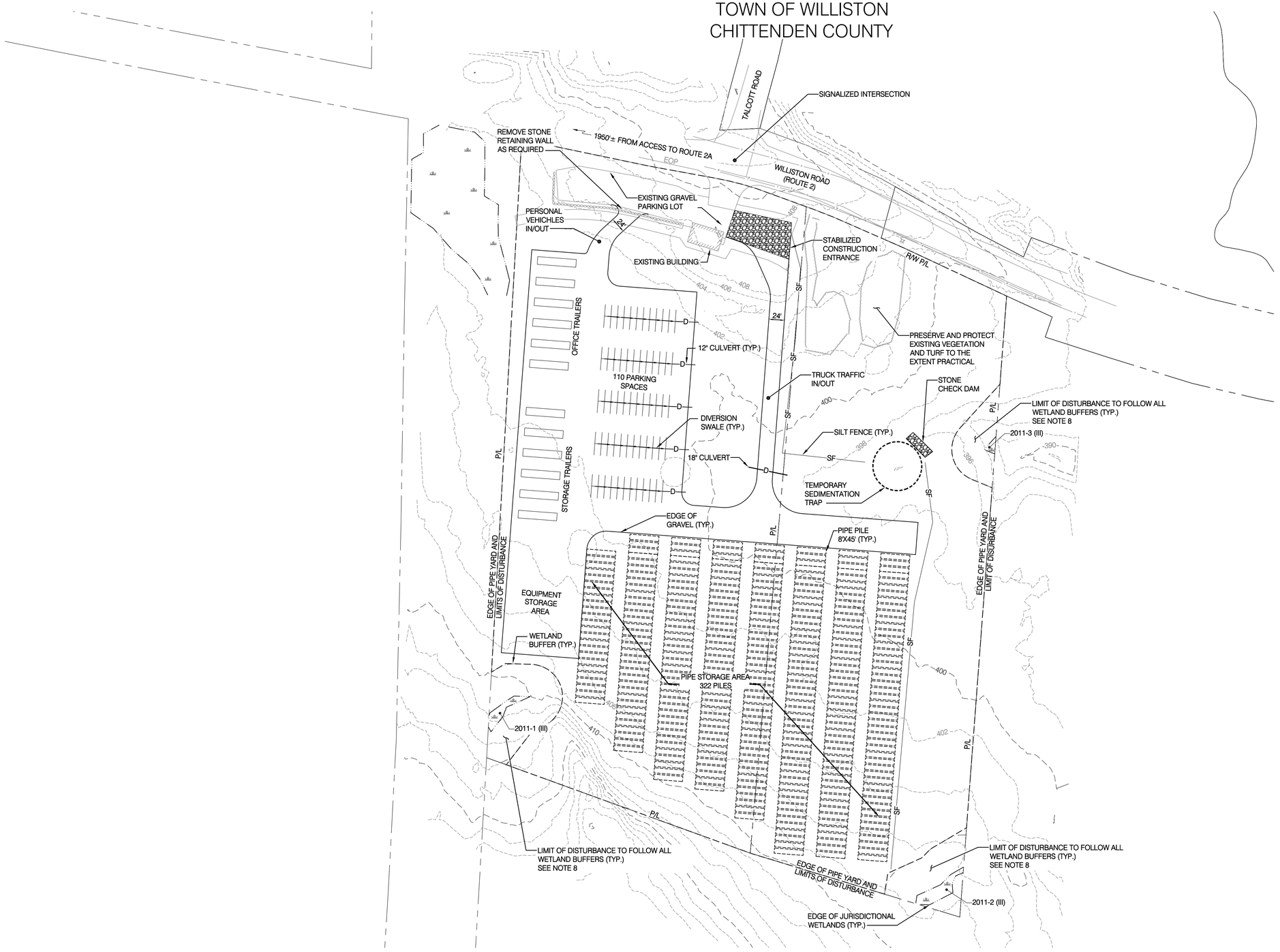
YEAR: 2016 | W.O. | SCALE: AS NOTED | DWG. ANGP-T-G-021 | REV. 0

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 ~ www.chacompanies.com

TOWN OF WILLISTON
CHITTENDEN COUNTY



N

NOTES:

1. PURPOSE OF PLAN: TO SHOW A GENERAL LAYOUT CONFIGURATION OF A CONSTRUCTION LAYDOWN AREA (PIPE YARD) ON THE SHOWN PARCELS.

2. THE CONTRACTOR SHALL BE REPSPONSIBLE FOR SITE SECURITY AND JOB SAFETY, CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA AND LOCAL REQUIREMENTS.

3. THIS PROJECT FALLS WITHIN THE INDIVIDUAL NPDES CONSTRUCTION STORMWATER PERMIT PROGRAM. THE CONTRACTOR SHALL FOLLOW THE CONDITIONS OF THE INDIVIDUAL PERMIT AND EROSION AND SEDIMENT CONTROL PLAN (EPSC).

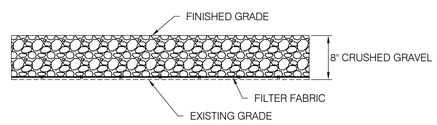
4. THE CONTRACTOR SHALL NOTIFY DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS BEFORE ANY EXCAVATION.

5. STORMWATER SHALL BE DIRECTED TO THE TEMPORARY SEDIMENT TRAP THROUGH THE USE OF DIVERSION SWALES, PIPES, WATERS, OR BY OTHER APPROVED METHODS AND MEANS.

6. LIMIT OF DISTURBANCE (LOD) TAPE AND/OR FENCE AND/OR FLAGGING SHALL BE INSTALLED PER DETAILS 1 AND 3-5, AS INDICATED ON EPSC PLAN SHEET ANGP-T-G-012.

7. LOD TAPE, FENCE, OR FLAGGING SHALL NOT CROSS ACTIVE ENTRANCE/EXITS OR IMPEDE DRAINAGE FLOW PATHS (E.G. SEDIMENT TRAP OUTFALL).

8. LOD SHALL BE EXTERNAL TO ANY JURISDICTIONAL WETLAND, WETLAND BUFFER, AND/OR OTHER NATURAL RESOURCE AREAS. THE CONTRACTOR SHALL PRESERVE AND PROTECT SAID AREAS TO THE EXTENT NECESSARY.



TYPICAL SECTION
(NTS)

80 40 0 80 160
GRAPHIC SCALE

STATE OF VERMONT
JONATHAN E. HOLLOWAY
NO. 97764
CIVIL
PROFESSIONAL ENGINEER

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
					ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
					DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
					DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
					DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
					DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
WILLISTON PIPEYARD

LOC. CHITTENDEN COUNTY

YEAR: 2016 | W.O. | SCALE: 1"=80' | DWG. ANGP-T-G-022 | REV. 0

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
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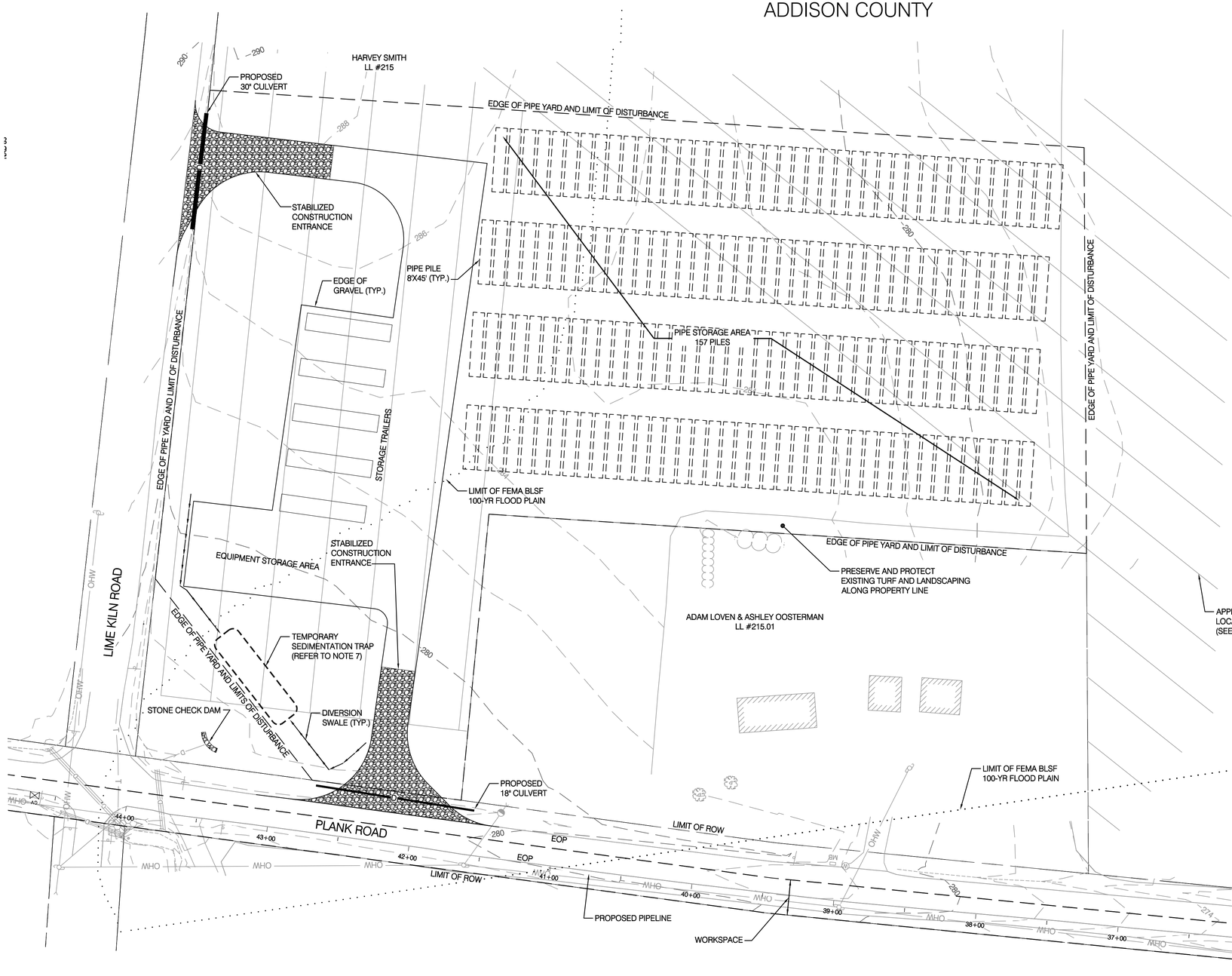
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com

TOWN OF NEW HAVEN
ADDISON COUNTY



NOTES:

1. PURPOSE OF PLAN: TO SHOW A GENERAL LAYOUT CONFIGURATION OF A CONSTRUCTION LAYDOWN AREA (PIPE YARD) ON THE SHOWN PARCELS.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY, CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA AND LOCAL REQUIREMENTS.

3. THIS PROJECT FALLS WITHIN THE INDIVIDUAL NPDES CONSTRUCTION STORMWATER PERMIT PROGRAM. THE CONTRACTOR SHALL FOLLOW THE CONDITIONS OF THE INDIVIDUAL PERMIT AND EROSION PREVENTION AND SEDIMENT CONTROL PLAN (EPSC).

4. THE CONTRACTOR SHALL NOTIFY DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS BEFORE ANY EXCAVATION.

5. TOPSOIL IN ALL DISTURBED AREAS SHALL BE RESTORED TO IT'S ORIGINAL CONDITION UPON DECOMMISSIONING OF SITE, PER STABILIZATION NOTES ON EPSC PLAN SHEET ANGP-T-G-011.

6. THE EXISTING FIELD, CONTAINS UNDERDRAINAGE/DRAINAGE TILE WHICH SHALL BE PROTECTED DURING CONSTRUCTION, IF UNDERDRAINAGE SYSTEM IS DAMAGED, IT SHALL BE REPLACED UPON DECOMMISSIONING OF SITE.

7. THE TEMPORARY SEDIMENT TRAP SHALL BE A 'STONE OUTLET SEDIMENT TRAP' AS INDICATED ON EPSC PLAN SHEET ANGP-T-G-016. THE TRAP SHALL BE INSTALLED SUCH THAT THE BOTTOM ELEVATION OF THE TRAP IS NO LOWER, THAN THE BOTTOM ELEVATION OF THE EXISTING TOP SOIL, TO PREVENT DAMAGE TO THE EXISTING UNDERDRAINAGE SYSTEM.

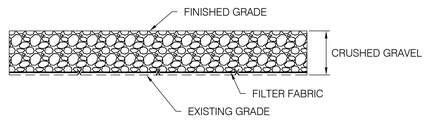
8. STORMWATER SHALL BE DIRECTED TO THE TEMPORARY SEDIMENT TRAP THROUGH THE USE OF DIVERSION SWALES, PIPES, WATER BARS OR BY OTHER APPROVED METHODS AND MEANS.

9. LIMIT OF DISTURBANCE (LOD) TAPE, AND/OR FENCE, AND/OR FLAGGING SHALL BE INSTALLED PER DETAILS 1 AND 3-5 AS INDICATED ON EPSC PLAN SHEET ANGP-T-G-012.

10. LOD TAPE, FENCE, OR FLAGGING SHALL NOT CROSS ACTIVE ENTRANCES/EXITS OR IMPEDE DRAINAGE FLOWPATHS (E.G. SEDIMENT TRAP OUTFALL).

11. DRAINAGE TILE LOCATIONS SHOWN HEREON ARE APPROXIMATE AND BASED ON INFORMATION PROVIDED BY THE LAND OWNER AND CONTRACTOR THAT INSTALLED THE DRAINAGE INFRASTRUCTURE.

12. DEPTH OF CRUSHED GRAVEL SHALL BE DETERMINED BY CONTRACTOR BASED ON EXISTING SOIL CONDITIONS AND PIPE YARD MEANS AND METHODS.



TYPICAL SECTION
(NTS)

STATE OF VERMONT
MICHAEL E. HOLLINGSWORTH
NO. 97764
CIVIL
LICENSED
PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION	BID		CONSTRUCTION	
							INITIALS	DATE	INITIALS	DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
PLANK ROAD PIPEYARD

LOC. ADDISON COUNTY

Vermont Gas

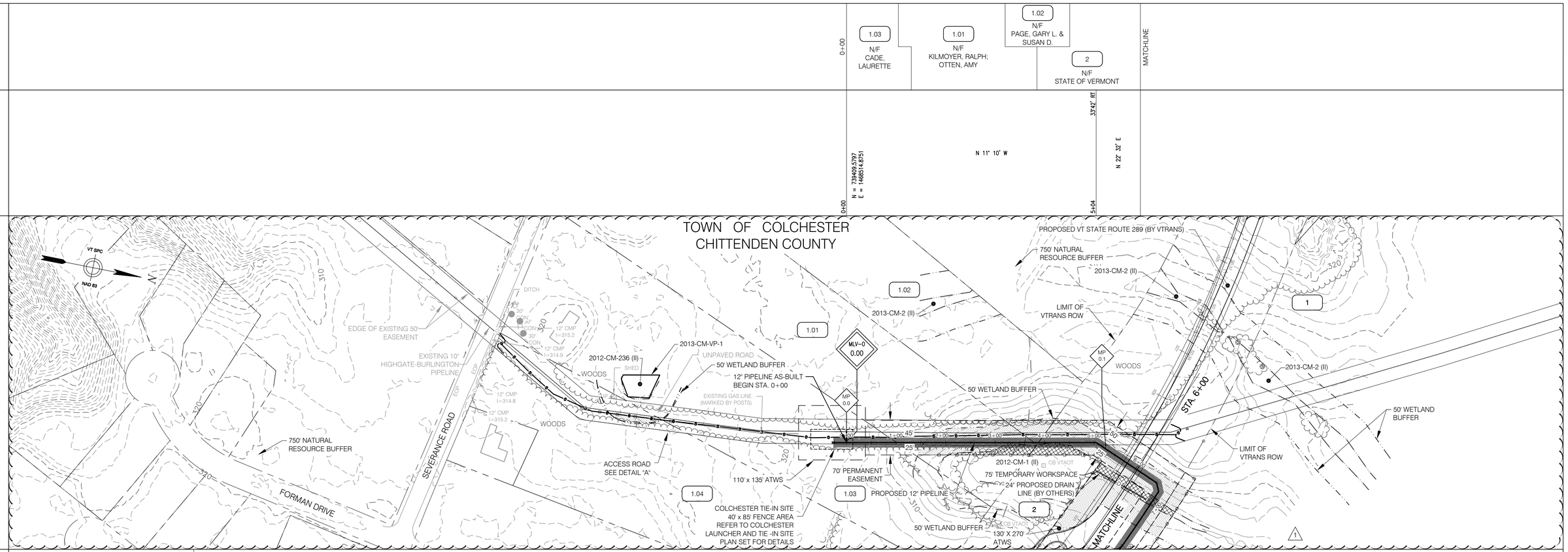
CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1"=40' | DWG. ANGP-T-G-023 | REV. 0

RIGHT-OF-WAY

SURVEY DATA

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 0+00 TO 0+38 RT - 35' FROM NEW 12" PIPE ℄
STA. 0+38 TO 5+19 RT - 25' FROM NEW 12" PIPE ℄
STA. 0+00 TO 0+38 LT - 75' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 5+19 TO 6+00 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 0+38 TO 5+04 LT - 45' FROM NEW 12" PIPE ℄
STA. 5+04 TO 6+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1+45 TO 5+19 RT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 5+19 TO 6+00 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 0+00

INSTALL MATTING:
STA. 2+07 TO 4+86

INSTALL MATTING:
STA. 5+19 TO 6+00

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1A W	1G W	
SOIL TYPE	MyC (PAS) ScB	ScA MyC	
LC/LU	GRASS / RESIDENTIAL		
STREAMS			
WETLANDS		WETLAND 2012-CM-1 - STATION 1+45 TO 6+00 CLASS II	
VERNAL POOLS	2012-CM-VP-1		
SIGNIFICANT NATURAL COMMUNITIES			
RTE SPECIES			
NRC WILDLIFE HABITAT			
ARCHAEOLOGY SITES			

0+00 — MATCH LINE

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-007-010	ACCESS ROAD DETAILS				
ANGP-T-G-021	STATION AND VALVE DETAILS				
ANGP-T-C-001A	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-001A | REV. 1

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

1
N/F
THIBAULT, JO ANN

2
N/F
STATE OF VERMONT

MATCHLINE

SURVEY DATA

Station	Bearing	Deflection
6+51	N 22° 33' E	43°40' RT
6+69	N 66° 12' E	45°31' RT
7+08	S 68° 16' E	00°52' RT
7+49	S 67° 24' E	00°52' RT
7+89	S 66° 32' E	00°52' RT
8+29	S 65° 40' E	00°52' RT
8+69	S 64° 48' E	00°52' RT
9+09	S 63° 57' E	00°52' RT
9+49	S 63° 05' E	00°48' RT
9+83	S 62° 16' E	00°48' RT
10+29	S 61° 24' E	00°55' RT
10+69	S 60° 29' E	00°55' RT
11+09	S 59° 37' E	00°55' RT
11+49	S 58° 45' E	00°52' RT
11+89	S 57° 53' E	00°52' RT
12+29	S 57° 01' E	00°52' RT
12+69	S 56° 09' E	00°52' RT
12+98	S 55° 24' E	00°19' RT
	S 55° 05' E	
21+28		00°33' RT
	S 55° 38' E	
22+34		01°59' RT
	S 57° 37' E	

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	– – – – – –
CENTERLINE OF STREAM	—— - —— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	— · · — · · —
50' WETLAND BUFFER	— · · — · · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 6+00 TO 9+61 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 6+00 TO 6+93 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 9+61 TO 14+37 RT - 50' FROM NEW 12" PIPE ℄
STA. 6+93 TO 8+26 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 14+37 TO 15+91 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 15+91 TO 25+00 RT - 50' FROM NEW 12" PIPE ℄
STA. 8+26 TO 25+00 RT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 6+00 TO 9+20 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 6+51 TO 6+93 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 6+93 TO 7+95 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 13+94 TO 14+37 RT - 50' FROM NEW 12" PIPE ℄
STA. 14+37 TO 15+91 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 15+91 TO 16+42 RT - 50' FROM NEW 12" PIPE ℄
STA. 13+70 TO 15+93 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 12+38 TO 13+68 RT - 25' FROM NEW 12" PIPE ℄
STA. 13+68 TO 14+34 RT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 6+00 TO 7+02

INSTALL MATTING:
STA. 14+77 TO 15+00

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	W · 1G · 1B · W · 2C · 1B
SOIL TYPE	MyC · ScB · MyC · HnA (PAS) · HnC · AdA (PAS) · AdB (PAS)
LC/LU	GRASS RESIDENTIAL · TRAVEL · RESIDENTIAL
STREAMS	
WETLANDS	WETLAND 2012-CM-1 - STATION 6+00 TO 7+53 CLASS II WETLAND 2012-CM-02 - STATION 14+23 TO 15+55 CLASS II
VERNAL POOLS	
SIGNIFICANT NATURAL COMMUNITIES	
RTE SPECIES	
NRC WILDLIFE HABITAT	
ARCHAEOLOGY SITES	

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-001B	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-001B | REV. 1

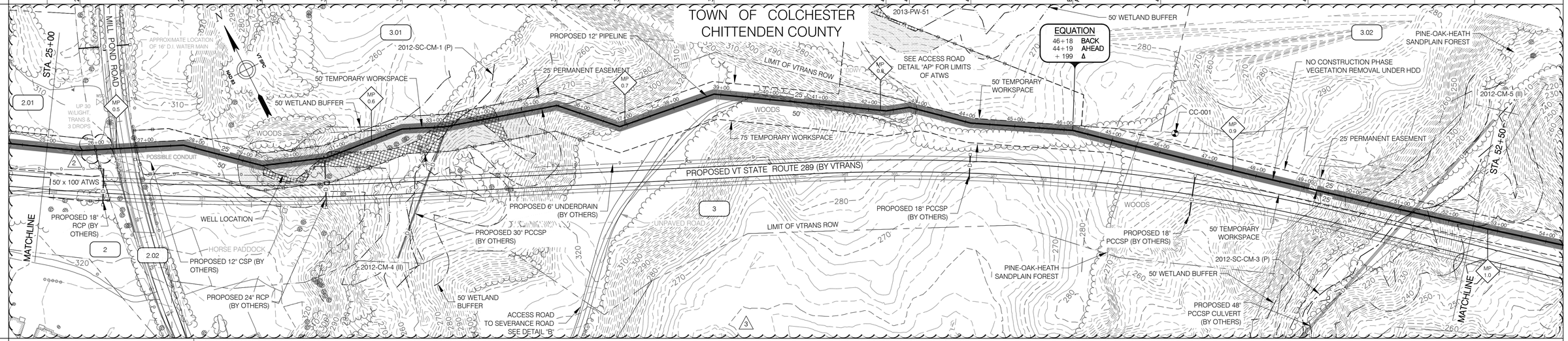
RIGHT–OF–WAY

MATCHLINE | 2.01 N/F LINCKS, MICHEAL & ELIZABETH; 2 N/F STATE OF VERMONT | 2.02 MILL POND ROAD | 3.01 N/F ROBERT H. SHANGRAW; MARION SHANGRAW LIFE ESTATE | 3.01 N/F ROBERT H. SHANGRAW; MARION SHANGRAW LIFE ESTATE | 3 N/F STATE OF VERMONT | 3.01 N/F ROBERT H. SHANGRAW; MARION SHANGRAW LIFE ESTATE | 3.02 N/F GAUTHIER, THERESA LEO & KEVIN | 3.02 N/F GAUTHIER, THERESA, LEO & KEVIN | MATCHLINE

SURVEY DATA

08°37' LT	17°25' RT	21°26' LT	13°48' LT	17°49' RT	07°52' LT	29°20' RT	37°33' LT	24°36' RT	14°19' LT	23°28' RT	10°18' LT	10°18' RT	08°20' RT	04°19' RT
S 57° 37' E	S 66° 13' E	S 48° 49' E	S 70° 14' E	S 84° 02' E	S 66° 13' E	S 74° 05' E	S 44° 45' E	S 82° 18' E	S 57° 42' E	S 72° 01' E	S 48° 53' E	S 59° 12' E	S 59° 21' E	S 51° 01' E	S 46° 42' E
25+67	27+76	29+40	30+71	32+34	33+23	35+51	36+85	38+87	42+36	42+83	44+11	Bck: 46+18 Ahd: 44+19 199' tL	45+98	49+08	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 25+00 TO 25+14 RT - 50' FROM NEW 12" PIPE ℄
STA. 25+00 TO 25+67 LT - 25' FROM NEW 12" PIPE ℄
STA. 25+14 TO 26+22 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 25+67 TO 25+94 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 26+91 TO 42+26 RT - 50' FROM NEW 12" PIPE ℄
STA. 26+76 TO 27+76 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 26+76 TO 41+37 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 41+37 TO 45+00 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 42+26 TO 45+03 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 45+00 TO 52+50 LT - 25' FROM NEW 12" PIPE ℄
STA. 45+03 TO 52+50 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 25+82 TO 26+22 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 25+41 TO 25+67 LT - 25' FROM NEW 12" PIPE ℄
STA. 25+67 TO 25+94 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 26+91 TO 27+41 RT - 50' FROM NEW 12" PIPE ℄
STA. 26+76 TO 27+26 LT - 35' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 28+53 TO 36+26 RT - 50' FROM NEW 12" PIPE ℄
STA. 28+44 TO 35+60 LT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 26+00 & 26+83

INSTALL MATTING:
STA. 29+40 TO 34+43

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 37+65

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1B	9	1C	1B	W	W	1C	1B	1C	8					
SOIL TYPE	AdA	AdB		Bo	HID		AdE	AdA	AdE	HnD		HnE	HIE	AdD	
LC/LU	GRASS	PAVE	GRASS		FOREST										
	TRAVEL			AGRICULTURE				TRAVEL		AGRICULTURE		TRAVEL			
STREAMS	MATCH LINE				STREAM 2012-SC-CM-1 (P) - STATION 32+84 TO 33+83								STREAM 2012-SC-CM-3 (P) - STATION 51+70 TO 52+15		MATCH LINE
WETLANDS					WETLAND 2012-CM-4 - STATION 28+91 TO 35+25 CLASS II									WETLAND 2012-CM-5 - STATION 50+58 TO 52+50 CLASS II	
VERNAL POOLS															
SIGNIFICANT NATURAL COMMUNITIES											PINE-OAK-HEATH SANDPLAIN FOREST				
RTE SPECIES															
NRC WILDLIFE HABITAT															
ARCHAEOLOGY SITES															

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION
		3	GJM	BCK		IFC 2016 EDITS (05/2016)
ANGP–T–G–007–010	ACCESS ROAD DETAILS	2	BCK	TDB		CP TEST LEAD EDIT (9/14/15)
ANGP–T–C–002	ALIGNMENT SHEET	1	BCK	TDB		VHB EDITS (6/09/15)

		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP–EPSC–002 | REV. 3

RIGHT-OF-WAY

MATCHLINE

3 N/F STATE OF VERMONT

3.02 N/F GAUTHIER, THERESA, LEO & KEVIN

TOWN OF COLCHESTER / TOWN OF ESSEX

4 N/F GAUTHIER, THERESA, LEO & KEVIN

5 N/F STATE OF VERMONT

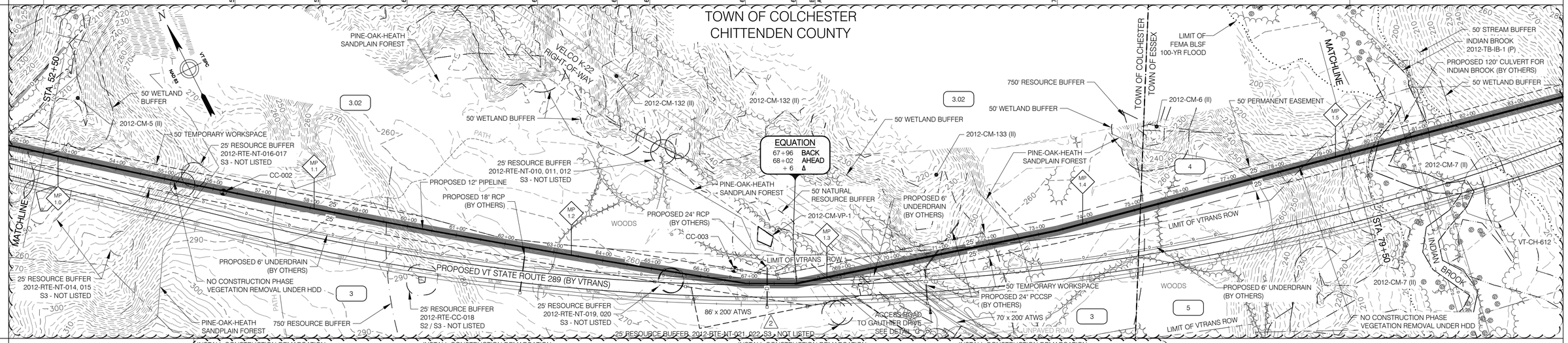
MATCHLINE

SURVEY DATA

S 46° 42' E	03°32' LT	S 50° 14' E	07°01' LT	S 57° 16' E	04°52' RT	S 52° 24' E	04°15' LT	S 56° 39' E	02°31' LT	S 59° 10' E	11°58' RT	S 47° 11' E
56+51	58+27	60+04	62+72	64+54	65+00	67+01						

15°59' LT	S 63° 11' E	11°34' LT	S 74° 46' E	2.4 ft.	S 74° 46' E	03°21' LT	S 78° 06' E					
67+01	68+04	Beg. 68+04	Anc. 68+02		73+39							

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 52+50 TO 67+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 52+50 TO 60+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 60+00 TO 64+00 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 67+00 TO 69+25 RT - 25' FROM NEW 12" PIPE ℄
STA. 64+00 TO 67+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 67+00 TO 68+00 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 69+25 TO 79+50 RT - 25' FROM FROM NEW 12" PIPE ℄
STA. 68+00 TO 79+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 64+67 TO 65+17 RT - 25' FROM NEW 12" PIPE ℄
STA. 65+17 TO 65+67 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 65+67 TO 65+86 RT - 25' FROM NEW 12" PIPE ℄
STA. 66+25 TO 68+47 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 65+86 TO 66+00 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 68+02 TO 69+52 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 69+90 TO 71+11 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 69+72 TO 71+79 LT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 70+00

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE	8		2C	8		
SOIL TYPE	AdD	AgA	AdD	AdA	AgE	AdA	AgE
LC/LU	FOREST / TRAVEL					AGRICULTURE / TRAVEL	
STREAMS							
WETLANDS	WETLAND 2012-CM-5 - STATION 52+50 TO 53+72 CLASS II			WETLAND 2012-CM-133 - STATION 70+22 TO 71+29 CLASS II		WETLAND 2012-CM-7 - STATION 79+37 TO 79+50 CLASS II	
VERNAL POOLS			VERNAL POOL 2012-CM-VP-1				
SIGNIFICANT NATURAL COMMUNITIES		PINE-OAK-HEATH SANDPLAIN FOREST			PINE-OAK-HEATH SANDPLAIN FOREST		
RTE SPECIES	2012-RTE-NT-017		2012-RTE-NT-019, 020				
NRC WILDLIFE HABITAT							
ARCHAEOLOGY SITES							

MATCH LINE

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-007-010	ACCESS ROAD DETAILS	2	GJM	BCK	IFC 2016 EDITS (05/2016)
ANGP-T-C-003	ALIGNMENT SHEET	1	BCK	TDB	VHB EDITS (6/09/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-003 | REV. 2

Vermont Gas

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RIGHT-OF-WAY

MATCHLINE

4.01
N/F
TOWN OF ESSEX

5
N/F
STATE OF VERMONT

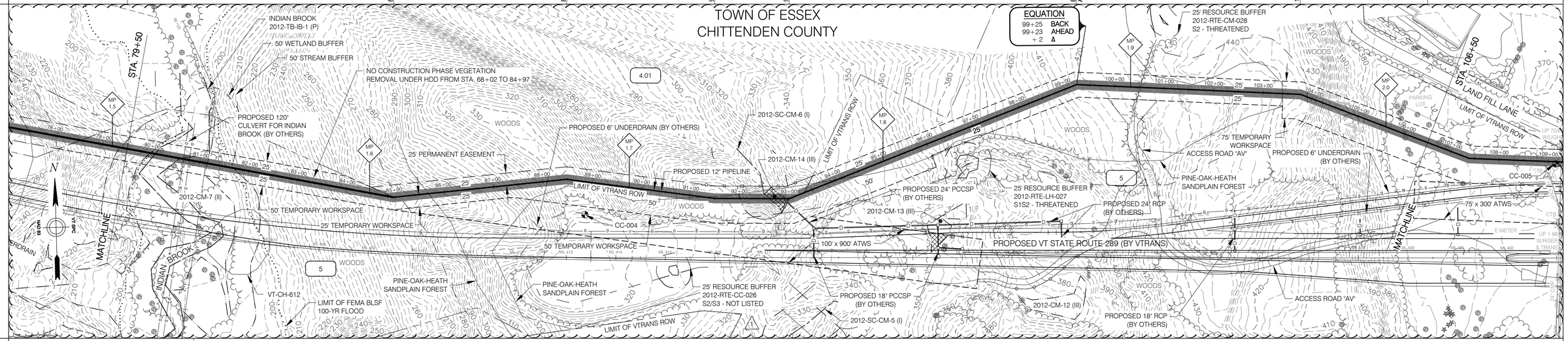
MATCHLINE

SURVEY DATA

S 78° 06' E | 16'14" LT | N 85° 40' E | 13'16" RT | S 81° 03' E | 07'08" LT | S 88° 12' E | 21'49" LT | N 69° 59' E | 24'06" RT 2' ± | S 85° 55' E | 18'15" RT | S 67° 40' E

84+97 | 88+48 | 91+50 | 93+00 | Back: 99+25 Ahd: 99+23 | 103+75

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 79+50 TO 84+97 RT - 25' FROM NEW 12" PIPE ℄
STA. 79+50 TO 83+96 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 84+97 TO 93+29 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 83+96 TO 84+97 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 84+97 TO 106+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 93+29 TO 96+00 RT - 50' FROM NEW 12" PIPE ℄
STA. 96+00 TO 103+40 RT - 25' FROM NEW 12" PIPE ℄
STA. 103+40 to 106+50 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 91+21 TO 93+58 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 95+66 TO 96+00 RT - 50' FROM NEW 12" PIPE ℄
STA. 96+00 TO 97+50 RT - 25' FROM NEW 12" PIPE ℄
ON ACCESS ROAD "AV" AS SHOWN ON PLAN

INSTALL MATTING:
STA. 92+47 TO 92+95

INSTALL MATTING:
STA. 95+25 TO 95+71

INSTALL STABALIZED CONSTRUCTION ENTRANCE:
STA. 100+25

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

	MATCH LINE																MATCH LINE
CONST. TYPE		8			2E			1C		W				1B			
SOIL TYPE		AgE	Wo	AgE		AdA	AgE				AdD		Br	MyC	AdE	AdB	AdA
LC/LU		FOREST	OPEN WATER								FOREST						
											TRAVEL						
STREAMS			STREAM 2012-TB-IB-01 (P) - STATION 79+94 TO 81+14							STREAM 2012-SC-CM-6 (I) - STATION 92+46 TO 92+47							
WETLANDS		WETLAND 2012-CM-7 - STATION 79+50 TO 82+06 CLASS II							WETLAND 2012-CM-14 - STATION 91+92 TO 93+05 CLASS III			WETLAND 2012-CM-13 - STATION 95+25 TO 95+71 CLASS III					
VERNAL POOLS																	
SIGNIFICANT NATURAL COMMUNITIES						PINE-OAK-HEATH SANDPLAIN FOREST											
RTE SPECIES											2012-RTE-LH-027						
NRC WILDLIFE HABITAT																	
ARCHAEOLOGY SITES																	

VHB Vanasse Hangen Brustlin, Inc.

							BID		CONSTRUCTION	
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-004	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-004 | REV. 1

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
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RIGHT-OF-WAY

MATCHLINE

5 N/F STATE OF VERMONT

5.01 COLCHESTER ROAD VT STATE ROUTE 2A

6.01 N/F SISTERS AND BROTHERS INVEST GROUP LLC

6 N/F STATE OF VERMONT

7 N/F NEW ENGLAND CENTRAL RAILROAD

8 N/F LECLERC, LINDA & ARMAND A.

9 N/F STATE OF VERMONT

MATCHLINE

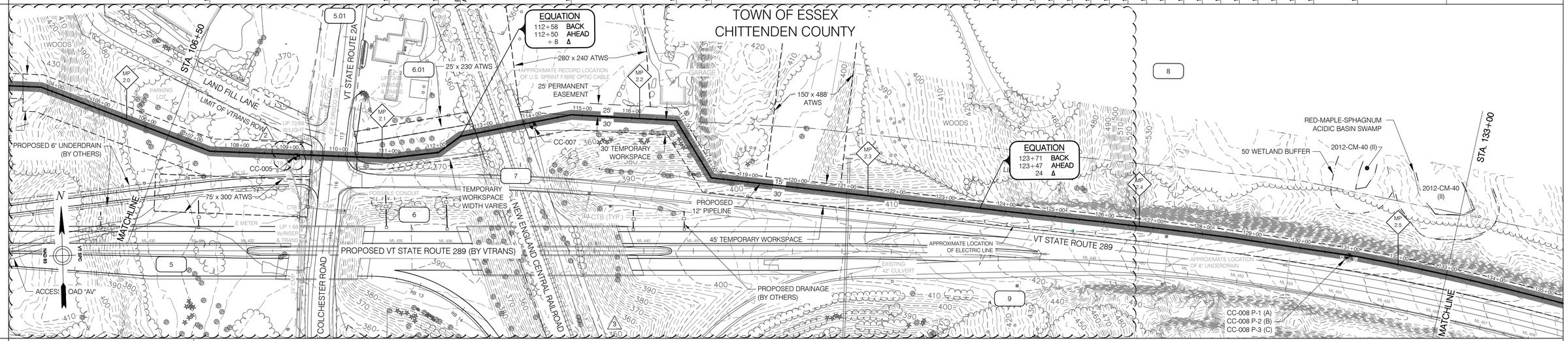
SURVEY DATA

STA.		STA.		STA.		STA.		STA.		STA.		STA.	
107+40	S 67° 40' E	111+02	S 86° 11' E	112+92	N 84° 55' E	Bac: 112+58 Ahd: 112+50	N 55° 23' E 7.6 ft.	114+78	N 80° 38' E	116+92	N 85° 15' E	119+26	S 29° 55' E
18'31" LT		08°53" LT		29°31" LT		25°14" RT		14°06" RT		55°21" RT		52°00" LT	

STA.		STA.		STA.		STA.		STA.		STA.		STA.		STA.		STA.		STA.		STA.		STA.		STA.	
123+47	S 82° 41' E	123+69	S 81° 20' E	123+98	S 82° 16' E	124+40	S 81° 58' E	124+72	S 82° 39' E	124+99	S 81° 43' E	125+18	S 82° 09' E	125+47	S 81° 58' E	125+73	S 82° 16' E	125+98	S 81° 23' E	126+23	S 81° 43' E	126+48	S 82° 03' E	126+77	S 82° 14' E
12°51" LT		01°21" RT		36°50" LT		01°17" RT		14°40" LT		36°50" RT		25°25" LT		01°11" RT		01°17" LT		00°52" RT		00°19" LT		00°19" LT		00°51" RT	

STA.		STA.		STA.		STA.		STA.		STA.		STA.	
127+06	S 81° 23' E	127+34	S 81° 20' E	127+70	S 81° 03' E	128+04	S 81° 07' E	128+34	S 81° 06' E	128+57	S 79° 54' E	131+17	S 76° 49' E
00°03" RT		00°16" RT		00°03" LT		00°00" RT		01°12" RT		03°04" RT			

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 106+50 TO 107+40 RT - 50' FROM NEW 12" PIPE ℄
STA. 106+50 TO 109+29 LT - 25' FROM NEW 12" PIPE ℄
STA. 106+53 TO 109+31 RT-WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 110+36 TO 112+85 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 110+31 TO 112+71 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 113+85 TO 133+00 RT - 30' FROM NEW 12" PIPE ℄
STA. 113+77 TO 116+90 LT - 25' FROM NEW 12" PIPE ℄
STA. 116+90 TO 119+36 LT - 15' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 119+36 TO 120+86 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 120+86 TO 133+00 LT - 15' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 108+81 TO 109+31 RT - 125' FROM NEW 12" PIPE ℄
STA. 108+79 TO 109+29 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 110+36 TO 110+80 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 110+31 TO 110+91 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 112+35 TO 112+85 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 112+21 TO 112+71 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 113+85 TO 114+35 RT - 30' FROM NEW 12" PIPE ℄
STA. 113+77 TO 113+80 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 109+31

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 116+17

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 120+11

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1B							8							2E	3									
SOIL TYPE	AdA		EwB		AdA									MyB (PAS)		LyE		LyD		PeC		PsE		LyE	
LC/LU	GRASS			PAVED		GRASS			RAILROAD			GRASS											OUTCROP		
	TRAVEL													RESIDENTIAL									TRAVEL		
STREAMS																									
WETLANDS																									
VERNAL POOLS																									
SIGNIFICANT NATURAL COMMUNITIES																									
RTE SPECIES																									
NRC WILDLIFE HABITAT																									
ARCHAEOLOGY SITES																									

MATCH LINE

MATCH LINE

Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
ANGP-T-C-005A	RAILROAD CROSSING DETAIL	3	GJM	BCK		IFC 2016 EDITS (05/2016)	DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-G-007-010	ACCESS ROAD DETAILS	2	BCK	TDB		CP TEST LEAD EDIT (9/14/15)	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-005	ALIGNMENT SHEET	1	BCK	TDB		VHB EDITS (6/09/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-005 | REV. 3

Vermont Gas

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Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

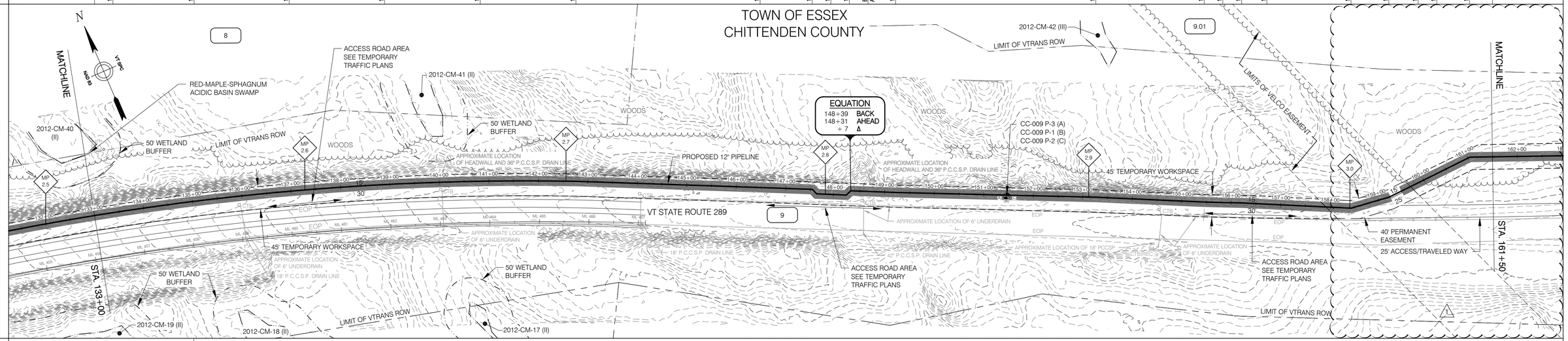
9
N/F
STATE OF VERMONT

MATCHLINE

SURVEY DATA

133+10	135+03	136+97	138+90	140+83	142+76	146+49	147+54	147+66	149+26	Bgn: 148+39 Ahd: 148+31	149+22	153+27	155+46	155+77	156+22	156+72	158+43	159+22	159+88	159+98	161+04
02'01" RT	02'01" RT	02'01" RT	02'01" RT	02'01" RT	01'51" RT	1'01" RT	45'00" RT	45'00" LT	45'00" LT	7.3 ft.	90'43" LT	01'08" RT	00'57" LT	1'01" LT	01'24" RT	00'00" RT	18'51" LT	11'01" LT	00'00" RT	0'00" LT	25'25" RT
S 76° 49' E	S 74° 48' E	S 72° 46' E	S 70° 45' E	S 68° 44' E	S 66° 42' E	S 64° 50' E	S 64° 39' E	S 19° 39' E	S 64° 39' E	N 70° 21' E	S 64° 39' E	S 65° 22' E	S 64° 14' E	S 65° 11' E	S 65° 26' E	S 64° 02' E	S 64° 02' E	S 82° 53' E	N 86° 57' E	N 86° 57' E	N 86° 57' E	S 67° 38' E

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 133+00 TO 147+54 RT - 30' FROM NEW 12" PIPE ℄
STA. 133+00 TO 147+54 LT - 15' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 147+54 TO 148+31 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 148+31 TO 156+46 RT - 30' FROM NEW 12" PIPE ℄
STA. 147+54 TO 148+31 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 148+31 TO 161+04 LT - 15' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 155+46 TO 158+53 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 158+53 TO 161+04 RT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 161+04 TO 161+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 161+04 TO 161+22 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 161+22 TO 161+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 137+25

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 147+50

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 156+25

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	3														2A		2C				
SOIL TYPE	LyD		ScB		LyD			CbD					LyD							MyC	
LC/LU	OUTCROP																				
	TRAVEL																				
STREAMS																					
WETLANDS																					
VERNAL POOLS																					
SIGNIFICANT NATURAL COMMUNITIES																					
RTE SPECIES																					
NRC WILDLIFE HABITAT																					
ARCHAEOLOGY SITES																					

MATCH LINE (left) — MATCH LINE (right)

ANGP-T-C-006	ALIGNMENT SHEET	1	GJM	BCK		IFC 2016 EDITS (05/2016)
DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION

	BID		CONSTRUCTION	
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
	INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-006 | REV. 1

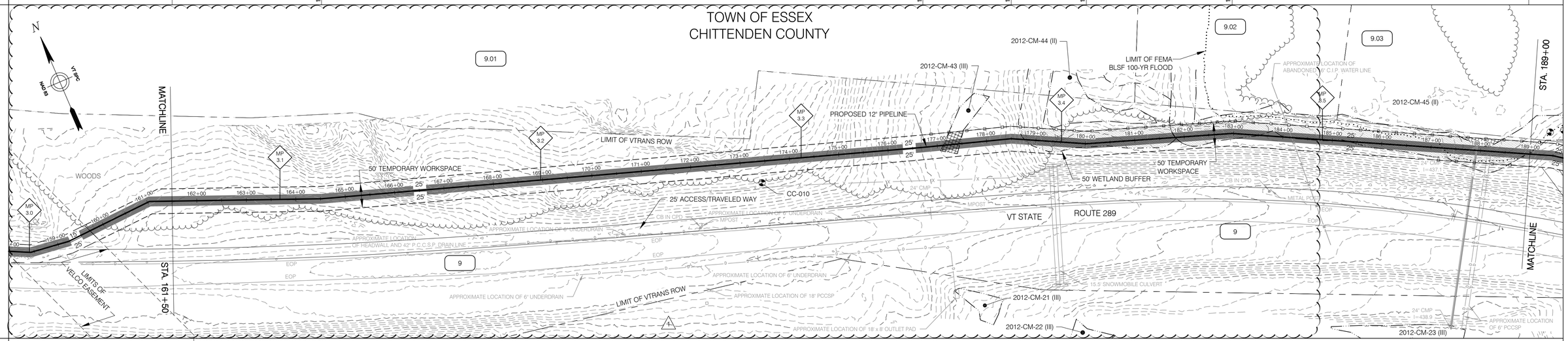
VHB Vanasse Hangen Brustlin, Inc.

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT–OF–WAY	MATCHLINE	9 N/F STATE OF VERMONT	MATCHLINE
SURVEY DATA		S 67° 38' E; 00°00' LT 164+52; S 71° 38' E; 00°43' LT 176+71; S 71° 38' E; 09°28' RT 179+50; S 62° 53' E; 7°54' LT 180+02; S 70° 47' E; 08°02' RT 182+97; S 62° 46' E	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 161+50 TO 189+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 161+50 TO 189+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 176+76 TO 189+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 187+00 TO 189+00 RT - 25' FROM FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 177+06 TO 177+55

INSTALL MATTING:
STA. 187+59 TO 188+44

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE					2C		W				W	
SOIL TYPE	MyC	LyD				PsC		ScB	MyB	ScA	Lf	ScA	MyB
LC/LU	FOREST								GRASS			
	TRAVEL											
STREAMS												
WETLANDS						WETLAND 2012-CM-43 - STATION 177+06 TO 177+55 CLASS III			WETLAND 2012-CM-45 - STATION 187+59 TO 188+44 CLASS II				
VERNAL POOLS												
SIGNIFICANT NATURAL COMMUNITIES												
RTE SPECIES												
NRC WILDLIFE HABITAT												
ARCHAEOLOGY SITES												

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP–T–C–007	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP–EPSC–007 | REV. 1

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT–OF–WAY

MATCHLINE

9.05
N/F
EHLERVILLE LLC

9.06
N/F
EHLERVILLE LLC

9
N/F
STATE OF VERMONT

MATCHLINE

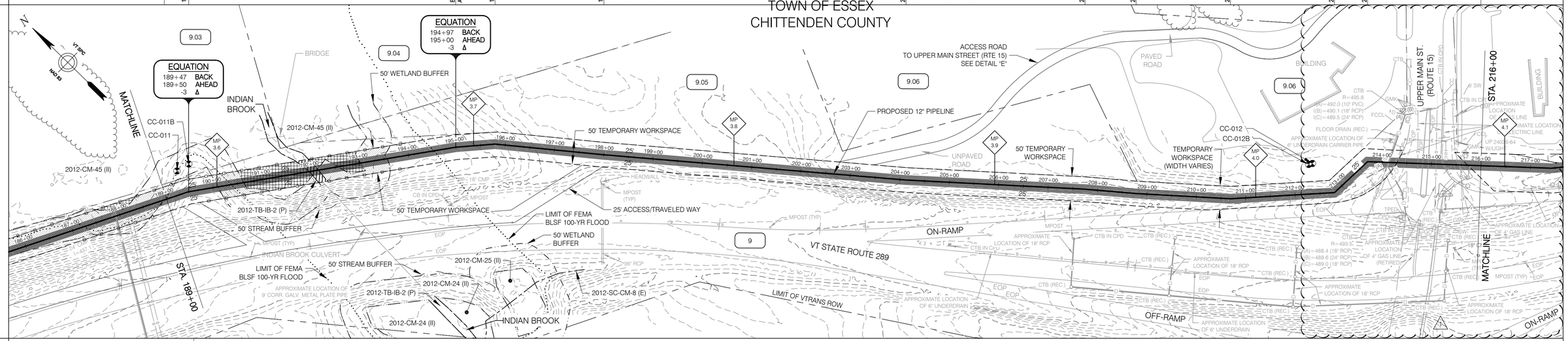
SURVEY DATA

09°01" RT | S 53° 45' E | 10°08" RT | S 48° 48' E | 09°50" RT | S 38° 40' E | 01°50" RT | S 39° 29' E | 01°57" RT | S 41° 20' E | 01°45" RT | S 39° 22' E | 08°34" LT | S 41° 07' E | S 47° 42' E | 39°40" LT | S 67° 22' E | 45°06" RT | S 42° 15' E

189+47 | 195+79 | 198+00 | 204+13 | 207+75 | 208+79 | 210+70 | 212+79 | 213+71

-3.0 ft.
Bgn: 194+97
Ahd: 195+00
04°57" RT

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 189+00 TO 210+25 RT - 25' FROM NEW 12" PIPE ℄
STA. 189+00 TO 214+42 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 189+00 TO 189+26 RT - 25' FROM NEW 12" PIPE ℄
STA. 189+68 TO 192+12 RT - 25' FROM NEW 12" PIPE ℄
STA. 189+00 TO 189+14 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 189+14 TO 191+74 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 190+56 TO 192+07

INSTALL MATTING:
STA. 192+01 TO 193+14

INSTALL REINFORCED PERIMETER CONTROL:
STA. 192+36 TO 194+09 RT - 25' FROM NEW 12" PIPE ℄
STA. 191+99 TO 194+20 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 210+25 TO 214+30 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 215+46 TO 216+00 LT - 25' FROM NEW 12" PIPE ℄
STA. 215+74 TO 216+00 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 203+16

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE		W		7		2C								4E			9	
SOIL TYPE	MyB		Le		MyB		MyC		MyB				ScA		PeB	MyB		LmB
LC/LU	GRASS			OPEN WATER		GRASS											PAVED	GRASS
	TRAVEL												AGRICULTURE			BUSINESS		TRAVEL
STREAMS				STREAM 2012-TB-IB-2 (P) - STATION 191+76 TO 192+46														
WETLANDS	MATCH LINE	WETLAND 2012-CM-45 - STATION 189+00 TO 189+25 & STA. 190+03 TO 193 +68 CLASS II																MATCH LINE
VERNAL POOLS																		
SIGNIFICANT NATURAL COMMUNITIES																		
RTE SPECIES																		
NRC WILDLIFE HABITAT																		
ARCHAEOLOGY SITES																		

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP–T–G–007–010	ACCESS ROAD DETAILS				
ANGP–T–C–008	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP–EPSC–008 | REV. 1

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

9.07 N/F NAPOLI GROUP

9.08 N/F HANNAFORD BROS. CO.

9.09 N/F EUROWEST RETAIL PARTNERS LTD.

9.10 N/F SAYBROOK HOMEOWNERS ASSOCIATION

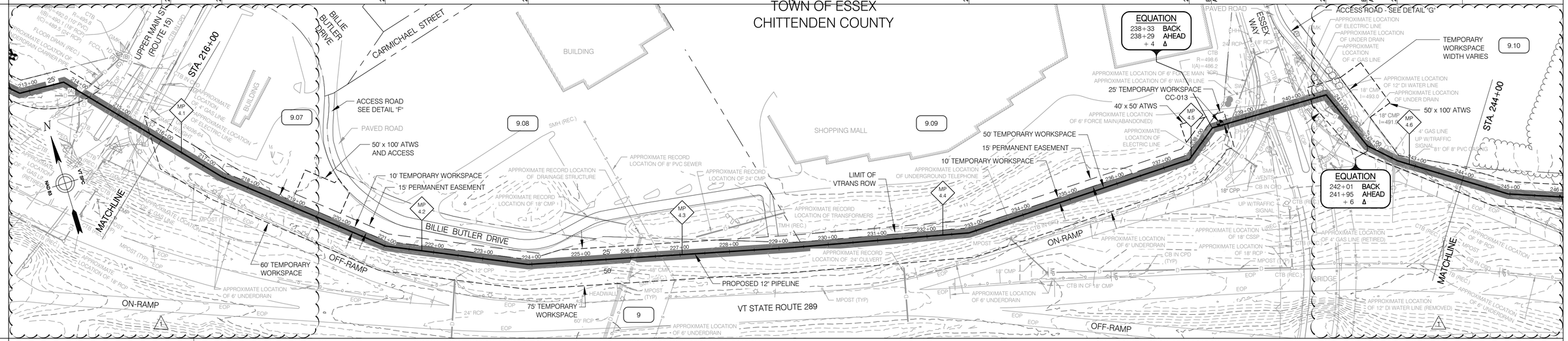
9 N/F STATE OF VERMONT

MATCHLINE

SURVEY DATA

216+21	217+43	221+92	223+92	229+31	232+85	237+54	238+33 Back 238+29 Ahead 4 ft.	240+69	242+01 Back 241+95 Ahead 24.96' LT	242+63
S 42° 15' E	S 42° 12' E	S 50° 09' E	S 65° 47' E	S 76° 44' E	S 77° 51' E	N 88° 31' E	N 52° 58' E	S 89° 18' E	S 22° 06' E	S 46° 43' E	S 56° 26' E
00°04' RT	07°57' LT	15°38' LT	10°58' LT	01°07' LT	13°38' LT	35°33' LT	37°45' RT	67°11' RT	5.7 ft.	09°43' LT	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 216+00 TO 216+28 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 216+00 TO 218+93 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 216+28 TO 238+61 RT - 50' FROM NEW 12" PIPE ℄
STA. 218+93 TO 219+93 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 219+93 TO 223+78 LT - 25' FROM NEW 12" PIPE ℄
STA. 223+78 TO 224+58 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 224+58 TO 237+78 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 237+78 TO 238+29 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 238+29 TO 238+61 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 240+36 TO 244+00 RT -WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 240+35 TO 244+00 LT -WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 219+76

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 228+91

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 240+69

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1F				1B	1F					9	2C		
SOIL TYPE	LmB	CaA	MyB	ScB	ScB	MyB	ScB	MyB	ScB		ScA		ScB	
LC/LU	GRASS										ROADWAY	GRASS		
STREAMS	TRAVEL													
WETLANDS														
VERNAL POOLS														
SIGNIFICANT NATURAL COMMUNITIES														
RTE SPECIES														
NRC WILDLIFE HABITAT														
ARCHAEOLOGY SITES														

MATCH LINE

MATCH LINE

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-007-010	ACCESS ROAD DETAILS				
ANGP-T-C-009	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-009 | REV. 1

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

9
N/F
STATE OF VERMONT

9.10
N/F
SAYBROOK HOMEOWNERS ASSOCIATION

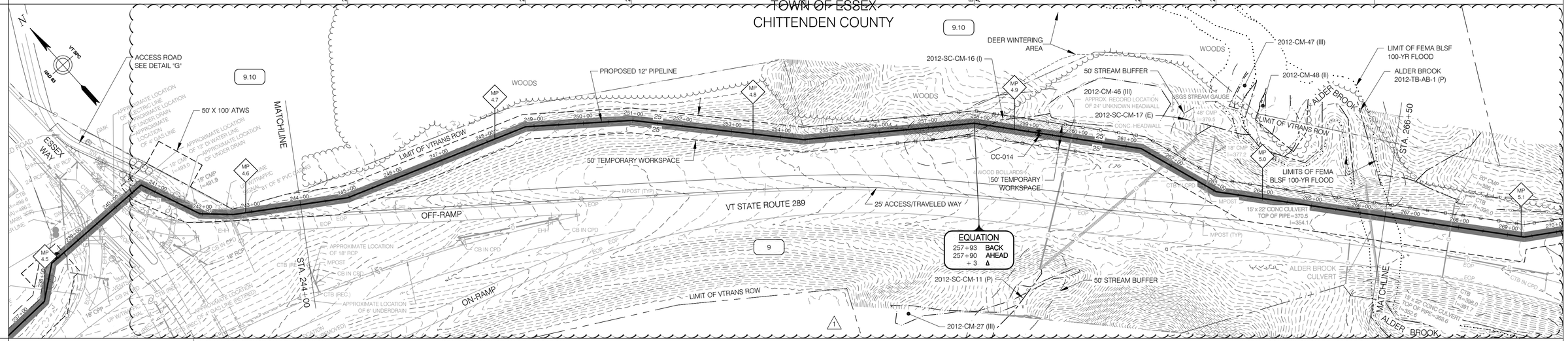
MATCHLINE

SURVEY DATA

S 56° 26" E | 13°22" LT | S 69° 49" E | 18°17" RT | S 51° 31" E | 09°48" RT | S 41° 42" E | 11°49" LT | S 53° 32" E | 14°04" RT | S 39° 28" E | 21°11" RT | S 18° 17" E | 21°26" LT | S 39° 43" E

244+96 | 245+83 | 250+97 | 254+35 | BOC: 257+93 AHD: 257+90 3 FL | 261+31 | 263+96

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 244+00 TO 245+97 RT - WIDTH VARIES' FROM NEW 12" PIPE ℄
STA. 244+00 TO 266+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 245+97 TO 263+06 RT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 263+06 TO 263+64 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 263+64 TO 266+50 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 255+99 TO 260+12 RT - 25' FROM NEW 12" PIPE ℄
STA. 256+13 TO 266+50 LT - 25' FROM NEW 12" PIPE ℄

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	2C				1B	
SOIL TYPE	ScB	DdA	HIE	DdA	AgE	Au
LC/LU	GRASS / TRAVEL					
STREAMS			STREAM 2012-SC-CM-16 (I) - STATION 256+49 TO 259+85		STREAM 2012-TB-AB-1 (P) - STATION 265+40 TO 266+50	
WETLANDS						
VERNAL POOLS						
SIGNIFICANT NATURAL COMMUNITIES						
RTE SPECIES						
NRC WILDLIFE HABITAT			DEER WINTERING AREA			
ARCHAEOLOGY SITES						

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-010	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-010 | REV. 1

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

9.13
N/F
BIRCHWOOD LAND
COMPANY C/O
OWEN JENKINS

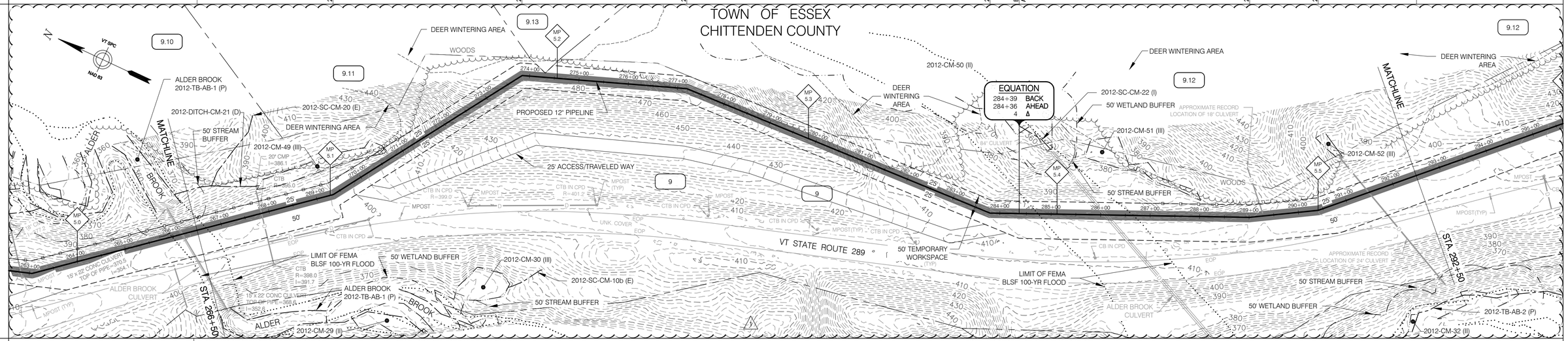
9
N/F
STATE OF VERMONT

MATCHLINE

SURVEY DATA

17'31" LT	36'43" RT	17'44" RT	21'21" LT	05'48" LT	13'37" LT
S 39° 42' E	S 57° 13' E	S 20° 30' E	S 02° 46' E	S 24° 07' E	S 30° 55' E	S 44° 32' E
269+34	273+85	277+19	283+80	Bck: 284+39 Ahd: 284+36 4 ft.	289+01	290+40

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 266+50 TO 269+85 RT - 50' FROM NEW 12" PIPE ℄
STA. 266+50 TO 274+11 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 269+85 TO 284+36 RT - 25' FROM NEW 12" PIPE ℄
STA. 274+11 TO 274+46 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 274+46 TO 292+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 284+36 TO 292+50 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 266+50 TO 271+21 LT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 284+75

INSTALL REINFORCED PERIMETER CONTROL:
STA. 286+83 TO 288+51 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 270+40 TO 270+73

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE	1B	W	2C		1B	
SOIL TYPE	Au	AgE	AdA	AgE	AdA	AgE	DdB	AgE
LC/LU	GRASS TRAVEL					
STREAMS	STREAM 2012-TB-AB-1 (P) - STATION 266+50 TO 266+67					
WETLANDS	WETLAND 2012-CM-49 STATION 270+40 TO 270+73 CLASS III					
VERNAL POOLS						
SIGNIFICANT NATURAL COMMUNITIES						
RTE SPECIES						
NRC WILDLIFE HABITAT			DEER WINTERING AREA		DEER WINTERING AREA	
ARCHAEOLOGY SITES						

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-011	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-011 | REV. 1

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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RIGHT-OF-WAY

MATCHLINE

9
N/F
STATE OF VERMONT

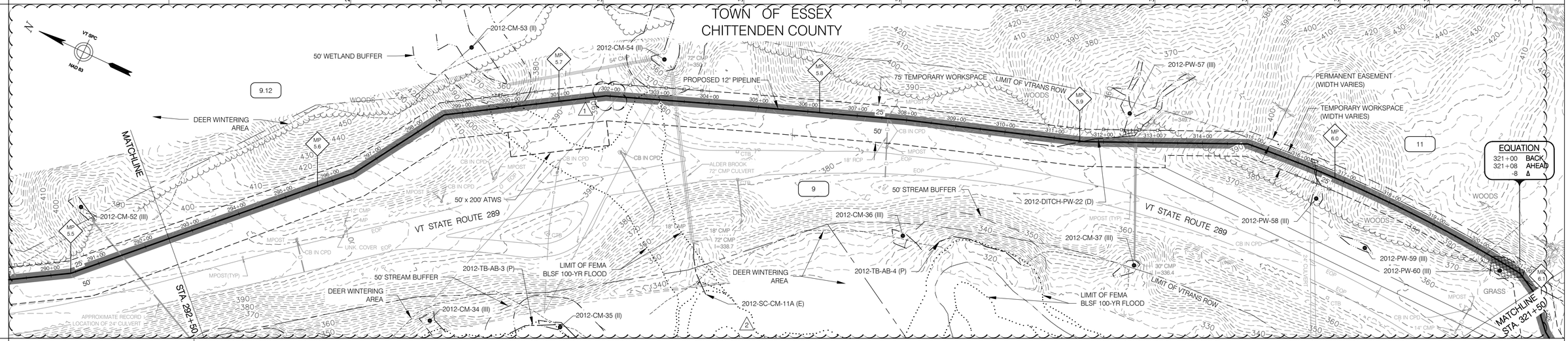
11
N/F
FORESTDALE GROUP, LLC

MATCHLINE

SURVEY DATA

298+45	298+83	301+91	304+76	307+95	311+60	313+10	314+91	316+91	318+91	321+08
S 44° 32' E	13'19" LT	S 57° 48' E	29'03" RT	S 31° 45' E	10'56" RT	S 20° 48' E	00'37" RT	S 20° 10' E	02'00" RT	S 18° 10' E	05'54" LT	S 24° 05' E	04'15" LT	S 24° 20' E	19'05" RT	S 02° 53' E	00'47" RT	S 00° 15' W	01'01" RT	S 05° 01' W	23'01" RT	S 25° 19' 18" W

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 292+50 TO 299+87 RT - 50' FROM NEW 12" PIPE ℄
STA. 292+50 TO 314+55 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 299+87 TO 301+88 RT - 100' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 301+88 TO 313+25 RT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 313+25 TO 314+95 RT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 314+95 TO 321+50 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 314+55 TO 321+50 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 298+77 TO 300+89 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 301+95 TO 304+17 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 311+92 TO 313+42 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 315+90 TO 317+18 RT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 293+50

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 311+50

INSTALL MATTING:
STA. 316+25 TO 316+49
STA. 320+40 TO 321+16

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1B													7	1B	W		2C			W	1D								W
SOIL TYPE	AgE											DdB								HIE									
LC/LU	GRASS																												
	TRAVEL																												
STREAMS																			STREAM 2012-DITCH-PW-22 - (D) STATION 310+44 TO 312+38									
WETLANDS										WETLAND 2012-CM-53 - STATION 299+27 TO 300+39 CLASS II			WETLAND 2012-CM-54 - STATION 302+71 TO 303+56 CLASS II								WETLAND 2012-PW-57 - STATION 312+38 TO 312+72 CLASS III			WETLAND 2012-PW-58 - STATION 316+25 TO 316+60 CLASS III			WETLAND 2012-PW-60 - STATION 320+34 TO 321+15 CLASS III		
VERNAL POOLS																													
SIGNIFICANT NATURAL COMMUNITIES																													
RTE SPECIES																													
NRC WILDLIFE HABITAT																												DEER WINTERING AREA	
ARCHAEOLOGY SITES																													

MATCH LINE

MATCH LINE

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
		2	GJM	BCK	IFC 2016 EDITS (05/2016)
ANGP-T-C-012	ALIGNMENT SHEET	1	BCK	TDB	CP TEST LEAD EDIT (9/14/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

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Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-012 | REV. 2

RIGHT-OF-WAY

MATCHLINE

11
N/F
FORESTDALE GROUP, LLC

9
N/F
STATE OF VERMONT

14.02
N/F
RAYMOND, FRANCIS E.
& ELAINE B.

14.03
N/F
RAYMOND,
FRANCIS E.,
ELAINE B. &
PETER W.

14.02
N/F
RAYMOND, FRANCIS E.
& ELAINE B.

14
N/F
STEINER,
PAUL M.

MATCHLINE

SURVEY DATA

Bearing	Station	Deflection
S 29° 18' W	321+52	18°40' RT
S 47° 59' W	322+37	13°20' LT
S 34° 38' W	324+01	24°10' LT
S 10° 27' W	324+52	13°01' RT
S 23° 29' W	327+52	02°38' RT
S 26° 08' W	328+12	01°58' RT
S 28° 06' W	328+71	01°58' RT
S 30° 05' W	329+30	01°58' RT
S 32° 03' W	329+89	01°58' RT
S 34° 02' W	330+48	01°58' RT
S 36° 00' W	331+07	09°00' RT
S 45° 01' W	332+11	08°38' LT
S 36° 23' W	Bck: 332+71 Ahd: 332+94	−23.1 ft.
S 36° 23' W	335+52	05°44' LT
S 30° 39' W	337+04	09°00' RT
S 39° 40' W	339+07	06°15' LT
S 33° 24' W	340+62	00°57' LT
S 32° 27' W	340+72	01°54' LT
S 30° 32' W	340+82	01°54' LT
S 28° 38' W	340+92	01°54' LT
S 26° 43' W	341+02	01°54' LT
S 24° 49' W	341+12	01°54' LT
S 22° 55' W	341+22	01°54' LT
S 21° 00' W	341+32	01°54' LT
S 19° 06' W	341+42	01°54' LT
S 17° 11' W	341+52	01°54' LT
S 15° 17' W	341+62	01°54' LT
S 13° 23' W	341+72	01°54' LT
S 11° 28' W	341+82	01°54' LT
S 09° 34' W	341+92	00°57' LT
S 08° 37' W	342+66	05°15' RT
S 13° 52' W	344+07	05°19' RT
S 19° 12' W	345+48	28°44' LT
S 09° 33' E	345+86	24°40' RT
S 15° 08' W	346+34	16°44' LT
S 01° 36' E	347+58	61°21' LT
S 62° 58' E	348+27	12°03' RT
S 50° 55' E	349+91	31°10' LT
S 82° 05' E	351+13	12°02' RT
S 70° 03' E		

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — — —
TEMPORARY WORKSPACE	– – – – – –
CENTERLINE OF STREAM	—— - —— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	— · · — · · —
50' WETLAND BUFFER	— · · — · · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 321+50 TO 324+52 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 321+50 TO 324+52 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 324+52 TO 331+04 RT - 50' FROM NEW 12" PIPE ℄
STA. 324+52 TO 345+86 LT - 25' FROM NEW 12" PIPE ℄
STA. 331+04 TO 337+04 RT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMTER CONTROL:
STA. 334+00 TO 336+94 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 337+04 TO 344+68 RT - 50' FROM NEW 12" PIPE ℄

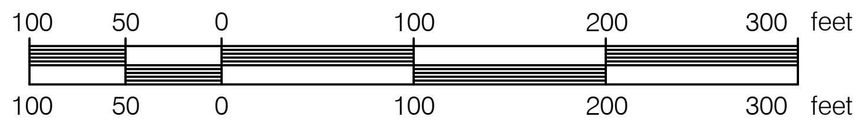
INSTALL CONSTRUCTION DEMARCATION:
STA. 344+68 TO 345+34 RT - 25' FROM NEW 12" PIPE ℄
STA. 345+34 TO 347+74 RT - WIDTH VARIES FROM FROM NEW 12" PIPE ℄
STA. 345+86 TO 347+95 LT - WIDTH VARIES FROM FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 347+83 TO 348+90 RT - 50' FROM NEW 12" PIPE ℄
STA. 345+07 TO 347+95 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 347+95 TO 348+95 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 347+74 TO 349+83 RT - 50' FROM NEW 12" PIPE ℄
STA. 347+95 TO 351+50 LT - 25' FROM NEW 12" PIPE ℄
STA. 349+83 TO 351+50 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 349+40 TO 351+41 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 351+41 TO 351+50 RT - 50' FROM NEW 12" PIPE ℄
STA. 349+10 TO 351+50 LT - 25' FROM NEW 12" PIPE ℄

HORIZONTAL SCALE



VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
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MATCH LINE

CONST. TYPE: (1D) (1B) (2C) (1B) (2C) (1E) (7) (1E)

SOIL TYPE: HIE; DdB (PAS); AdE; AdB (PAS); AdE; AdB (PAS); HIE; AgA; HIE; Le (PAS)

LC/LU: GRASS / TRAVEL; BROOK / NOT CLASSIFIED; GRASS / UNKNOWN; GRASS/STREAM / RESIDENTIAL

STREAMS: 2012-DITCH-PW-23 (D) - STATION 321+50 TO 321+72; BROOK 2012-TB-AB-7 (P)- STATION 348+90 TO 349+20; STREAM 2013-SC-CM-7- STATION 350+55 TO 351+10

WETLANDS: WETLAND 2012-CM-113 - STATION 334+50 TO 336+44 CLASS II

VERNAL POOLS

SIGNIFICANT NATURAL COMMUNITIES

RTE SPECIES

NRC WILDLIFE HABITAT: DEER WINTERING AREA; DEER WINTERING AREA; DEER WINTERING AREA

ARCHAEOLOGY SITES

MATCH LINE

Vanasse Hangen Brustlin, Inc.

		BID		CONSTRUCTION	
	ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
	DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
	DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
		INITIALS	DATE	INITIALS	DATE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-013	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

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YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-013 | REV. 1

RIGHT-OF-WAY

MATCHLINE

15 N/F ESSEX GREEN COMMON LAND

14.01 N/F MIKALONIS, DONNA & BESSIE

14 N/F STEINER, PAUL M.

16 RIVER ROAD ROUTE 117

17 N/F ESSEX GREEN COMMON LAND

17.01 N/F RAYMOND, FRANCIS E., ELAINE B., PETER W. & LINDA

18 WINOOSKI RIVER

TOWN OF ESSEX | TOWN OF WILLISTON

19 N/F BABCOCK, JAMES

20 N/F NEW ENGLAND CENTRAL RAILROAD

MATCHLINE

SURVEY DATA

354+13 S 70° 03' E 00°10' LT

354+89 S 70° 13' E 45°00' RT

Bck: 355+29 Ahd: 352+34 44°59' RT S 25° 13' E 295.4 ft.

S 19° 47' W

356+22 09°32' LT

S 10° 15' W

365+89 29°12' RT

366+08 S 39° 27' W 32°27' RT

S 71° 55' W

Bck: 369+22 Ahd: 369+07 N 55° 32' W 14.70 ft.

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	– – – – – –
CENTERLINE OF STREAM	—— – ——
TEMPORARY STREAM CROSSING	▨
WETLAND	—··—··—
50' WETLAND BUFFER	—·—··—·—
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 351+50 TO 354+43 RT - 50' FROM NEW 12" PIPE ℄
STA. 351+50 TO 354+89 LT - 25' FROM NEW 12" PIPE ℄
STA. 354+89 TO 355+29 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 351+50 TO 352+45 RT - 50' FROM NEW 12" PIPE ℄
STA. 351+50 TO 353+75 LT - 25' FROM NEW 12" PIPE ℄
STA. 354+89 TO 355+29 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 354+43 TO 352+56 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 352+56 TO 356+20 RT - 75' FROM NEW 12" PIPE ℄
STA. 356+20 TO 356+50 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 355+29 TO 356+47 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 356+22 TO 356+50 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 355+93 TO 356+27 LT - 50' FROM NEW 12" PIPE ℄
STA. 356+27 TO 356+47 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 357+74 TO 359+64 RT - 25' FROM NEW 12" PIPE ℄
STA. 357+71 TO 359+42 LT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 356+48 & STA. 357+74

INSTALL CONSTRUCTION DEMARCATION:
STA. 363+38 TO 365+22 RT - 25' FROM NEW 12" PIPE ℄
STA. 362+89 TO 365+22 LT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 365+70

INSTALL CONSTRUCTION DEMARCATION:
STA. 365+22 TO 365+89 RT - 50' FROM NEW 12" PIPE ℄
STA. 365+22 TO 366+68 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 365+89 TO 366+41 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 365+22 TO 365+89 RT - 50' FROM NEW 12" PIPE ℄
STA. 365+22 TO 366+68 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 367+20 TO 369+23

INSTALL CONSTRUCTION DEMARCATION:
STA. 366+41 TO 370+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 366+68 TO 370+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 366+41 TO 370+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 366+68 TO 370+00 LT - 25' FROM NEW 12" PIPE ℄

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

MATCH LINE

CONST. TYPE	(1E) (8) (2A) (W)
SOIL TYPE	Le (PAS) Hf (PAS) W Wo (PAS) Lf Au (PAS)
LC/LU	AGRIGULTURAL FIELD / RESIDENTIAL ROAD / TRAVEL FORESTED / LEISURE RIVER / NOT CLASSIFIED AGRICULTURAL FIELD / NOT CLASSIFIED
STREAMS	STREAM 2012-TB-WR (P) - STATION 358+34 TO 364+85 STREAM 2012-SC-CM-84 (I) - STATION 366+78 TO 366+92
WETLANDS	WETLAND 2012/2013-CM-193 - STATION 352+16 TO 353+24 CLASS II WETLAND 2012-CM-194 - STATION 366+70 TO 370+00 CLASS II
VERNAL POOLS	VERNAL POOL BUFFER 2013-CM-VP-2 STATION 359+68 TO 370+00
SIGNIFICANT NATURAL COMMUNITIES	SILVER MAPLE-OSTRICH FERN RIVERINE FLOODPLAIN FOREST
RTE SPECIES	2012-RTE-LV-029 2012-RTE-CT-030 2012-RTE-CT-031
NRC WILDLIFE HABITAT	
ARCHAEOLOGY SITES	

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS	2	BCK	TDB	CP TEST LEAD EDIT (9/14/15)
ANGP-T-C-014	ALIGNMENT SHEET	1	BCK	TDB	MLV 1 RELOCATION (6/09/15)

	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-014 | REV. 2

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

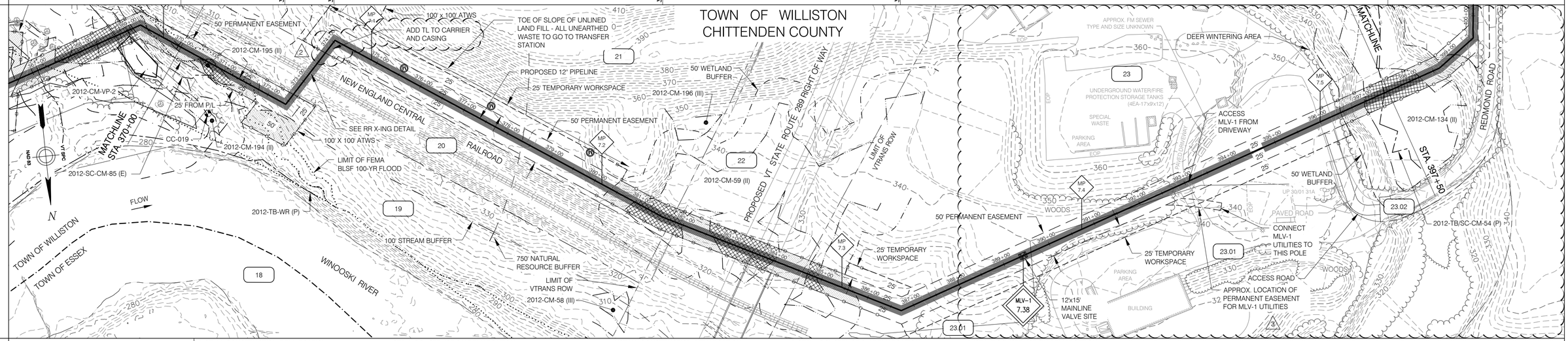
RIGHT-OF-WAY

MATCHLINE | 19 N/F BABCOCK, JAMES | 20 N/F NEW ENGLAND CENTRAL RAILROAD | 21 N/F CHITTENDEN SOLID WASTE DISTRICT | 22 N/F STATE OF VERMONT; AGENCY OF TRANSPORTATION | 23 N/F CHITTENDEN SOLID WASTE DISTRICT | 23.01 N/F BURLINGTON TRANSFER STATION | N/F BURLINGTON TRANSFER STATION 23.01 | 23 N/F CHITTENDEN SOLID WASTE DISTRICT | MATCHLINE

SURVEY DATA

	81°05' LT	89°47' RT	05°56' LT	45°42' LT					
N 55° 32' W		S 45° 23' W	N 55° 50' W	N 62° 46' W	S 71° 31' W				
372+41		374+04	381+57	386+73					

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 370+00 TO 371+88 RT - 25' FROM NEW 12" PIPE ℄
STA. 370+00 TO 372+20 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 371+88 TO 372+74 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 373+64 TO 380+47 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 373+76 TO 386+73 RT - 25' FROM NEW 12" PIPE ℄
STA. 380+47 TO 385+40 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 386+73 TO 396+50 RT - 50' FROM NEW 12" PIPE ℄
STA. 396+50 TO 397+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 385+40 TO 386+98 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 386+98 TO 397+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 370+00 TO 371+88 RT - 25' FROM NEW 12" PIPE ℄
STA. 370+00 TO 372+20 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 371+88 TO 372+41 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 373+76 TO 374+70 RT - 25' FROM NEW 12" PIPE ℄
STA. 373+64 TO 374+04 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 379+80 TO 386+43 RT - 25' FROM NEW 12" PIPE ℄
STA. 380+22 TO 380+47 LT - 50' FROM NEW 12" PIPE ℄
STA. 380+47 TO 385+40 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 385+40 TO 385+90 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 396+14 TO 396+16 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 396+16 TO 396+50 RT - 50' FROM NEW 12" PIPE ℄
STA. 396+50 TO 397+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 396+04 TO 397+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 370+44 TO 371+32

INSTALL MATTING:
STA. 380+80 TO 382+09

INSTALL MATTING:
STA. 382+48 TO 384+04

INSTALL MATTING:
STA. 384+67 TO 385+20

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 396+07

INSTALL MATTING:
STA. 396+94 TO 397+50

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE		W	2A	10	1A	W	2A	W	W	1A	1E	7	W
SOIL TYPE		Au			AgD						AdA (PAS)	AgD	
LC/LU		AGRICULTURAL FIELD	RAILROAD		FORESTED						ROAD	FORESTED	ROAD	FORESTED
		NOT CLASSIFIED	TRAVEL		INDUSTRIAL		TRAVEL			INDUSTRIAL				
STREAMS			STREAM 2012-SC-CM-85 (E) - STATION 370+73 TO 370+85										STREAM 2012-TB/SC-CM-54 (P) - STATION 397+10 TO 397+47	
WETLANDS	MATCH LINE	WETLAND 2012-CM-195 - STATION 370+00 TO 371+82 CLASS II				WETLAND 2012-CM-59 - STATION 380+30 TO 385+93 CLASS II							WETLAND 2012-CM-134 - STATION 396+44 TO 397+50 CLASS II	MATCH LINE
VERNAL POOLS					VERNAL POOL BUFFER 2012-CM-PVP2 STATION 370+00 TO 378+37									
SIGNIFICANT NATURAL COMMUNITIES														
RTE SPECIES														
NRC WILDLIFE HABITAT														
ARCHAEOLOGY SITES														

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
		3	GJM	BCK		IFC 2016 EDITS (05/2016)	DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-C-015A	RAILROAD CROSSING DETAIL	2	BCK	TDB		CP TEST LEAD EDIT (9/14/15)	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-015	ALIGNMENT SHEET	1	BCK	TDB		MLV 1 RELOC., PROP. LN. ADJ., CONST. TYPE CHNG. (6/09/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-015 | REV. 3

RIGHT-OF-WAY

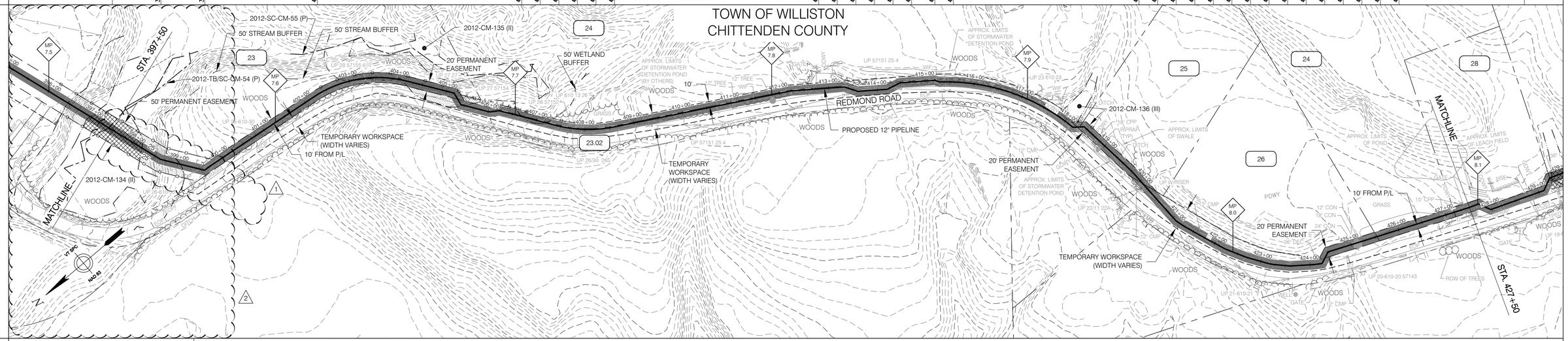
MATCHLINE | 23 N/F CHITTENDEN SOLID WASTE DISTRICT | 24 N/F CHITTENDEN SOLID WASTE DISTRICT | 25 N/F CHITTENDEN SOLID WASTE DISTRICT | 26 N/F CHITTENDEN SOLID WASTE DISTRICT | 24 N/F CHITTENDEN SOLID WASTE DISTRICT | 28 N/F CHITTENDEN SOLID WASTE DISTRICT | MATCH LINE

23.02 REDMOND ROAD

SURVEY DATA

398+64	399+55	402+29	404+09	405+16	405+43	406+03	406+22	407+50	408+51	412+24	413+32	413+60	414+20	414+49	415+19	415+30	418+06	418+20	418+43	419+75	421+09	421+29	422+24	422+69	423+15	423+26	423+60	424+08	424+24	424+51	425+57
N 44° 43' E 170'38" LT	S 54° 04' W 47°40" LT	S 06° 24' W 04°05" RT	S 54° 23' W 03°55" RT	N 80° 32' W 45°04" RT	S 54° 28' W 45°00" LT	S 31° 58' W 22°29" RT	S 54° 34' W 22°35" RT	02°52" LT	S 28° 41' W 02°58" LT	S 35° 58' W 07°16" RT	S 58° 28' W 22°29" LT	S 35° 58' W 22°29" LT	S 13° 28' W 22°30" LT	S 35° 58' W 22°30" RT	S 58° 28' W 22°20" RT	18°00" LT	S 36° 49' W 02°58" RT	S 36° 20' W 04°29" LT	S 83° 20' W 05°05" RT	S 88° 24' W 05°04" RT	S 74° 13' W 14°11" LT	S 69° 03' W 05°00" LT	S 61° 44' W 07°19" LT	S 56° 03' W 05°00" LT	S 50° 40' W 05°53" LT	S 45° 20' W 05°19" LT	S 39° 50' W 05°08" LT	S 34° 26' W 05°05" LT	S 32° 32' W 05°45" LT	S 22° 39' E 14°13" LT	S 22° 25' W 44°56" RT	S 22° 39' W 1°01" LT

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 397+50 TO 399+24 RT - 25' FROM NEW 12" PIPE ℄
STA. 397+50 TO 399+80 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 397+50 TO 399+24 RT - 25' FROM NEW 12" PIPE ℄
STA. 397+50 TO 399+21 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 397+50 TO 398+70

INSTALL CONSTRUCTION DEMARCATION:
STA. 399+80 TO 405+26 LT - 10' FROM NEW 12" PIPE ℄
STA. 405+26 TO 418+33 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 418+33 TO 420+39 LT - 10' FROM NEW 12" PIPE ℄
STA. 420+39 TO 424+30 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 424+30 TO 427+50 LT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 402+34 TO 405+26 LT - 10' FROM NEW 12" PIPE ℄
STA. 405+26 TO 407+85 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 417+43 TO 418+33 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 418+33 TO 418+72 LT - 10' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 417+84 TO 418+14

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	W	7	4A	4C	W	4A	4C	4A																							
SOIL TYPE	AgD	Lf	AdA	AgE	AdA	HIE	AdA	AdD																							
LC/LU	WETLAND	FORESTED	WETLAND	FORESTED	WETLAND	FORESTED	WETLAND	ACCESS	GRASS																						
	INDUSTRIAL	AGRICULTURAL	RESIDENTIAL	INDUSTRIAL	AGRICULTURAL	RESIDENTIAL																									
STREAMS																															
WETLANDS	WETLAND 2012-CM-134- STATION 397+50 TO 399+15 CLASS II	WETLAND 2012-CM-135- STATION 402+82 TO 407+32 CLASS II	WETLAND 2012-CM-136- STATION 417+78 TO 418+14 CLASS III																												
VERNAL POOLS																															
SIGNIFICANT NATURAL COMMUNITIES																															
RTE SPECIES																															
NRC WILDLIFE HABITAT																															
ARCHAEOLOGY SITES																															

MATCH LINE | MATCH LINE

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
							DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-G-021	STATION AND VALVE DETAILS	2	GJM	BCK		IFC 2016 EDITS (05/2016)	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-016	ALIGNMENT SHEET	1	BCK	TDB		CONSTRUCTION TYPE CHANGE (6/09/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-016 | REV. 2

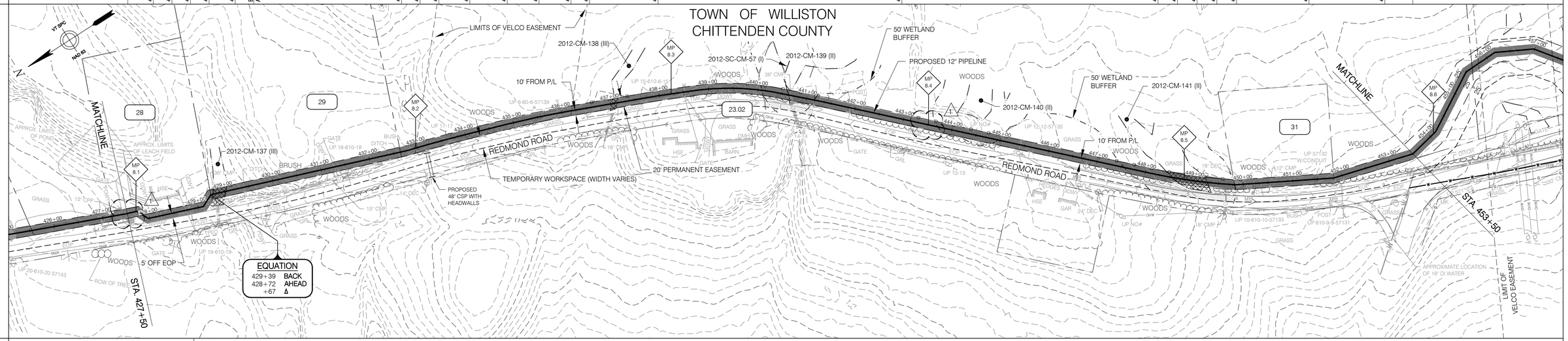
RIGHT–OF–WAY

MATCHLINE | 28 N/F CHITTENDEN SOLID WASTE DISTRICT | 29 N/F CHITTENDEN SOLID WASTE DISTRICT | 30 N/F CSWD | 33 N/F VERMONT TRANSCO., LLC | 30 N/F CHITTENDEN SOLID WASTE DISTRICT | 23.02 REDMOND ROAD | 31 N/F CHITTENDEN SOLID WASTE DISTRICT | 30 N/F CHITTENDEN SOLID WASTE DISTRICT | MATCH LINE

SURVEY DATA

427+18	427+46	427+70	427+97	429+11	Bck: 429+39 Ahd: 428+72	432+64	432+78	433+43	434+07	434+85	435+51	436+17	436+38	437+95	441+23	448+24	448+64	449+04	449+44	449+84	451+82	453+50
S 22° 39" W 00°00" LT	S 22° 38" W 02°35" LT	S 20° 03" W 45°00" RT	S 65° 03" W 44°38" LT	S 20° 24" W 45°21" LT	S 24° 57" E 67.2 ft. 45°00" RT	S 20° 03" W		S 20° 03" W 00°00" RT	S 03°12" LT	S 16° 50" W 01°16" RT	S 18° 07" W 00°38" RT	S 18° 45" W 00°58" RT	S 19° 44" W 01°57" RT	S 21° 42" W 01°17" RT	S 22° 59" W 00°03" LT	S 22° 56" W 01°40" RT	S 44° 58" W 01°13" RT	S 43° 03" W 01°55" LT	S 41° 03" W 01°59" LT	S 39° 03" W 01°59" LT	S 37° 03" W 01°59" LT	S 28° 47" W 08°16" LT	S 15° 46" W 13°00" LT	S 11° 33" E 27°18" LT

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 427+00 TO 453+13 LT - 10' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 453+13 TO 453+50 LT - WIDTH VARIES' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 428+93 TO 429+57 LT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 436+56 TO 437+68 LT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 439+56 TO 441+69 LT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 443+12 TO 445+52 LT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA 446+93 TO 450+29 LT - 10' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA.428+68 TO 429+07

INSTALL MATTING:
STA.436+97 TO 437+18

INSTALL MATTING:
STA. 448+41 TO 449+37

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE		W			4A			W				7			4A					W		
SOIL TYPE	AdD	DdC	AdD		ScB	AdA											AdB	ScB	DdB			
LC/LU	GRASS	WETLAND	FORESTED	ACCESS	FORESTED	GRASS	FORESTED	GRASS	WETLAND	FORESTED	ACCESS	FORESTED	WETLAND	GRASS	FORESTED	WETLAND	GRASS	FORESTED	WETLAND	ACCESS	GRASS	FORESTED
	RESIDENTIAL	NOT CLASSIFIED				NOT CLASSIFIED														RESIDENTIAL	NOT CLASSIFIED	
STREAMS												STREAM 2012-SC-CM-57 (I) - STATION 440+58 TO 440+67											
WETLANDS		WETLAND 2012-CM-137- STATION 428+68 TO 429+07 CLASS III							WETLAND 2012-CM-138- STATION 436+97 TO 437+18 CLASS III				WETLAND 2012-CM-139 STATION 440+03 TO 441+20 CLASS II			WETLAND 2012-CM-140- STATION 443+62 TO 445+02 CLASS II			WETLAND 2012-CM-141- STATION 447+43 TO 449+84 CLASS II				
VERNAL POOLS																						
SIGNIFICANT NATURAL COMMUNITIES																						
RTE SPECIES																						
NRC WILDLIFE HABITAT																						
ARCHAEOLOGY SITES																						

MATCH LINE

Vanasse Hangen Brustlin, Inc.

								BID		CONSTRUCTION	
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
							DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
							DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
							DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
ANGP–T–C–017	ALIGNMENT SHEET	1	BCK	TDB		CP TEST LEAD EDIT (9/14/15)		INITIALS	DATE	INITIALS	DATE
DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION					

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP–EPSC–017 | REV. 1

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

30 N/F CHITTENDEN SOLID WASTE DISTRICT	33 N/F VERMONT TRANSCO., LLC	22 N/F STATE OF VERMONT	35 N/F STATE OF VERMONT	
23.02 REDMOND ROAD	23.02 REDMOND ROAD	23.02 REDMOND ROAD		36 MOUNTAIN VIEW ROAD

MATCH LINE

SURVEY DATA

Station	Bearing	Deflection
454+14	S 11° 33' E	18°44' LT
455+49	S 30° 17' E	28°56' RT
456+19	S 01° 21' E	28°56' RT
456+99	S 27° 36' W	25°51' RT
457+71	S 53° 27' W	25°51' RT
458+65	S 79° 18' W	29°59' LT
459+35	S 49° 19' W	29°59' LT
461+43	S 19° 19' W	10°55' LT
463+07	S 08° 24' W	10°35' RT
463+44	S 19° 00' W	04°25' RT
473+96	S 23° 25' W	30°13' LT
Bck: 474+16 Ahd: 474+21	S 06° 48' E	-5.1 ft.
475+00	S 51° 48' E	45°00' LT 09°46' LT
	S 61° 35' E	

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — —
TEMPORARY WORKSPACE	– – – –
CENTERLINE OF STREAM	— · —
TEMPORARY STREAM CROSSING	▨
WETLAND	
50' WETLAND BUFFER	— · · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 453+50 TO 458+60 RT - 50' FROM NEW 12" PIPE ℄
STA. 453+50 TO 458+62 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 458+60 TO 459+00 RT - 40' FROM NEW 12" PIPE ℄
STA. 459+00 TO 460+57 RT - 15' FROM NEW 12" PIPE ℄
STA. 458+62 TO 458+98 LT - WIDTH VARIES' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 460+57 TO 462+73 RT - 40' FROM NEW 12" PIPE ℄
STA. 458+98 TO 473+96 LT - 10' FROM NEW 12" PIPE ℄
STA. 462+73 TO 463+06 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 463+06 TO 465+47 RT - 45' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 465+47 TO 467+15 RT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 467+15 TO 468+20 RT - 45' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 468+20 TO 469+66 RT - 25' FROM NEW 12" PIPE ℄
STA. 469+66 TO 473+96 RT - 45' FROM NEW 12" PIPE ℄
STA. 473+96 TO 475+50 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 474+21 TO 478+50 LT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 458+65 TO 459+00 RT - 40' FROM NEW 12" PIPE ℄
STA. 459+00 TO 460+57 RT - 15' FROM NEW 12" PIPE ℄
STA. 460+57 TO 461+02 RT - 40' FROM NEW 12" PIPE ℄
STA. 458+20 TO 458+65 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 464+97 TO 465+47 RT - 45' FROM NEW 12" PIPE ℄
STA. 458+65 TO 458+98 LT - WIDTH VARIES' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 465+47 TO 467+15 RT - 25' FROM NEW 12" PIPE ℄
STA. 458+98 TO 461+13 LT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 467+15 TO 467+65 RT - 45' FROM NEW 12" PIPE ℄
STA. 465+15 TO 467+51 LT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 468+20 TO 469+66 RT - 25' FROM NEW 12" PIPE ℄
STA. 468+30 TO 469+94 LT - 10' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 459+43 TO 460+11

INSTALL MATTING:
STA. 466+05 TO 466+50

INSTALL MATTING:
STA. 468+76 TO 469+21

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

CONST. TYPE: 1E | 1J | 1E | W | 4C | 4A | W | W 7 | W | 4A

SOIL TYPE: DdB (PAS) | BIB (PAS) | Au (PAS) | BIB | BIB (PAS) | ScB (PAS) | ScB | ScB (PAS) | ScB | ScB (PAS) | BIB (PAS) | PeB (PAS) | PeA (PAS)

LC/LU: FORESTED | WETLAND | FORESTED | WETLAND | FORESTED | WETLAND | FORESTED | WETLAND | FORESTED | GRASS
NOT CLASSIFIED | NOT CLASSIFIED | NOT CLASSIFIED | NOT CLASSIFIED

STREAMS: STREAM 2012-SC-CM-100 (I)

WETLANDS:
WETLAND 2012-CM-55- STATION 458+82 TO 460+63 CLASS II
WETLAND 2012-CM-143- STATION 456+51 TO 467+09 CLASS II
WETLAND 2012-CM-144- STATION 468+76 TO 469+21 CLASS II

VERNAL POOLS: VERNAL POOL BUFFER 2012-CM-VP-4- STATION 475+35 TO 478+50

SIGNIFICANT NATURAL COMMUNITIES

RTE SPECIES

NRC WILDLIFE HABITAT

ARCHAEOLOGY SITES

MATCH LINE

MATCH LINE

	BID		CONSTRUCTION	
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
	INITIALS	DATE	INITIALS	DATE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-018	ALIGNMENT SHEET				

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-018 | REV. 0

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

35 N/F STATE OF VERMONT

36 MOUNTAIN VIEW ROAD

37 N/F BRENNAN WOODS HOMEOWNERS ASSOCIATION

38.01 N/F THE BIG THREE

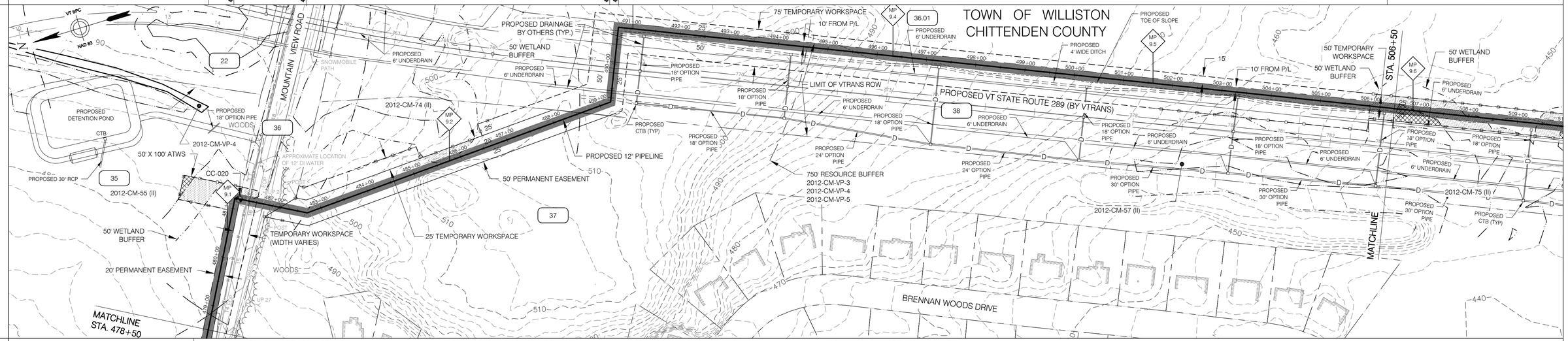
38 N/F STATE OF VERMONT

MATCH LINE

SURVEY DATA

S 61° 35' E — 89°59' RT — 481+21 — 481+31 — 25' — 482+70 — 31°32' LT — S 28° 25' W — S 03° 08' E — 63°54' LT — 489+23 — 490+75 — 89°59' RT — S 67° 02' E — S 22° 57' W

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 478+50 TO 480+96 LT - 10' FROM NEW 12" PIPE ℄
STA. 480+96 TO 481+21 LT - WIDTH VARIES' FROM NEW 12" PIPE ℄
STA. 481+21 TO 481+31 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 481+88 TO 490+24 RT - 25' FROM NEW 12" PIPE ℄
STA. 482+43 TO 485+23 LT - 50' FROM NEW 12" PIPE ℄
STA. 485+20 TO 486+56 LT - 25' FROM NEW 12" PIPE ℄
STA. 486+50 TO 490+74 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 490+24 TO 506+01 RT - 50' FROM NEW 12" PIPE ℄
STA. 490+74 TO 506+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 506+01 TO 506+50 RT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 480+96 TO 481+32 LT - WIDTH VARIES' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 481+88 TO 482+41 RT - 25' FROM NEW 12" PIPE ℄
STA. 482+15 TO 482+43 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 482+43 TO 483+23 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 484+30 TO 485+23 LT - 50' FROM NEW 12" PIPE ℄
STA. 485+23 TO 486+56 LT - 25' FROM NEW 12" PIPE ℄
STA. 486+56 TO 487+08 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 501+63 TO 505+16 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 505+52 TO 506+01 RT - 50' FROM NEW 12" PIPE ℄
STA. 506+01 TO 506+50 RT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 482+03

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE	4A	9	1A	2A	1A	1G	1B							2C
SOIL TYPE	ScA (PAS)	PeA (PAS)	LyD				PeB (PAS)	Br	LyD	PeB (PAS)		MyB (PAS)		ScA (PAS)
LC/LU	GRASS / NOT CLASSIFIED	PAVEMENT / TRAVEL	FORESTED / NOT CLASSIFIED				NOT CLASSIFIED					WETLAND		
STREAMS														
WETLANDS				WETLAND 2012-CM-74- STATION 485+23 TO 486+55 CLASS III								WETLAND 2012-CM-75 - STATION 502+85 TO 503+52 CLASS II	WETLAND 2012-CM-75 - STATION 506+01 TO 506+50 CLASS II	
VERNAL POOLS							VERNAL POOL BUFFER 2012-CM-VP-3, 2012-CM-VP-4, & 2012-CM-VP-5- STATION 478+50 TO 492+83							
SIGNIFICANT NATURAL COMMUNITIES														
RTE SPECIES														
NRC WILDLIFE HABITAT														
ARCHAEOLOGY SITES														

MATCH LINE

Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ANGP-T-C-019	ALIGNMENT SHEET				ENVIRONMENTAL		JLS	06/28/13	JLS	05/2016
					DRAFTING DESIGNER		GIL	06/28/13	GJM	05/2016
					DRAFTING SUPERVISOR		BZD	06/28/13	BCK	05/2016
					DESIGN ENGINEER		MDF	06/28/13	GEW	05/2016
					DESIGN MANAGER		SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-019 | REV. 0

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

Parcel	Owner
36.01	N/F THE BIG THREE
36.02	N/F JEFFREY S. & AMANDA E. BOLIBA
36.03	N/F NGUYEN V. NGUYEN & LE T. HONG
36.04	N/F TONG & WINNY NGUYEN
36.05	N/F JAMIE K. & ALYSSA K. CHASE
36.06	N/F DAVID & MANDY BOISJOLI
36.07	N/F COMMON LAND
38	N/F STATE OF VERMONT; AGENCY OF TRANSPORTATION

MATCH LINE

SURVEY DATA

Bearing	Station	Deflection
S 22° 57' W	511+97	00°00' RT
S 22° 57' W	513+30	00°13' RT
S 22° 44' W	515+19	00°42' LT
S 22° 02' W	516+38	00°41' LT
S 21° 21' W	518+04	00°33' LT
S 20° 48' W	518+52	29°48' RT
S 50° 36' W	518+97	30°16' LT
S 20° 20' W	519+95	00°22' LT
S 00° 00' W	520+18	30°30' LT
S 10° 29' E	520+63	30°39' RT
S 19° 40' W	521+03	00°12' LT
S 19° 28' W	521+43	00°12' LT
S 19° 17' W	521+83	00°12' LT
S 19° 05' W	522+23	00°12' LT
S 18° 54' W	522+63	00°12' LT
S 18° 42' W	523+03	00°12' LT
S 18° 31' W	523+43	00°12' LT
S 18° 19' W	523+83	00°12' LT
S 18° 08' W	524+23	00°12' LT
S 17° 56' W	524+63	00°12' LT
S 17° 45' W	525+03	00°11' LT
S 17° 34' W	Bck: 525+40 Ahd: 525+43 −3 ft.	00°58' LT
S 18° 32' W	529+87	21°59' RT
S 40° 31' W	530+05	21°59' LT
S 18° 31' W		

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — —
TEMPORARY WORKSPACE	- - - -
CENTERLINE OF STREAM	— - —
TEMPORARY STREAM CROSSING	▨
WETLAND	—··—
50' WETLAND BUFFER	—·—·—
TEMPORARY WETLAND MATTING	▨
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 506+50 TO 512+62 RT - 25' FROM NEW 12" PIPE ℄
STA. 506+50 TO 518+51 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 506+50 TO 512+62 RT - 25' FROM NEW 12" PIPE ℄
STA. 512+62 TO 513+14 RT - 50' FROM NEW 12" PIPE ℄
STA. 506+50 TO 512+78 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 506+51 TO 507+50

INSTALL MATTING:
STA. 509+88 TO 511+92

INSTALL CONSTRUCTION DEMARCATION:
STA. 512+62 TO 514+97 RT - 50' FROM NEW 12" PIPE ℄
STA. 514+97 TO 515+62 RT - 25' FROM NEW 12" PIPE ℄
STA. 515+62 TO 518+51 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 514+47 TO 514+98 RT - 50' FROM NEW 12" PIPE ℄
STA. 514+98 TO 515+62 RT - 25' FROM NEW 12" PIPE ℄
STA. 515+62 TO 516+11 RT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 514+77 TO 515+61

INSTALL CONSTRUCTION DEMARCATION:
STA. 518+51 TO 520+63 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 520+63 TO 529+87 RT - 50' FROM NEW 12" PIPE ℄
STA. 518+51 TO 520+63 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 520+63 TO 529+87 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 518+97 TO 520+63 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 520+63 TO 529+87 RT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 529+87 TO 530+84 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 530+84 TO 532+00 RT - 50' FROM NEW 12" PIPE ℄
STA. 529+87 TO 530+84 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 530+84 TO 532+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 529+87 TO 530+84 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 530+84 TO 532+00 RT - 50' FROM NEW 12" PIPE ℄

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	(W) · (2C) · (W) · (1B) · (2C)(W) · (1B)
SOIL TYPE	ScA (PAS) · ScB (PAS) · MyB (PAS)
LC/LU	WETLAND · GRASS · WETLAND · GRASS · WETLAND NOT CLASSIFIED
STREAMS	
WETLANDS	WETLAND 2012-CM-75- STATION 506+50 TO 59+09 CLASS II WETLAND 2012-CM-76- STATION 509+38 TO 512+50 CLASS II WETLAND 2012-CM-77- STATION 514+77 TO 515+61 CLASS III
VERNAL POOLS	
SIGNIFICANT NATURAL COMMUNITIES	
RTE SPECIES	
NRC WILDLIFE HABITAT	
ARCHAEOLOGY SITES	

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-020	ALIGNMENT SHEET	1	BCK	TDB	CP TEST LEAD EDIT (9/14/15)

	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-020 | REV. 1

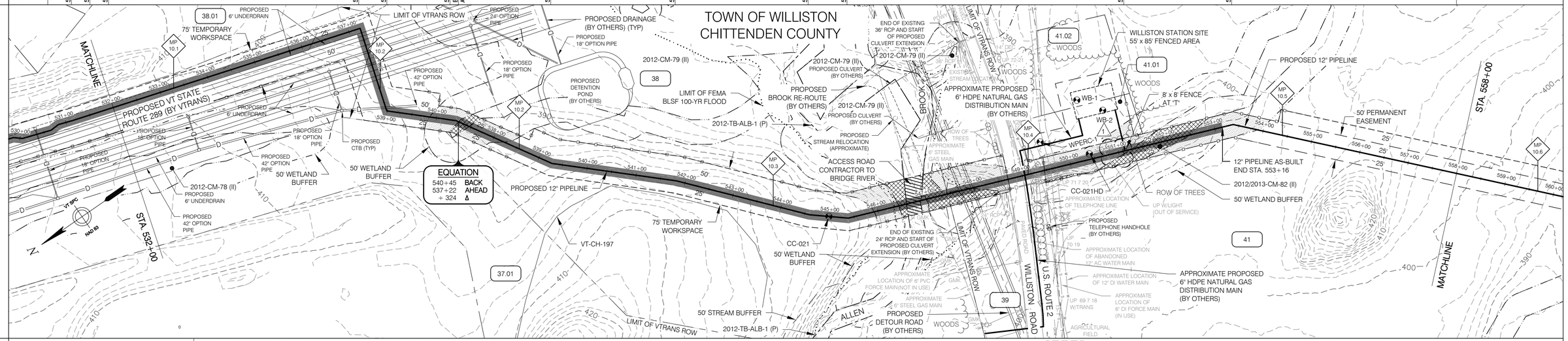
RIGHT-OF-WAY

MATCHLINE | 38.01 N/F COMMON LAND | 37.01 N/F TOWN OF WILLISTON | 38 N/F STATE OF VERMONT | 39 WILLISTON ROAD ROUTE 2 | 41.01 N/F ARMS, STEVEN & LISA | 41 N/F TOWN OF WILLISTON | MATCH LINE

SURVEY DATA

	S 18° 31' W	S 03° 29' E	S 18° 31' W	S 16° 51' W	N 73° 17' W	S 42° 39' W	S 58° 40' W	S 58° 40' W	S 42° 34' W	S 48° 56' W	S 39° 39' W	S 20° 57' W	S 20° 57' W	S 46° 58' W
	22'00" LT	22'00" RT	01°40' LT	89°51' RT	64°04' LT	64°01' LT		16°05' LT	05°22' RT	09°17' LT	18°42' LT	00°00' RT	28°00' RT	
	530+65	530+84	531+14	537+24	538+99	538+99	540+45 Brg: S 37° 22' E Arc: 324 ft.	539+29	541+82	544+60	545+38	551+13	553+38	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 532+00 TO 538+99 RT - 50' FROM NEW 12" PIPE ℄
STA. 532+00 TO 538+55 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 538+99 TO 548+69 RT - 25' FROM NEW 12" PIPE ℄
STA. 538+55 TO 540+01 LT - 50' FROM NEW 12" PIPE ℄
STA. 540+01 TO 538+65 LT - 25' FROM NEW 12" PIPE ℄
STA. 538+65 TO 548+72 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 536+06 TO 538+39 RT - 25' FROM NEW 12" PIPE ℄
STA. 539+59 TO 540+01 LT - 50' FROM NEW 12" PIPE ℄
STA. 540+01 TO 538+65 LT - 25' FROM NEW 12" PIPE ℄
STA. 538+65 TO 539+17 LT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 540+30 TO 537+61

INSTALL REINFORCED PERIMETER CONTROL:
STA. 545+45 TO 546+57 RT - 25' FROM NEW 12" PIPE ℄
STA. 543+79 TO 546+66 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 546+86 TO 548+69 RT - 25' FROM NEW 12" PIPE ℄
STA. 547+05 TO 548+72 LT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 546+24 TO 546+66
STA. 546+92 TO 548+46

INSTALL STABILIZED CONSTRUCTION ENTRANCE
STA. 548+70 & STA. 549+46

INSTALL CONSTRUCTION DEMARCATION:
STA. 549+43 TO 558+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 549+17 TO 549+49 LT - 25' FROM NEW 12" PIPE ℄
STA. 549+17 TO 550+09 LT - 75' FROM NEW 12" PIPE ℄
STA. 550+09 TO 551+39 LT - 165' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 549+43 TO 554+36 RT - 25' FROM NEW 12" PIPE ℄
STA. 549+17 TO 549+49 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 551+39 TO 551+39 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 551+39 TO 554+20 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 549+35 TO 550+23
STA. 550+47 TO 552+94

INSTALL CONSTRUCTION DEMARCATION:
STA. 551+39 TO 554+20 LT - 25' FROM NEW 12" PIPE ℄
STA. 554+20 TO 558+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 554+20 TO 554+86 LT - 50' FROM NEW 12" PIPE ℄

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1B		1G		W	2C	1G								W	7	W	9	W	2A	W		1A
SOIL TYPE	MyB (PAS)				ScA (PAS)		MuD		MyB (PAS)						MyC (PAS)				MyB (PAS)				MyB (PAS)
LC/LU	GRASS NOT CLASSIFIED														WATER		GRASS TRAVEL		PAVED		PASTURE NOT CLASSIFIED		
STREAMS															STREAM 2012-TB-ALB-01 - (P) STATION 545+89 TO 548+91								
WETLANDS					WETLAND 2012-CM-79 - STATION 539+80 TO 538+49 CLASS II										WETLAND 2012-CM-79 - STATION 545+89 TO 548+91 CLASS II				WETLAND 2012/2013-CM-82 - STATION 548+63 TO 554+46 CLASS II				
VERNAL POOLS																							
SIGNIFICANT NATURAL COMMUNITIES																							
RTE SPECIES																							
NRC WILDLIFE HABITAT																							
ARCHAEOLOGY SITES																							

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION
ANGP-T-G-021	STATION AND VALVE DETAILS					
ANGP-T-C-021	ALIGNMENT SHEET	1	BCK	TDB		CP TEST LEAD EDIT (9/14/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-021 | REV. 1

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

41
N/F
TOWN OF WILLISTON

47
N/F
ALLEN BROOK DEVELOPMENT INC.

MATCH LINE

SURVEY DATA

S 46° 58' W

2701' LT
568+56

S 23° 56' W

2816' RT
570+79

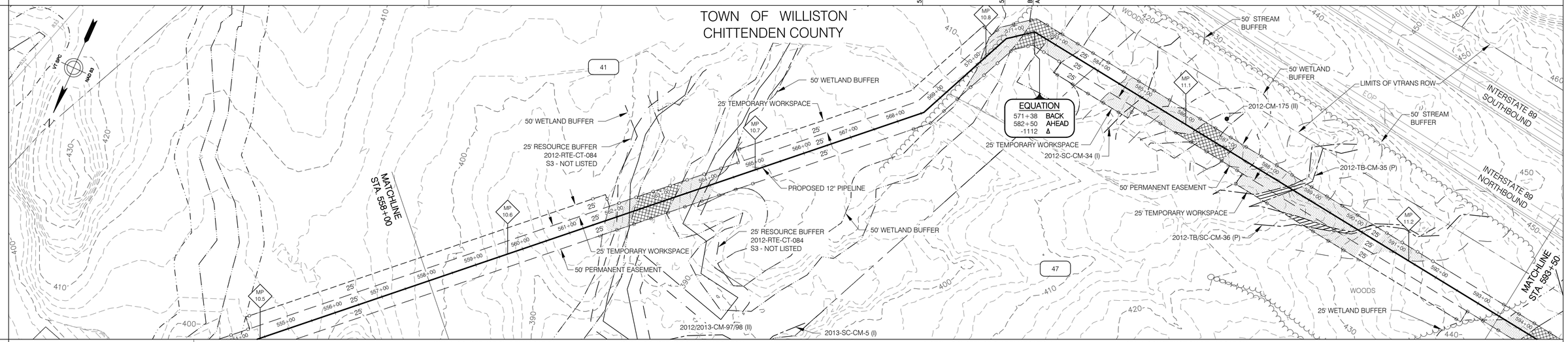
S 52° 12' W

~1112.20 ft.
Bk: 571+38
Ahd: 582+50
45°00' RT

N 82° 48' W

ALIGNMENT DETAIL

TOWN OF WILLISTON
CHITTENDEN COUNTY



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 558+00 TO 583+27 RT - 25' FROM NEW 12" PIPE ℄
STA. 558+00 TO 561+94 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 561+94 TO 564+71 LT - 25' FROM NEW 12" PIPE ℄
STA. 564+71 TO 570+62 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 583+27 TO 585+02 RT - 50' FROM NEW 12" PIPE ℄
STA. 570+62 TO 593+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 585+02 TO 587+57 RT - 25' FROM NEW 12" PIPE ℄
STA. 587+57 TO 593+50 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 561+11 TO 565+03 RT - 25' FROM NEW 12" PIPE ℄
STA. 561+50 TO 561+94 LT - 50' FROM NEW 12" PIPE ℄
STA. 561+94 TO 564+71 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 564+71 TO 565+21 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 568+11 TO 583+27 RT - 25' FROM NEW 12" PIPE ℄
STA. 570+19 TO 570+62 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 583+27 TO 585+02 RT - 50' FROM NEW 12" PIPE ℄
STA. 570+62 TO 588+66 LT - 25' FROM NEW 12" PIPE ℄
STA. 588+80 TO 590+36 LT - 25' FROM NEW 12" PIPE ℄
STA. 590+46 TO 592+25 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 585+02 TO 587+57 RT - 25' FROM NEW 12" PIPE ℄
STA. 587+57 TO 587+96 RT - 50' FROM NEW 12" PIPE ℄
STA. 588+23 TO 588+64 RT - 50' FROM NEW 12" PIPE ℄
STA. 589+20 TO 590+93 RT - 50' FROM NEW 12" PIPE ℄
STA. 592+39 TO 592+89 RT - 50' FROM NEW 12" PIPE ℄
STA. 592+89 TO 593+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 593+24 TO 593+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 562+20 TO 563+49

INSTALL MATTING:
STA. 570+67 TO 582+96
STA. 585+97 TO 587+16

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE		1A		W	2A	1A		2A	W	1E	2A	W		1E		2A	
SOIL TYPE		MyB (PAS)	MyC (PAS)		MyB (PAS)	ScA (PAS)	EwA (PAS)				CbD	ScB					
LC/LU		PASTURE					FORESTED										
		NOT CLASSIFIED															
STREAMS										STREAM 2012-SC-CM-34-(I) STATION 584+87 TO 585+08			STREAM 2012-TB-CM-35-(P) STATION 587+96 TO 588+80		STREAM 2012-TB/SC-CM-36-(P) STATION 588+64 TO 590+46		
WETLANDS	MATCH LINE		WETLAND 2012/2013-CM-97/98 - STATION 561+61 TO 564+49 CLASS II					WETLAND 2012/2013-CM-97/98 - STATION 569+33 TO 583+49 CLASS II				WETLAND 2012-CM-175 - STATION 585+22 TO 587+67 CLASS II			WETLAND 2012-CM-99 - STATION 592+89 TO 593+50 CLASS II		MATCH LINE
VERNAL POOLS																	
SIGNIFICANT NATURAL COMMUNITIES																	
RTE SPECIES				2012-RTE-CT-084													
NRC WILDLIFE HABITAT																	
ARCHAEOLOGY SITES																	

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
							DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-G-021	STATION AND VALVE DETAILS						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-022	ALIGNMENT SHEET						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-022 | REV. 0

Vermont Gas

CHA
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South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

47	44	50.02 / 50.01	54.03	54.02	54.01
N/F ALLEN BROOK DEVELOPMENT INC.	N/F STATE OF VERMONT	50.02 N/F 291 HURRICANE LANE, LLC 50.01 N/F DUNN, WILLIAM	N/F DUNN, WILLIAM	N/F HILLSIDE EAST CO.	N/F DUNN, WILLIAM

53
HURRICANE LANE

MATCH LINE

SURVEY DATA

Station	Bearing	Angle
595+58	N 82° 48' W	85°48' LT
	S 11° 24' W	
605+29		56°01' RT
Bck: 605+49 Ahd: 605+45	S 67° 25' W	4.1 ft.
606+29	N 67° 35' W	44°59' RT 02°19' LT
607+28	N 69° 54' W	03°52' LT
608+00	N 73° 46' W	05°40' LT
608+80	N 79° 27' W	06°29' LT
	N 85° 56' W	

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — — —
TEMPORARY WORKSPACE	- - - - - - - -
CENTERLINE OF STREAM	—— - —— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	
50' WETLAND BUFFER	— · · — · · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 593+50 TO 595+19 RT - 25' FROM NEW 12" PIPE ℄
STA. 593+50 TO 596+61 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 595+19 TO 595+58 RT - WIDTH VARIES' FROM NEW 12" PIPE ℄
STA. 595+58 TO 596+64 RT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 600+13 TO 604+91 RT - 25' FROM NEW 12" PIPE ℄
STA. 600+08 TO 604+96 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 605+42 TO 609+50 LT - WIDTH VARIES' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 593+50 TO 595+19 RT - 25' FROM NEW 12" PIPE ℄
STA. 593+50 TO 596+61 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 596+14 TO 596+64 RT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 600+13 TO 600+63 RT - 25' FROM NEW 12" PIPE ℄
STA. 600+10 TO 600+60 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 593+78 TO 594+94

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 595+58 & 596+63

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 600+12

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 604+91

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 606+26

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

CONST. TYPE	2A	1E W	2A	8	4C
SOIL TYPE	ScB (PAS)	CaC (PAS)		CbD	
LC/LU	FORESTED NOT CLASSIFIED	PAVED TRAVEL		GRASS/FORESTED INDUSTRIAL	PAVED TRAVEL
STREAMS					
WETLANDS	WETLAND 2012-CM-99 - STATION 593+50 TO 596+64 CLASS II				
VERNAL POOLS					
SIGNIFICANT NATURAL COMMUNITIES					
RTE SPECIES					
NRC WILDLIFE HABITAT					
ARCHAEOLOGY SITES					

MATCH LINE
MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS				
ANGP-T-C-023B	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID		CONSTRUCTION	
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
	INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDON COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-ESPC-023B | REV. 1

RIGHT-OF-WAY

MATCHLINE

Parcel	Owner
54.01	DUNN, WILLIAM
54	N/F HURRICANE HOLDINGS, LLC
53	HURRICANE LANE
55	N/F SIDELINE PROPERTIES LLC; WILLIAM DUNN
56	N/F BOSS, BRADLEY

MATCH LINE

SURVEY DATA

Station	Deflection	Bearing
609+86	06°55' LT	N 85° 56' W
610+37	02°52' LT	S 87° 09' W
610+85	00°56' LT	S 84° 16' W
611+36	00°20' RT	S 83° 20' W
611+93	00°50' RT	S 83° 40' W
612+34	00°47' LT	S 84° 30' W
612+84	00°09' RT	S 83° 43' W
613+33	00°40' LT	S 83° 52' W
613+81	01°27' LT	S 83° 11' W
614+41	05°48' RT	S 81° 44' W
614+79	02°26' LT	S 87° 33' W
615+36	00°04' LT	S 85° 06' W
615+92	43°40' LT	S 85° 02' W
		S 41° 21' W
617+15	17°03' LT	
		S 24° 18' W
619+27	00°05' RT	
		S 24° 24' W
623+66	00°15' LT	
		S 24° 08' W
627+70	44°40' LT	
628+02	44°44' RT	S 20° 31' E
		S 24° 17' W

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	- - - - - -
CENTERLINE OF STREAM	— - — - —
TEMPORARY STREAM CROSSING	▨
WETLAND	— ·· — ·· —
50' WETLAND BUFFER	— · · — · · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 616+00 TO 616+52 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 609+50 TO 615+69 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 615+69 TO 617+15 LT - 20' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 616+40 TO 617+49 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 616+45 TO 617+25 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 615+27 & 617+35

INSTALL CONSTRUCTION DEMARCATION:
STA. 616+52 TO 616+98 RT - 10' FROM NEW 12" PIPE ℄
STA. 616+98 TO 633+00 RT - 50' FROM NEW 12" PIPE ℄
STA. 617+15 TO 633+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 616+98 TO 617+11 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 617+11 TO 618+04 RT - 50' FROM NEW 12" PIPE ℄
STA. 617+49 TO 633+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 616+53 TO 616+79

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 631+52

INSTALL MATTING:
STA. 631+22 TO 631+53

INSTALL REINFORCED PERIMETER CONTROL:
STA. 631+05 TO 631+59 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 631+78 TO 632+04 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	(4C) (3A) (1E)
SOIL TYPE	CbD PsC
LC/LU	ROAD EDGE / TRAVEL, RESIDENTIAL, TRAVEL; FORESTED/POWERLINES / INDUSTRIAL, UNCLASSIFIED; GRASS; UNPAVED / TRAVEL; GRASS / UNCLASSIFIED
STREAMS	STREAM 2013-SC-CM-3 (E) STATION 617+22 TO 618+06 STREAM 2013-SC-CM-2 (E) STATION 617+53 TO 617+92
WETLANDS	
VERNAL POOLS	WETLAND 2012-CM-88 - STATION 619+00 TO 622+99 CLASS II WETLAND 2012-CM-88 - STATION 623+67 TO 626+49 CLASS II WETLAND 2012-CM-88 - STATION 626+59 TO 630+34 CLASS II WETLAND 2012-CM-89 - STATION 630+67 TO 633+00 CLASS II
SIGNIFICANT NATURAL COMMUNITIES	
RTE SPECIES	
NRC WILDLIFE HABITAT	
ARCHAEOLOGY SITES	

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS				
ANGP-T-C-024	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-024 | REV. 1

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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RIGHT-OF-WAY

MATCHLINE

56
N/F
BOSS, BRADLEY

57
N/F
OAK HILL ESTATES ASSOCIATION

58
ST. GEORGE ROAD
VT STATE ROUTE 2A

62.01
N/F
PALMER, DAVID

61
N/F
BLACKBERRY RIDGE
HOMEOWNERS ASSOCIATION

62
N/F
LUNNA, STEPHEN R.
& JENNIFER J.

MATCH LINE

SURVEY DATA

Station	Deflection	Bearing
		S 24° 29' W
637+40	00°29' RT	S 24° 00' W
638+26	00°11' RT	S 23° 49' W
639+78	43°39' RT	S 67° 28' E
Bck: 640+12 Ahd: 640+38	-26 ft.	S 67° 28' E
640+93	44°09' RT	N 68° 23' W
644+91	45°10' LT	S 66° 26' W
645+47	44°46' LT	S 21° 39' W
645+93	00°28' LT	S 21° 10' W
646+79	00°21' LT	S 20° 49' W
648+48	00°42' RT	S 21° 31' W
651+91	00°15' RT	S 21° 46' W
655+19	44°59' RT	S 66° 46' W
Bck: 655+39 Ahd: 655+47 44°28' RT	-8.1 ft.	N 68° 45' W
656+50	48°36' LT	S 62° 38' W
661+71	22°59' LT	S 39° 38' W
662+84	22°07' LT	S 17° 31' W

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	– – – – –
CENTERLINE OF STREAM	—— – —— –
TEMPORARY STREAM CROSSING	▨
WETLAND	— · · — · · —
50' WETLAND BUFFER	— · — · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 633+00 TO 640+48 RT - 50' FROM NEW 12" PIPE ℄
STA. 640+48 TO 641+04 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 633+00 TO 641+06 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 633+00 TO 633+45 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 641+04 TO 644+91 RT - 25' FROM NEW 12" PIPE ℄
STA. 644+91 TO 645+45 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 645+45 TO 655+19 RT - 25' FROM NEW 12" PIPE ℄
STA. 641+06 TO 650+70 LT - 50' FROM NEW 12" PIPE ℄
STA. 650+70 TO 653+70 LT - 25' FROM NEW 12" PIPE ℄
STA. 653+70 TO 655+19 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 655+19 TO 655+58 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 655+19 TO 655+47 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 655+47 TO 655+58 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 656+24 TO 663+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 656+24 TO 663+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 650+38 TO 655+33 RT - 25' FROM NEW 12" PIPE ℄
STA. 650+28 TO 650+70 LT - 50' FROM NEW 12" PIPE ℄
STA. 650+70 TO 653+70 LT - 25' FROM NEW 12" PIPE ℄
STA. 653+70 TO 654+15 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 656+24 TO 656+55 RT - 25' FROM NEW 12" PIPE ℄
STA. 655+33 TO 655+58 LT - 50' FROM NEW 12" PIPE ℄
STA. 656+24 TO 657+20 LT - 50' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 645+24

INSTALL MATTING:
STA. 651+16 TO 653+20

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 655+58

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 656+24

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	(1E) · (2A) · (1A) · (2A) · (W) · (1H) · (W) · (1A) · (9) · (1A) · (1H) · (1A)
SOIL TYPE	PsC · LyD · PsC · GrB (PAS) · PeB (PAS) · CaC (PAS) · LmB (PAS) · LyD
LC/LU	GRASS · FORESTED/POWERLINE / UNCLASSIFIED · FORESTED / UNCLASSIFIED · PAVED / TRAVEL · FORESTED/POWERLINE / RESIDENTIAL · UNCLASSIFIED · RESIDENTIAL
STREAMS	
WETLANDS	WETLAND 2012-CM-91 - STATION 650+66 TO 653+70 CLASS II
VERNAL POOLS	
SIGNIFICANT NATURAL COMMUNITIES	
RTE SPECIES	
NRC WILDLIFE HABITAT	
ARCHAEOLOGY SITES	

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-025	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

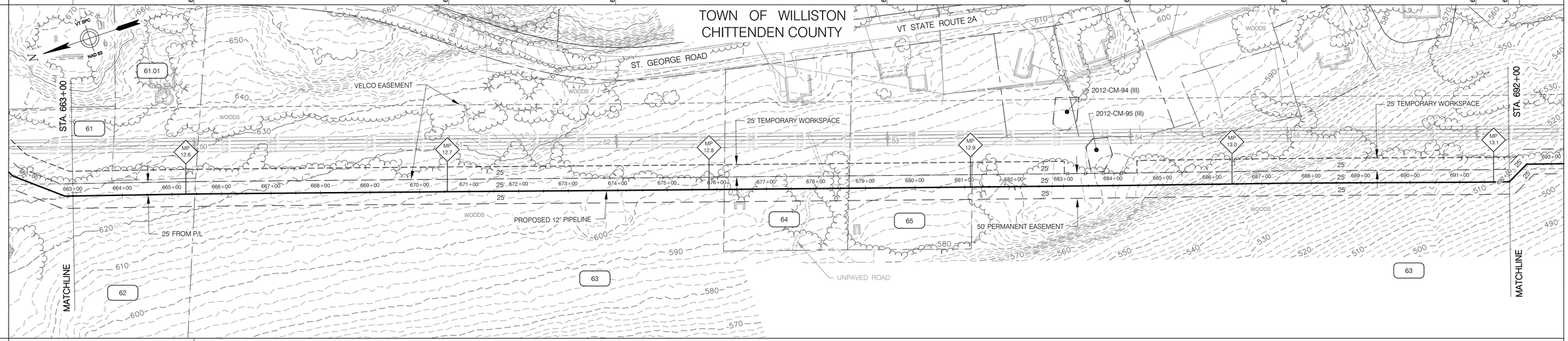
VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-025 | REV. 1

RIGHT–OF–WAY	MATCHLINE	61 N/F BLACKBERRY RIDGE HOMEOWNERS ASSOCIATION	61.01 N/F POODIACK, ROBERT & JUNE	62 N/F LUNNA, STEPHEN R. & JENNIFER J.	63 N/F MARCOTTE, NORMAN & RITA A.	64 N/F BRODERICK, CLAUDE R.	65 N/F ROBEAR, LEONARD P. & MARY D.	63 N/F MARCOTTE, NORMAN & RITA A.	MATCH LINE
SURVEY DATA		S 17° 31' W 00°25' RT 665+47	S 17° 56' W 00°36' RT 670+61	S 18° 02' W 00°07' LT 673+98	S 17° 54' W 00°02' LT 679+46	S 17° 52' W 00°13' LT 684+37	S 17° 39' W 00°29' RT 687+53	S 18° 08' W 00°26' LT 691+35	S 17° 42' W 44°59' LT 692+00 S 27° 17' E

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 663+00 TO 692+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 663+00 TO 683+02 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 683+02 TO 684+48 LT - 25' FROM NEW 12" PIPE ℄
STA. 684+48 TO 692+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 683+02 TO 684+48 LT - 25' FROM NEW 12" PIPE ℄

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE	1A					2A	1A		
SOIL TYPE	LyD		CsC (PAS)		LmB (PAS)	LmC	PeC (PAS)		
LC/LU	FORESTED/POWERLINES								
	RESIDENTIAL	NOT CLASSIFIED		RESIDENTIAL	RESIDENTIAL		NOT CLASSIFIED		
STREAMS									
WETLANDS									
VERNAL POOLS									
SIGNIFICANT NATURAL COMMUNITIES									
RTE SPECIES									
NRC WILDLIFE HABITAT									
ARCHAEOLOGY SITES									

MATCH LINE / MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ANGP–T–C–026	ALIGNMENT SHEET					ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP–EPSC–026 | REV. 0

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
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RIGHT-OF-WAY

MATCHLINE

63 N/F MARCOTTE, NORMAN & RITA A.

67 N/F SPENCER, REBECCA

68 N/F TANDAN, RUP & PATRICIA

69 N/F MORIN, JOHN M.; PELKEY-MORIN, LAUREL

69.01 N/F REINDEL, HAROLD & HALL, ADELENE

70 N/F SPERONI, ALDO E. & MARY L.

71 N/F VERMONT TRANSCO LLC

72 N/F LACLAIR, KERMIT E., DIANE D. & RANDALL

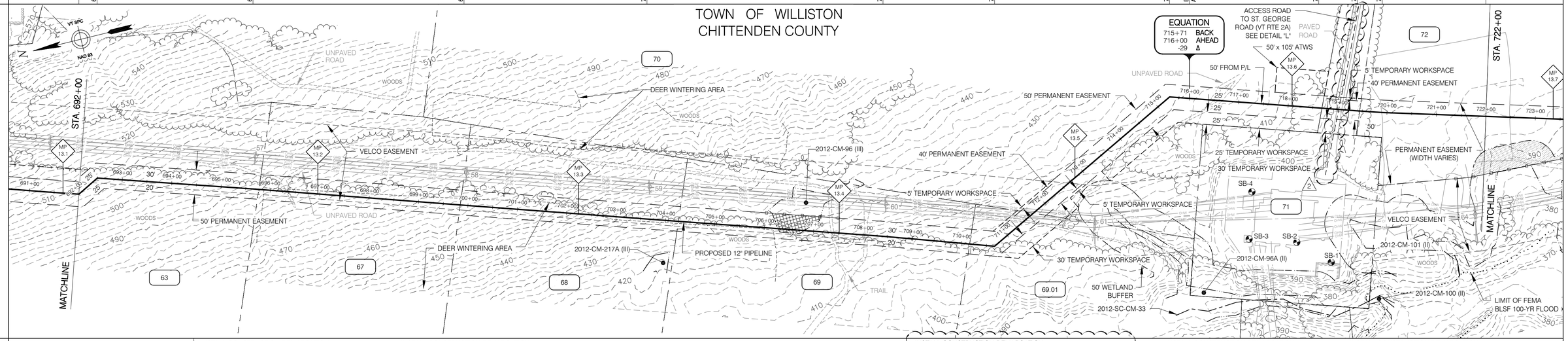
MATCH LINE

SURVEY DATA

692+50	693+93	703+63	708+41	710+67	715+31	718+63	719+41	719+92
S 27° 17' E	S 17° 42' W	S 18° 08' W	S 18° 01' W	S 17° 53' W	S 18° 49' W	S 26° 42' E	S 17° 57' W	S 17° 57' W	S 17° 27' W	S 15° 51' W
44°59' RT	00°26' RT	00°07' LT	00°07' LT	00°55' RT	45°31' LT	44°39' RT	00°00' LT	00°30' LT	01°35' LT

Bal.: 715+71
Ahd.: 716+00
-29.0 ft.

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 692+00 TO 692+55 RT - 25' FROM NEW 12" PIPE ℄
STA. 692+00 TO 692+46 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 692+55 TO 710+67 RT - 20' FROM NEW 12" PIPE ℄
STA. 692+46 TO 710+84 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 705+63 TO 707+62 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 706+13 TO 707+12

1 INSTALL CONSTRUCTION DEMARCATION:
STA. 710+67 TO 710+88 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 710+88 TO 712+46 RT - 50' FROM NEW 12" PIPE ℄
STA. 710+84 TO 717+72 LT - 25' FROM NEW 12" PIPE ℄
STA. 712+46 TO 713+30 RT - 25' FROM NEW 12" PIPE ℄
STA. 713+30 TO 719+92 RT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 717+72 TO 718+77 LT - 75' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 719+92 TO 722+00 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 718+71 TO 722+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 721+26 TO 722+00 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 719+06

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1A	2A	2D			W		1J	2A	1E		1J	1E	
SOIL TYPE	PsC (PAS)		PsC (PAS)		GrB (PAS)			MyC (PAS)					MuD	
LC/LU	NOT CLASSIFIED		RESIDENTIAL		RESIDENTIAL	FORESTED/POWERLINES		RESIDENTIAL	RESIDENTIAL	RESIDENTIAL		PAVED TRAVEL	GRASS AGRICULTURE	
STREAMS														
WETLANDS						WETLAND 2012-CM-96 - STATION 706+13 TO 707+12 CLASS III							WETLAND 2012-CM-101 - STATION 706+13 TO 707+12 CLASS II	
VERNAL POOLS														
SIGNIFICANT NATURAL COMMUNITIES														
RTE SPECIES														
NRC WILDLIFE HABITAT						DEER WINTERING AREA								
ARCHAEOLOGY SITES														

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-G-07-010	ACCESS ROAD DETAILS	2	GJM	BCK	IFC 2016 EDITS (05/2016)	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-027	ALIGNMENT SHEET	1	BCK	TDB	VHB EDITS (6/09/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-027 | REV. 2

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
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RIGHT-OF-WAY

MATCHLINE

72
N/F
LACLAIR, KERMIT E., DIANE D. & RANDALL

72.01
N/F
LACLAIR, STEPHEN D. & JUDY

73
N/F
CUNEO, TERRENCE & KARI

74
N/F
THERESE M. CARBINO REVOCABLE TRUST; C/O CARBINO, THERESE M.

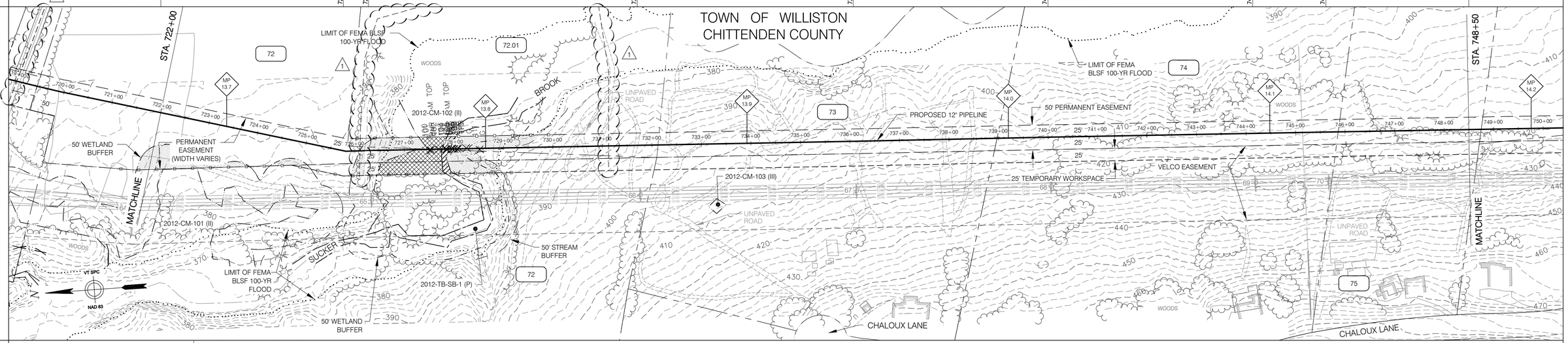
75
N/F
TOWERS, LEE R. & JUDITH A.

MATCH LINE

SURVEY DATA

13'30" LT	38'00" RT	00'01" LT	38'00" LT	38'00" RT	00'01" RT	00'20" RT
S 15° 51' W	S 02° 21' W	S 02° 59' W	S 03° 00' W	S 02° 51' W	S 03° 00' W	S 03° 02' W	S 03° 04' W
725+82	726+32	731+75	735+12	740+05	744+19	745+67	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 722+00 TO 725+82 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 725+82 TO 748+50 RT - 50' FROM NEW 12" PIPE ℄
STA. 722+00 TO 748+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 722+00 TO 725+82 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 725+82 TO 727+84 RT - 50' FROM NEW 12" PIPE ℄
STA. 725+93 TO 727+87 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 728+00 TO 729+46 RT - 50' FROM NEW 12" PIPE ℄
STA. 728+04 TO 730+22 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 726+42 TO 727+87

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 734+68

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 744+68

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE		1E	W	W	7	1E				
SOIL TYPE		MyC (PAS)	MuD	MyC (PAS)	PsC	PsC (PAS)	MyC (PAS)			
LC/LU		GRASS	FORESTED	GRASS						
		AGRICULTURE		RESIDENTIAL		RESIDENTIAL	RESIDENTIAL			
STREAMS				STREAM 2012-TB-SB-01(P) - STATION 727+74 TO 728+04						
WETLANDS	MATCH LINE		WETLAND 2012-CM-102 - STATION 725+92 TO +729+72 CLASS II							MATCH LINE
VERNAL POOLS		WETLAND 2012-CM-101 - STATION 723+99 TO 723+16 CLASS II	WETLAND 2012-CM-101 - STATION 724+39 TO 725+12 CLASS II							
SIGNIFICANT NATURAL COMMUNITIES										
RTE SPECIES										
NRC WILDLIFE HABITAT										
ARCHAEOLOGY SITES										

VHB Vanasse Hangen Brustlin, Inc.

							BID		CONSTRUCTION	
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-028	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-028 | REV. 1

Vermont Gas

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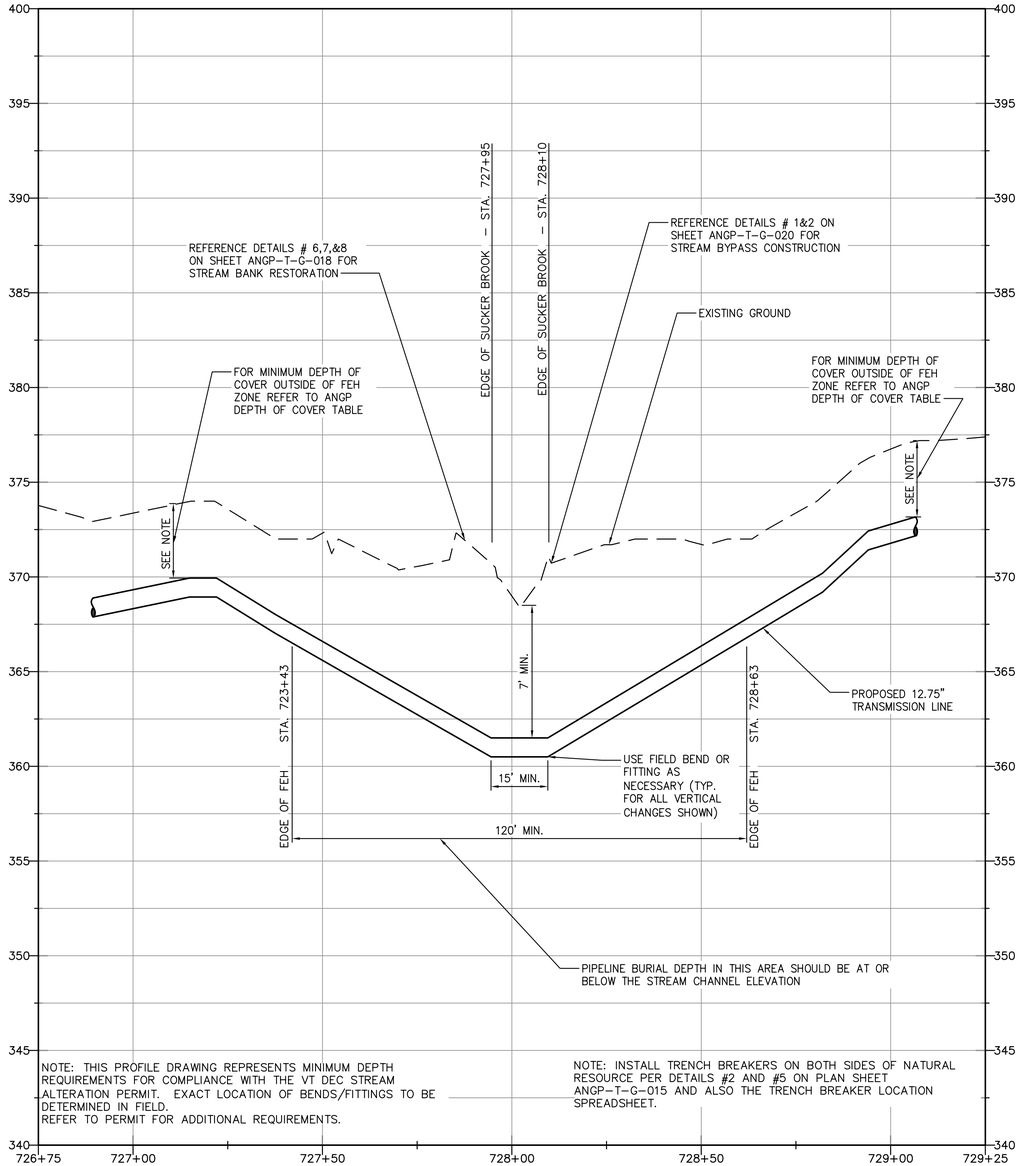
PROFILE



STREAM CROSSING PROFILE
SUCKER BROOK
STATION 728+02±
MILE POST 13.79

SCALE: HORIZ. 1"=20'
VERT. 1"=4'

NOTE: STREAM CROSSING MUST BE CONSTRUCTED BETWEEN JUNE 1 AND OCTOBER 1

STATE OF VERMONT
JEFFREY E. OSTERMAN
NO. 97764
CIVIL
PROFESSIONAL ENGINEER

HORIZONTAL SCALE
20 10 0 20 40 60 feet
VERTICAL SCALE
4 2 0 4 8 12 feet

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION	BID		CONSTRUCTION	
							INITIALS	DATE	INITIALS	DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
OPEN TRENCH STREAM CROSSING PROFILE
LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: AS NOTED | DWG. ANGP-T-C-028A | REV. 0

VHB Vanasse Hangen Brustlin, Inc.

Vermont Gas

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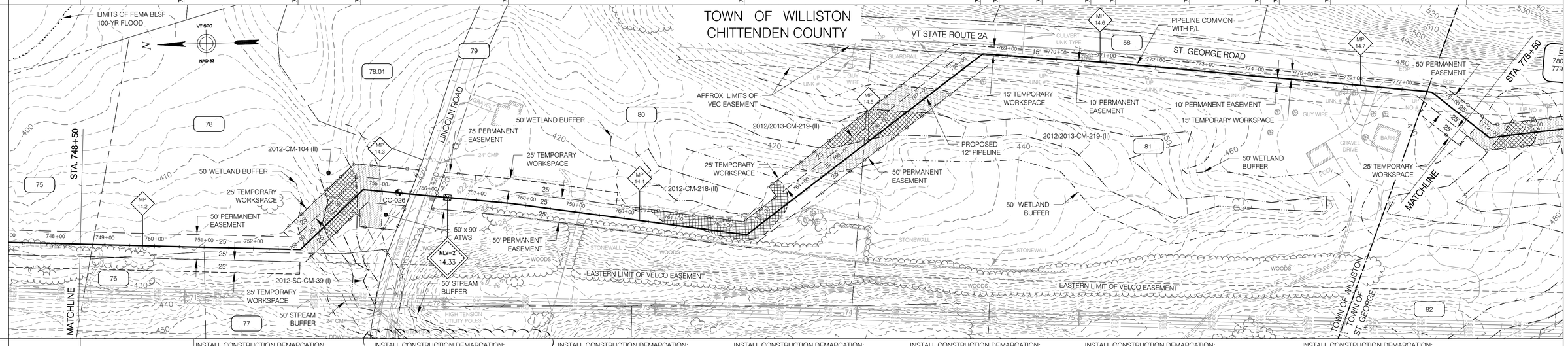
RIGHT–OF–WAY

MATCHLINE | 75 N/F TOWERS, LEE R. & JUDTH A. | 76 N/F HAKIZIMANA, SEBASTIAN; MUKANDORI, MARTHA | 78 N/F CHALOUX, YVETTE C/O FRENCH, MARY | 77 N/F CAMPBELL, ELLEN | 79 LINCOLN ROAD | 80 N/F CAVANAUGH, WILLIAM F. & CHRISTINE | 58 ST. GEORGE ROAD (RTE. 2A) | 81 N/F ARMSTRONG, KEVIN & PHILLANE | TOWN OF WILLISTON / TOWN OF ST. GEORGE | 82 N/F PILLSBURY, DANIEL | MATCH LINE

SURVEY DATA

50.00' LT	45.02' LT	49.04' RT	02.10' RT	45.00' LT	41.04' RT	40.42' LT	00.34' LT	00.34' RT	39.46' RT	39.16' RT	00.00' LT	00.28' LT	00.20' RT
S 03° 04' W	S 02° 59' W	S 42° 04' E	S 07° 00' W	S 09° 11' W	S 35° 49' E	S 05° 15' W	S 05° 58' W	S 05° 24' W	S 05° 58' W	S 06° 45' W	S 07° 02' W	S 07° 02' W	S 06° 33' W	S 06° 53' W
750+84	752+95	754+70	757+89	762+50	768+50	768+72	769+75	770+74	771+24	772+74	774+18	774+24	775+60	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 748+50 TO 752+94 RT - 50' FROM NEW 12" PIPE ℄
STA. 748+50 TO 752+60 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 752+94 TO 754+54 RT - 25' FROM NEW 12" PIPE ℄
STA. 752+60 TO 755+65 LT - 50' FROM NEW 12" PIPE ℄
STA. 754+54 TO 755+65 RT - 75' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 756+10 TO 768+78 RT - 25' FROM NEW 12" PIPE ℄
STA. 756+30 TO 759+81 LT - 50' FROM NEW 12" PIPE ℄
1

INSTALL CONSTRUCTION DEMARCATION:
STA. 759+81 TO 763+45 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 763+45 TO 768+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 768+78 TO 777+30 RT - 10' FROM NEW 12" PIPE ℄
STA. 777+30 TO 777+70 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 777+70 TO 778+50 RT - 50' FROM NEW 12" PIPE ℄
STA. 778+00 TO 778+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 752+94 TO 754+37 RT - 25' FROM NEW 12" PIPE ℄
STA. 753+61 TO 755+78 LT - 50' FROM NEW 12" PIPE ℄
STA. 754+13 TO 755+44 RT - 75' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 756+10 TO 756+60 RT - 25' FROM NEW 12" PIPE ℄
STA. 756+30 TO 756+80 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 759+81 TO 763+45 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 764+06 TO 768+24 RT - 25' FROM NEW 12" PIPE ℄
STA. 763+45 TO 767+53 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 778+19 TO 778+50 RT - 50' FROM NEW 12" PIPE ℄
STA. 778+24 TO 778+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 753+52 TO 754+77

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 755+72 & STA. 756+30

INSTALL MATTING:
STA. 760+06 TO 763+70

INSTALL MATTING:
STA. 765+68 TO 766+59

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1E	1A	W	7	W	1A	11	1A	2A	W	1A	4H	1E	
SOIL TYPE	PsC (PAS)	LyD	MuD	LyD	MyC (PAS)	LyD	LyD	CaC (PAS)						
LC/LU	GRASS			UNPAVED	GRASS									
	NOT CLASSIFIED			TRAVEL	RESIDENTIAL			RESIDENTIAL				AGRICULTURE		
STREAMS														
WETLANDS				WETLAND 2012-CM-104 - STATION 753+52 TO 754+77 CLASS II				WETLAND 2012-CM-218 - STATION 764+06 TO 767+54 CLASS II			WETLAND 2012/2013-CM-219 - STATION 764+06 TO 767+54 CLASS II			
VERNAL POOLS														
SIGNIFICANT NATURAL COMMUNITIES														
RTE SPECIES														
NRC WILDLIFE HABITAT														
ARCHAEOLOGY SITES														

MATCH LINE | MATCH LINE

Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
ANGP–T–G–07–10	ACCESS ROAD DETAILS						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP–T–G–021	STATION AND VALVE DETAILS						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP–T–C–029	ALIGNMENT SHEET	1	BCK	TDB		VHB EDITS (6/09/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP–EPSC–029 | REV. 1

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE	82 N/F PILLSBURY, DANIEL	ACCESS RIGHT OF WAY	82 N/F PILLSBURY, DANIEL	58.01 ST. GEORGE ROAD VT STATE ROUTE 2A	82.08 N/F PILLSBURY, LARRY & CAROLYN	82.09 N/F PILLSBURY, DANIEL	MATCHLINE

SURVEY DATA

S 06° 53' W	777+51	03°17' RT
S 10° 11' W	777+54	00°09' LT
S 10° 01' W	777+56	00°09' LT
S 09° 51' W	777+59	00°09' LT
S 09° 41' W	777+61	30°11' RT
S 39° 53' W	779+09	44°59' LT
S 05° 07' E	Bck: 780+79 Ahd: 779+92	86.6 ft.
S 05° 07' E	781+57	00°01' LT
S 05° 08' E	783+63	00°08' LT
S 05° 16' E	785+58	00°13' LT
S 05° 30' E	787+36	13°56' RT
S 08° 27' W	789+13	00°11' RT
S 08° 38' W	791+18	38°27' LT
S 29° 50' E	792+37	34°20' RT
S 04° 31' W	792+86	00°54' LT
S 03° 36' W	793+43	01°48' LT
S 01° 48' W	794+00	01°48' LT
S 00° 00' W	794+57	01°48' LT
S 01° 49' E	795+14	01°48' LT
S 03° 37' E	795+71	27°49' RT
S 24° 12' W	797+02	38°52' RT
S 63° 04' W	798+46	14°44' LT
S 48° 20' W		

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — — —
TEMPORARY WORKSPACE	- - - - - - - -
CENTERLINE OF STREAM	—— - —— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	
50' WETLAND BUFFER	— - - — - - —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 778+50 TO 778+70 RT - 50' FROM NEW 12" PIPE ℄
STA. 778+50 TO 780+51 RT - 25' FROM NEW 12" PIPE ℄
STA. 778+50 TO 800+20 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 780+51 TO 781+05 RT - 50' FROM NEW 12" PIPE ℄
STA. 781+05 TO 782+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 782+50 TO 796+84 RT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 796+84 TO 797+49 RT - 25' FROM NEW 12" PIPE ℄
STA. 797+49 TO 798+70 RT - 50' FROM NEW 12" PIPE ℄
STA. 798+70 TO 802+00 RT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 800+20 TO 802+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 778+50 TO 778+70 RT - 50' FROM NEW 12" PIPE ℄
STA. 778+70 TO 778+51 RT - 25' FROM NEW 12" PIPE ℄
STA. 778+50 TO 780+21 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 780+53 TO 781+05 RT - 50' FROM NEW 12" PIPE ℄
STA. 781+05 TO 781+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 781+50 TO 783+02 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 798+37 TO 798+70 RT - 50' FROM NEW 12" PIPE ℄
STA. 798+76 TO 800+20 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 798+70 TO 801+21 RT - 25' FROM NEW 12" PIPE ℄
STA. 800+20 TO 800+56 LT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 779+09 TO 780+11

INSTALL MATTING:
STA. 781+58 TO 781+98

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 788+00

INSTALL MATTING:
STA. 799+50 TO 799+98

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

CONST. TYPE	1E · W 2A · 1E · 2A W · 1E · 11 · 1E · 2A · 1E · 2A W · 1A
SOIL TYPE	CaC (PAS) · LmB (PAS) · LyD · LmC · FsC · FsB (PAS) · FaE
LC/LU	GRASS / AGRICULTURAL · UNPAVED / TRAVEL · GRASS / AGRICULTURAL · RESIDENTIAL · AGRICULTURAL
STREAMS	
WETLANDS	WETLAND 2012-CM-220 - STATION 777+50 TO 779+84 CLASS II WETLAND 2012/2013-CM-106 STATION 781+05 TO 782+52 CLASS II WETLAND 2012-CM-221 - STATION 798+75 TO 800+71 CLASS II
VERNAL POOLS	
SIGNIFICANT NATURAL COMMUNITIES	
RTE SPECIES	
NRC WILDLIFE HABITAT	
ARCHAEOLOGY SITES	

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-07-10	ACCESS ROAD DETAILS				
ANGP-T-C-030	ALIGNMENT SHEET				

	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-030 | REV. 0

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
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South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCH LINE

82.09
N/F
PILLSBURY, DANIEL & JUDITH

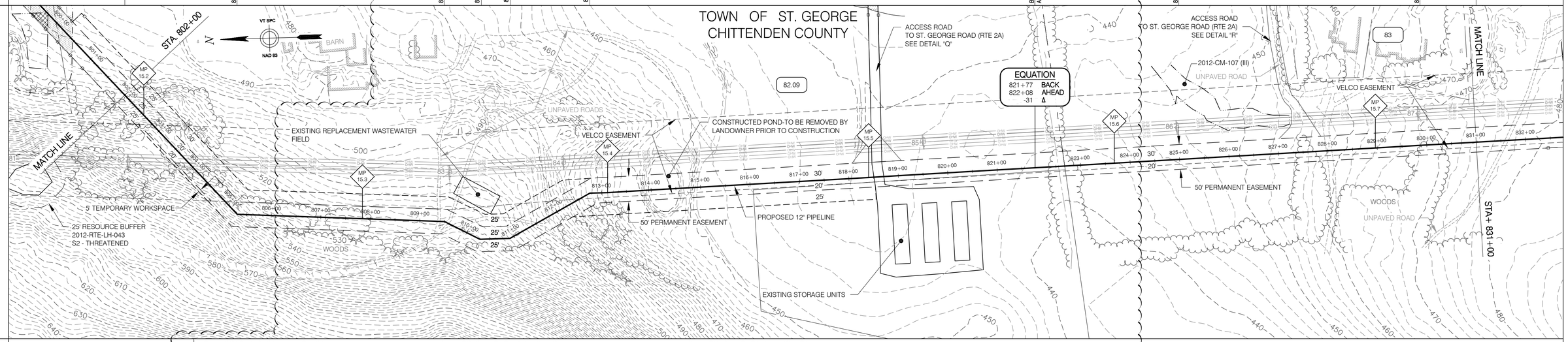
83
N/F
BELIVEAU, PHILIP
& JALBERT, CAROLINE

MATCH LINE

SURVEY DATA

S 48° 20' W	44'41' LT 805+31	S 03° 38' W	24'33' RT 809+50	28'11' LT 810+35	S 0° 0' W	27'57' LT 810+91	27'57' RT 812+76	S 27° 56' E	S 1° 51' E	~20.0 ft. Beg: 821+88 Ahd: 822+08	S 01° 41' E	00'01' LT 824+99	S 01° 43' E	00'00' RT 829+87	S 01° 38' E

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 802+00 TO 812+21 RT - 25' FROM NEW 12" PIPE ℄
STA. 802+00 TO 812+45 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 812+21 TO 812+89 RT- WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 812+89 TO 818+52 RT- 45' FROM NEW 12" PIPE ℄
STA. 812+45 TO 812+80 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 812+80 TO 831+00 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 818+52 TO 831+00 RT - 20' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 818+60

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 827+38

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1A	1H	1A											2D		
SOIL TYPE	FaE		FsC	FaC		FaE		ScA (PAS)						MyB (PAS)		GrB (PAS)
LC/LU	FORESTED/POWERLINE									PASTURE						
	AGRICULTURE													NOT CLASSIFIED		
STREAMS																
WETLANDS																
VERNAL POOLS																
SIGNIFICANT NATURAL COMMUNITIES																
RTE SPECIES																
NRC WILDLIFE HABITAT																
ARCHAEOLOGY SITES																

MATCH LINE (left) — MATCH LINE (right)

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS					
ANGP-T-C-031	ALIGNMENT SHEET	1	BCK	TDB		PILLSBURY REROUTE (6/05/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-031 | REV. 1

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

83
N/F
BELIVEAU, PHILIP

84
N/F
TOWN OF ST. GEORGE

MATCH LINE

SURVEY DATA

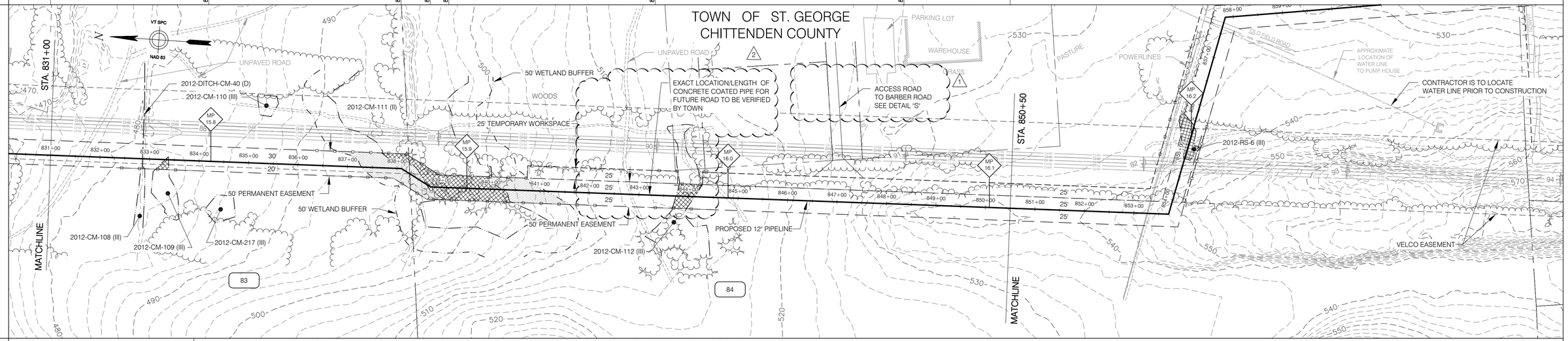
00°03' LT	S 01° 38' E	30°10' RT	30°10' LT	00°20' LT	S 01° 43' E	00°01' LT	S 01° 45' E	00°03' RT	S 01° 41' E
834+21		838+09	838+79	838+92		843+33		846+36	

S 01° 41' E

S 28° 30' W

S 01° 41' E

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 831+00 TO 837+90 RT - 20' FROM NEW 12" PIPE ℄
STA. 831+00 TO 838+09 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 837+90 TO 850+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 838+09 TO 840+90 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 840+90 TO 843+70 LT - 50' FROM NEW 12" PIPE ℄
STA. 843+70 TO 844+25 LT - 25' FROM NEW 12" PIPE ℄
STA. 844+25 TO 850+50 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 832+33 TO 833+90 RT - 20' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 836+70 TO 837+90 RT - 20' FROM NEW 12" PIPE ℄
STA. 837+90 TO 842+22 RT - 25' FROM NEW 12" PIPE ℄
STA. 836+05 TO 838+09 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 838+09 TO 840+90 LT - 25' FROM NEW 12" PIPE ℄
STA. 840+90 TO 841+30 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 843+18 TO 844+47 RT - 25' FROM NEW 12" PIPE ℄
STA. 843+27 TO 843+70 LT - 50' FROM NEW 12" PIPE ℄
STA. 843+70 TO 844+25 LT - 25' FROM NEW 12" PIPE ℄
STA. 844+25 TO 844+75 LT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 832+83 TO 832+91
STA. 833+13 TO 833+40

INSTALL MATTING:
STA. 837+69 TO 840+44

INSTALL MATTING:
STA. 843+68 TO 844+27

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE		W	2D		W	2A		W	1A			
SOIL TYPE	HnB	MyB (PAS)	GrB (PAS)	ScB (PAS)		MyB (PAS)	PeB (PAS)	FaC				
LC/LU	PASTURE			FORESTED								
	NOT CLASSIFIED			NOT CLASSIFIED								
STREAMS	STREAM 2012-DITCH-CM-40 (D) - STATION 832+86											
WETLANDS	WETLAND 2012-CM-108 & WETLAND 2012-CM-109 - STATION 832+83 TO 833+40 CLASS III			WETLAND 2012-CM-111 - STATION 836+78 TO 841+60 CLASS II					WETLAND 2012-CM-112 - STATION 843+68 TO 844+27 CLASS III			
VERNAL POOLS												
SIGNIFICANT NATURAL COMMUNITIES												
RTE SPECIES												
NRC WILDLIFE HABITAT												
ARCHAEOLOGY SITES												

MATCH LINE

MATCH LINE

Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS	2	GJM	BCK		IFC 2016 EDITS (05/2016)
ANGP-T-C-032	ALIGNMENT SHEET	1	BCK	TDB		VHB EDITS (6/09/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-032 | REV. 2

RIGHT-OF-WAY

MATCHLINE

84
N/F
TOWN OF ST. GEORGE

84.03
N/F
PHELPS, LOUIS

84.02
N/F
PHELPS, LOUIS D. IV

58.01
ROUTE 2A

85
N/F
BOVAT, CLYDE & MARY ANN

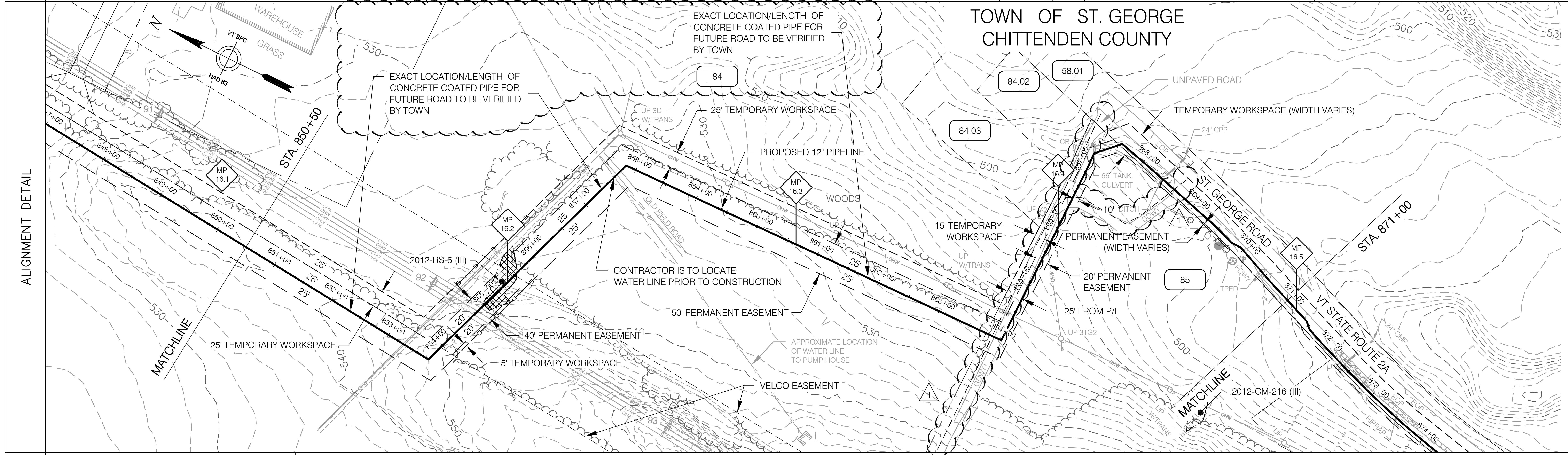
MATCH LINE

SURVEY DATA

S 01° 41' E

STATION	DEFLECTION	BEARING
853+17	00°05' RT	S 01° 36' E
853+70	76°09' LT	S 77° 46' E
857+84	69°23' RT	S 08° 23' E
859+33	00°07' LT	S 08° 30' E
861+17	00°18' RT	S 08° 11' E
862+99	00°09' LT	S 08° 21' E
864+03	88°16' LT	N 83° 23' E
865+80	00°17' LT	N 83° 06' E
866+87	01°50' LT	N 81° 15' E
867+14	46°50' RT	S 51° 54' E
867+59	59°27' RT	S 07° 33' W
868+09	00°50' RT	S 08° 24' W
869+43	03°51' RT	S 12° 15' W
869+79	18°54' LT	S 06° 40' E
869+95	22°29' RT	S 15° 50' W
870+62	01°55' LT	S 13° 54' W

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	– – – – – –
CENTERLINE OF STREAM	—— - —— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	- · - · -
50' WETLAND BUFFER	— · · — · · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 850+50 TO 864+15 RT - 25' FROM NEW 12" PIPE ℄
STA. 850+50 TO 864+52 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 864+15 TO 867+66 RT - 10' FROM NEW 12" PIPE ℄
STA. 864+52 TO 867+14 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 867+66 TO 871+00 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 867+14 TO 867+35 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 854+39 TO 856+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 854+73 TO 856+25 LT - 50' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 851+17

INSTALL MATTING:
STA. 854+87 TO 855+79

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 867+42

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1A, 1H, W, 1A, 3A, 4B, 4F
SOIL TYPE	MyB (PAS), FaC, MuD, MyB (PAS), MuD
LC/LU	FORESTED/POWERLINE, GRAVEL, GRASS NOT CLASSIFIED, RESIDENTIAL
STREAMS	
WETLANDS	WETLAND 2012-RS-6 - STATION 854+87 TO 855+79 CLASS III
VERNAL POOLS	
SIGNIFICANT NATURAL COMMUNITIES	
RTE SPECIES	
NRC WILDLIFE HABITAT	
ARCHAEOLOGY SITES	

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS				
ANGP-T-C-033	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID		CONSTRUCTION	
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
	INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-033 | REV. 1

RIGHT-OF-WAY

MATCHLINE

58.01
ST. GEORGE ROAD
VT STATE ROUTE 2A

85
N/F
BOVAT, CLYDE & MARY ANN

86
N/F
PEET, TIMOTHY

87
N/F
BISSONETTE, JOHN P. & MELISSA A.

86
N/F
PEET, TIMOTHY

86.04
ROCKY
RIDGE
CIRCLE

90
N/F
FROST, ROBERT
& ANNE

85.05
N/F
BOVAT, CLYDE
& MARY ANN

58.01
ST. GEORGE ROAD
VT STATE ROUTE 2A

MATCH LINE

SURVEY DATA

871+27	S 13° 54' W	01°05' RT
871+42	S 15° 00' W	22°29' RT
Bck: 871+56	S 37° 30' W	
Ahd: 871+65 22°29' LT 871+93	S 15° 00' W	-9.0 ft. 01°37' LT
872+43	S 13° 23' W	01°27' LT
872+91	S 11° 55' W	01°53' LT
873+29	S 10° 02' W	00°40' LT
873+62	S 09° 21' W	02°36' LT
874+17	S 06° 45' W	01°41' LT
875+07	S 05° 03' W	01°59' LT
875+44	S 03° 04' W	03°24' LT
876+01	S 00° 21' E	01°45' RT
876+53	S 01° 25' W	00°40' LT
877+30	S 00° 44' W	00°45' RT
877+78	S 01° 30' W	17°23' RT
877+78	S 18° 53' W	14°02' LT
877+91	S 04° 51' W	25°09' RT
878+11	S 30° 00' W	22°29' LT
878+43	S 07° 30' W	01°44' RT
878+60	S 09° 15' W	22°29' LT
878+83	S 13° 15' E	22°29' RT
878+95	S 09° 15' W	03°41' LT
879+06	S 05° 33' W	00°04' LT
879+25	S 05° 28' W	10°22' RT
879+27	S 15° 51' W	06°02' LT
880+14	S 09° 48' W	16°25' LT
880+46	S 06° 37' E	00°00' LT
880+49	S 06° 37' E	16°27' RT
883+02	S 09° 50' W	00°01' LT
884+27	S 09° 49' W	01°16' RT
885+66	S 11° 05' W	00°05' RT
886+84	S 11° 10' W	00°56' RT
886+96	S 12° 07' W	63°42' LT
Bck: 887+46	S 51° 36' E	
Ahd: 887+50 888+00	S 51° 36' E	-4.3 ft. 59°22' RT
888+76	S 07° 47' W	03°04' RT
888+88	S 10° 51' W	00°11' RT
	S 11° 02' W	

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 871+00 TO 887+02 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 887+85 TO 890+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 887+62 TO 890+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
887+74

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	4F 4D 9 1A
SOIL TYPE	MuD FaC GrC MyB (PAS)
LC/LU	GRASS / FORESTED / GRASS / PAVED / GRASS RESIDENTIAL / RESIDENTIAL / RESIDENTIAL / TRAVEL / RESIDENTIAL
STREAMS	
WETLANDS	
VERNAL POOLS	
SIGNIFICANT NATURAL COMMUNITIES	
RTE SPECIES	
NRC WILDLIFE HABITAT	
ARCHAEOLOGY SITES	

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-034	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID		CONSTRUCTION	
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
	INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
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YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-034 | REV. 1

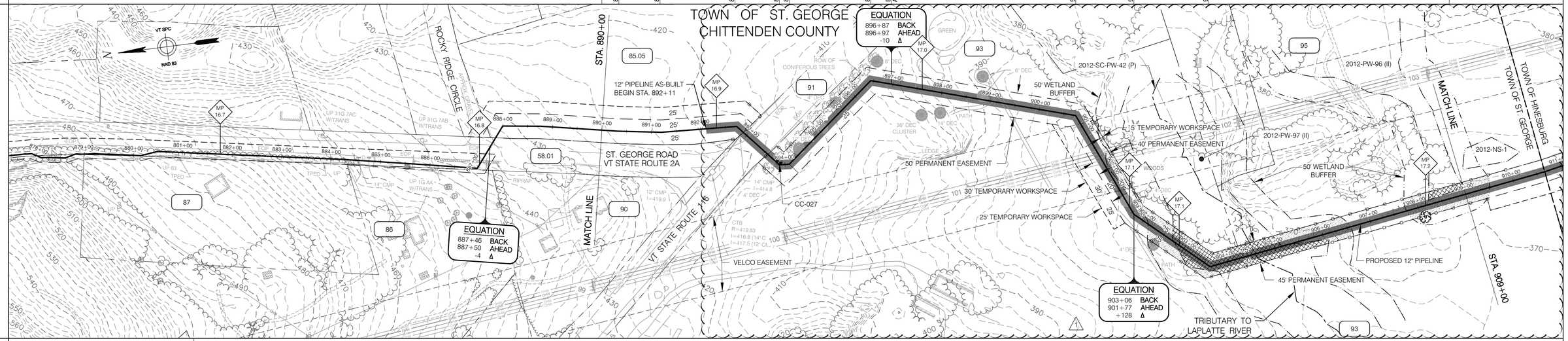
RIGHT-OF-WAY

MATCH LINE | 85.05 N/F BOVAT, CLYDE & MARY ANN | 58.01 ST. GEORGE ROAD VT STATE ROUTE 2A | 91 VT STATE ROUTE 116 | 93 N/F BURNETT, JENIFER M. & NORMAN L. | 95 N/F LAJOICE, SUZANNE | MATCH LINE

SURVEY DATA

890+34	891+21	892+73	893+89	894+09	895+44	BAK: 896+87 AHD: 896+97	900+74	901+77	903+64
S 11° 02' W	S 08° 48' W	S 02° 54' W	S 49° 13' W	S 04° 13' W	S 38° 20' E	S 17° 04' W	S 66° 49' W	S 41° 47' W	S 08° 26' E
02'13" LT	05'24" LT	46'19" RT	45'00" LT	42'34" LT	55'24" RT	-10 ft.	49'45" RT	25'31" LT	59'00" LT

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 890+00 TO 892+88 RT - 25' FROM NEW 12" PIPE ℄
STA. 890+00 TO 892+95 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 892+16 TO 892+88 RT - 25' FROM NEW 12" PIPE ℄
STA. 892+73 TO 892+95 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 893+54 TO 893+89 RT - 25' FROM NEW 12" PIPE ℄
STA. 893+89 TO 894+09 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 894+09 TO 900+30 RT - 25' FROM NEW 12" PIPE ℄
STA. 893+59 TO 909+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 893+54 TO 893+89 RT - 25' FROM NEW 12" PIPE ℄
STA. 893+59 TO 894+49 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 900+30 TO 901+77 RT - 50' FROM NEW 12" PIPE ℄
STA. 901+77 TO 903+64 RT - 25' FROM NEW 12" PIPE ℄
STA. 903+64 TO 909+00 RT - 20 FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 901+77 TO 903+64 RT - 25' FROM NEW 12" PIPE ℄
STA. 900+74 TO 909+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 903+64 TO 909+00 RT - 20' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 892+93 & 893+54

INSTALL MATTING:
STA. 902+55 TO 906+21

INSTALL MATTING:
STA. 908+37 TO 909+00

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1A	9	2A	1J	W 2A / W
SOIL TYPE	MyB (PAS)			MyB (PAS)	Cv (PAS)
LC/LU	PARKING LOT / LEISURE	GRASS / LEISURE	PAVED / ROAD	GRASS / LEISURE	FORESTED
STREAMS					STREAM 2012-SC-PW-42 (P) - STA. 904+67 TO 904+83
WETLANDS					WETLAND 2012-PW-97 - STA. 901+20 TO 906+70 CLASS II; WETLAND 2012-PW-96 - STA. 907+87 TO 909+00 CLASS II
VERNAL POOLS					
SIGNIFICANT NATURAL COMMUNITIES					
RTE SPECIES					
NRC WILDLIFE HABITAT					
ARCHAEOLOGY SITES					

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS				
ANGP-T-C-035	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-035 | REV. 1

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
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RIGHT–OF–WAY

MATCH LINE

95 N/F LAJOICE, SUZANNE

93 N/F BURNETT, NORMAN L. & JENIFER

TOWN OF ST. GEORGE / TOWN OF HINESBURG

96 N/F FORTIN, LIONEL & MARY

97 N/F GARVEY, LARRY

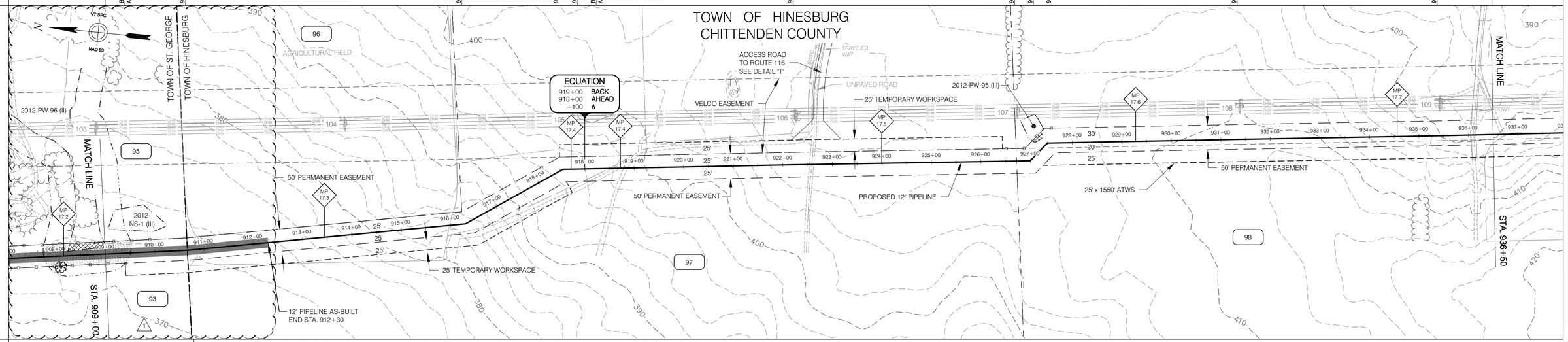
98 N/F LAFRENIERE, SISTER JOANNE T., TRUSTEE; LAFRENIERE FAMILY REVOCABLE TRUST

MATCH LINE

SURVEY DATA

39.4 ft.	00'00" RT	23'39" LT	28'04" RT	00'20" RT	110.8 ft.	00'10" RT	00'07" LT	44'56" LT	45'36" RT	00'03" RT	00'17" LT
S 27° 04' E	S 11° 25' E	S 11° 25' E	S 35° 05' E	S 07° 10' E	S 06° 58' E	S 06° 58' E	S 06° 47' E	S 06° 55' E	S 15° 15' E	S 06° 55' E	S 06° 52' E	S 07° 09' E
Bc: 909+97 Ahd: 909+57 15°58' RT	910+80	916+41	918+67	918+89	Bc: 919+11 Ahd: 918+00	922+29	926+76	927+00	927+49	931+41	936+45	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 909+00 TO 909+39 RT - 25' FROM NEW 12" PIPE ℄
STA. 909+00 TO 918+67 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 909+39 TO 918+60 RT - 50' FROM NEW 12" PIPE ℄
STA. 918+67 TO 926+44 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 918+60 TO 927+11 RT - 25' FROM NEW 12" PIPE ℄
STA. 926+44 TO 927+49 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 927+11 TO 936+50 RT - 45' FROM NEW 12" PIPE ℄
STA. 927+49 TO 936+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 909+00 TO 909+40 RT - 25' FROM NEW 12" PIPE ℄
STA. 909+00 TO 910+02 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 909+40 TO 909+65 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 926+44 TO 927+49 LT - 25' FROM NEW 12" PIPE ℄
STA. 927+49 TO 927+91 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 909+00 TO 909+15

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 922+68

INSTALL MATTING:
STA. 927+29 TO 927+49

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	2A	1E			1A			2A	W	2D		
SOIL TYPE	CV (PAS)		VeB (PAS)					CV (PAS)		VeB (PAS)		VeC (PAS)
LC/LU	PASTURE											
	LEISURE	AGRICULTURE	RESIDENTIAL	AGRICULTURE					AGRICULTURE			
STREAMS												
WETLANDS	WETLAND 2012-PW-96 - STA. 909+00 TO 909+52 CLASS II								WETLAND 2012-PW-95 - STA. 927+29 TO 927+49 CLASS III			
VERNAL POOLS												
SIGNIFICANT NATURAL COMMUNITIES												
RTE SPECIES												
NRC WILDLIFE HABITAT												
ARCHAEOLOGY SITES												

MATCH LINE (left) — MATCH LINE (right)

Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP–T–G–07–010	ACCESS ROAD DETAILS				
ANGP–T–C–036	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

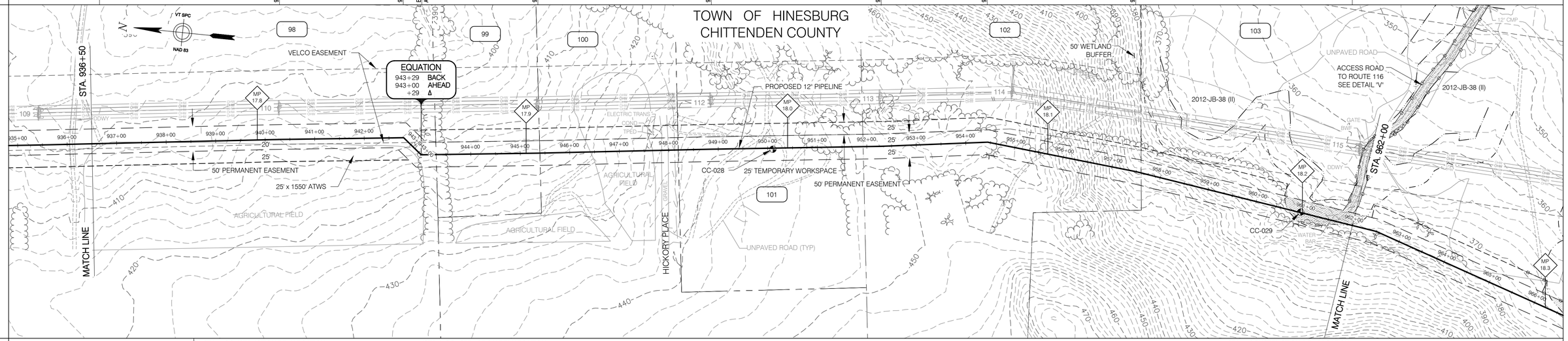
Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP–EPSC–036 | REV. 1

RIGHT–OF–WAY								
	MATCH LINE	98 N/F LAFRENIERE, JOANNE T.	99 N/F LUMBRA, LINDA P.	100 N/F PRENGLER, HERSCHEL	101 N/F DATTILIO, DANA & KIMBERLY	102 N/F LAVALETTE, BERNARD & EI	103 N/F BALLARD, TIMOTHY & KAY	MATCH LINE
SURVEY DATA		S 07° 09' E · 00°31' RT · S 06° 38' E · 45°00' RT · S 38° 22' W · 29.1 Ft. · S 06° 38' E · 00°30' LT · S 07° 08' E · 00°21' RT · S 06° 47' E · 01°15' LT · S 08° 03' E · 13°26' RT · S 05° 24' W · 00°45' RT · S 08° 09' W						
		940+30 · 942+80 · Beg. 943+29 Arc. 944+00 · 945+37 · 948+87 · 952+30 · 954+44 · 957+90						

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 936+50 TO 942+75 RT - 45' FROM NEW 12" PIPE ℄
STA. 942+75 TO 943+18 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 936+50 TO 942+75 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 943+18 TO 962+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 942+75 TO 943+00 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 943+00 TO 960+53 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 960+53 TO 962+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 957+83 TO 960+53 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 960+53 TO 962+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 947+92

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 961+85

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	2D	1A	11	1A		2A
SOIL TYPE	VeC (PAS)	Cv (PAS)		FaC	FaE	SxC	MuD
LC/LU	PASTURE		UNPAVED	PASTURE	FORESTED		
	AGRICULTURE	RESIDENTIAL	NOT CLASSIFIED	TRAVEL	RESIDENTIAL	RESIDENTIAL	AGRICULTURE
STREAMS							
WETLANDS					WETLAND 2012-JB-38 - STA. 958+33 TO 958+94 CLASS II		WETLAND 2012-JB-38 - STA. 960+53 TO 962+00 CLASS II
VERNAL POOLS							
SIGNIFICANT NATURAL COMMUNITIES							
RTE SPECIES							
NRC WILDLIFE HABITAT							
ARCHAEOLOGY SITES							

MATCH LINE

Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP–T–G–07–010	ACCESS ROAD DETAILS				
ANGP–T–C–037	ALIGNMENT SHEET				

		BID		CONSTRUCTION	
	INITIALS	DATE		INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13		JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13		GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13		BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13		GEW	05/2016
DESIGN MANAGER	SAB	06/28/13		JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016	W.O.	SCALE: 1" = 100'	DWG. ANGP–EPSC–037	REV. 0

RIGHT–OF–WAY

MATCH LINE

103
N/F
BALLARD, TIMOTHY

104
N/F
TOWN OF HINESBURG

MATCH LINE

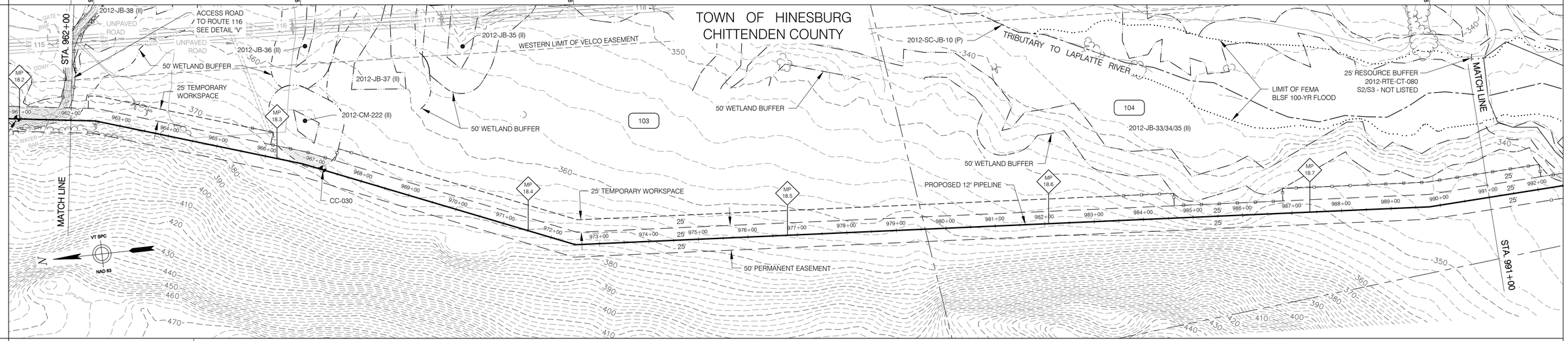
SURVEY DATA

10°12' RT | 04°48' RT | 19°02' LT | 05°28' LT

S 08° 09' W | S 18° 22' W | S 23° 11' W | S 04° 08' W | S 02° 19' E

962+50 | 965+76 | 972+51 | 989+78

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 962+00 TO 991+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 962+00 TO 962+34 LT - 25' FROM NEW 12" PIPE ℄
STA. 962+34 TO 966+06 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 962+00 TO 962+34 LT - 25' FROM NEW 12" PIPE ℄
STA. 962+34 TO 962+75 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 966+06 TO 967+37 LT - 25' FROM NEW 12" PIPE ℄
STA. 967+37 TO 984+63 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 965+55 TO 966+06 LT - 50' FROM NEW 12" PIPE ℄
STA. 966+06 TO 967+37 LT - 25' FROM NEW 12" PIPE ℄
STA. 967+37 TO 967+98 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 984+63 TO 986+83 LT - 25' FROM NEW 12" PIPE ℄
STA. 986+83 TO 991+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 983+21 TO 984+63 LT - 50' FROM NEW 12" PIPE ℄
STA. 984+63 TO 986+83 LT - 25' FROM NEW 12" PIPE ℄
STA. 986+83 TO 991+00 LT - 50' FROM NEW 12" PIPE ℄

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	2A	1A	2A	1A		2A	1A
SOIL TYPE	MuD	MuD	MuD	MuD	SxE	Cv (PAS)	EwB (PAS)
LC/LU	FORESTED	PASTURE					
	AGRICULTURE					LEISURE	
STREAMS							
WETLANDS	WETLAND 2012-JB-38 - STA. 962+00 TO 962+24 CLASS II		WETLAND 2012-CM-222 - STA 966+22 TO 967+32 CLASS II				
VERNAL POOLS							
SIGNIFICANT NATURAL COMMUNITIES							
RTE SPECIES							
NRC WILDLIFE HABITAT							
ARCHAEOLOGY SITES							

MATCH LINE

MATCH LINE

Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP–T–C–038	ALIGNMENT SHEET				

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP–EPSC–038 | REV. 0

RIGHT-OF-WAY

MATCH LINE

104
N/F
TOWN OF HINESBURG

105
SHELBURNE FALLS ROAD

105.01
N/F
NOONAN, ROBERT C. & MICHAEL L.

106
N/F
FORTIN, MICHAEL A. & LINDA N.

107
N/F
HAYSTACK CROSSING LLC

MATCH LINE

SURVEY DATA

S 02° 19' E

1010+20 — 39°43' LT

S 41° 24' E

1013+21 — 00°00' RT

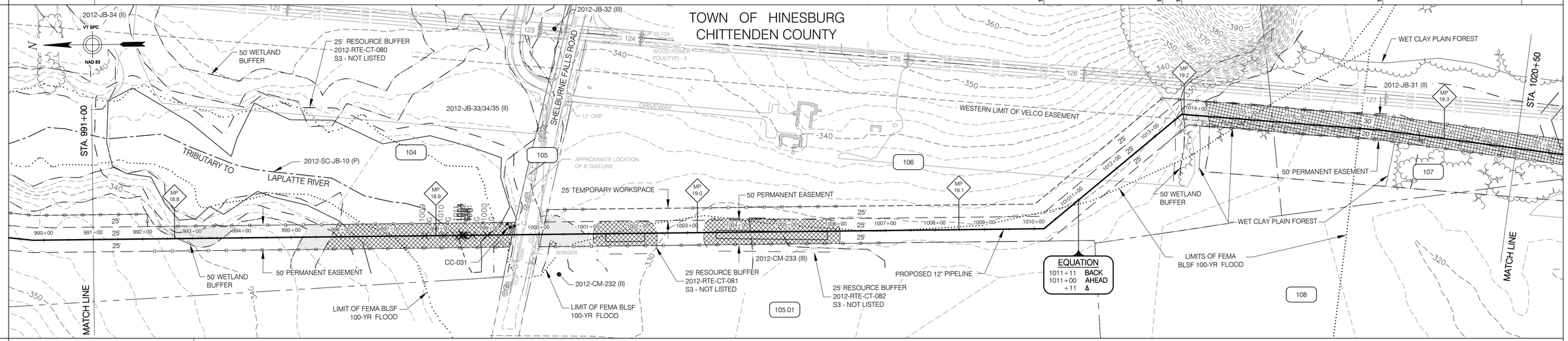
1013+71 — 44°18' RT — S 41° 24' E

S 02° 54' W

1017+79 — 03°04' RT

S 05° 59' W

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 991+00 TO 999+41 RT - 25' FROM NEW 12" PIPE ℄
STA. 991+00 TO 992+10 LT - 50' FROM NEW 12" PIPE ℄
STA. 992+10 TO 999+53 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 992+07 TO 999+41 RT - 25' FROM NEW 12" PIPE ℄
STA. 991+00 TO 992+10 LT - 50' FROM NEW 12" PIPE ℄
STA. 992+10 TO 999+53 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 995+66 TO 999+53 & STA. 1000+21 TO 1000+36

INSTALL CONSTRUCTION DEMARCATION:
STA. 1000+00 TO 1013+86 RT - 25' FROM NEW 12" PIPE ℄
STA. 1000+18 TO 1013+63 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1000+00 TO 1007+34 RT - 25' FROM NEW 12" PIPE ℄
STA. 1000+18 TO 1001+12 LT - 50' FROM NEW 12" PIPE ℄
STA. 1002+98 TO 1006+38 LT - 50' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 999+47 & 1000+06

INSTALL MATTING:
STA. 1001+11 TO 1002+57

INSTALL MATTING:
STA. 1003+32 TO 1006+09

INSTALL CONSTRUCTION DEMARCATION:
STA. 1013+86 TO 1020+50 RT - 20' FROM NEW 12" PIPE ℄
STA. 1013+63 TO 1013+71 LT - WIDTH VARIES' FROM NEW 12" PIPE ℄
STA. 1013+71 TO 1020+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1013+08 TO 1013+86 RT - 25' FROM NEW 12" PIPE ℄
STA. 1013+86 TO 1020+50 RT - 20' FROM NEW 12" PIPE ℄
STA. 1013+47 TO 1013+71 LT - WIDTH VARIES' FROM NEW 12" PIPE ℄
STA. 1013+71 TO 1020+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1014+04 TO 1020+50

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE: 1A — 2A — W — 7 — 9 — W — 1A — W 2D

SOIL TYPE: EwB (PAS) — Cv (PAS) — Le (PAS) — VeB (PAS) — Lf — FaE — Lf

LC/LU: PASTURE / LEISURE — PAVED / TRAVEL — PASTURE / RESIDENTIAL — AGRICULTURE

STREAMS: STREAM 2012-SC-JB-10 (P) - STATION 998+04 TO 998+44

WETLANDS:
WETLAND 2012-JB-33/34/35 - STATION 992+26 TO 993+92 CLASS II
WETLAND 2012-JB-33/34/35 - STATION 995+09 TO 999+53 CLASS II
WETLAND 2012-CM-232 - STATION 1000+00 TO 1001+04 CLASS II
WETLAND 2012-CM-233 - STATION 1004+30 TO 1005+02 CLASS III
WETLAND 2012-JB-31 - STATION 1013+62 TO 1020+50 CLASS II

MATCH LINE

VERNAL POOLS

SIGNIFICANT NATURAL COMMUNITIES: WET CLAY PLAIN FOREST

RTE SPECIES: 2012-RTE-CT-080 — 2012-RTE-CT-080 — 2012-RTE-CT-081 — 2012-RTE-CT-082

NRC WILDLIFE HABITAT

ARCHAEOLOGY SITES

MATCH LINE

			BID		CONSTRUCTION	
		ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
		DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
		DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
		DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-039	ALIGNMENT SHEET	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
DWG. NO.	REFERENCE DWG.		INITIALS	DATE	INITIALS	DATE

REV DSN CK DESCRIPTION

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

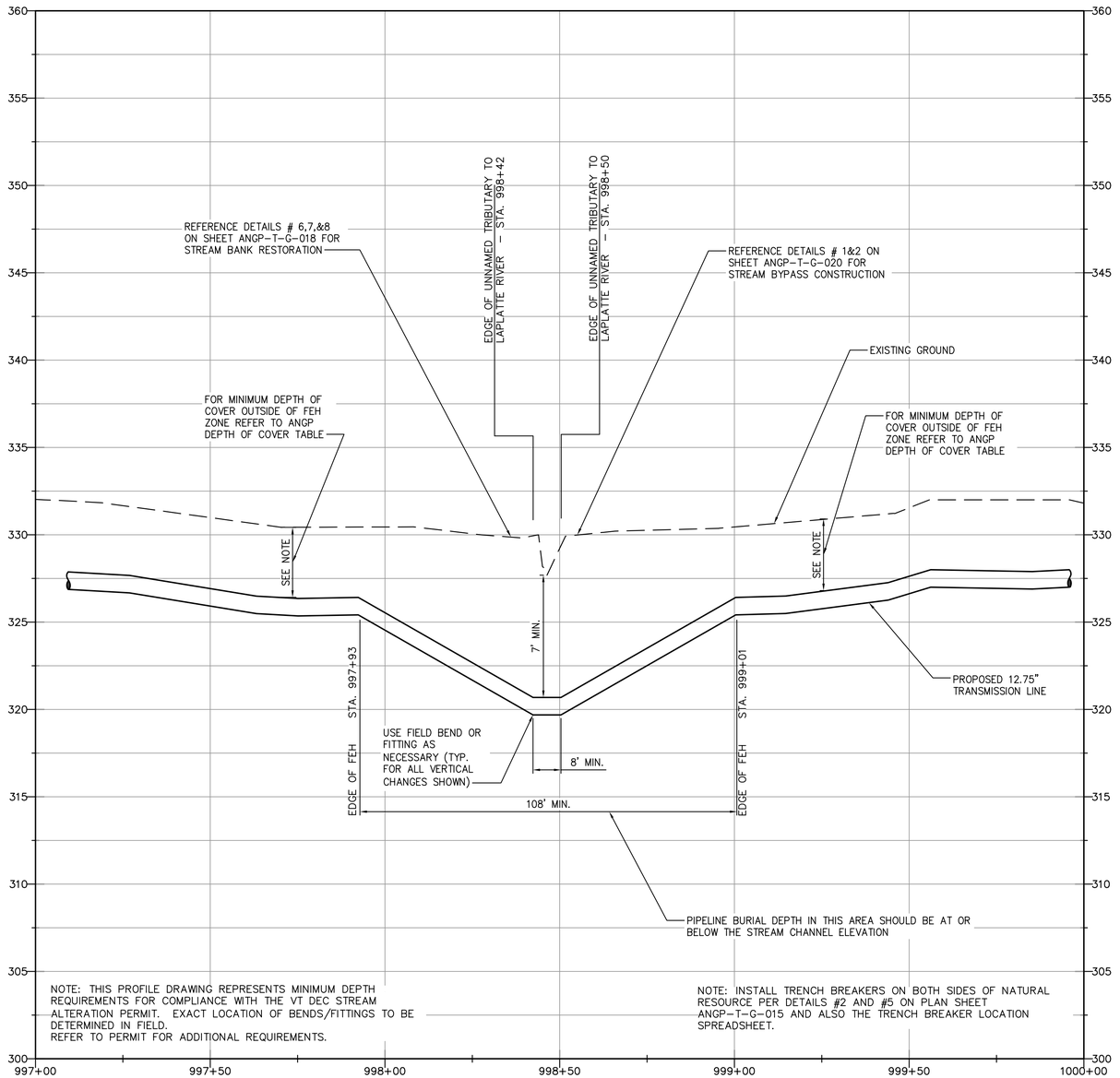
Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016	W.O.	SCALE: 1" = 100'	DWG. ANGP-EPSC-039	REV. 0

PROFILE



STREAM CROSSING PROFILE
UNNAMED TRIBUTARY TO
LAPLATTE RIVER
STATION 998+46±
MILE POST 18.91

SCALE: HORIZ. 1"=20'
VERT. 1"=4'

NOTE: STREAM CROSSING MUST BE CONSTRUCTED BETWEEN JUNE 1 AND OCTOBER 1

HORIZONTAL SCALE
20 10 0 20 40 60 feet
4 2 0 4 8 12 feet
VERTICAL SCALE

STATE OF VERMONT
JEFFREY E. HOLCOMBE
NO. 97764
CIVIL
LICENSED PROFESSIONAL ENGINEER

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
						ENVIRONMENTAL		JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER		GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR		BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER		MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER		SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
OPEN TRENCH STREAM CROSSING PROFILE
LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: AS NOTED | DWG. ANGP-T-C-039A | REV. 0

RIGHT-OF-WAY

MATCH LINE

107
N/F
HAYSTACK CROSSING LLC

108
N/F
CLARK, GARY C.

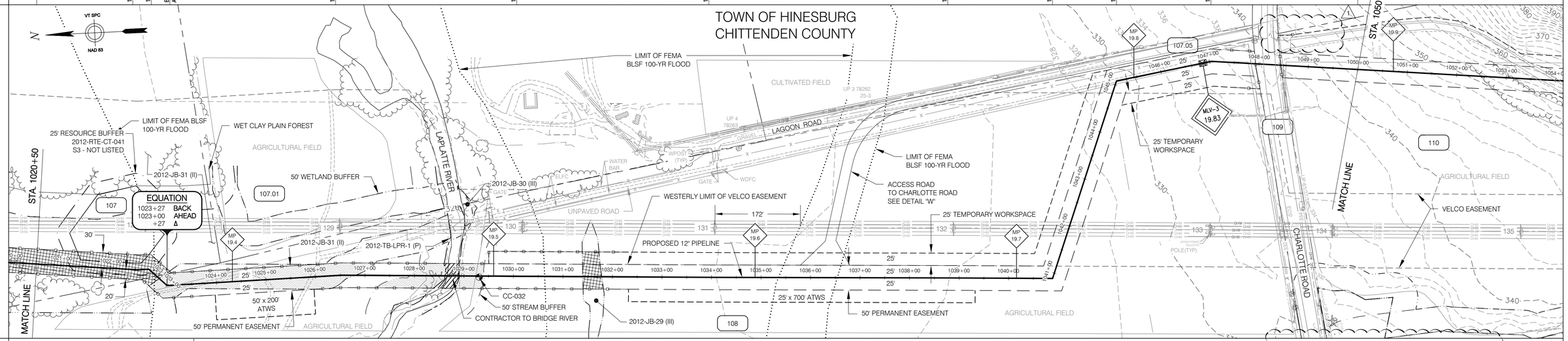
109
CHAR-
LOTTE
ROAD

MATCH LINE

SURVEY DATA

S 05° 59' W | 08°37' LT | 10221+56 | S 00° 39' E | 44°59' RT | 10221+77 | S 44° 21' W | 26.5 ft. Bk: 1023+27 Ahd: 1023+00 45°00' LT | S 00° 39' E | 03°40' RT | 10226+53 | S 03° 01' W | 00°00' RT | 10230+19 | S 03° 02' W | 00°10' LT | 10234+07 | S 02° 51' W | 00°08' RT | 10238+89 | S 03° 00' W | 72°23' LT | 10240+89 | S 69° 22' E | 60°25' RT | 10245+08 | S 08° 57' E | 14°51' RT | 10247+04 | S 05° 53' W

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1020+50 TO 1022+62 RT - 20' FROM NEW 12" PIPE ℄
STA. 1020+50 TO 1022+77 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1020+50 TO 1022+62 RT - 20' FROM NEW 12" PIPE ℄
STA. 1020+50 TO 1022+77 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1020+50 TO 1023+01

INSTALL CONSTRUCTION DEMARCATION:
STA. 1022+62 TO 1023+96 RT - 25' FROM NEW 12" PIPE ℄
STA. 1023+96 TO 1025+96 RT - 75' FROM NEW 12" PIPE ℄
STA. 1025+96 TO 1032+33 RT - 25' FROM NEW 12" PIPE ℄
STA. 1022+77 TO 1029+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1022+62 TO 1023+96 RT - 25' FROM NEW 12" PIPE ℄
STA. 1025+96 TO 1028+39 RT - 25' FROM NEW 12" PIPE ℄
STA. 1022+77 TO 1028+60 LT - 25' FROM NEW 12" PIPE ℄
STA. 1028+91 TO 1029+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1029+50 TO 1045+08 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1028+83 TO 1032+33 RT - 25' FROM NEW 12" PIPE ℄
STA. 1029+50 TO 1032+23 LT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1031+39 TO 1031+82

INSTALL CONSTRUCTION DEMARCATION:
STA. 1032+33 TO 1039+33 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1029+27 TO 1029+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1036+30

INSTALL CONSTRUCTION DEMARCATION:
STA. 1039+33 TO 1044+65 RT - 25' FROM NEW 12" PIPE ℄
STA. 1044+65 TO 1047+93 RT - 50' FROM NEW 12" PIPE ℄
STA. 1045+08 TO 1047+93 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1047+35 TO 1047+93 RT - 50' FROM NEW 12" PIPE ℄
STA. 1047+35 TO 1047+93 LT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1047+93 & 1048+44

INSTALL CONSTRUCTION DEMARCATION:
STA. 1048+44 TO 1050+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 1048+44 TO 1050+00 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1048+44 TO 1048+95 RT - 25' FROM NEW 12" PIPE ℄
STA. 1048+44 TO 1048+95 LT - WIDTH VARIES' FROM NEW 12" PIPE ℄

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	2D	W	2A	8	W	1A	1E	9	1A														
SOIL TYPE	Lf	Lf	Wo (PAS)	Le (PAS)	Wo (PAS)	Le (PAS)	Cv (PAS)																
LC/LU	AGRICULTURE		PASTURE	PASTURE		OPEN WATER	AGRICULTURE	PASTURE		PAVED TRAVEL	PASTURE AGRICULTURE												
STREAMS				STREAM 2012-TB-LPR-1 (P) - STATION 1027+24 TO 1029+44																			
WETLANDS			WETLAND 2012-JB-31 - STATION 1020+50 TO 1027+21 CLASS II					WETLAND 2012-JB-29 - STATION 1031+39 TO 1031+82 CLASS III															
VERNAL POOLS																							
SIGNIFICANT NATURAL COMMUNITIES																							
RTE SPECIES	2012-RTE-CT-041																						
NRC WILDLIFE HABITAT																							
ARCHAEOLOGY SITES																							

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS				
ANGP-T-G-021	STATION AND VALVE DETAILS				
ANGP-T-C-040	ALIGNMENT SHEET	1	BCK	TDB	VHB EDITS (6/09/15)

		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-040 | REV. 1

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCH LINE

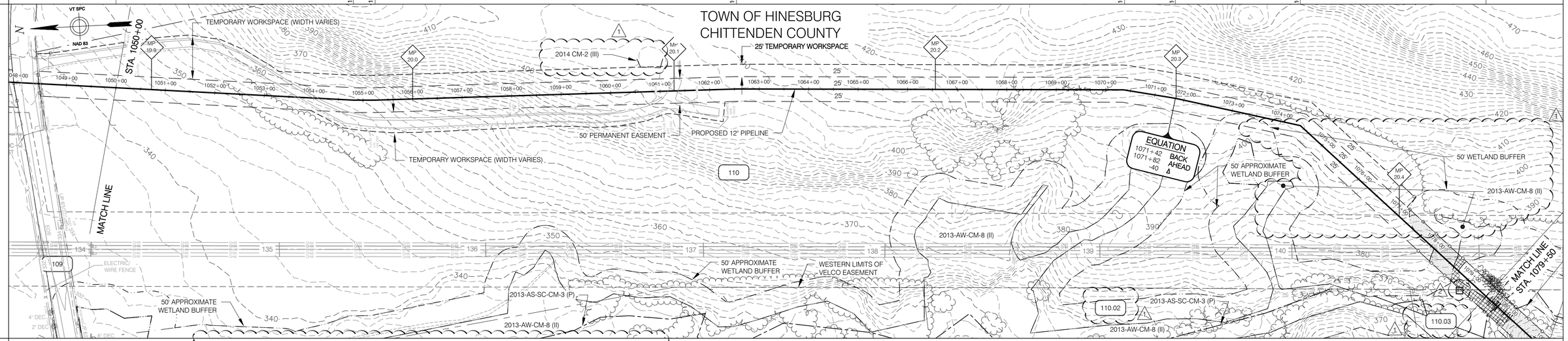
110
N/F
CARSE, DAVID

MATCH LINE

SURVEY DATA

S 05° 53' W	2°58' LT / S 02° 55' W / 1°46' LT	S 01° 09' W	1°53' RT	S 03° 02' W	6°10' RT	S 12° 11' W	3°00' RT	S 15° 11' W	30°17' RT	S 45° 28' W
1054+80	1054+24	1062+54			1070+36	1071+82			1074+41	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1050+00 TO 1054+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 1054+00 TO 1062+30 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1062+30 TO 1079+50 RT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1050+00 TO 1053+25 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1053+25 TO 1077+10 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1077+10 TO 1079+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1077+68 TO 1079+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 1076+61 TO 1077+10 LT - 50' FROM NEW 12" PIPE ℄
STA. 1077+10 TO 1079+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1078+60 TO 1079+50

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1A									2A	W
SOIL TYPE	Cv	Le (PAS)	VeC (PAS)	FaE (PAS)	VeE	VeB	FaC	VeC (PAS)	FaE	VeE (PAS)	
LC/LU	FORESTED			GRASS			FORESTED				
	AGRICULTURE										
STREAMS											
WETLANDS										WETLAND 2013-AW-CM-8 - STATION 1077+18 TO 1079+50 CLASS II	
VERNAL POOLS											
SIGNIFICANT NATURAL COMMUNITIES											
RTE SPECIES											
NRC WILDLIFE HABITAT											
ARCHAEOLOGY SITES											

MATCH LINE

MATCH LINE

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
							DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-G-021	STATION AND VALVE DETAILS	2	GJM	BCK		IFC 2016 EDITS (05/2016)	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-041	ALIGNMENT SHEET	1	BCK	TDB		ENV. EDITS (6/08/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

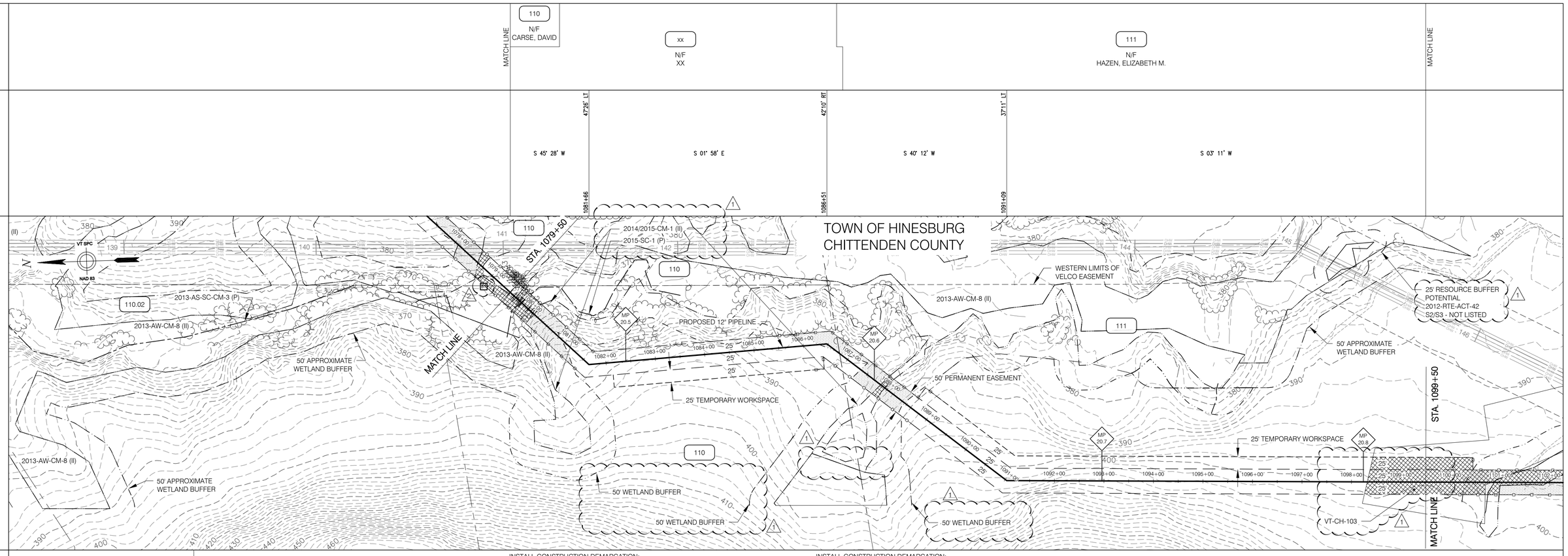
YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-041 | REV. 2

RIGHT-OF-WAY

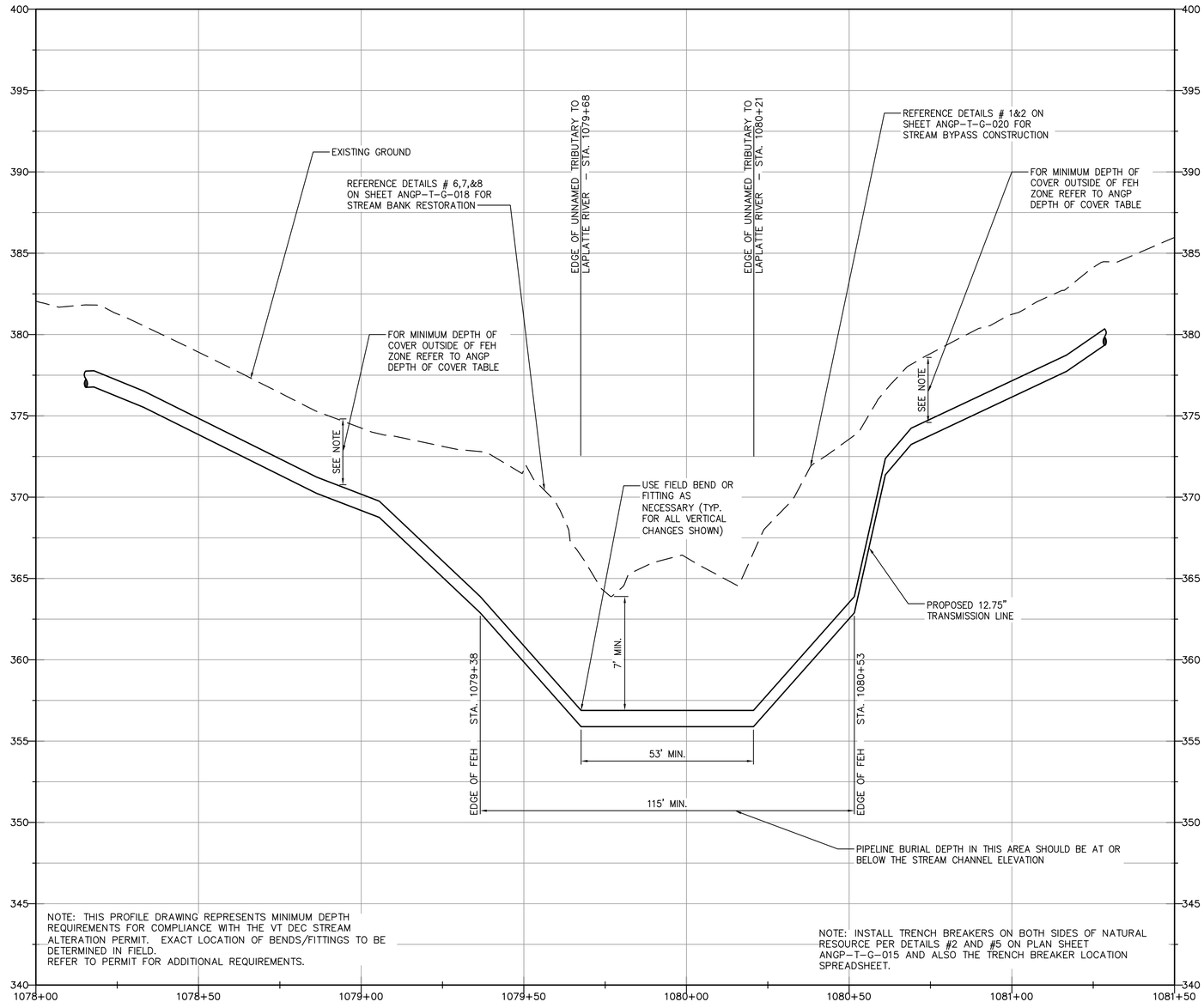
SURVEY DATA

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL


110
N/F
CARSE, DAVID
MATCH LINE
xx
N/F
XX
111
N/F
HAZEN, ELIZABETH M.
MATCH LINE
S 45° 28" W
47'26" LT
S 01° 58" E
42'10" RT
S 40° 12" W
37'11" LT
S 03° 11" W
1081+66
1086+51
1091+09
TOWN OF HINESBURG
CHITTENDEN COUNTY
STA. 1079+50
STA. 1099+50
MATCH LINE
MATCH LINE
110
110.02
111
2014/2015-CM-1 (II)
2015-SC-1 (P)
2013-AS-SC-CM-3 (P)
2013-AW-CM-8 (II)
2013-AW-CM-8 (II)
2013-AW-CM-8 (II)
2013-AW-CM-8 (II)
PROPOSED 12" PIPELINE
WESTERN LIMITS OF VELCO EASEMENT
25' RESOURCE BUFFER POTENTIAL 2012-RTE-ACT-42 S2/S3 - NOT LISTED
50' APPROXIMATE WETLAND BUFFER
50' APPROXIMATE WETLAND BUFFER
50' APPROXIMATE WETLAND BUFFER
50' PERMANENT EASEMENT
25' TEMPORARY WORKSPACE
25' TEMPORARY WORKSPACE
50' WETLAND BUFFER
50' WETLAND BUFFER
50' WETLAND BUFFER
VT-CH-103
MP 20.5
MP 20.6
MP 20.7
MP 20.8
1082+00
1083+00
1084+00
1085+00
1086+00
1087+00
1088+00
1089+00
1090+00
1091+00
1092+00
1093+00
1094+00
1095+00
1096+00
1097+00
1098+00
1099+00
1100+00
1101+00
1102+00
1103+00
1104+00
1105+00
1106+00
1107+00
1108+00
1109+00
1110+00
1111+00
1112+00
1113+00
1114+00
1115+00
1116+00
1117+00
1118+00
1119+00
1120+00
1121+00

PROFILE



STREAM CROSSING PROFILE
UNNAMED TRIBUTARY TO LAPLATTE RIVER
STATION 1079+97±
MILE POST 20.45

SCALE: HORIZ. 1"=20'
VERT. 1"=4'

NOTE: STREAM CROSSING MUST BE CONSTRUCTED BETWEEN JULY 1 AND OCTOBER 1

HORIZONTAL SCALE
20 10 0 20 40 60 feet
4 2 0 4 8 12 feet
VERTICAL SCALE

STATE OF VERMONT
MICHAEL E. HOLLOWAY
NO. 97764
CIVIL
LICENSED PROFESSIONAL ENGINEER

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
OPEN TRENCH STREAM CROSSING PROFILE
LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: AS NOTED | DWG. ANGP-T-C-042A | REV. 0

RIGHT-OF-WAY

MATCH LINE

111 N/F HAZEN, ELIZABETH M.

112 N/F CARSE LAND COMPANY, LLC

113 N/F LAVALLEE, RONALD & CONSTANCE

114 BALDWIN ROAD

116 N/F THIBAULT FARM PROPERTIES, LLC

MATCH LINE

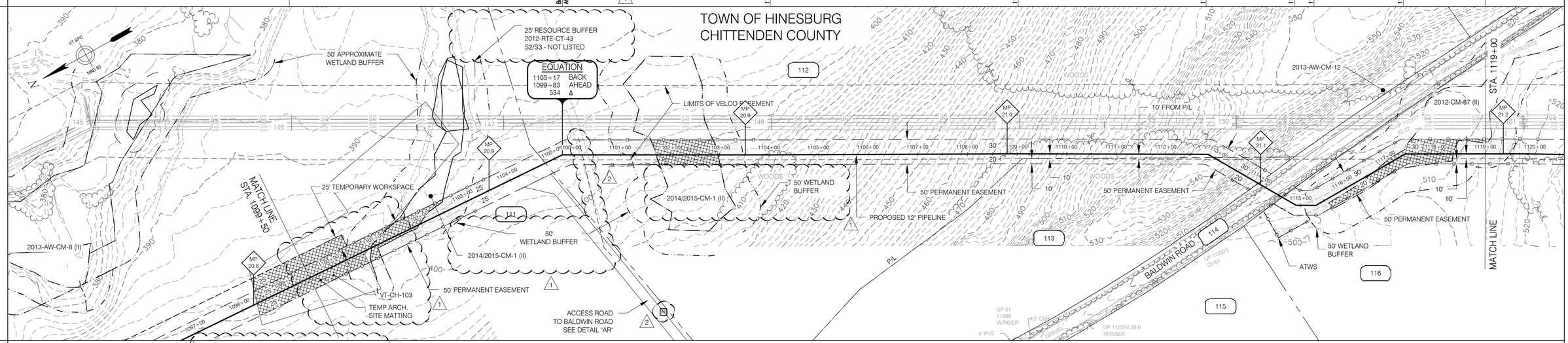
SURVEY DATA

S 03° 11' W | 534' Rt. | S 29° 09' W | 00°14' Lt. | S 28° 54' W | 00°22' Rt. | S 29° 17' W | 29°58' Rt. | S 59° 16' W | 29°59' Lt. | 30°00' Lt. | S 29° 16' W | S 00° 44' E | 29°46' Rt. | S 29° 02' W

Back: 1105+17
Ahead: 1099+83
25°59' Rt

1104+06 | 1109+06 | 1112+85 | 1114+90 | 1115+30 | 1117+38

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1099+50 TO 1105+17 RT - 25' FROM NEW 12" PIPE ℄
STA. 1099+50 TO 1105+17 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1099+83 TO 1113+93 RT - 20' FROM NEW 12" PIPE ℄
STA. 1099+83 TO 1114+15 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1114+49 TO 1115+13 RT WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1115+13 TO 1119+00 RT - 20' FROM NEW 12" PIPE ℄
STA. 1114+71 TO 1119+00 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1099+75 TO 1103+29 RT - 25' FROM NEW 12" PIPE ℄
STA. 1100+02 TO 1100+45 LT - 50' FROM NEW 12" PIPE ℄
STA. 1100+45 TO 1103+25 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1100+76 TO 1104+06 RT - 20' FROM NEW 12" PIPE ℄
STA. 1100+30 TO 1103+92 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1113+43 TO 1113+93 RT - 20' FROM NEW 12" PIPE ℄
STA. 1113+65 TO 1114+15 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1114+49 TO 1119+00 RT - 20' FROM NEW 12" PIPE ℄
STA. 1114+71 TO 1119+00 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1099+50 TO 1102+60

INSTALL MATTING:
STA. 1101+61 TO 1103+01

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1114+02 & 1114+58

INSTALL MATTING:
STA. 1115+55 TO 1119+00

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1A	A	W	2A	W	2D	9	W	2D						
SOIL TYPE	Cv (PAS)	VeB (PAS)	Cv (PAS)	SuD	SuC (PAS)	FaC	FaE	MnC	GeB (PAS)						
LC/LU	AGRICULTURE	GRASS	NOT CLASSIFIED	RESIDENTIAL	UNPAVED TRAVEL	GRASS	RESIDENTIAL								
STREAMS															
WETLANDS	WETLAND 2014/2015-CM-1 (II) STATION 1100+25 TO 1103+25 CLASS II	WETLAND 2014/2015-CM-1 (II) STATION 1100+80 TO 1103+52 CLASS II	WETLAND 2012-CM-87 - STATION 1115+07 TO 1119+00 CLASS II												
VERNAL POOLS															
SIGNIFICANT NATURAL COMMUNITIES															
RTE SPECIES															
NRC WILDLIFE HABITAT															
ARCHAEOLOGY SITES	VT-CH-103 STATION 1099+50 TO 1095+77														

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-007-010	ACCESS ROAD DETAILS	2	GJM	BCK	IFC 2016 EDITS (05/2016)
ANGP-T-C-043	ALIGNMENT SHEET	1	BCK	TDB	ADDED ARCH. SITE AND ENV. EDITS (6/08/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-043 | REV. 2

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 • www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

116
N/F
THIBAULT FARM PROPERTIES, LLC

117
N/F
BALDWIN-HAULENBEEK, ANDREA;
DONELLY-HAULENBEEK, FREDERICK

MATCHLINE

SURVEY DATA

Station	Bearing	Deflection
1119+76	S 29° 02' W	01°11' RT
	S 30° 14' W	
1123+00		22°30' RT
1123+51	S 52° 44' W	22°30' LT
1124+17	S 30° 14' W	27°34' LT
1112+97	S 2° 40' W	22°30' LT
1125+70	S 19° 50' E	22°30' RT
	S 02° 39' W	
1131+56		00°39' RT
	S 03° 19' W	
1135+94		00°02' RT
	S 03° 21' W	

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	- - - - - -
CENTERLINE OF STREAM	—— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	
50' WETLAND BUFFER	— · — · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—○—○—○—

INSTALL CONSTRUCTION DEMARCATION:
STA. 1119+00 TO 1140+50 RT - 20' FROM NEW 12" PIPE ℄
STA. 1119+00 TO 1140+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1119+00 TO 1119+76 RT - 20' FROM NEW 12" PIPE ℄
STA. 1119+00 TO 1120+12 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1127+11 TO 1130+14 RT - 20' FROM NEW 12" PIPE ℄
STA. 1127+46 TO 1129+28 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1128+23 TO 1128+64

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

CONST. TYPE	(2D)
SOIL TYPE	MnC GeB (PAS) FaE FaC FaE SuB (PAS) GeB (PAS) SuD SuB
LC/LU	GRASS RESIDENTIAL AGRICULTURAL
STREAMS	
WETLANDS	WETLAND 2012-CM-87 - STATION 1119+00 TO 1119+63 CLASS II WETLAND 2012-RS-20 - STATION 1127+61 TO 1129+64 CLASS II
VERNAL POOLS	
SIGNIFICANT NATURAL COMMUNITIES	
RTE SPECIES	
NRC WILDLIFE HABITAT	
ARCHAEOLOGY SITES	

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.
ANGP-T-C-044	ALIGNMENT SHEET

REV	DSN	CK	DESCRIPTION

	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-044 | REV. 0

RIGHT-OF-WAY

MATCHLINE

117
N/F
BALDWIN-HAULENBEEK, ANDREA;
DONELLY-HAULENBEEK, FREDERICK

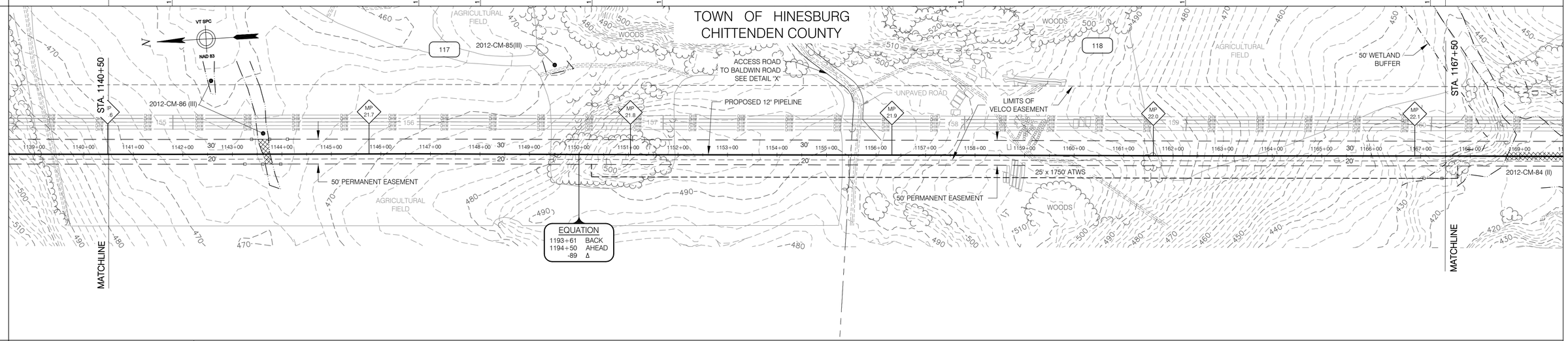
118
N/F
BALDWIN, DANIEL P.

MATCHLINE

SURVEY DATA

LT 00'10"	RT 81.00'	LT 00.00'	RT 00.00'	LT 90.00'	LT 00.00'	LT 69.00'	RT 00.00'
S 03° 21' W	S 03° 11' W	S 03° 29' W	S 03° 29' W	S 03° 29' W	S 03° 23' W	S 03° 28' W	S 03° 19' W	S 03° 26' W
1141+81	1146+79	1148+04	1150+29	1151+71	1157+79	1162+27	1167+22	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1140+50 TO 1150+25 RT - 20' FROM NEW 12" PIPE ℄
STA. 1140+50 TO 1167+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1150+25 TO 1167+50 RT - 45' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1143+16 TO 1144+31 RT - 20' FROM NEW 12" PIPE ℄
STA. 1143+02 TO 1144+23 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1166+61 TO 1167+50 RT - 45' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1143+52 TO 1143+81

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1155+63

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE		2D	
SOIL TYPE	SuD (PAS)	SuB (PAS)	MyB (PAS)	VeC (PAS)	FaC	VeB (PAS)	VeD
LC/LU	GRASS	FORESTED	GRASS AGRICULTURAL
STREAMS			
WETLANDS	WETLAND 2012-CM-86 - STATION 1143+52 TO 1143+81 CLASS III	WETLAND 2012-CM-84 - STATION 1167+11 TO 1167+50 CLASS II
VERNAL POOLS			
SIGNIFICANT NATURAL COMMUNITIES			
RTE SPECIES			
NRC WILDLIFE HABITAT			
ARCHAEOLOGY SITES			

MATCH LINE

MATCH LINE

Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS					
ANGP-T-C-045	ALIGNMENT SHEET					

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-045 | REV. 0

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

118
N/F
BALDWIN, DANIEL P.

119
DRINKWATER ROAD

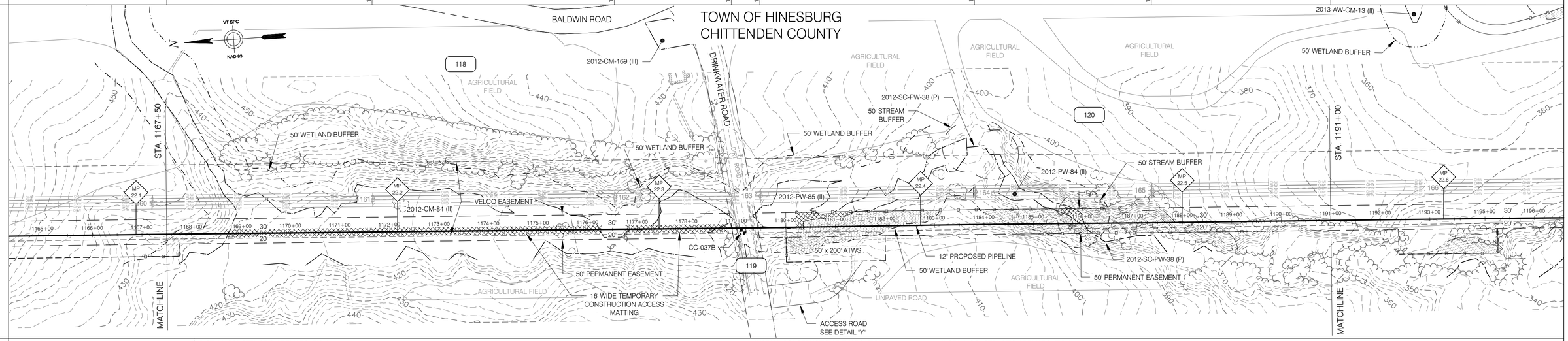
120
N/F
BALDWIN, MATTHEW T.

MATCH LINE

SURVEY DATA

LT .00'00	RT .00'00		LT .00'00	RT .00'00	LT .18'00	RT .00'20	LT .00'10	RT .00'00
S 03° 26' W	S 03° 26' W	S 03° 29' W	S 03° 29' W		S 03° 10' W	S 03° 30' W	S 03° 20' W	
1171+67	1176+56		1178+92	1179+50	1183+83		1187+40	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1167+50 TO 1167+75 RT - 45' FROM NEW 12" PIPE ℄
STA. 1167+50 TO 1178+86 LT - 30' FROM NEW 12" PIPE ℄
STA. 1167+75 TO 1178+94 RT - 20' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1167+50 TO 1167+75 RT - 45' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1179+46 TO 1180+00 RT - 20' FROM NEW 12" PIPE ℄
STA. 1179+38 TO 1191+00 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1180+00 TO 1182+00 RT - 70' FROM NEW 12" PIPE ℄
STA. 1182+00 TO 1191+00 RT - 20' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1180+00 TO 1180+32 RT - 70' FROM NEW 12" PIPE ℄
STA. 1180+00 TO 1186+95 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1184+99 TO 1189+40 RT - 20' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1168+70 TO 1176+28

INSTALL MATTING:
STA. 1176+76 TO 1178+83

INSTALL STABILIZED CONSTRUCTION ENTRACE:
STA. 1181+00

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	2D	8			2D	W	7	2D
SOIL TYPE	VeD, FaE	Lf		VeB (PAS)	VeD			VeB (PAS)
LC/LU	FORESTED / AGRICULTURAL			UNPAVED TRAVEL	FORESTED / AGRICULTURAL			
STREAMS					STREAM 2012-SC-PW-38 (P) - STATION 1185+97 TO 1188+90			
WETLANDS	WETLAND 2012-CM-84 - STATION 1167+50 TO 1179+00 CLASS II				WETLAND 2012-PW-85 - STATION 1179+33 TO 1183+12 CLASS II			WETLAND 2012-PW-84 - STATION 1183+92 TO 1186+50 CLASS II
VERNAL POOLS								
SIGNIFICANT NATURAL COMMUNITIES								
RTE SPECIES								
NRC WILDLIFE HABITAT								
ARCHAEOLOGY SITES								

MATCH LINE (left) — MATCH LINE (right)

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
					ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
					DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
					DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-G-07-010	ACCESS ROAD DETAILS				DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-046	ALIGNMENT SHEET				DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-046 | REV. 0

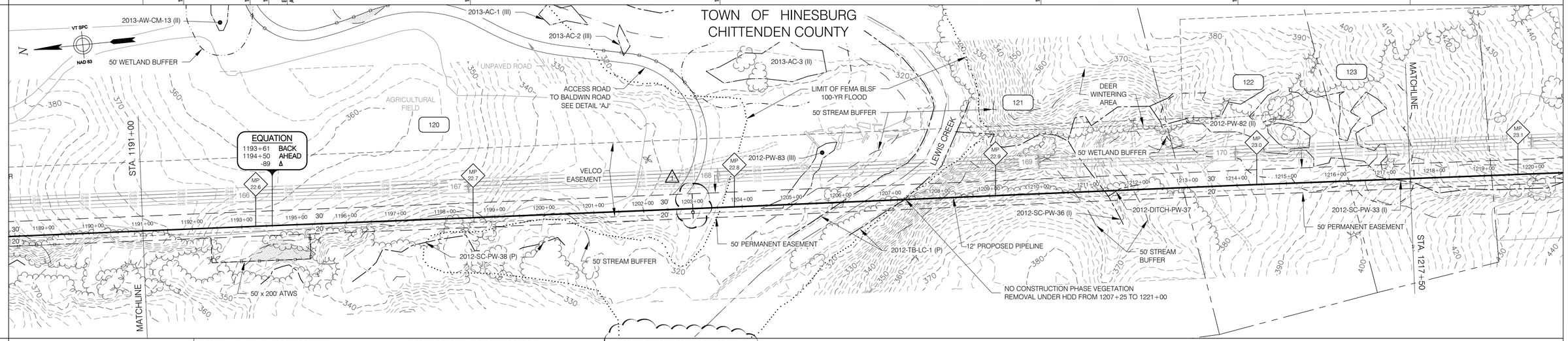
RIGHT-OF-WAY

MATCHLINE | 120 N/F BALDWIN, MATTHEW T. | 121 N/F BALDWIN, DANIEL P. | 122 N/F LAROCK, BRIAN | 123 N/F DAVIS, REBECCA L | MATCHLINE

SURVEY DATA

00'00" RT	S 03° 20' W	00'00" LT	S 03° 20' W	00'00" RT	S 03° 26' W	~88.7 ft.	S 03° 26' W	00'05" LT	S 03° 20' W	00'04" LT	S 03° 15' W	00'00" LT	S 03° 15' W	00'14" RT	S 03° 29' W
1191+81		1193+16		1193+31		Bck: 1193+61 Ahd: 1194+50		1198+49		1203+54		1210+03		1214+01	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1191+00 TO 1192+40 RT - 20' FROM NEW 12" PIPE ℄
STA. 1191+00 TO 1217+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1192+40 TO 1195+25 RT - 70' FROM NEW 12" PIPE ℄
STA. 1195+25 TO 1217+50 RT - 20' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1203+00

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1192+62 TO 1195+25 RT - 70' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1192+63

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE		2D		8	
SOIL TYPE		VeB (PAS); VeC (PAS); VeB; W; VeC (PAS); FaC			
LC/LU		GRASS AGRICULTURAL		RESIDENTIAL	UNCLASSIFIABLE
STREAMS		STREAM 2012-SC-PW-38 (P) - STATION 1194+59 TO 1198+99; STREAM 2012-SC-PW-38 (P) - STATION 1199+31 TO 1200+68; STREAM 2012-TB-LC-1 (P) - STATION 1204+70 TO 1208+42; STREAM 2012-SC-PW-36 (I) - STATION 1210+50 TO 1212+00			STREAM 2012-SC-PW-33 (I) - STATION 1216+60 TO 1217+50
WETLANDS	MATCH LINE	WETLAND 2012-PW-83 - STATION 1204+37 TO 1205+36 CLASS III		WETLAND 2012-PW-82 - STATION 1214+22 TO 1217+50 CLASS II	MATCH LINE
VERNAL POOLS					
SIGNIFICANT NATURAL COMMUNITIES					
RTE SPECIES					
NRC WILDLIFE HABITAT					
ARCHAEOLOGY SITES					

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS				
ANGP-T-C-047	ALIGNMENT SHEET	1	GJM	TDB	VHB HDD AREA REVISIONS (6/24/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-047 | REV. 1

Vermont Gas

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RIGHT-OF-WAY

MATCHLINE

123 N/F DAVIS, REBECCA L.

124 N/F AMES, MARK A.

125 N/F MCCAY, CAROLE H.

126 N/F MENEILLEY, JILL

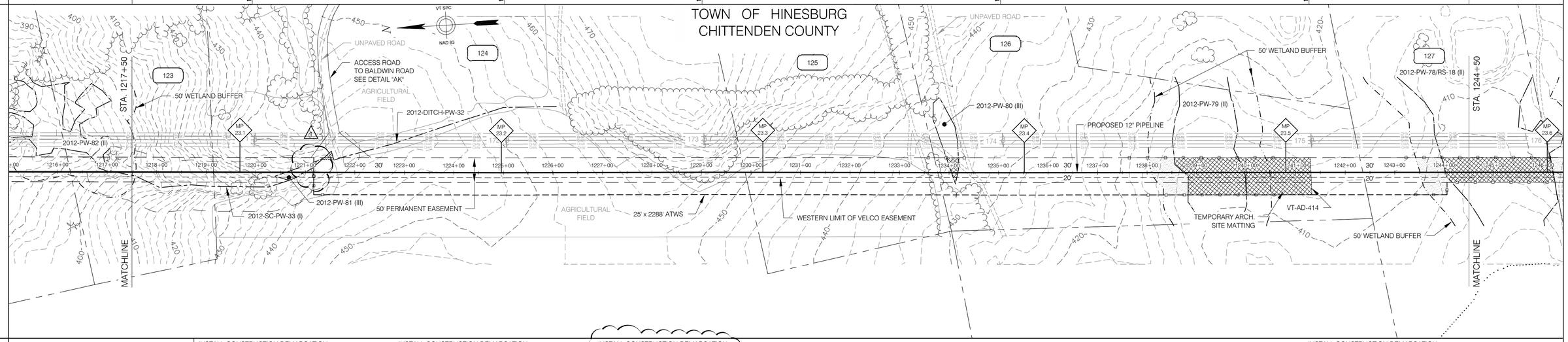
127 N/F LEUSCHNER, EDWARD T. JR. & DAWN

MATCH LINE

SURVEY DATA

123	124	125	126	127
S 03° 29" W	S 03° 28" W	S 03° 13" W	S 03° 27" W	S 03° 19" W	S 03° 18" W
0.00' LT	0.00' LT	0.00' RT	0.00' LT	0.00' LT	
1219+98	1225+08	1229+07	1235+09	1241+33	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1217+50 TO 1221+18 RT - 20' FROM NEW 12" PIPE ℄
STA. 1217+50 TO 1244+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1221+18 TO 1244+05 RT - 45' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1221+18

1

INSTALL CONSTRUCTION DEMARCATION:
STA. 1244+05 TO 1244+50 RT - 20' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1221+18 TO 1221+67 RT - 45' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1233+45 TO 1234+69 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1237+83 TO 1240+99 RT - 45' FROM NEW 12" PIPE ℄
STA. 1237+54 TO 1240+89 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1243+20 TO 1244+05 RT - 45' FROM NEW 12" PIPE ℄
STA. 1242+92 TO 1244+50 LT - 30' FROM NEW 12" PIPE ℄
STA. 1244+05 TO 1244+50 RT - 20' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1221+17 TO 1221+58

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1221+66

INSTALL MATTING:
STA. 1233+95 TO 1234+20

INSTALL MATTING:
STA. 1238+55 TO 1241+33

INSTALL MATTING:
STA. 1243+94 TO 1244+50

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE		8															2D	W				W	A					W	
SOIL TYPE	VeC	FaC			VeB (PAS)			FaC			SuB (PAS)		VeB (PAS)			VeC (PAS)				W		Cv (PAS)		VeB (PAS)					
LC/LU	PASTURE																							
	UNCLASSIFIABLE	AGRICULTURAL																		RESIDENTIAL				RESIDENTIAL					
STREAMS	STREAM 2012-SC-PW-33 (I) - STATION 1217+50 TO 1220+67																							
WETLANDS	WETLAND 2012-PW-81 - STATION 1220+39 TO 1221+58 CLASS III												WETLAND 2012-PW-80 - STATION 1233+95 TO 1234+20 CLASS III			WETLAND 2012-PW-79 - STATION 1238+04 TO 1240+49 CLASS II				WETLAND 2012-PW-78/RS-18 - STATION 1243+42 TO 1244+50 CLASS II								
VERNAL POOLS																								
SIGNIFICANT NATURAL COMMUNITIES																								
RTE SPECIES																								
NRC WILDLIFE HABITAT																								
ARCHAEOLOGY SITES																							VT-AD-414	

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS				
ANGP-T-C-048	ALIGNMENT SHEET	1	GJM	TDB	VHB HDD AREA REVISIONS (6/24/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. CHITTENDEN COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-048 | REV. 1

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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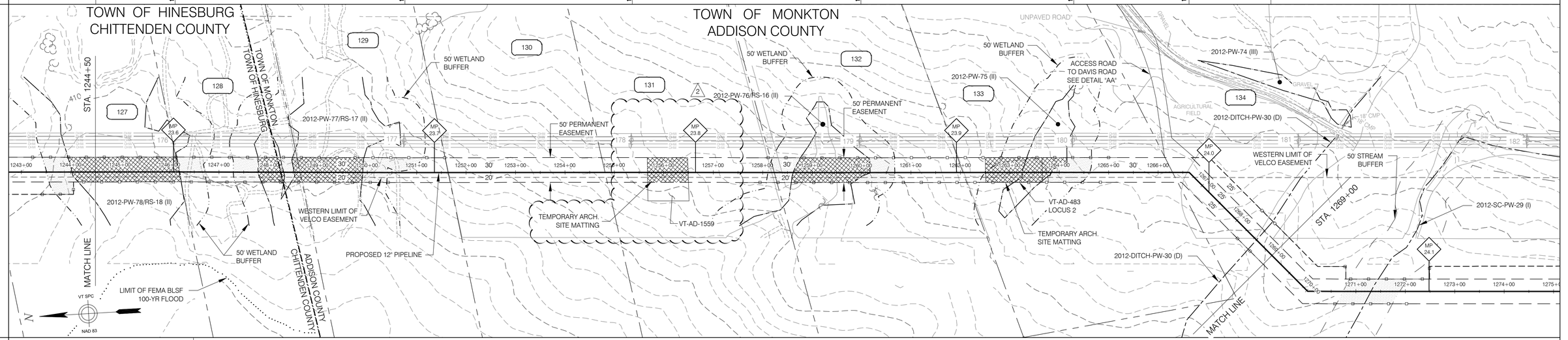
RIGHT–OF–WAY

MATCH LINE | 127 N/F LEUSCHNER, EDWARD T. JR. & DAWN | 128 N/F DERRICK, DIANE M. | TOWN OF HINESBURG / TOWN OF MONKTON | 129 N/F WEAVER, TODD & TAMMY | 130 N/F ALMOND, DAIVD | 131 N/F STEIN, PHILIP J. | 132 N/F MAY, PETER M. & SANDRA | 133 N/F NOLAN, KATHLEEN | 134 N/F NORRIS, NORMA | MATCH LINE

SURVEY DATA

00'12" RT	S 03° 18" W	00'11" LT	S 03° 31" W	00'05" RT	S 03° 19" W	00'07" LT	S 03° 25" W	00'08" RT	S 03° 17" W	S 03° 26" W	45' 00" RT	S 48° 26" W
1248+09		1250+75		1255+35		1259+97		1264+28			1266+63	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1244+50 TO 1266+50 RT - 20' FROM NEW 12" PIPE ℄
STA. 1244+50 TO 1266+12 LT - 30' FROM NEW 12" PIPE ℄
STA. 1266+65 LT - 1269+00 LT 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1244+50 TO 1250+89 RT - 20' FROM NEW 12" PIPE ℄
STA. 1244+50 TO 1251+62 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING: STA. 1244+50 TO 1246+24
INSTALL MATTING: STA. 1247+79 TO 1249+93

INSTALL CONSTRUCTION DEMARCATION:
STA. 1266+50 TO 1269+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 1268+63 TO 1269+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1257+58 TO 1264+96 RT - 20' FROM NEW 12" PIPE ℄
STA. 1257+70 TO 1265+16 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1268+06 TO 1269+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 1268+02 TO 1269+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING: STA. 1255+67 TO 1256+50
INSTALL MATTING: STA. 1258+61 TO 1260+17
INSTALL MATTING: STA. 1262+51 TO 1264+31

INSTALL STABILIZED CONSTRUCTION ENTRANCE: STA. 1266+25

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE		W		W		2D	A		W		A	W	1A	1A
SOIL TYPE		VoB (PAS)		VgB (PAS)		AdB (PAS)					VgB (PAS)			EIB
LC/LU		PASTURE / AGRICULTURE												
STREAMS													2012-DITCH-PW-30 (D)	
WETLANDS	MATCH LINE	WETLAND 2012-PW-78/RS-18- STATION 1244+50 TO 1246+79 CLASS II		WETLAND 2012-PW-77/RS-17- STATION 1247+30 TO 1251+12 CLASS II					WETLAND 2012-PW-76/RS-16- STATION 1258+08 TO 1260+67 CLASS II		WETLAND 2012-PW-75- STATION 1262+39 TO 1264+65 CLASS II			MATCH LINE
VERNAL POOLS														
SIGNIFICANT NATURAL COMMUNITIES														
RTE SPECIES														
NRC WILDLIFE HABITAT														
ARCHAEOLOGY SITES							VT-AD-1559				VT-AD-483 LOCUS 2			

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP–T–G–07–010	ACCESS ROAD DETAILS	2	GJM	BCK	IFC PLAN SET EDITS (05/2016)
ANGP–T–C–049	ALIGNMENT SHEET	1	BCK	TDB	ROTAX ROAD REROUTE (10/26/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP–EPSC–049 | REV. 2

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCH LINE

133
N/F
NORRIS,
NORMA

135
N/F
MAYO,
KEITH

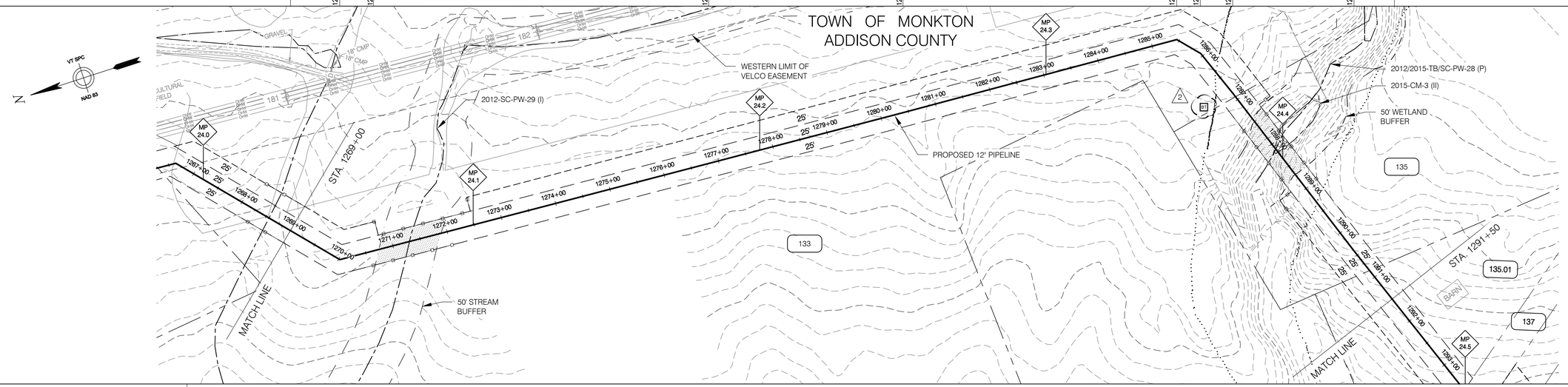
MATCH LINE

135.01
N/F
LATREILLE,
RAYMOND

SURVEY DATA

S 48° 26" W	45°00" LT	00°02" RT	S 03° 25" W	S 03° 23" W	00°01" RT	S 03° 21" W	00°19" RT	S 03° 02" W	45°00" RT	21°03" RT	S 48° 02" W	S 69° 06" W	01°21" RT	S 70° 27" W	00°49" RT	S 69° 38" W
1270+02		1270+64			1276+52		1280+41		1285+45	1285+95		1286+67			1290+43	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1269+00 TO 1288+89 RT - 25' FROM NEW 12" PIPE ℄
STA. 1288+89 TO 1291+50 RT - 50' FROM NEW 12" PIPE ℄
STA. 1269+00 TO 1270+78 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1269+00 TO 1269+08 RT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1270+14 TO 1272+24 RT - 25' FROM NEW 12" PIPE ℄
STA. 1287+17 TO 1288+89 RT - 25' FROM NEW 12" PIPE ℄
STA. 1288+89 TO 1289+19 RT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1270+78 TO 1272+50 LT - 25' FROM NEW 12" PIPE ℄
STA. 1272+50 TO 1287+31 LT - 50' FROM NEW 12" PIPE ℄
STA. 1287+31 TO 1291+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1270+43 TO 1270+79 LT - 50' FROM NEW 12" PIPE ℄
STA. 1270+79 TO 1272+49 LT - 25' FROM NEW 12" PIPE ℄
STA. 1272+49 TO 1272+55 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1286+49 TO 1287+31 LT - 50' FROM NEW 12" PIPE ℄
STA. 1287+31 TO 1289+19 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1287+90 TO 1288+19

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1A	2A	1A	2A	W	1A
SOIL TYPE	ElB	VgB (PAS)		ArnB (PAS)	AsD	AsC
LC/LU	PASTURE / AGRICULTURE					
STREAMS		STREAM 2012-SC-PW-29 (I) STATION 1270+74 TO 1271+88		STREAM 2012/2015-TB/SC-PW-28 (P) STATION 1287+46 TO 1288+67		
WETLANDS				WETLAND 2015-CM-3 (II) STATION 1287+46 TO 1288+67		
VERNAL POOLS						
SIGNIFICANT NATURAL COMMUNITIES						
RTE SPECIES						
NRC WILDLIFE HABITAT						
ARCHAEOLOGY SITES						

MATCH LINE (left) / MATCH LINE (right)

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
		2	GJM	BCK	IFC 2016 EDITS (05/2016)
ANGP-T-C-050	ALIGNMENT SHEET	1	BCK	TDB	ROTAX ROAD REROUTE (10/26/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-050 | REV. 2

Vermont Gas

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RIGHT-OF-WAY

MATCH LINE | 135.01 N/F LATREILLE, RAYMOND | 137 ROTAX ROAD | 138 N/F LATREILLE, LEONARD | 140 N/F VERMONT GAS SYSTEMS | MATCH LINE

SURVEY DATA

S 69° 38' W | 1293+68 00°23' LT | S 69° 16' W | 1296+83 00°47' RT | S 70° 03' W | 1297+50 44°10' LT | S 25° 53' W | 1298+36 28°11' LT | S 02° 18' E | 1308+00 07°41' RT | S 05° 22' W

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — —
TEMPORARY WORKSPACE	– – – –
CENTERLINE OF STREAM	— - —
TEMPORARY STREAM CROSSING	▨
WETLAND	- · · -
50' WETLAND BUFFER	— · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 1291+50 TO 1293+57 RT - 50' FROM NEW 12" PIPE ℄
STA. 1294+09 TO 1309+22 RT - 25' FROM NEW 12" PIPE ℄
STA. 1309+22 TO 1310+10 RT - 50' FROM NEW 12" PIPE ℄
STA. 1310+10 TO 1310+50 RT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1296+15 TO 1309+22 RT - 25' FROM NEW 12" PIPE ℄
STA. 1309+22 TO 1310+10 RT - 50' FROM NEW 12" PIPE ℄
STA. 1310+10 TO 1310+50 RT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1291+50 TO 1293+57 LT - 25' FROM NEW 12" PIPE ℄
STA. 1294+09 TO 1294+88 LT - 100' FROM NEW 12" PIPE ℄
STA. 1294+88 TO 1296+68 LT - 50' FROM NEW 12" PIPE ℄
STA. 1296+68 TO 1310+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1296+24 TO 1296+68 LT - 50' FROM NEW 12" PIPE ℄
STA. 1296+68 TO 1309+49 LT - 25' FROM NEW 12" PIPE ℄
STA. 1309+73 TO 1310+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1297+25 TO 1300+92

INSTALL MATTING:
STA. 1301+81 TO 1303+60

INSTALL MATTING:
STA. 1303+72 TO 1306+57

INSTALL MATTING:
STA. 1307+87 TO 1308+73

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

CONST. TYPE: MATCH LINE | (1A) | (11) | (1A) | (W) | (W) | (2A) | (W) | (W) | (1A) | MATCH LINE | (2A)

SOIL TYPE: AsC | Lk | Cw (PAS) | RaB (PAS) | Mv

LC/LU: PASTURE / AGRICULTURE | UNPAVED / TRAVEL | PASTURE / AGRICULTURE

STREAMS:

WETLANDS: WETLAND 2014-CM-3 STATION 1296+63 TO 1307+21 CLASS II | WETLAND 2012/2013-PW-71/72/73 STATION 1307+21 TO 1309+22 CLASS II | WETLAND 2012/2013-PW-71/72/73 STATION 1310+30 TO 1310+50 CLASS II

VERNAL POOLS:

SIGNIFICANT NATURAL COMMUNITIES:

RTE SPECIES: 2013-RTE-CT-083 S3/NL

NRC WILDLIFE HABITAT:

ARCHAEOLOGY SITES:

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
		3	BCK	GEW	MLV-4 RELOCATION (05/01/16)	DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-G-07-010	ACCESS ROAD DETAILS	2	BCK	TDB	ROTAX ROAD REROUTE (10/26/15)	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-051	ALIGNMENT SHEET	1	BCK	TDB	ADDED ARCH. SITE AND ENV. EDITS (6/08/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

Vanasse Hangen Brustlin, Inc.

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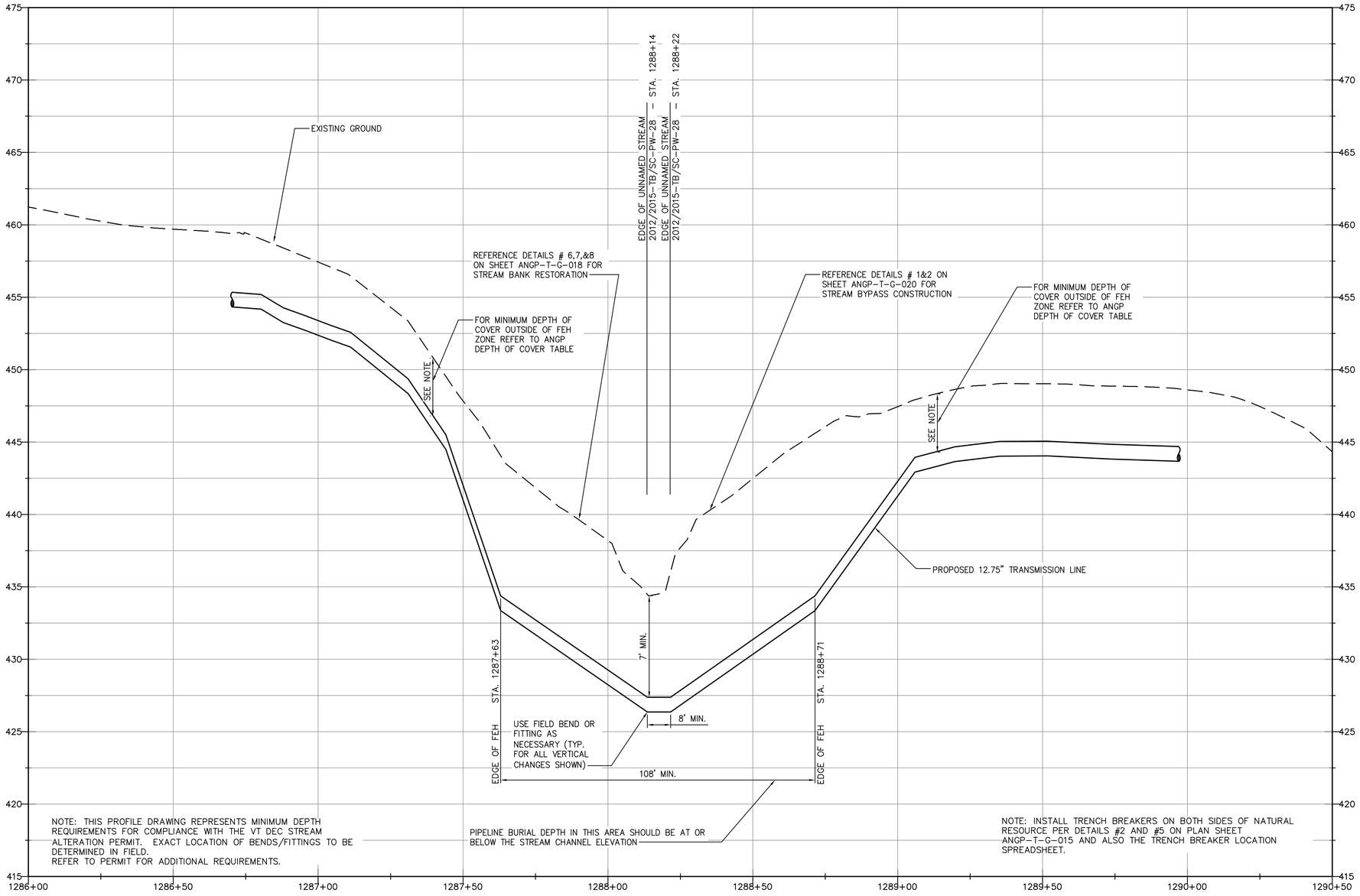
YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-051 | REV. 3

PROFILE



STREAM CROSSING PROFILE
STREAM 2012/2015-TB/SC-PW-28
STATION 1288+14±
MILE POST 24.39

SCALE: HORIZ. 1"=20'
VERT. 1"=4'

HORIZONTAL SCALE
20 10 0 20 40 60 feet
4 2 0 4 8 12 feet
VERTICAL SCALE

NOTE: STREAM CROSSING MUST BE CONSTRUCTED BETWEEN JULY 1 AND OCTOBER 1

STATE OF VERMONT
JEFFREY E. OSTERMAN
NO. 97764
CIVIL
LICENSED
PROFESSIONAL ENGINEER

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
							DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
							DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
							DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
OPEN TRENCH STREAM CROSSING PROFILE
LOC. ADDISON COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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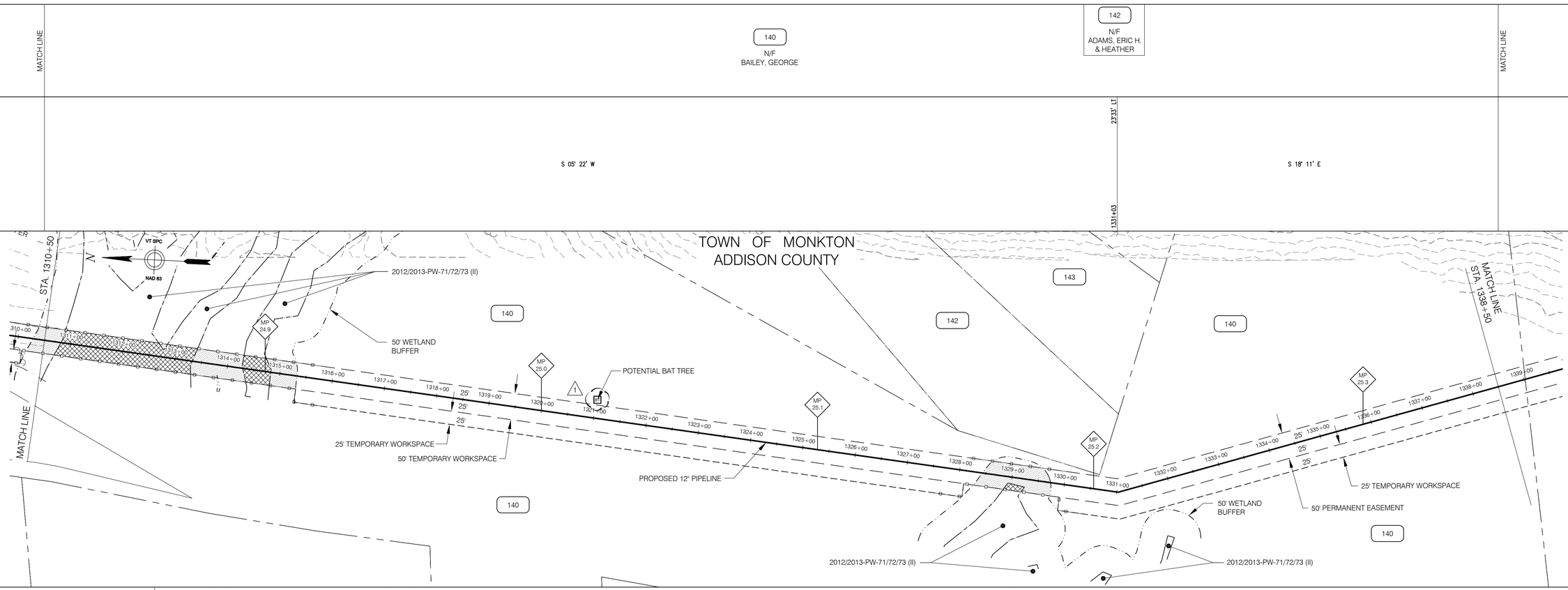
YEAR: 2016 | W.O. | SCALE: AS NOTED | DWG. ANGP-T-C-051A | REV. 0

RIGHT–OF–WAY

SURVEY DATA

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1310+50 TO 1315+40 RT - 25' FROM NEW 12" PIPE ℄
STA. 1310+50 TO 1338+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1315+40 TO 1328+10 RT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1328+10 TO 1329+95 RT - 25' FROM NEW 12" PIPE ℄
STA. 1329+95 TO 1338+50 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1310+50 TO 1315+40 RT - 25' FROM NEW 12" PIPE ℄
STA. 1310+50 TO 1315+79 LT - 25' FROM NEW 12" PIPE ℄
STA. 1315+40 TO 1315+84 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1327+61 TO 1328+10 RT - 50' FROM NEW 12" PIPE ℄
STA. 1328+10 TO 1330+06 LT - 25' FROM NEW 12" PIPE ℄
STA. 1328+10 TO 1329+95 RT - 25' FROM NEW 12" PIPE ℄
STA. 1329+95 TO 1330+44 RT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1310+62 TO 1313+40
STA. 1314+38 TO 1314+82

INSTALL MATTING:
STA. 1328+75 TO 1329+25

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE		W	2A	W	1E		W	2A	1E					
SOIL TYPE		RaB (PAS)	Cw (PAS)	RaB (PAS)	Cw (PAS)	RaB (PAS)	VgC (PAS)	AsC						
LC/LU	Mv	FORESTED	AGRICULTURAL		RESIDENTIAL		AGRICULTURAL							
STREAMS														
WETLANDS	MATCH LINE	WETLAND 2012/2013-PW-71/72/73 STATION 1310+50 TO 1315+33 CLASS II					WETLAND 2012/2013-PW-71/72/73 STATION 1328+10 TO 1329+95 CLASS II							MATCH LINE
VERNAL POOLS														
SIGNIFICANT NATURAL COMMUNITIES														
RTE SPECIES														
NRC WILDLIFE HABITAT														
ARCHAEOLOGY SITES														

VHB Vanasse Hangen Brustlin, Inc.

							BID		CONSTRUCTION	
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP–T–C–052	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP–EPSC–052 | REV. 1

Vermont Gas

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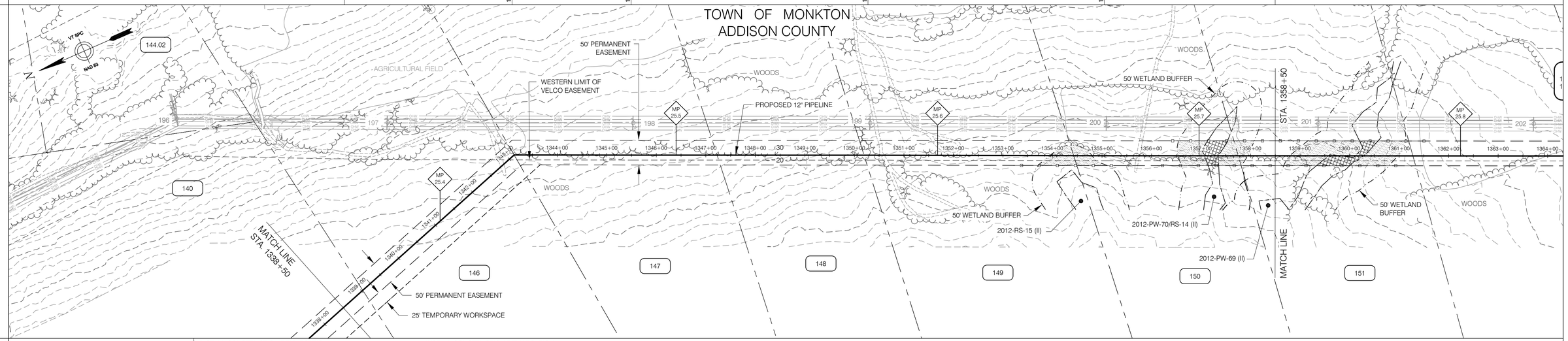
RIGHT–OF–WAY	MATCH LINE	140 N/F BAILEY, GEORGE	146 N/F MALZAC, PAUL E. & KATHY	147 N/F BURRITT, MARK A. & MICHELLE	148 N/F NICOLAY, WILLIAM & HELENA	149 N/F BROUGHTON, CLAIRE TRUSTEE	150 N/F MORROW, JAMES F.	151 N/F MEJIA, JOHNY; LAUER, JESSE	MATCH LINE
SURVEY DATA		S 18° 11' E	41.55' RT 1343+13	S 23° 44' W	13.00' LT 1345+54	S 23° 41' W	39.00' RT 1350+32	S 23° 47' W	39.00' LT 1355+09	S 23° 40' W	



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1338+50 TO 1343+13 RT - 50' FROM NEW 12" PIPE ℄
STA. 1338+50 TO 1343+13 LT - 25' FROM NEW 12" PIPE ℄
STA. 1343+13 TO 1343+66 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1343+66 TO 1358+50 RT - 20' FROM NEW 12" PIPE ℄
STA. 1343+13 TO 1358+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1353+21 TO 1355+61 RT - 20' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1356+11 TO 1358+50 RT - 20' FROM NEW 12" PIPE ℄
STA. 1356+05 TO 1358+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1357+00 TO 1357+54

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	MATCH LINE	1E	2D				W	MATCH LINE
SOIL TYPE		AsC	RaC (PAS)	AsC			Cn (PAS)	
LC/LU		FORESTED						
		AGRICULTURAL	RESIDENTIAL					
STREAMS								
WETLANDS				WETLAND 2012-RS-15- STATION 1353+71 TO 1355+11 CLASS II		WETLAND 2012-PW-70/RS-14- STATION 1357+56 TO 1358+08 CLASS II		
VERNAL POOLS								
SIGNIFICANT NATURAL COMMUNITIES								
RTE SPECIES								
NRC WILDLIFE HABITAT								
ARCHAEOLOGY SITES								

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ANGP–T–C–053	ALIGNMENT SHEET				ENVIRONMENTAL		JLS	06/28/13	JLS	05/2016
					DRAFTING DESIGNER		GIL	06/28/13	GJM	05/2016
					DRAFTING SUPERVISOR		BZD	06/28/13	BCK	05/2016
					DESIGN ENGINEER		MDF	06/28/13	GEW	05/2016
					DESIGN MANAGER		SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

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Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP–EPSC–053 | REV. 0

RIGHT-OF-WAY

MATCHLINE

151 — N/F MEJIA, JOHNY & LAUER, JESSE

152 — N/F LESAGE, RICHARD L.; RICHARD E. LESAGE REVOCABLE LIVING TRUST

153 — N/F PEYSER, LOUISE SELINA

154 — STILLSON ROAD

155 — N/F PEYSER, LOUISE SELINA

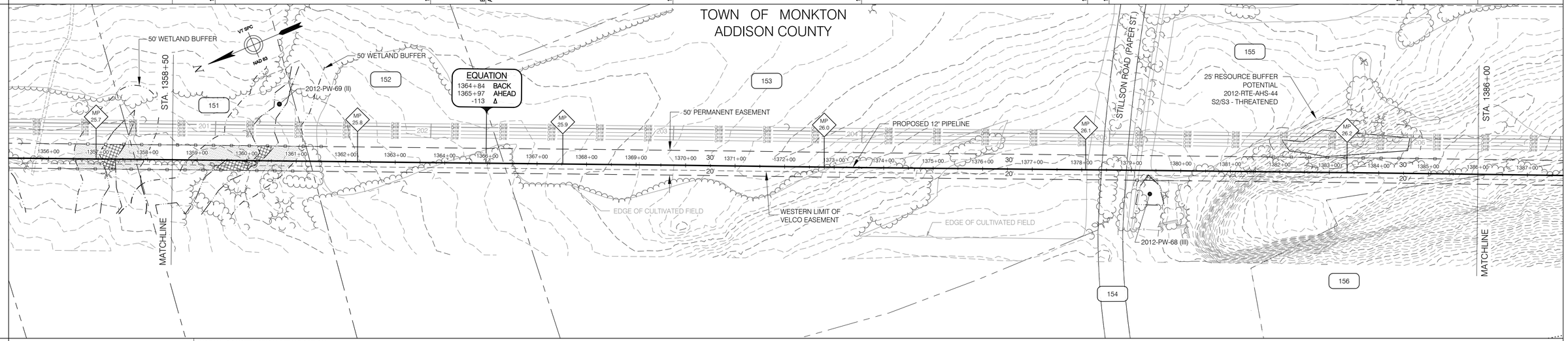
156 — N/F MENARD, GERALD & NANCY

MATCH LINE

SURVEY DATA

1359+37	1363+72	Beg.: 1364+84 Aht.: 1365+97	1369+75	1373+56	1378+13	1378+56	1384+47
S 23° 40' W	00.02' RT S 23° 43' W 00.01' LT	-113.3 ft. S 23° 41' W	00.08' RT S 23° 41' W	00.10' LT S 23° 49' W	00.10' LT S 23° 39' W	00.15' RT S 23° 28' W	00.07' RT S 23° 43' W S 23° 51' W

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1358+50 TO 1386+00 RT - 20' FROM NEW 12" PIPE ℄
STA. 1358+50 TO 1386+00 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1358+50 TO 1361+30 RT - 20' FROM NEW 12" PIPE ℄
STA. 1358+50 TO 1361+63 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1359+33 TO 1360+58

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1378+89 TO 1379+96 RT - 20' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1379+27 TO 1379+46

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1381+48 TO 1385+27 LT - 30' FROM NEW 12" PIPE ℄

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE		W		2D				11	W		2D	
SOIL TYPE	Cn (PAS)	RaC (PAS)	Cn (PAS)	BsC	BeB (PAS)	RaB (PAS)	Cn (PAS)			BeB (PAS)	FaC	
LC/LU	FORESTED					GRASS	UNPAVED	FORESTED				
	AGRICULTURAL/POWERLINES		RESIDENTIAL				TRAVEL	AGRICULTURAL/POWERLINES				
STREAMS												
WETLANDS	WETLAND 2012-PW-69 - STATION 1358+67 TO 1361+14 CLASS II						WETLAND 2012-PW-68 - STATION 1379+27 TO 1379+46 CLASS III					
VERNAL POOLS												
SIGNIFICANT NATURAL COMMUNITIES												
RTE SPECIES											POTENTIAL 2012-RTE-AHS-44	
NRC WILDLIFE HABITAT												
ARCHAEOLOGY SITES												

MATCH LINE (left) — MATCH LINE (right)

VHB Vanasse Hangen Brustlin, Inc.

ANGP-T-C-054	ALIGNMENT SHEET										
DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID		CONSTRUCTION	
								INITIALS	DATE	INITIALS	DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
							DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
							DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
							DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-054 | REV. 0

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE									MATCH LINE
	155 N/F PEYSER, LOUISE SELINA 156 N/F MENARD, GERALD, NANCY	156 N/F MENARD, GERALD, NANCY	155 N/F PEYSER, LOUISE SELINA	156 N/F MENARD, GERALD & NANCY	159 HOLLOW ROAD	160 N/F COUSINO, VICKI A.	161 N/F WAGEMAN, EDWIN J. & CAROLE	162 N/F BEAUPRE, MARC & GRETCHEN	163 N/F HENDRY, MARTHA M.

SURVEY DATA

Station	Deflection	Bearing to next
		S 23° 51' W
1387+67	00°08' LT	S 23° 42' W
1391+99	00°01' RT	S 23° 43' W
1395+00	00°01' RT	S 23° 43' W
1396+58	00°01' LT	S 23° 42' W
1402+58	00°01' RT	S 23° 43' W
1410+50	01°08' RT	S 24° 51' W
1412+95	19°56' RT	S 44° 47' W
1413+81	24°52' LT	S 19° 55' W
1414+57	24°27' LT	S 04° 33' E

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	– – – – – –
CENTERLINE OF STREAM	—— - —— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	— · · — · · —
50' WETLAND BUFFER	— · · — · · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 1386+00 TO 1397+34 RT - 20' FROM NEW 12" PIPE ℄
STA. 1386+00 TO 1397+37 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1397+84 TO 1415+00 RT - 20' FROM NEW 12" PIPE ℄
STA. 1397+88 TO 1415+00 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1396+84 TO 1397+34 RT - 20' FROM NEW 12" PIPE ℄
STA. 1396+87 TO 1397+37 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1397+84 TO 1400+09 RT - 20' FROM NEW 12" PIPE ℄
STA. 1397+88 TO 1400+36 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1404+74 TO 1406+85 RT - 20' FROM NEW 12" PIPE ℄
STA. 1404+90 TO 1407+13 LT - 30' FROM NEW 12" PIPE ℄

1

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1397+34 & STA. 1397+88

INSTALL MATTING:
STA. 1398+15 TO 1399+21

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

	MATCH LINE											MATCH LINE
CONST. TYPE	2D			9	W		2D					
SOIL TYPE	FaC	BsC	BsC BsE		RaD	BsC	RaD	FaE	FaC	FaE		
LC/LU	FORESTED AGRICULTURAL/POWERLINES			PAVED TRAVEL	FORESTED AGRICULTURAL/POWERLINES							
STREAMS								STREAM 2012-TB/SC-RS-3 (P) - STATION 1405+24 TO 1406+63				
WETLANDS					WETLAND 2012-RS-3 - STATION 1397+63 TO 1399+88 CLASS II							
VERNAL POOLS												
SIGNIFICANT NATURAL COMMUNITIES												
RTE SPECIES												
NRC WILDLIFE HABITAT												
ARCHAEOLOGY SITES												

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-055	ALIGNMENT	1	BCK	GEW	MLV-4 RELOCATION (05/01/16)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
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YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-055 | REV. 1

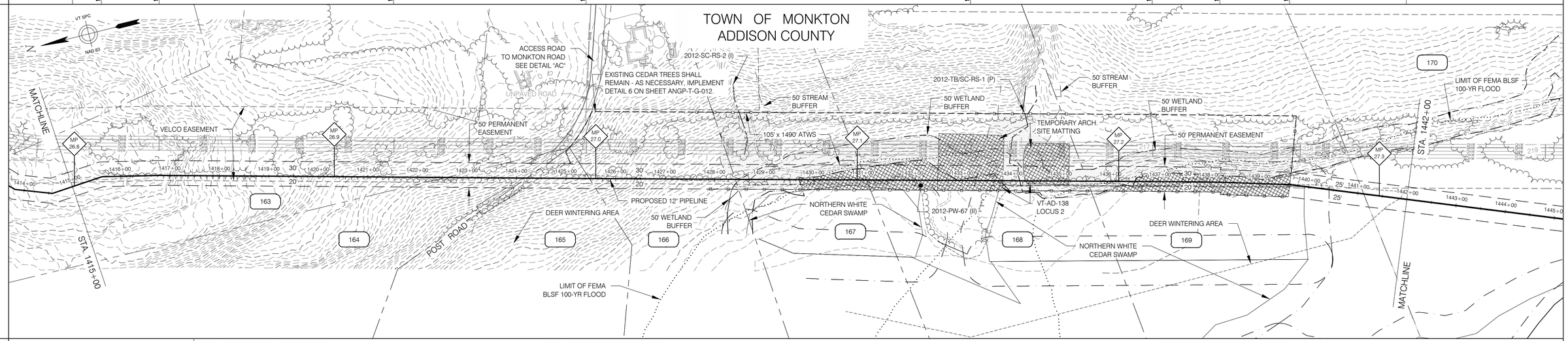
RIGHT-OF-WAY

MATCHLINE | 163 N/F HENDRY, MARTHA M. | 164 N/F RADLER, ROBERT & BUSCAGLIA, CATHIE M. | 165 N/F CHARNLEY, JACQUELINE & THOMAS A. | POST ROAD | 166 N/F BOWEN, MICHAEL H. & ELLEN L. | 167 N/F LITTLE, ROBERT A. & FAITH E. | 168 N/F COTA, ROGER & ALYSON | 169 N/F CLARK, RICKY D. & MAREN E. | 170 N/F ALDERMAN, MICHAEL J. | MATCH LINE

SURVEY DATA

17'08" RT	01'46" RT		00'03" RT	00'10" LT		00'02" RT	00'14" RT	01'25" RT	05'10" RT	
S 04° 33' E	S 12° 36' W	S 14° 22' W	S 14° 26' W	S 14° 15' W		S 14° 18' W	S 14° 32' W	S 15° 58' W	S 21° 08' W	
1415+63	1416+79		1421+53	1425+42		1433+18	1436+65	1438+22	1439+62	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50 WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1415+00 TO 1438+22 RT - 20' FROM NEW 12" PIPE ℄
STA. 1415+00 TO 1424+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1424+75 TO 1425+53 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1425+53 TO 1438+22 LT - 135' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1438+22 TO 1439+60 RT - 25' FROM NEW 12" PIPE ℄
STA. 1438+22 TO 1439+62 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1427+86 TO 1438+22 RT - 20' FROM NEW 12" PIPE ℄
STA. 1427+46 TO 1429+52 LT - 135' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1433+21 TO 1435+42 LT - 135' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1438+22 TO 1439+60 RT - 25' FROM NEW 12" PIPE ℄

INSTALL STABALIZED CONSTRUCTION ENTRANCE:
STA. 1425+40

INSTALL MATTING:
STA. 1429+70 TO 1433+95

INSTALL MATTING:
STA. 1434+23 TO 1435+27

INSTALL MATTING:
STA. 1435+90 TO 1439+60

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	2D		11	2D		W	A	A	W	8
SOIL TYPE	FaC	FaE		BsE			BsC		Mv	
LC/LU	FORESTED									
	AGRICULTURAL/POWERLINES									
STREAMS				STREAM 2012-SC-RS-2 (I) - STATION 1427+96 TO 1429+06			STREAM 2012-TB/SC-RS-1 (P) - STATION 1433+51 TO 1434+92			
WETLANDS	MATCH LINE						WETLAND 2012-PW-67 - STATION 1428+36 TO 1442+00 CLASS II			MATCH LINE
VERNAL POOLS										
SIGNIFICANT NATURAL COMMUNITIES					NORTHERN WHITE CEDAR SWAMP			NORTHERN WHITE CEDAR SWAMP		
RTE SPECIES										
NRC WILDLIFE HABITAT			DEER WINTERING AREA						DEER WINTERING AREA	
ARCHAEOLOGY SITES						VT-AD-138 LOCUS 2		VT-AD-138 LOCUS 2		

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
					ENVIRONMENTAL		JLS	06/28/13	JLS	05/2016
					DRAFTING DESIGNER		GIL	06/28/13	GJM	05/2016
					DRAFTING SUPERVISOR		BZD	06/28/13	BCK	05/2016
ANGP-T-G-07-010	ACCESS ROAD DETAILS				DESIGN ENGINEER		MDF	06/28/13	GEW	05/2016
ANGP-T-C-056	ALIGNMENT				DESIGN MANAGER		SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-056 | REV. 0

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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RIGHT–OF–WAY

MATCH LINE

170
N/F
ALDERMAN, MICHAEL J.

171
N/F
BOISSE, HENRY

171
N/F
BOISSE, HENRY

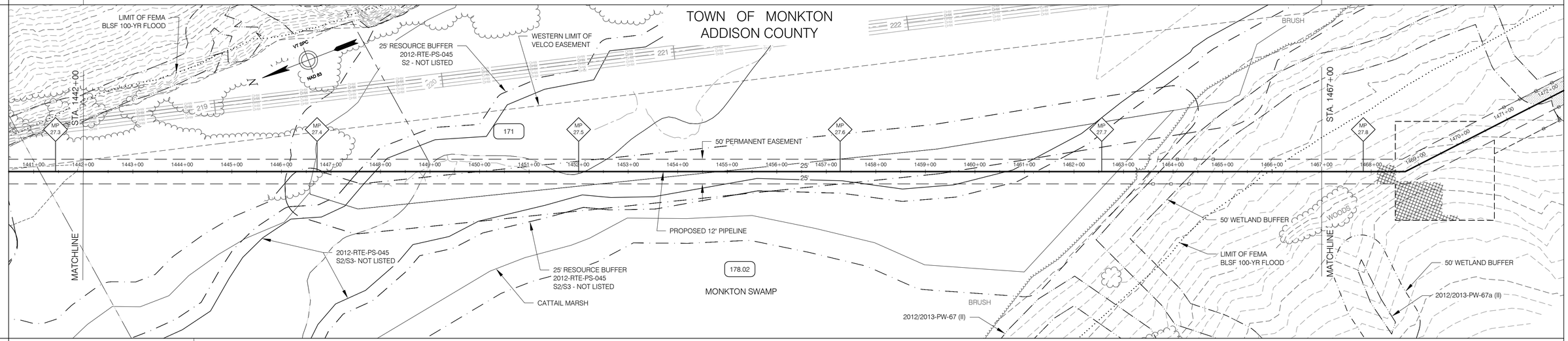
178.02
N/F
BOISSE, JOSEPH A.; WILLIAMS, DAVID L.

MATCH LINE

SURVEY DATA

S 21° 08' W

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1463+49 TO 1464+68 RT - 25' FROM NEW 12" PIPE ℄
STA. 1463+97 TO 1465+18 LT - 25' FROM NEW 12" PIPE ℄

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE			8		
SOIL TYPE		Mv	Lh / Sw (PAS)	Cn (PAS)	
LC/LU		CEDAR SWAMP / WETLAND		GRASS / AGRICULTURE	
STREAMS	MATCH LINE				MATCH LINE
WETLANDS		WETLAND 2012/2013-PW-67 - STATION 1442+00 TO 1465+22 CLASS II			
VERNAL POOLS					
SIGNIFICANT NATURAL COMMUNITIES		CATTAIL MARSH			
RTE SPECIES		2012-RTE-PS-045 S2/S3 - NOT LISTED			
NRC WILDLIFE HABITAT					
ARCHAEOLOGY SITES					

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP–T–C–057	ALIGNMENT SHEET					DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP–EPSC–057 | REV. 0

Vermont Gas

CHA
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South Burlington, VT 05403
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RIGHT-OF-WAY

MATCHLINE

178.02
N/F
BOISSE, JOSEPH A.
& WILLIAMS, DAVID L.

178.05
N/F
HUIZENGA, RAYMOND J.
& BONITA

MATCH LINE

SURVEY DATA

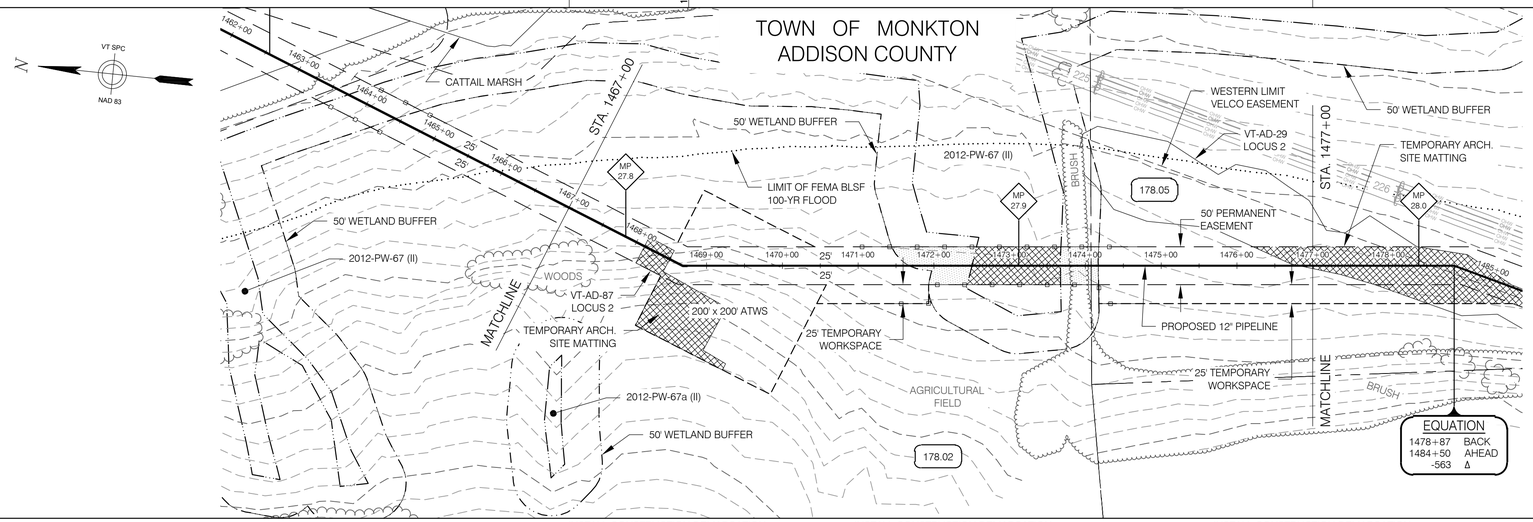
27.05' LT

S 21° 08' W

1468+69

S 05° 57' E

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1467+00 TO 1468+49 RT - 50' FROM NEW 12" PIPE ℄
STA. 1467+00 TO 1468+49 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1468+49 TO 1470+46 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1468+49 TO 1470+43 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1470+46 TO 1471+90 RT - 50' FROM NEW 12" PIPE ℄
STA. 1470+43 TO 1477+00 LT - 25' FROM NEW 12" PIPE ℄
STA. 1471+90 TO 1474+20 RT - 25' FROM NEW 12" PIPE ℄
STA. 1474+20 TO 1477+00 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1471+47 TO 1471+90 RT - 50' FROM NEW 12" PIPE ℄
STA. 1470+94 TO 1474+68 LT - 25' FROM NEW 12" PIPE ℄
STA. 1471+90 TO 1474+20 RT - 25' FROM NEW 12" PIPE ℄
STA. 1474+20 TO 1474+68 RT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1468+12 TO 1469+25

INSTALL MATTING:
STA. 1472+43 TO 1473+68

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

		MATCH LINE		MATCH LINE
CONST. TYPE	8 | A | 2A | 1E | 2A W | 1E			
SOIL TYPE	CrA (PAS) | RaB (PAS)			
LC/LU	PASTURE / AGRICULTURE			
STREAMS				
WETLANDS	WETLAND 2012-PW-67 - STATION 1471+44 TO 1474+17 CLASS II			
VERNAL POOLS				
SIGNIFICANT NATURAL COMMUNITIES				
RTE SPECIES				
NRC WILDLIFE HABITAT				
ARCHAEOLOGY SITES	VT-AD-87 LOCUS 2			

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-058	ALIGNMENT SHEET				

		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-058 | REV. 0

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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South Burlington, VT 05403
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RIGHT-OF-WAY

MATCHLINE

178.05
N/F
HUIZENGA, RAYMOND J.
& BONITA

178.04
N/F
HUIZENGA, RAYMOND J.
& BONITA

182
MONKTON ROAD

176
N/F
HUIZENGA, CHARLES
& RAYMOND

MATCH LINE

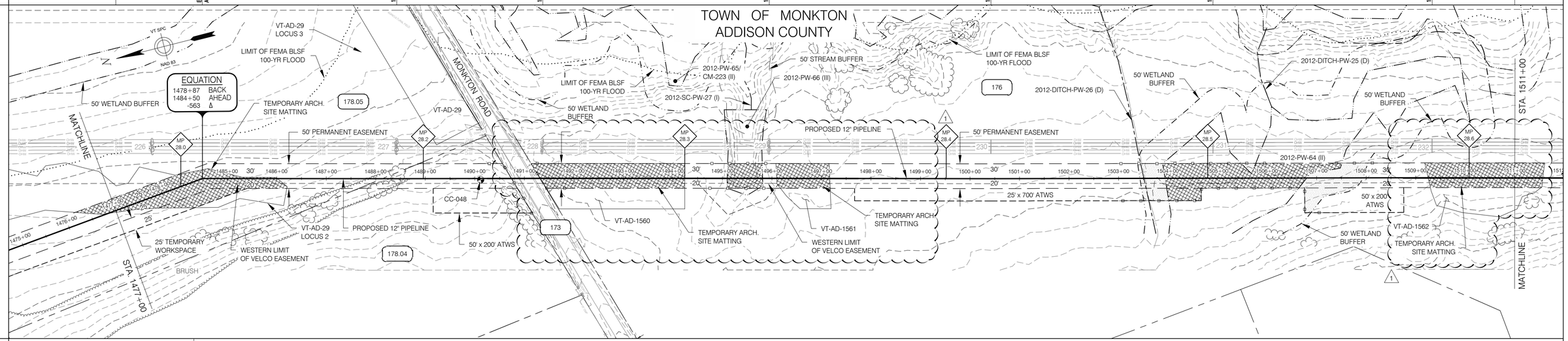
SURVEY DATA

S 05° 57' E | -553.4 ft. | S 14° 22' W | 00°10' LT | S 14° 12' W | 00°08' RT | S 14° 20' W | 00°04' RT | S 14° 25' W | 00°11' LT | S 14° 13' W | 00°02' LT | S 14° 10' W | 00°12' RT | S 14° 23' W

Beg: 1478+87
Arc: 1484+50
2019' RT

1488+42 | 1491+38 | 1495+95 | 1500+43 | 1504+91 | 1509+34

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1477+00 TO 1478+87 RT - 50' FROM NEW 12" PIPE ℄
STA. 1477+00 TO 1478+87 LT - 25' FROM NEW 12" PIPE ℄
STA. 1478+87 TO 1485+40 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1485+40 TO 1489+16 RT - 20' FROM NEW 12" PIPE ℄
STA. 1478+87 TO 1490+56 LT - 30' FROM NEW 12" PIPE ℄
STA. 1489+16 TO 1491+16 RT - 70' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1491+44 TO 1497+67 RT - 20' FROM NEW 12" PIPE ℄
STA. 1491+14 TO 1511+00 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1497+67 TO 1504+67 RT - 45' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1504+67 TO 1506+76 RT - 20' FROM NEW 12" PIPE ℄
STA. 1506+76 TO 1508+76 RT - 70' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1506+76 TO 1511+00 RT - 20' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1490+66 TO 1491+16 RT - 70' FROM NEW 12" PIPE ℄
STA. 1490+06 TO 1490+56 LT - 30' FROM NEW 12" PIPE ℄
STA. 1491+44 TO 1491+94 RT - 20' FROM NEW 12" PIPE ℄
STA. 1491+14 TO 1491+64 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1494+59 TO 1496+24 RT - 20' FROM NEW 12" PIPE ℄
STA. 1494+61 TO 1496+30 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1503+01 TO 1504+67 RT - 45' FROM NEW 12" PIPE ℄
STA. 1502+89 TO 1508+53 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1504+67 TO 1506+76 RT - 20' FROM NEW 12" PIPE ℄
STA. 1506+76 TO 1507+38 RT - 70' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1477+00 TO 1486+22

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1490+65 & STA. 1491+23

INSTALL MATTING:
STA. 1491+25 TO 1494+24

INSTALL MATTING:
STA. 1495+09 TO 1495+82
STA. 1496+08 TO 1497+18

INSTALL MATTING:
STA. 1503+89 TO 1507+51

INSTALL MATTING:
STA. 1509+23 TO 1511+00

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE	1E	2D		8	W							2D	W			8	A		
SOIL TYPE	RaB (PAS)			RaB		RaD	RaB	Cn	Cn (PAS)						RaB (PAS)				
LC/LU	PASTURE				PAVED	PASTURE													
	AGRICULTURAL				TRAVEL	AGRICULTURAL													
STREAMS	MATCH LINE													STREAM 2012-DITCH-PW-26 (D) - STATION 1503+45 TO 1503+61					MATCH LINE
WETLANDS					WETLAND 2012-PW-66 - STATION 1495+09 TO 1495+82 CLASS III										WETLAND 2012-PW-64 - STATION 1503+39 TO 1508+03 CLASS II				
VERNAL POOLS																			
SIGNIFICANT NATURAL COMMUNITIES																			
RTE SPECIES																			
NRC WILDLIFE HABITAT																			
ARCHAEOLOGY SITES	VT-AD-29 LOCUS 2						VT-AD-1560			VT-AD-1561								VT-AD-1562	

							BID		CONSTRUCTION	
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-059	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-059 | REV. 1

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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RIGHT-OF-WAY

MATCHLINE

176
N/F
HUZIENGA, CHARLES;
HUZIENGA, RAYMOND

181
N/F
HURLBURT, HERRICK & CHARLOTTE

MATCH LINE

SURVEY DATA

S 14° 23' W

00'03" LT

1514+07

S 14° 20' W

00'01" LT

1518+06

S 14° 18' W

00'03" RT

1523+00

S 14° 22' W

ALIGNMENT DETAIL

TOWN OF MONKTON
ADDISON COUNTY

VT SPC
NAD 83

STA. 1511+00

STA. 1525+00

INSTALL TEMPORARY
ARCHAEOLOGICAL SITE MATTING

CC-049

30'

20'

1511+00 1512+00 1513+00 1514+00 1515+00 1516+00 1517+00 1518+00 1519+00 1520+00 1521+00 1522+00 1523+00 1524+00 1525+00

MP 28.7

MP 28.8

PROPOSED 12" PIPELINE

50' PERMANENT EASEMENT

25' X 380' ATWS

WESTERN LIMITS OF VELCO EASEMENT

WOODS

AGRICULTURAL FIELD

50' x 170'
ATWS

TEMPORARY ARCH.
SITE MATTING

ARCH. SITE

VT-AD-1562

MATCHLINE

GRAVEL

OLD STAGE ROAD

MATCHLINE

12" DECIDUOUS

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50 WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1511+00 TO 1512+06 RT - 20' FROM NEW 12" PIPE ℄
STA. 1511+00 TO 1525+00 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1512+06 TO 1515+86 RT - 45' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1515+86 TO 1523+68 RT - 20' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1523+68 TO 1524+60 RT - 70' FROM NEW 12" PIPE ℄
STA. 1524+60 TO 1525+00 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1511+00 TO 1511+58

INSTALL MATTING:
STA. 1514+87 TO 1515+87
(IN ATWS)

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
50 25 0 50 100 150 feet

VERTICAL SCALE
50 25 0 50 100 150 feet

CONST. TYPE	A	B				A		2D		
SOIL TYPE	RaB		RaB (PAS)		BeB (PAS)		BeB (PAS)	Rk	RaB (PAS)	Cn (PAS) / AmC (PAS)
LC/LU	PASTURE / AGRICULTURAL									
STREAMS										
WETLANDS										
VERNAL POOLS										
SIGNIFICANT NATURAL COMMUNITIES										
RTE SPECIES										
NRC WILDLIFE HABITAT										
ARCHAEOLOGY SITES	VT-AD-1562					ARCH. SITE				

MATCH LINE

MATCH LINE

							BID		CONSTRUCTION	
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-060	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 50' | DWG. ANGP-EPSC-060 | REV. 1

Vermont Gas

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RIGHT-OF-WAY

MATCHLINE

181
N/F
HURLBURT, HERRICK & CHARLOTTE

182
OLD STAGE ROAD

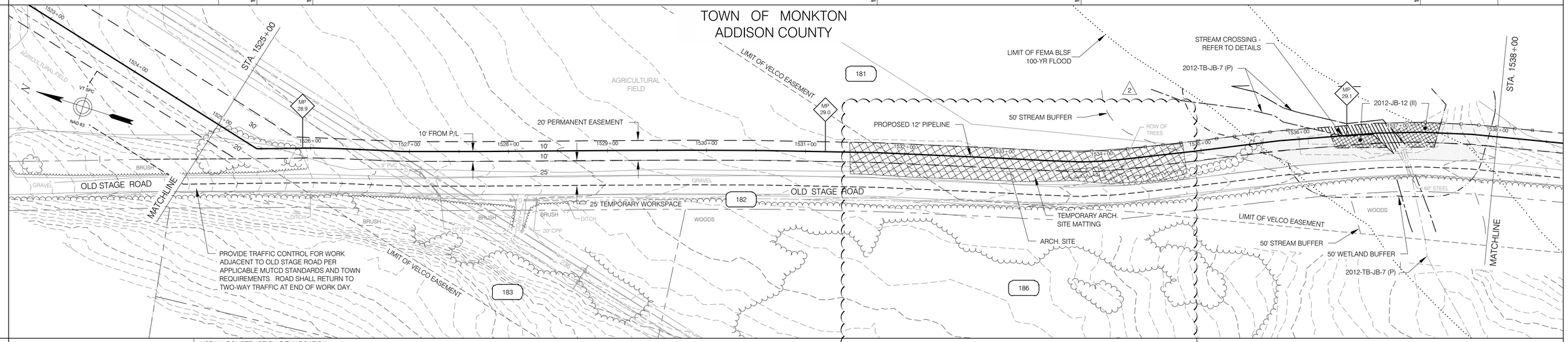
MATCH LINE

SURVEY DATA

PIPE ALIGNMENT PARALLELS ROAD RIGHT-OF-WAY, FOR CLARITY, NOT ALL SURVEY DATA IS SHOWN

S 14° 22' W	32.59' LT	S 18° 36' E	00.44' RT	S 17° 52' E	02.31' RT	S 15° 21' E	09.34' LT	S 24° 55' E	12.00' RT	S 12° 55' E		
1525+46		1526+02		1531+72		1533+78		1537+23				

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1525+00 TO 1525+83 LT - 30' FROM NEW 12" PIPE ℄
STA. 1525+83 TO 1538+00 LT - 10' FROM NEW 12" PIPE ℄
STA. 1525+00 TO 1538+00RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1533+71 TO 1536+12 LT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1536+88 TO 1538+00 LT - 10' FROM NEW 12" PIPE ℄

INSTALL MATTING:
1531+45-1534+83

INSTALL MATTING:
STA. 1536+32 TO 1536+44
STA. 1536+97 TO 1537+40

HORIZONTAL SCALE
50 25 0 50 100 150 feet

VERTICAL SCALE
50 25 0 50 100 150 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	2D		4A		A		2		7	W	4A	
SOIL TYPE	AmC (PAS)		CwA (PAS)				VgC (PAS)		Cv (PAS)			
LC/LU	FORESTED / AGRICULTURAL		PASTURE / TRAVEL						WATER		PASTURE	
STREAMS								STREAM 2012-TB-JB-7 - (P) STATION 1536+10 TO 1537+04				
WETLANDS									WETLAND 2012-JB-12 - STATION 1536+31 TO 1537+42 CLASS II			
VERNAL POOLS												
SIGNIFICANT NATURAL COMMUNITIES												
RTE SPECIES												
NRC WILDLIFE HABITAT												
ARCHAEOLOGY SITES							ARCH. SITE					

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
		2	GJM	BCK	IFC 2016 EDITS (05/2016)
ANGP-T-C-061A	ALIGNMENT SHEET	1	VGS	VGS	OLD STAGE ROAD RE-ROUTE (11/13/15)

	INITIALS	BID DATE	INITIALS	CONSTRUCTION DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 50' | DWG. ANGP-EPSC-061A | REV. 2

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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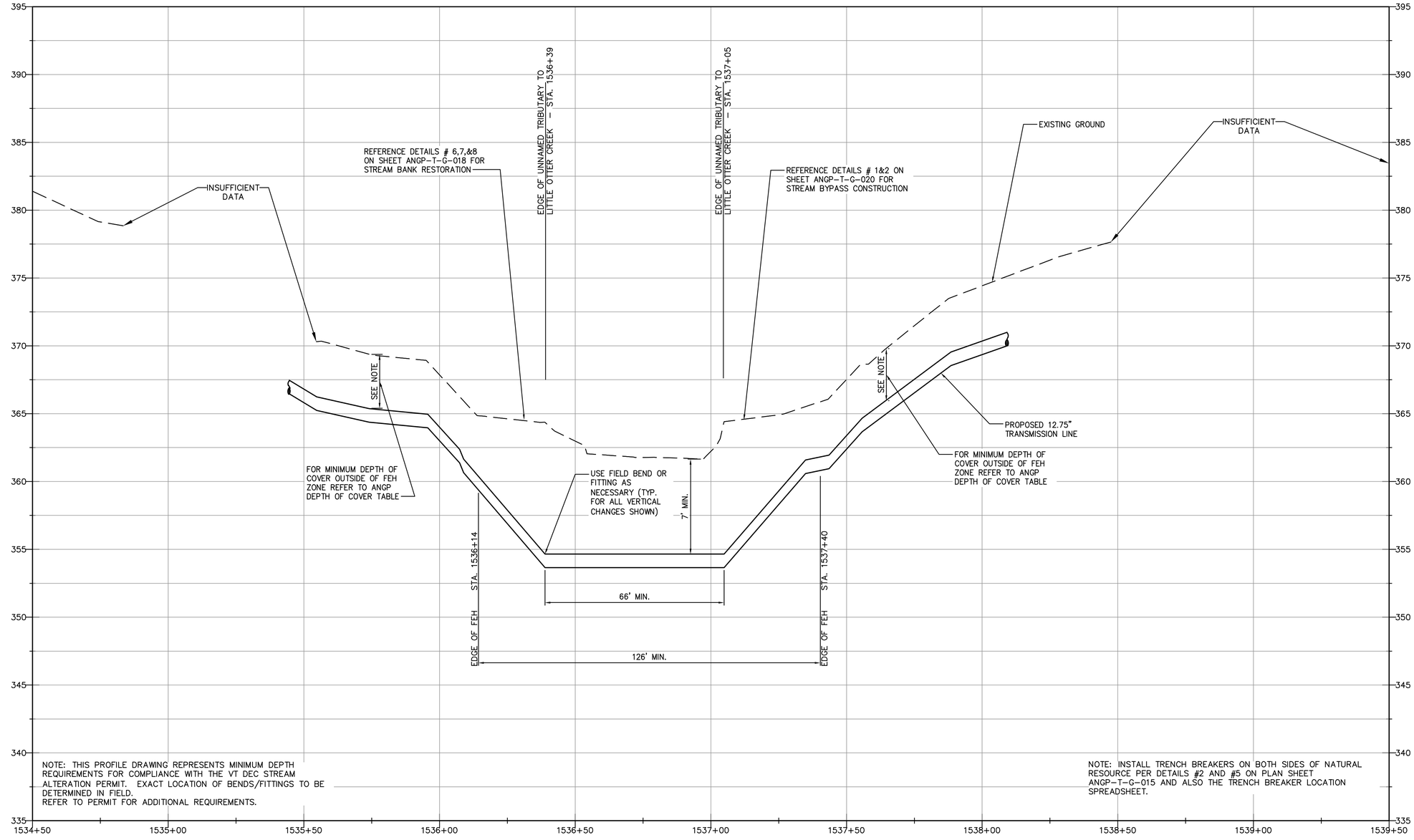
PROFILE



NOTE: THIS PROFILE DRAWING REPRESENTS MINIMUM DEPTH REQUIREMENTS FOR COMPLIANCE WITH THE VT DEC STREAM ALTERATION PERMIT. EXACT LOCATION OF BENDS/FITTINGS TO BE DETERMINED IN FIELD.
REFER TO PERMIT FOR ADDITIONAL REQUIREMENTS.

NOTE: INSTALL TRENCH BREAKERS ON BOTH SIDES OF NATURAL RESOURCE PER DETAILS #2 AND #5 ON PLAN SHEET ANGP-T-G-015 AND ALSO THE TRENCH BREAKER LOCATION SPREADSHEET.

STATE OF VERMONT ROBERT E. HOLLINGSWORTH NO. 97764 CIVIL LICENSED PROFESSIONAL ENGINEER

NOTE: STREAM CROSSING MUST BE CONSTRUCTED BETWEEN JUNE 1 AND OCTOBER 1

STREAM CROSSING PROFILE
UNNAMED TRIBUTARY TO LITTLE OTTER CREEK
STATION 1536+73±
MILE POST 29.10

SCALE: HORIZ. 1"=20'
VERT. 1"=4'

HORIZONTAL SCALE
20 10 0 20 40 60 feet
4 2 0 4 8 12 feet
VERTICAL SCALE

NOTE: THE LIMITS SHOWN FOR THIS STREAM DO NOT MATCH UP WITH WHAT IS SHOWN ON THE ALIGNMENT SHEET PLAN VIEW. FULL FEH COMPLIANCE IS NOT REQUIRED DUE TO THE PROXIMITY TO THE ROADWAY, THEREFORE A TRANSITION BACK TO NORMAL BURIAL DEPTH CAN OCCUR ONCE OUTSIDE OF APPARENT TOP OF BANK (1536+39 AND 1537+05).

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
OPEN TRENCH STREAM CROSSING PROFILE

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: AS NOTED | DWG. ANGP-T-C-061AA | REV. 0

VHB Vanasse Hangen Brustlin, Inc.

Vermont Gas

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EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1538+00 TO 1547+09 LT - 10' FROM NEW 12" PIPE ℄
STA. 1538+00 TO 1547+00 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1538+00 TO 1538+44 LT - 10' FROM NEW 12" PIPE ℄

2
INSTALL MATTING:
1540+51-1540+95

INSTALL CONSTRUCTION DEMARCATION:
STA. 1547+00 TO 1547+88 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1547+88 TO 1553+17 RT - 10' FROM NEW 12" PIPE ℄
STA. 1547+09 TO 1548+00 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1548+00 TO 1553+25 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1553+17 TO 1553+25 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
50 25 0 50 100 150 feet
50 25 0 50 100 150 feet
VERTICAL SCALE

CONST. TYPE	(A) 2 · (4A) · (11) · (4B)
SOIL TYPE	Cv (PAS) · VgB (PAS) · VgD · VgB (PAS)
LC/LU	PASTURE TRAVEL · TRAVEL FORESTED
STREAMS	
WETLANDS	
VERNAL POOLS	
SIGNIFICANT NATURAL COMMUNITIES	MESIC MAPLE ASH HICKORY OAK FOREST
RTE SPECIES	
NRC WILDLIFE HABITAT	DEER WINTERING AREA
ARCHAEOLOGY SITES	2 ARCH. SITE

MATCH LINE
MATCH LINE

		2	GJM	BCK	IFC 2016 EDITS (05/2016)
ANGP-T-C-061B	ALIGNMENT SHEET	1	VGS	VGS	OLD STAGE ROAD RE-ROUTE (11/13/15)
DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION

	BID		CONSTRUCTION	
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
	INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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South Burlington, VT 05403
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YEAR: 2016 | W.O. | SCALE: 1" = 50' | DWG. ANGP-EPSC-061B | REV. 2

RIGHT-OF-WAY

MATCHLINE

181
N/F
HULBURT, HERRICK & CHARLOTTE

188.01
N/F
VERMONT GAS
SYSTEMS, INC.

182
OLD STAGE ROAD

192
N/F
HERRICK JR; MICHAEL, DAVID
& HURLBURT, JOSHUA

MATCH LINE

SURVEY DATA

PIPE ALIGNMENT PARALLELS ROAD RIGHT-OF-WAY,
FOR CLARITY, NOT ALL SURVEY DATA IS SHOWN

Station	Bearing	Deflection
1553+31	S 42° 44' E	45°00' LT
1553+81	S 87° 44' E	45°00' RT
1553+95	S 42° 44' E	45°00' RT
1554+01	S 02° 16' W	05°55' LT
	S 03° 39' E	
1555+04		05°41' LT
	S 09° 20' E	
1556+11		04°29' RT
	S 04° 51' E	
1559+38		14°26' LT
	S 19° 17' E	
1562+30		04°48' RT
	S 14° 29' E	
1565+19	S 22° 28' E	07°59' LT
1565+25	S 22° 32' W	45°00' RT
1565+40	S 67° 32' W	45°00' RT

ALIGNMENT DETAIL

TOWN OF MONKTON
ADDISON COUNTY

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	- - - - - -
CENTERLINE OF STREAM	— - — - —
TEMPORARY STREAM CROSSING	▨
WETLAND	—··—··—
50' WETLAND BUFFER	—·—·—·—
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 1553+25 TO 1554+40 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1553+40 TO 1565+75 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1553+25 TO 1553+95 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1553+95 TO 1565+26 LT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1555+06 TO 1556+81 RT - 35' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1555+20 TO 1556+46

INSTALL CONSTRUCTION DEMARCATION:
STA. 1565+75 TO 1565+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 1565+26 TO 1565+41 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1565+41TO 1565+50 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1565+75 TO 1565+50 RT - 25' FROM NEW 12" PIPE ℄

INSTALL STABALIZED CONSTRUCTION ENTRANCE:
STA. 1565+90

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
50 25 0 50 100 150 feet
50 25 0 50 100 150 feet
VERTICAL SCALE

CONST. TYPE	(11) · (W) · (4A) · (11) (1H)
SOIL TYPE	VgB (PAS) / VgC (PAS) · VgD · VgC (PAS) · VgB (PAS) · FaC · VgB (PAS)
LC/LU	FORRESTED TRAVEL · AGRICULTURAL
STREAMS	STREAM 2013-AS-SC-RS-1 (I) - STATION 1565+26 TO 1565+50
WETLANDS	WETLAND 2012-JB-10 - STATION 1555+20 TO 1556+46 CLASS III
VERNAL POOLS	
SIGNIFICANT NATURAL COMMUNITIES	
RTE SPECIES	
NRC WILDLIFE HABITAT	DEER WINTERING AREA
ARCHAEOLOGY SITES	

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
		2	GJM	BCK	IFC 2016 EDITS (05/2016)
ANGP-T-C-062	ALIGNMENT SHEET	1	VGS	VGS	OLD STAGE ROAD RE-ROUTE (11/13/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 50' | DWG. ANGP-EPSC-062 | REV. 2

RIGHT-OF-WAY

MATCHLINE

192
N/F
HURLBURT, HERRICK & CHARLOTTE

194
N/F
GRACE, LAWRENCE JR. & SANDRA L.

195
PARKS - HURLBURT ROAD

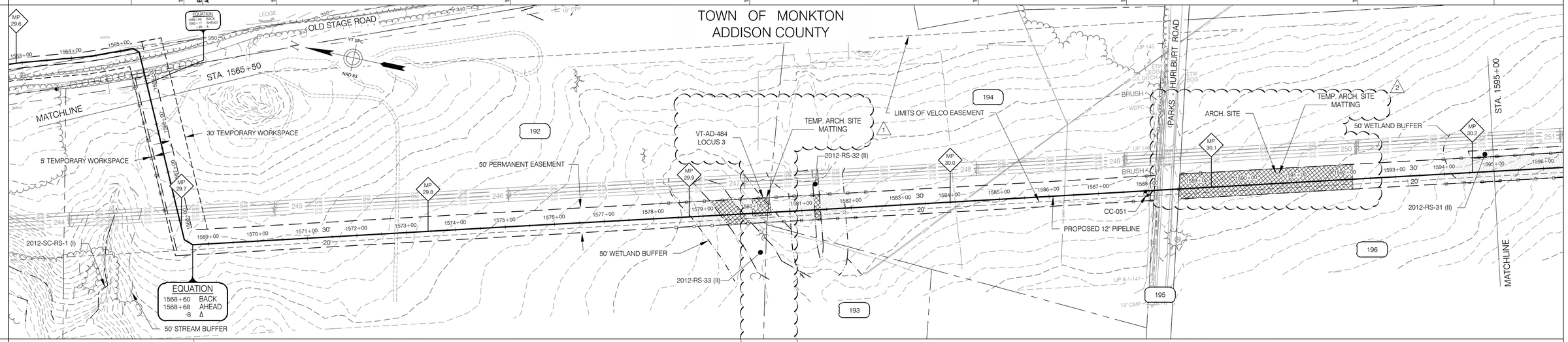
196
N/F
HURLBURT, HERRICK & CHARLOTTE

MATCH LINE

SURVEY DATA

1568+40	Bgc. 1568+60 Ahd. 1568+68 34'40" LT	1570+39	1575+12	1579+95	1584+58	1587+58	1592+26
S 67° 32' W	S 22° 32' W	S 12° 09' E	S 12° 10' E	S 12° 03' E	S 12° 08' E	S 12° 13' E	S 12° 09' E	S 12° 06' E
45'06" LT	8.2 ft.	00'01" LT	00'07" RT	00'00" LT	00'04" LT	00'03" RT	00'03" RT	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1565+50 TO 1568+40 RT - 25' FROM NEW 12" PIPE ℄
STA. 1565+50 TO 1568+30 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1565+50 TO 1566+00 RT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1568+40 TO 1568+68 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1568+30 TO 1568+99 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1568+68 TO 1588+11 RT - 20' FROM NEW 12" PIPE ℄
STA. 1568+99 TO 1588+16 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1578+39 TO 1582+38 RT - 20' FROM NEW 12" PIPE ℄
STA. 1578+01 TO 1582+37 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1579+15 TO 1579+97

INSTALL MATTING:
STA. 1580+00 TO 1580+37

INSTALL MATTING:
STA. 1581+26 TO 1581+37

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1588+15 TO 1588+65

INSTALL CONSTRUCTION DEMARCATION:
STA. 1588+61 TO 1595+00 RT - 20' FROM NEW 12" PIPE ℄
STA. 1588+66 TO 1595+00 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1587+61 TO 1588+11 RT - 20' FROM NEW 12" PIPE ℄
STA. 1587+66 TO 1588+16 LT - 30' FROM NEW 12" PIPE ℄
STA. 1588+61 TO 1589+11 RT - 20' FROM NEW 12" PIPE ℄
STA. 1588+66 TO 1589+16 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1588+63 TO 1592+12

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1593+92 TO 1595+00 RT - 20' FROM NEW 12" PIPE ℄
STA. 1593+52 TO 1595+00 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1594+54 TO 1595+00

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

| | | |

RIGHT-OF-WAY

MATCHLINE

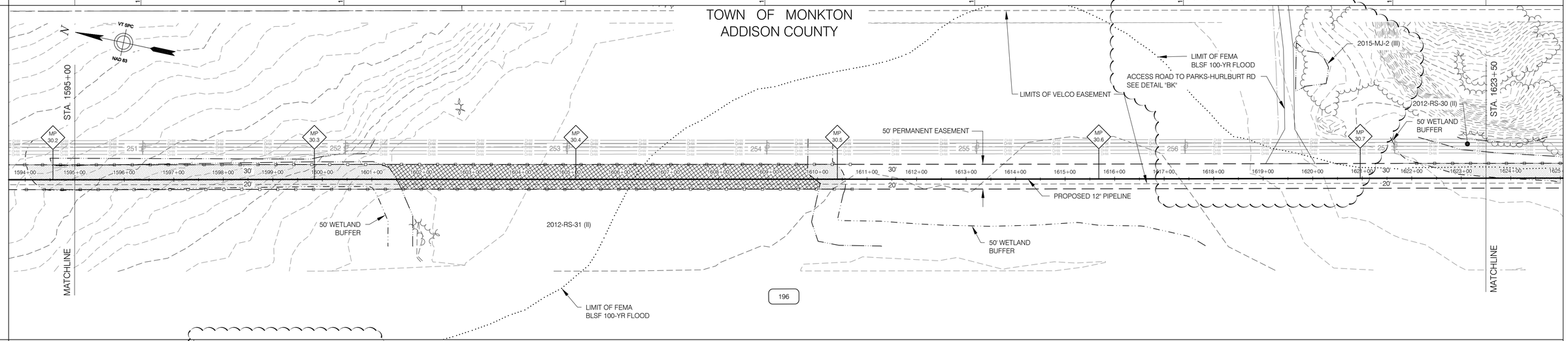
196
N/F
HURLBURT, HERRICK & CHARLOTTE

MATCH LINE

SURVEY DATA

1596+39	00.00' LT	1600+48	00.00' RT	1604+96	00.00' LT	1608+99	00.00' RT	1613+22	00.00' LT	1617+44	00.00' LT	1621+67	00.00' RT
S 12° 06' E		S 12° 12' E		S 12° 04' E		S 12° 08' E		S 12° 06' E		S 12° 12' E		S 12° 14' E		S 12° 08' E

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1595+00 TO 1623+50 RT - 20' FROM NEW 12" PIPE ℄
STA. 1595+00 TO 1619+03 LT - 30' FROM NEW 12" PIPE ℄
STA. 1620+03 TO 1623+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1595+00 TO 1611+05 RT - 20' FROM NEW 12" PIPE ℄
STA. 1595+00 TO 1610+88 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1601+18 TO 1610+07

CONSTRUCTION ENTRANCE:
STA. 1619+50

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1621+67 TO 1623+50 LT - 30' FROM NEW 12" PIPE ℄

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE					W		2D	
SOIL TYPE	VgB (PAS)	Cw (PAS)	VgC (PAS)	Cw (PAS)	Lh		AmB (PAS)	
LC/LU	WETLAND	AGRICULTURAL			PASTURE			WETLAND
STREAMS								
WETLANDS	WETLAND 2012-RS-31 - STATION 1595+00 TO 1610+57 CLASS II						WETLAND 2012-RS-30 - STATION 1622-16 TO 1623+50 CLASS II	
VERNAL POOLS								
SIGNIFICANT NATURAL COMMUNITIES								
RTE SPECIES								
NRC WILDLIFE HABITAT								
ARCHAEOLOGY SITES								

MATCH LINE

MATCH LINE

Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-064	ALIGNMENT SHEET	1	VGS	VGS	ACCESS ROAD "BK" ADDED (11/13/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-064 | REV. 1

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

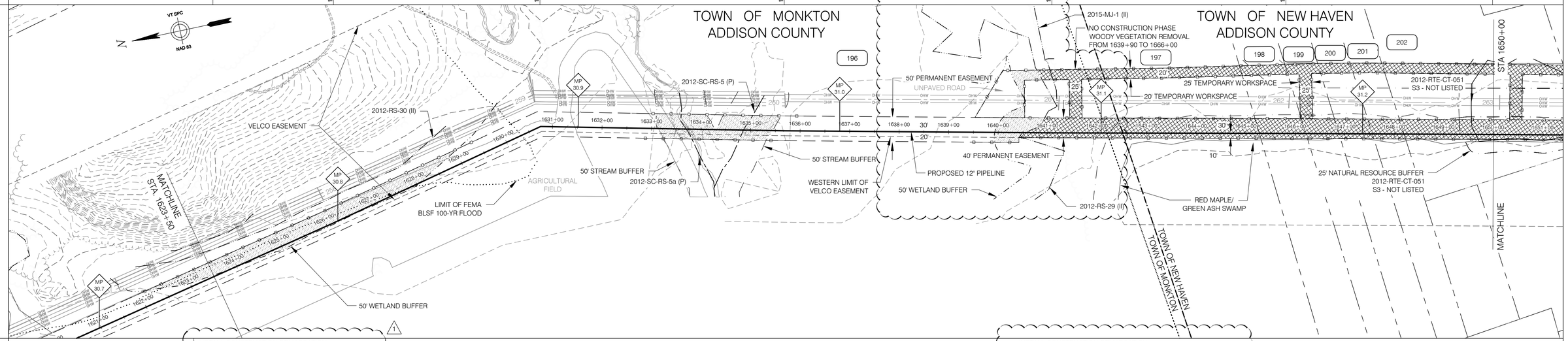
RIGHT-OF-WAY

MATCHLINE | 196 N/F HURLBERT, HERRICK; & CHARLOTTE | TOWN OF MONKTON / TOWN OF NEW HAVEN | 197 N/F MERRITT, MARGARET | 198 N/F MERRITT, MARGARET | 199 N/F MERRITT, MARGARET | 200 N/F MERRITT, MARGARET | 201 N/F MERRITT, MARGARET | 202 N/F EVEREST, DOUGLAS A. | MATCH LINE

SURVEY DATA

S 12° 08' E | 00°49' LT | 1626+16 | S 12° 57' E | 26°00' RT | 1630+76 | S 13° 03' W | 00°34' LT | 1635+69 | S 12° 29' W | 00°17' LT | 1641+10 | S 12° 12' W | 00°08' RT | 1645+82 | S 12° 21' W

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1623+50 TO 1640+42 RT - 20' FROM NEW 12" PIPE ℄
STA. 1623+50 TO 1639+52 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1623+50 TO 1629+55 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1632+73 TO 1635+81 RT - 20' FROM NEW 12" PIPE ℄
STA. 1632+59 TO 1636+11 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1640+42 TO 1650+00 RT - 10' FROM NEW 12" PIPE ℄
STA. 1639+52 TO 1650+00 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1639+43 TO 1640+42 RT - 20' FROM NEW 12" PIPE ℄

INSTALL STABALIZED CONSTRUCTION ENTRANCE:
STA. 1640+00

INSTALL MATTING:
STA. 1640+42 TO 1650+00

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1640+42 TO 1650+00 RT - 10' FROM NEW 12" PIPE ℄
STA. 1640+51 TO 1641+44 LT - 30' FROM NEW 12" PIPE ℄
STA. 1641+69 TO 1646+10 LT - 30' FROM NEW 12" PIPE ℄
STA. 1646+35 TO 1650+00 LT - 30' FROM NEW 12" PIPE ℄

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE			2D				7				2D			W		
SOIL TYPE		Rk	AmB (PAS)				Wo (PAS)			Cw (PAS)			Lk			
LC/LU		PASTURE / AGRICULTURE											FORESTED / POWERLINE			
STREAMS						STREAM 2012-SC-RS-5a (P) - STATION 1633+09 TO 1634+30			STREAM 2012-SC-RS-5 (P) - STATION 1634+30 TO 1635+61							
WETLANDS	MATCH LINE	WETLAND 2012-RS-30 - STATION 1623+50 TO 1629+05 CLASS II											WETLAND 2012-RS-29 - STATION 1639+92 TO 1650+00 CLASS II			MATCH LINE
VERNAL POOLS																
SIGNIFICANT NATURAL COMMUNITIES																
RTE SPECIES															2012-RTE-CT-051	
NRC WILDLIFE HABITAT																
ARCHAEOLOGY SITES																

VHB Vanasse Hangen Brustlin, Inc.

							BID		CONSTRUCTION	
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-G-07-010	ACCESS ROAD DETAILS					DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-065	ALIGNMENT SHEET	1	VGS	VGS		DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION	INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-065 | REV. 1

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
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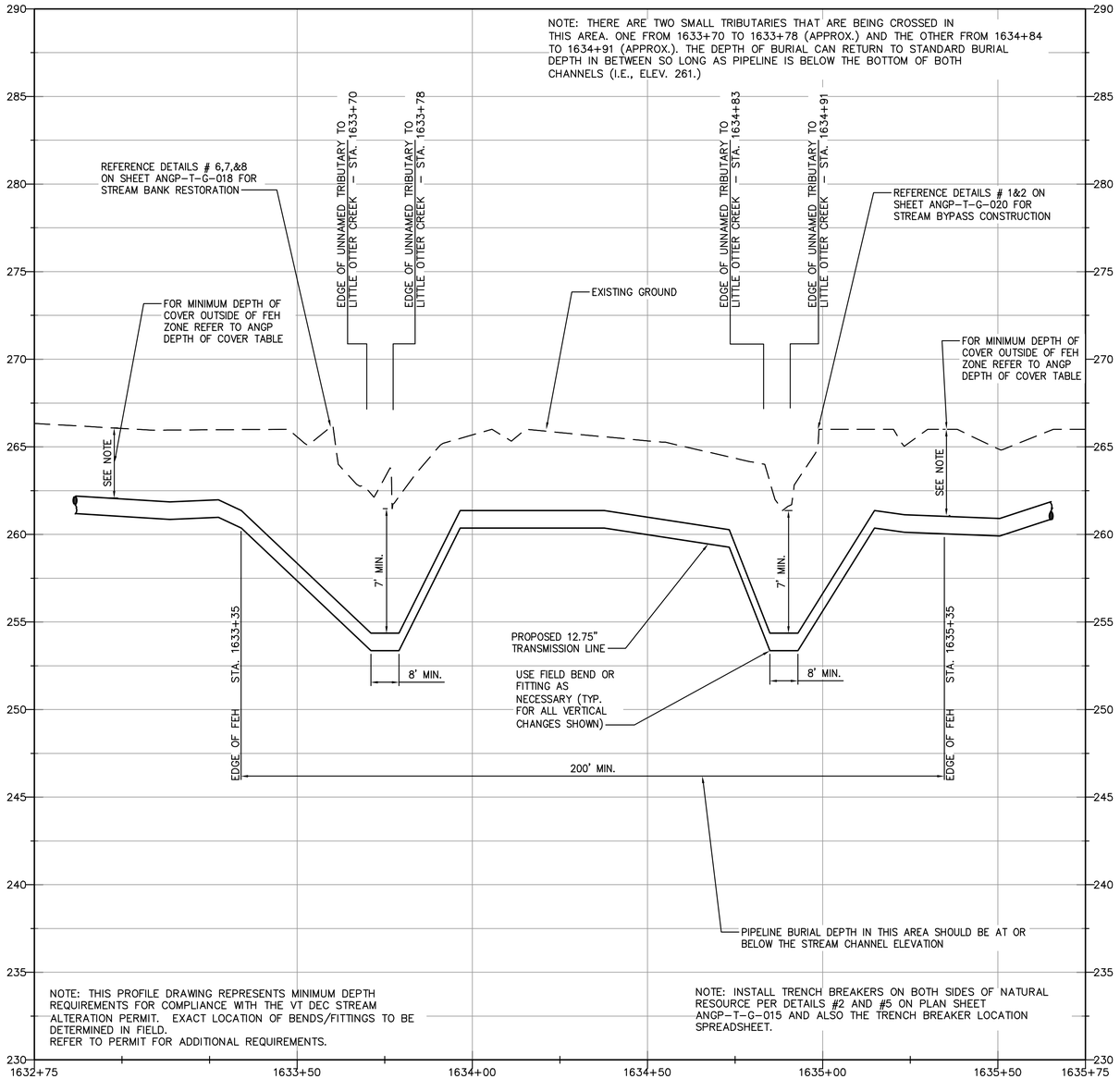
PROFILE



STREAM CROSSING PROFILE
UNNAMED TRIBUTARY TO LITTLE OTTER CREEK
STATION 1634+27±
MILE POST 30.95

SCALE: HORIZ. 1"=20'
VERT. 1"=4'

NOTE: STREAM CROSSING MUST BE CONSTRUCTED BETWEEN JUNE 1 AND OCTOBER 1

HORIZONTAL SCALE
20 10 0 20 40 60 feet
4 2 0 4 8 12 feet
VERTICAL SCALE

STATE OF VERMONT
ROBERT E. HOLLENBECK
NO. 97764
CIVIL
PROFESSIONAL ENGINEER

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION	BID		CONSTRUCTION	
							INITIALS	DATE	INITIALS	DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
						DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
OPEN TRENCH STREAM CROSSING PROFILE

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: AS NOTED | DWG. ANGP-T-C-065A | REV. 0

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

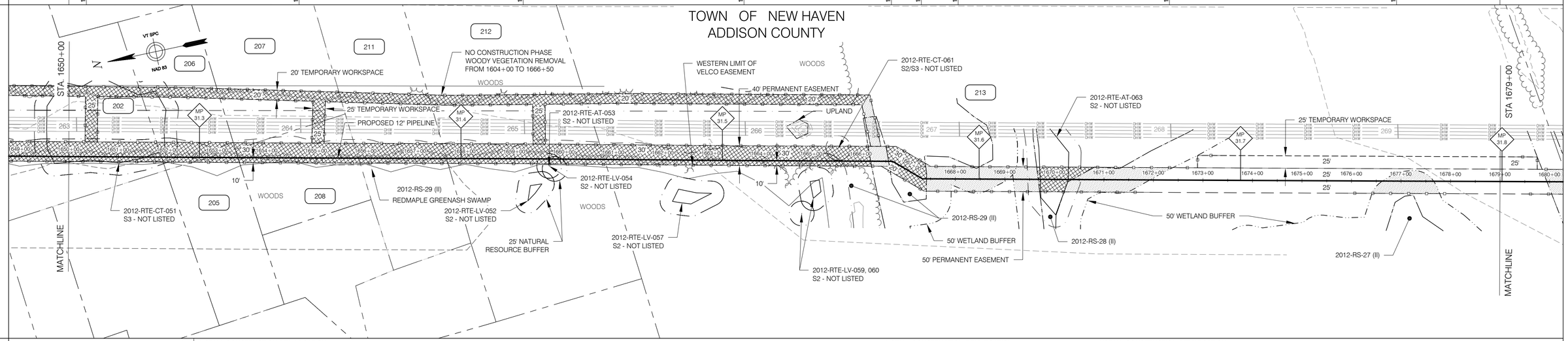
RIGHT-OF-WAY

MATCHLINE | 202 N/F EVEREST, JEFFREY | 206 N/F MERRITT, MARGARET | 205 N/F PECK, JOHN | 207 N/F MERRITT, MARGARET | 208 N/F PECK, JOHN | 211 N/F LEGAULT, JOHN & ANN | 212 N/F MERRITT, MARGARET | 213 N/F CHOINIERE, JAMES & SHERRY | MATCH LINE

SURVEY DATA

RT 20.00' LT 0.00'	RT 0.00' LT 0.00'	RT 0.00' LT 0.00'	RT 91.00' LT 0.00'	RT 0.00' LT 0.00'	RT 29.59' LT 29.52'	RT 0.00' LT 0.00'	RT 0.00' LT 0.00'	RT 0.00' LT 0.00'
S 12° 21' W	S 12° 23' W	S 12° 16' W	S 12° 32' W	S 12° 19' W	S 42° 19' W	S 12° 18' W	S 12° 21' W	S 12° 19' W	S 12° 17' W
1650+15	1654+67	1659+20	1663+66	1666+63	1667+33	1668+08	1672+35	1676+93	

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1650+00 TO 1666+41 RT - 10' FROM NEW 12" PIPE ℄
STA. 1650+00 TO 1667+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1650+00 TO 1666+41 RT - 10' FROM NEW 12" PIPE ℄
STA. 1650+00 TO 1650+33 LT - 30' FROM NEW 12" PIPE ℄
STA. 1650+58 TO 1654+91 LT - 30' FROM NEW 12" PIPE ℄
STA. 1655+16 TO 1659+37 LT - 30' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1650+00 TO 1666+19

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1659+62 TO 1666+19 LT - 30' FROM NEW 12" PIPE ℄
STA. 1666+40 TO 1667+50 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1666+41 TO 1667+37 RT - 20' FROM NEW 12" PIPE ℄
STA. 1667+50 TO 1672+89 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1666+41 TO 1667+37 RT - 20' FROM NEW 12" PIPE ℄
STA. 1667+50 TO 1672+89 LT - 25' FROM NEW 12" PIPE ℄
STA. 1672+89 TO 1673+39 LT - 50 FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1666+56 TO 1667+42

INSTALL CONSTRUCTION DEMARCATION:
STA. 1667+37 TO 1679+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 1672+89 TO 1679+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1667+37 TO 1671+96 RT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1669+67 TO 1671+80

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1675+92 TO 1678+28 RT - 25' FROM NEW 12" PIPE ℄

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	2D W		W	2A	1A
SOIL TYPE	Lk		Sw (PAS)		Cv
LC/LU	FORESTED/POWERLINES NOT CLASSIFIED		GRASS AGRICULTURAL		
STREAMS					
WETLANDS	WETLAND 2012-RS-29 - STATION 1650+00 TO 1669+20 CLASS II		WETLAND 2012-RS-28 - STATION 1669+20 TO 1672+90 CLASS II		WETLAND 2012-RS-27 - STATION 1676+42 TO 1677+78 CLASS II
VERNAL POOLS					
SIGNIFICANT NATURAL COMMUNITIES					
RTE SPECIES	2012-RTE-CT-051	2012-RTE-AT-053, 2012-RTE-LV-053, 2012-RTE-LV-054, 2012-RTE-LV-057, 2012-RTE-LV-059, 060, 2012-RTE-CT-061		2012-RTE-AT-063	
NRC WILDLIFE HABITAT					
ARCHAEOLOGY SITES					

MATCH LINE | MATCH LINE

VHB Vanasse Hangen Brustlin, Inc.

DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
	ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
	DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
	DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

DWG. NO.	REFERENCE DWG.	REV	DSN	CK
ANGP-T-C-066	ALIGNMENT SHEET			

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-066 | REV. 0

RIGHT-OF-WAY

MATCHLINE

213 N/F CHOINIERE, JAMES & SHERRY

214 N/F ELGIN SPRING FARM

215 N/F SMITH, HARVEY

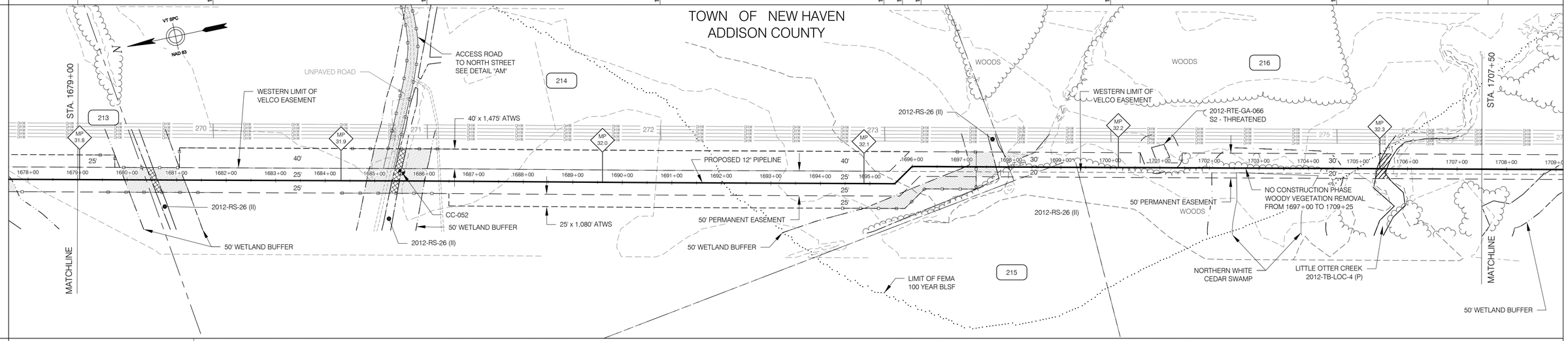
216 N/F FOUR-HILLS FARM PARTNERSHIP

MATCH LINE

SURVEY DATA

S 12° 17' W | 1681+74 | 00°00' LT | S 12° 17' W | 1686+06 | 00°10' RT | S 12° 28' W | 1690+77 | 00°10' LT | S 12° 17' W | 1695+29 | 00°02' RT | S 12° 20' W | 1695+50 | 44°59' LT | S 32° 40' E | 1695+99 | 45°00' RT | S 12° 20' W | 1700+01 | 00°01' LT | S 12° 19' W | 1704+57 | 00°00' RT | S 12° 19' W

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	- - - - - -
CENTERLINE OF STREAM	—— - —— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	— ·· — ·· —
50' WETLAND BUFFER	— · · — · · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 1679+00 TO 1686+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 1679+00 TO 1679+75 LT - 50' FROM NEW 12" PIPE ℄
STA. 1679+75 TO 1681+05 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1679+55 TO 1681+74 RT - 25' FROM NEW 12" PIPE ℄
STA. 1679+25 TO 1681+46 LT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1680+48 TO 1680+62

INSTALL CONSTRUCTION DEMARCATION:
STA. 1686+50 TO 1696+25 RT - 50' FROM NEW 12" PIPE ℄
STA. 1681+05 TO 1695+50 LT - 65' FROM NEW 12" PIPE ℄
STA. 1696+25 TO 1697+29 RT - 45' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1684+29 TO 1686+46 RT - 25' FROM NEW 12" PIPE ℄
STA. 1684+46 TO 1685+23 LT - 50' FROM NEW 12" PIPE ℄
STA. 1685+44 TO 1686+56 LT - 50' FROM NEW 12" PIPE ℄

INSTALL STABALIZED CONSTRUCTION ENTRANCE:
STA. 1685+33

INSTALL MATTING:
STA. 1685+34 TO 1685+50

INSTALL CONSTRUCTION DEMARCATION:
STA. 1697+29 TO 1707+50 RT - 20' FROM NEW 12" PIPE ℄
STA. 1695+50 TO 1695+99 LT - WIDTH VARIES' FROM NEW 12" PIPE ℄
STA. 1695+99 TO 1700+60 LT - 30' FROM NEW 12" PIPE ℄
STA. 1700+60 TO 1701+45 LT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1694+38 TO 1696+25 RT - 50' FROM NEW 12" PIPE ℄
STA. 1696+25 TO 1697+29 RT - 45' FROM NEW 12" PIPE ℄
STA. 1696+59 TO 1697+29 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1701+45 TO 1707+50 LT - 30' FROM NEW 12" PIPE ℄

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

CONST. TYPE	(1A) (2A) (W) (W) (1A) (W) (8)
SOIL TYPE	Cv (PAS); Cv (PAS); Lk; Sw (PAS); Cv (PAS); Lk; Wo (PAS); DaA
LC/LU	GRASS; PASTURE; FORESTED/POWERLINES AGRICULTURE; NOT CLASSIFIED
STREAMS	STREAM 2012-TB-LOC-4 (P) STATION 1705+35 TO 1705+73 "LITTLE OTTER CREEK"
WETLANDS	WETLAND 2012-RS-26 - STATION 1679+75 TO 1681+25 CLASS II WETLAND 2012-RS-26 - STATION 1684+79 TO 1686+07 CLASS II WETLAND 2012-RS-26 - STATION 1694+92 TO 1707+50 CLASS II
VERNAL POOLS	
SIGNIFICANT NATURAL COMMUNITIES	
RTE SPECIES	2012-RTE-GA-066
NRC WILDLIFE HABITAT	
ARCHAEOLOGY SITES	

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS				
ANGP-T-C-067	ALIGNMENT SHEET				

	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 100' | DWG. ANGP-EPSC-067 | REV. 0

RIGHT-OF-WAY

MATCHLINE

216 N/F FOUR-HILLS FARM

216.01 PLANK ROAD

217 N/F ELGIN SPRING FARM

219 N/F LUTTON, DAVID

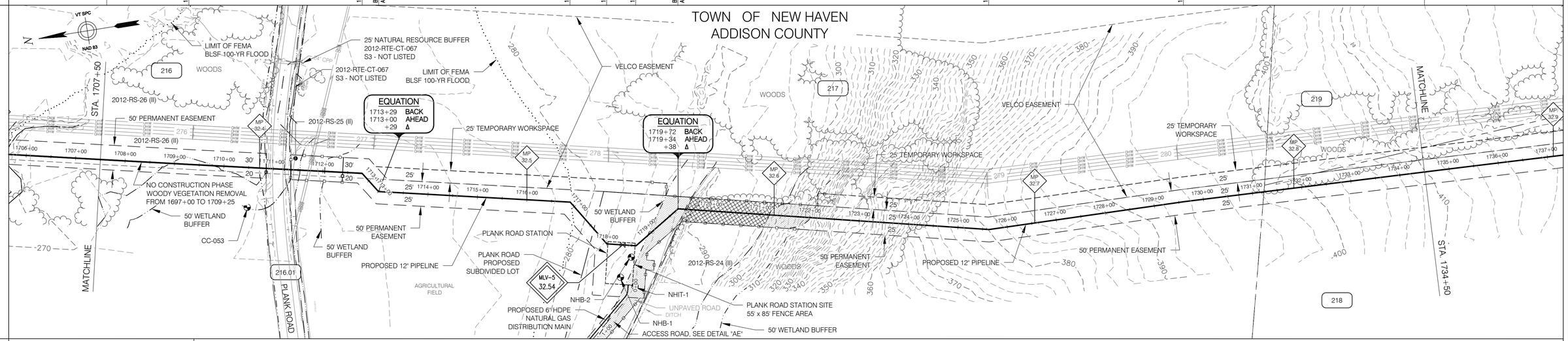
218 N/F ELGIN SPRING FARM

MATCHLINE

SURVEY DATA

1709+29	00°14" RT	1712+79	45°01" RT	29 ft.	1716+88	45°33" RT	44°59" LT	1718+00	45°00" LT	1718+59	38.4 ft.	1725+63	11°55" LT	1729+60	01°05" RT
S 12° 19" W		S 12° 06" W		S 57° 07" W	S 12° 18" W		S 57° 52" W	S 12° 52" W		S 32° 08" E	S 12° 57" W		S 01° 01" W		S 02° 07" W
				Bck: 1713+29 Ahd: 1713+00 44°59" LT							Bck: 1719+72 Ahd: 1719+34 45°05" RT				

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1707+50 TO 1710+86 RT - 20' FROM NEW 12" PIPE ℄
STA. 1707+50 TO 1710+84 LT - 30' FROM NEW 12" PIPE ℄
STA. 1711+36 TO 1713+00 RT - 20' FROM NEW 12" PIPE ℄
STA. 1711+34 TO 1712+88 LT - 30' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1711+36 TO 1712+52 RT - 20' FROM NEW 12" PIPE ℄
STA. 1711+34 TO 1712+70 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1710+85

INSTALL CONSTRUCTION DEMARCATION:
STA. 1712+40

INSTALL MATTING:
STA. 1711+21 TO 1711+39

INSTALL CONSTRUCTION DEMARCATION:
STA. 1713+00 TO 1717+92 RT - 25' FROM NEW 12" PIPE ℄
STA. 1712+88 TO 1713+00 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1713+00 TO 1716+87 LT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1719+57 TO 1721+60

INSTALL CONSTRUCTION DEMARCATION:
STA. 1717+92 TO 1718+66 RT - WIDTH VARIES' FROM NEW 12" PIPE ℄
STA. 1716+87 TO 1719+34 LT - WIDTH VARIES' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1718+00 TO 1718+66 RT - WIDTH VARIES' FROM NEW 12" PIPE ℄
STA. 1718+66 TO 1722+12 RT - 25' FROM NEW 12" PIPE ℄
STA. 1719+60 TO 1719+72 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1719+34 TO 1722+20 LT - 25' FROM NEW 12" PIPE ℄
STA. 1722+20 TO 1722+64 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1718+66 TO 1734+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 1719+34 TO 1722+20 LT - 25' FROM NEW 12" PIPE ℄
STA. 1722+20 TO 1734+50 LT - 50' FROM NEW 12" PIPE ℄

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE		W	8		W	1A		W	2A		1A					
SOIL TYPE		Wo	DaA	Wo (PAS)		Cw (PAS)	NsD	NeC	NeC (PAS)	NeB (PAS)	NsC					
LC/LU		FORESTED / AGRICULTURAL/POWERLINE		PAVED / TRAVEL	CROPS		FORESTED		CROPS / AGRICULTURAL/POWERLINE							
STREAMS																
WETLANDS	MATCH LINE	WETLAND 2012-RS-26 - STATION 1707+50 TO 1710+85 CLASS II		WETLAND 2012-RS-25 - STATION 1710+85 TO 1712+18 CLASS II			WETLAND 2012-RS-24 - STATION 1718+88 TO 1722+14 CLASS II									MATCH LINE
VERNAL POOLS																
SIGNIFICANT NATURAL COMMUNITIES																
RTE SPECIES																
NRC WILDLIFE HABITAT																
ARCHAEOLOGY SITES																

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
ANGP-T-G-07-010	ACCESS ROAD DETAILS						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
ANGP-D1-C-01	EPSC PLAN						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-G-021	STATION AND VALVE DETAILS						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-068	ALIGNMENT SHEET	1	GJM	TDB		VHB HDD AREA REVISIONS (6/24/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-068 | REV. 1

RIGHT-OF-WAY	MATCHLINE	218 N/F ELGIN SPRING FARM	MATCHLINE

SURVEY DATA

1735+31	1739+82	Bck: 1744+10 Ahd: 1744+11 00'06" RT	1748+73	1753+05	1757+89	1761+98
00'06" RT	00'05" LT	-1.1 ft.	00'01" LT	00'04" LT	00'02" RT	00'01" RT

S 02° 07' W · S 02° 14' W · S 02° 08' W · S 02° 15' W · S 02° 13' W · S 02° 08' W · S 02° 11' W · S 02° 12' W

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	– – – – – –
CENTERLINE OF STREAM	—— - —— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	—··—··—
50' WETLAND BUFFER	— · — · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 1734+50 TO 1747+05 RT - 25' FROM NEW 12" PIPE ℄
STA. 1734+50 TO 1755+51 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1747+05 TO 1748+05 RT - 75' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1748+05 TO 1755+51 RT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1755+51 TO 1761+96 RT - 25' FROM NEW 12" PIPE ℄
STA. 1755+51 TO 1761+97 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1761+96 TO 1763+96 RT - 50' FROM NEW 12" PIPE ℄
STA. 1763+96 TO 1764+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 1761+97 TO 1764+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1747+59

INSTALL MATTING:
STA. 1757+59 TO 1759+88

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1A		2A A		1A	
SOIL TYPE	NsC	MrB (PAS)			AdB (PAS)	
LC/LU	CROPS AGRICULTURAL/POWERLINE					
STREAMS						
WETLANDS	MATCH LINE					MATCH LINE
VERNAL POOLS						
SIGNIFICANT NATURAL COMMUNITIES						
RTE SPECIES						
NRC WILDLIFE HABITAT						
ARCHAEOLOGY SITES			VT-AD-446			

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS				
ANGP-T-C-069	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016	W.O.	SCALE: 1"=100'	DWG. ANGP-EPSC-069	REV. 1

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — —
TEMPORARY WORKSPACE	– – – –
CENTERLINE OF STREAM	— - —
TEMPORARY STREAM CROSSING	▨
WETLAND	— · · —
50' WETLAND BUFFER	— · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 1764+00 TO 1768+06 RT - 25' FROM NEW 12" PIPE ℄
STA. 1764+00 TO 1768+18 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1768+54 TO 1769+54 RT - 75' FROM NEW 12" PIPE ℄
STA. 1768+75 TO 1774+51 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1769+54 TO 1790+30 RT - 25' FROM NEW 12" PIPE ℄
STA. 1774+51 TO 1777+09 LT - 25' FROM NEW 12" PIPE ℄
STA. 1777+09 TO 1778+02 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1778+02 TO 1780+58 LT - 25' FROM NEW 12" PIPE ℄
STA. 1780+58 TO 1780+95 LT - 50' FROM NEW 12" PIPE ℄
STA. 1780+95 TO 1790+29 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1790+30 TO 1792+30 RT - 50' FROM NEW 12" PIPE ℄
STA. 1792+30 TO 1793+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 1790+29 TO 1792+91 LT - 50' FROM NEW 12" PIPE ℄
STA. 1792+91 TO 1793+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1767+56 TO 1768+06 RT - 25' FROM NEW 12" PIPE ℄
STA. 1767+68 TO 1768+18 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1768+54 TO 1769+04 RT - 75' FROM NEW 12" PIPE ℄
STA. 1768+75 TO 1769+25 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1774+15 TO 1789+05 RT - 25' FROM NEW 12" PIPE ℄
STA. 1774+01 TO 1774+51 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1774+51 TO 1777+09 LT - 25' FROM NEW 12" PIPE ℄
STA. 1777+09 TO 1778+02 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1778+02 TO 1780+58 LT - 25' FROM NEW 12" PIPE ℄
STA. 1780+58 TO 1780+95 LT - 50' FROM NEW 12" PIPE ℄
STA. 1780+95 TO 1788+99 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1792+91 TO 1793+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1768+14 & STA. 1768+61

INSTALL MATTING:
STA. 1775+08 TO 1776+25

INSTALL MATTING:
STA. 1778+62 TO 1779+78

INSTALL MATTING:
STA. 1781+38 TO 1782+75

INSTALL MATTING:
STA. 1783+66 TO 1787+24

INSTALL MATTING:
STA. 1787+50 TO 1788+55

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

MATCH LINE

CONST. TYPE: 1A | 11 | 1A | W 2A | 1A | W 2A | 1A | 2A W | 2A | A | W | A | 1A | 2A

SOIL TYPE: AdB (PAS) | VgB (PAS) | AdB (PAS) | MrB (PAS) | VgB (PAS) | Sw (PAS) | MrB (PAS) | NsD (PAS)

LC/LU: CROPS / AGRICULTURAL/POWERLINE | UNPAVED / TRAVEL | PASTURE / AGRICULTURAL | FORESTED / POWERLINE/NOT CLASSIFIED | PASTURE / AGRICULTURAL | FORESTED / NOT CLASSIFIED | PASTURE / AGRICULTURAL

STREAMS

WETLANDS: WETLAND 2012-RS-12 - STATION 1774+58 TO 1776+89 CLASS II | WETLAND 2012-RS-11 - STATION 1778+02 TO 1780+33 CLASS II | WETLAND 2012-RS-10 - STATION 1780+87 TO 1783+29 CLASS II | WETLAND 2012-RS-9 - STATION 1785+68 TO 1787+77 CLASS II

VERNAL POOLS

SIGNIFICANT NATURAL COMMUNITIES

RTE SPECIES

NRC WILDLIFE HABITAT

ARCHAEOLOGY SITES: VT-AD-793 | VT-AD-793

MATCH LINE

VHB Vanasse Hangen Brustlin, Inc.

		BID		CONSTRUCTION	
	ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
	DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
	DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
		INITIALS	DATE	INITIALS	DATE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-070	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-070 | REV. 1

RIGHT-OF-WAY

MATCHLINE

222
N/F
SMITH, JEAN

223
N/F
SMITH, JEAN

224
N/F
FOUR-HILLS FARM

225
N/F
FOUR-HILLS FARM

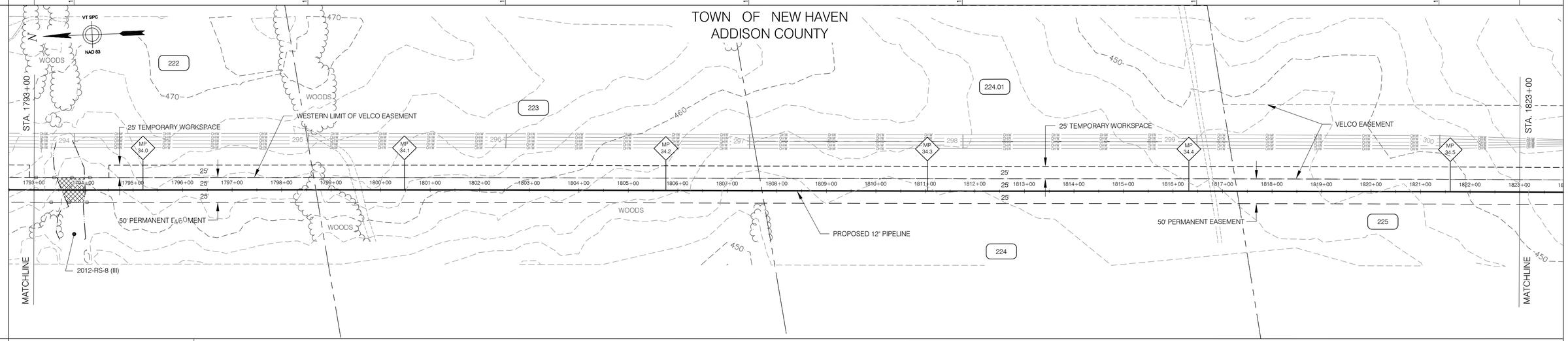
MATCHLINE

SURVEY DATA

S 02° 17' W | 00°15' LT | 00°06' RT | S 02° 02' W | 00°06' RT | S 02° 08' W | 00°05' LT | S 02° 15' W | 00°05' LT | S 02° 10' W | 00°06' RT | S 02° 05' W | 00°09' RT | S 02° 12' W | S 02° 21' W

1793+82 | 1798+54 | 1802+53 | 1807+44 | 1811+76 | 1816+49 | 1821+38

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1793+00 TO 1823+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 1793+00 TO 1794+51 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1794+51 TO 1823+00 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1793+16 TO 1794+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 1793+00 TO 1794+51 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1793+46 TO 1794+04

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE	2A	W	1A											
SOIL TYPE	NsD		MrB (PAS)			Cw (PAS)						RaB (PAS)		
LC/LU	PASTURE/FORESTED	POWERLINE	CROPS	AGRICULTURAL/POWERLINE	PASTURE/FORESTED	POWERLINE	CROPS	AGRICULTURAL/POWERLINE			CROPS		PASTURE	
STREAMS														
WETLANDS	MATCH LINE	WETLAND 2012-RS-8 - STATION 1793+46 TO 1794+04 CLASS III												MATCH LINE
VERNAL POOLS														
SIGNIFICANT NATURAL COMMUNITIES														
RTE SPECIES														
NRC WILDLIFE HABITAT														
ARCHAEOLOGY SITES														

Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ANGP-T-C-071	ALIGNMENT SHEET				ENVIRONMENTAL		JLS	06/28/13	JLS	05/2016
					DRAFTING DESIGNER		GIL	06/28/13	GJM	05/2016
					DRAFTING SUPERVISOR		BZD	06/28/13	BCK	05/2016
					DESIGN ENGINEER		MDF	06/28/13	GEW	05/2016
					DESIGN MANAGER		SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

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Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-071 | REV. 0

RIGHT-OF-WAY

MATCHLINE

225
N/F
FOUR-HILLS FARM

226
N/F
ELGIN SPRING FARM

226.01
ROUTE 17

229
N/F
VERMONT
TRANSCO,
LLC

231
N/F
VERMONT
TRANSCO,
LLC

MATCHLINE

SURVEY DATA

S 02° 21' W
1824+59 44°59' RT
S 47° 21' W
1824+79 35°32' RT
S 82° 54' W
1826+30 00°00' LT
S 82° 54' W
1829+69 33°15' LT
S 49° 38' W
1829+91 45°00' LT
S 04° 38' W
Bck: 1830+30
Ahd: 1830+44
−14.0 ft.
S 04° 38' W
1835+49 00°00' LT
S 04° 38' W
1836+37 28°10' RT
S 32° 48' W
1841+64 19°31' LT
S 13° 17' W
Bck: 1842+98
Ahd: 1843+00
18°29' LT
−2.2 ft.
S 05° 13' E
1851+40 17°59' RT
S 12° 46' W

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — —
TEMPORARY WORKSPACE	- - - -
CENTERLINE OF STREAM	—— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	
50' WETLAND BUFFER	— · — · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 1823+00 TO 1824+49 RT - 25' FROM NEW 12" PIPE ℄
STA. 1823+00 TO 1824+59 LT - 50' FROM NEW 12" PIPE ℄
STA. 1824+49 TO 1824+85 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1824+59 TO 1824+79 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1824+85 TO 1829+69 RT - 25' FROM NEW 12" PIPE ℄
STA. 1824+79 TO 1829+44 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1829+69 TO 1829+91 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1829+44 TO 1830+19 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1829+91 TO 1839+33 RT - 25' FROM NEW 12" PIPE ℄
STA. 1830+19 TO 1839+33 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1841+75 TO 1842+24 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1840+50 TO 1841+00 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1841+78

INSTALL CONSTRUCTION DEMARCATION:
STA. 1839+33 TO 1841+60 RT - 75' FROM NEW 12" PIPE ℄
STA. 1839+33 TO 1841+00 LT - 125' FROM NEW 12" PIPE ℄
STA. 1841+60 TO 1842+24 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1842+77 TO 1843+20 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1842+50 TO 1843+17 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1842+59

INSTALL CONSTRUCTION DEMARCATION:
STA. 1842+77 TO 1843+00 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1842+50 TO 1843+00 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1843+00 TO 1851+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 1843+00 TO 1851+50 LT - 50' FROM NEW 12" PIPE ℄

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

CONST. TYPE: 1A | 1H | 1A | 9 | 1H
SOIL TYPE: RaB (PAS) | NeB (PAS) | Cw (PAS) | NeB (PAS) | VgB (PAS) | NsC | VgB
LC/LU: PASTURE / AGRICULTURAL/POWERLINE | PAVED / TRAVEL | CROPS/FORESTED / AGRICULTURAL/POWERLINE | FORESTED / POWERLINE
STREAMS
WETLANDS
VERNAL POOLS
SIGNIFICANT NATURAL COMMUNITIES
RTE SPECIES
NRC WILDLIFE HABITAT
ARCHAEOLOGY SITES

MATCH LINE

MATCH LINE

ANGP-T-C-072	ALIGNMENT SHEET		
DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION

	BID		CONSTRUCTION	
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
	INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-072 | REV. 0

RIGHT-OF-WAY

MATCHLINE

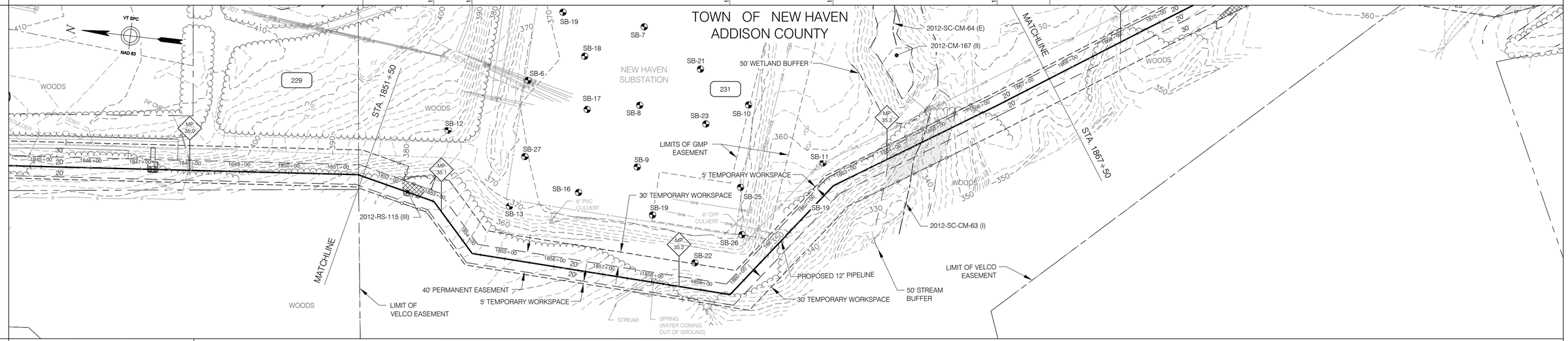
231
N/F
VERMONT TRANSCO

MATCH LINE

SURVEY DATA

1853+02	34°15" RT	S 12° 46" W	1854+33	44°39" LT	S 47° 02" W	S 02° 22" W	1859+60	55°34" LT	S 53° 12" E	1862+63	20°23" RT	S 32° 49" E	1866+33	01°03" LT	S 33° 52" E

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1851+50 TO 1859+60 RT - 25' FROM NEW 12" PIPE ℄
STA. 1851+50 TO 1852+31 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1852+31 TO 1852+89 LT - 25' FROM NEW 12" PIPE ℄
STA. 1852+89 TO 1859+60 LT - 50' FROM NEW 12" PIPE ℄
STA. 1859+60 TO 1859+64 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1859+60 TO 1860+04 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1859+64 TO 1867+50 RT - 50' FROM NEW 12" PIPE ℄
STA. 1860+04 TO 1867+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1851+94 TO 1853+28 RT - 25' FROM NEW 12" PIPE ℄
STA. 1851+90 TO 1852+31 LT - 50' FROM NEW 12" PIPE ℄
STA. 1852+31 TO 1852+89 LT - 25' FROM NEW 12" PIPE ℄
STA. 1852+89 TO 1853+11 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1863+02 TO 1865+29 RT - 50' FROM NEW 12" PIPE ℄
STA. 1863+62 TO 1866+00 LT - 20' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1852+29 TO 1852+30

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE		W	1H	1J
SOIL TYPE	MATCH LINE	VgB (PAS); NsD		VgB (PAS)
LC/LU		FORESTED / NOT CLASSIFIED		PASTURE / AGRICULTURAL/POWERLINE
STREAMS				STREAM 2012-SC-CM-63 - (I) STATION 1863+47 TO 1865+48
WETLANDS		WETLAND 2012-RS-115 - STATION 1852+29 TO 1852+30 CLASS III		MATCH LINE
VERNAL POOLS				
SIGNIFICANT NATURAL COMMUNITIES				
RTE SPECIES				
NRC WILDLIFE HABITAT				
ARCHAEOLOGY SITES				

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-073	ALIGNMENT SHEET				

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-073 | REV. 0

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
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Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

231	232	233.01	234.01	234	236
N/F VERMONT TRANSCO	N/F COUSINO, EUGENE & LINDA	TOWN HILL ROAD	N/F SHORTSLEEVE, GEORGE & JANE	N/F SHORTSLEEVE, GEORGE & JANE	N/F MAINE DRILLING AND BLASTING

MATCHLINE

SURVEY DATA

S 33° 52' E — 00°25' RT — 1869+68
S 33° 26' E — 35°19' RT — 1872+80
S 01° 54' W — −15.9 ft. — Bck: 1877+11 Ahd: 1877+27 22°54' LT
S 21° 01' E — 21°37' LT — 1881+19
S 42° 38' E — 14°07' RT — 1883+51
S 28° 30' E — 30°38' RT — 1885+33
S 02° 09' W — 00°03' RT — 1886+46
S 02° 12' W

2

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — —
TEMPORARY WORKSPACE	- - - -
CENTERLINE OF STREAM	— - —
TEMPORARY STREAM CROSSING	▨
WETLAND	
50' WETLAND BUFFER	— · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 1867+50 TO 1881+68 RT - 50' FROM NEW 12" PIPE ℄
STA. 1867+50 TO 1881+56 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1882+34 TO 1888+98 RT - 50' FROM NEW 12" PIPE ℄
STA. 1882+14 TO 1883+14 LT - 75' FROM NEW 12" PIPE ℄
STA. 1883+14 TO 1886+98 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1888+98 TO 1895+00 RT - 25' FROM NEW 12" PIPE ℄
STA. 1886+98 TO 1888+98 LT - 50' FROM NEW 12" PIPE ℄
STA. 1888+98 TO 1895+00 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1888+98

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1870+55 TO 1872+07 RT - 50' FROM NEW 12" PIPE ℄
STA. 1871+12 TO 1872+67 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1876+70 TO 1881+68 RT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1880+97 TO 1881+56 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1882+34 TO 1883+25 RT - 50' FROM NEW 12" PIPE ℄
STA. 1882+14 TO 1882+65 LT - 75' FROM NEW 12" PIPE ℄
STA. 1884+63 TO 1886+64 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1871+00 TO 1872+20

INSTALL MATTING:
STA. 1878+62 TO 1880+08

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1881+63 & STA. 1882+30

INSTALL MATTING:
STA. 1885+84 TO 1886+14

INSTALL MATTING:
STA. 1889+59 TO 1891+09

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
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CONST. TYPE: 1J W — 1E — 1J W — 9 — 1J — 1E — A — 8

SOIL TYPE: VgB (PAS) — Cv (PAS) — VgC (PAS)

LC/LU: PASTURE / AGRICULTURAL/POWERLINE — PAVED / TRAVEL — PASTURE — FORESTED — PASTURE / AGRICULTURAL/POWERLINE — FORESTED

STREAMS: STREAM 2012-TB-CM-62 - (P) STATION 1892+38 TO 1895+00

WETLANDS:
WETLAND 2012-CM-165 - STATION 1871+03 TO 1872+16 CLASS III
WETLAND 2012-CM-163 - STATION 1877+15 TO 1881+19 CLASS II
WETLAND 2012-CM-162 - STATION 1882+28 TO 1882+75 CLASS II
WETLAND 2012-RS-110 - STATION 1885+13 TO 1885+60 CLASS II
WETLAND 2012-RS-113 - STATION 1885+84 TO 1886+14 CLASS III
WETLAND 2012-CM-162 - STATION 1891+60 TO 1895+00 CLASS II

VERNAL POOLS

SIGNIFICANT NATURAL COMMUNITIES

RTE SPECIES: 2012-RTE-CT-074, 076

NRC WILDLIFE HABITAT

ARCHAEOLOGY SITES: VT-AD-806

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
		3	GJM	BCK	IFC 2016 EDITS (05/2016)
		2	BCK	BCK	SUPPLEMENTAL SURFACE INFO ADDED (3/16/16)
ANGP-T-C-074	ALIGNMENT SHEET	1	GJM	TDB	VHB HDD AREA REVISIONS (6/24/15)

	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-074 | REV. 3

RIGHT-OF-WAY

MATCHLINE

236
N/F
MAINE DRILLING AND BLASTING

237
N/F
PALMER, JOHN &
CARMEN

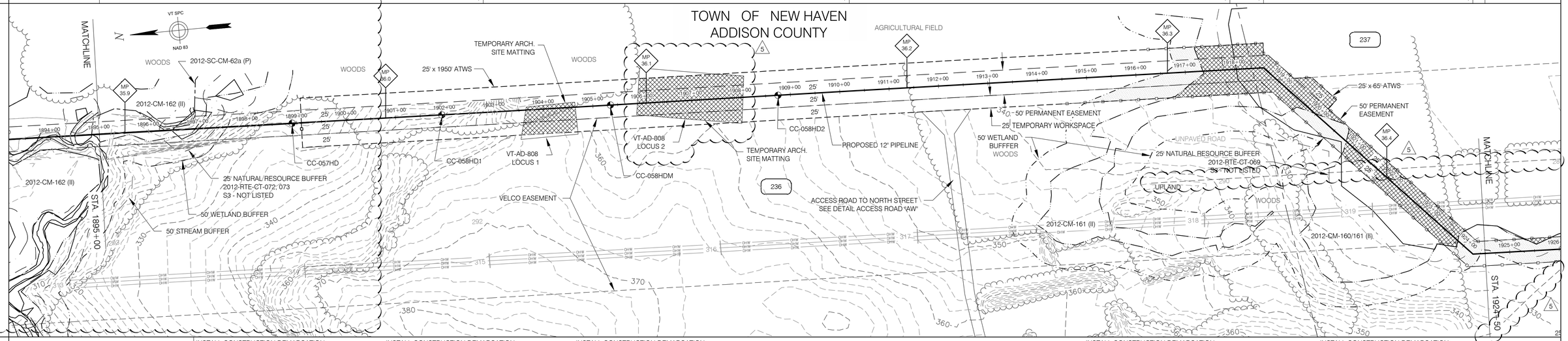
MATCHLINE

SURVEY DATA

S 02° 16' E | 00.00' LT | S 02° 09' E | 00.07' LT | S 02° 16' E | 00.07' LT | S 02° 09' E | 44.58' LT | S 47° 07' W | 44.54' LT | S 02° 13' W

1902+78 | 1910+19 | 1917+91 | 1918+59 | 1924+25

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1895+00 TO 1899+09 RT - 25' FROM NEW 12" PIPE ℄
STA. 1895+00 TO 1899+10 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1899+09 TO 1919+04 RT - 50' FROM NEW 12" PIPE ℄
STA. 1899+10 TO 1918+59 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1899+09

INSTALL CONSTRUCTION DEMARCATION:
STA. 1919+04 TO 1924+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 1918+59 TO 1919+19 LT - 25' FROM NEW 12" PIPE ℄
STA. 1919+19 TO 1919+44 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1919+44 TO 1920+12 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1920+12 TO 1924+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1914+46 TO 1919+04 RT - 50' FROM NEW 12" PIPE ℄
STA. 1916+21 TO 1919+04 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1919+04 TO 1924+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 1919+19 TO 1919+44 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1919+44 TO 1920+12 LT - 50' FROM NEW 12" PIPE ℄
STA. 1920+12 TO 1924+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1903+52 TO 1904+67
STA. 1905+87 TO 1908+08

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1912+00

INSTALL MATTING:
STA. 1916+67 TO 1923+91

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011) FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	8							A			A		5	1E				W			W	2A	
SOIL TYPE	VgE			VgC (PAS)			VgE					VgD							Cw (PAS)				
LC/LU	WATER	FORESTED		CROP	PASTURE		FORESTED			PASTURE				CROP						PASTURE			CROP
	NOT CLASSFIED			AGRICULTURAL			NOT CLASSIFIED					POWER LINE		AGRICULTURAL						AGRICULTURAL/POWERLINE		AGRICULTURAL	
STREAMS	STREAM 2012-SC-CM-62a - (P) STATION 1896+00 TO 1896+90																						
WETLANDS	MATCH LINE	WETLAND 2012-CM-162 - STATION 1895+00 TO 1898+16 CLASS II																WETLAND 2012-CM-161 & 2012-CM-160 - STATION 1914+96 TO 1924+50 CLASS II						MATCH LINE
VERNAL POOLS																							
SIGNIFICANT NATURAL COMMUNITIES																							
RTE SPECIES	2012-RTE-CT-074		2012-RTE-CT-072, 073																2012-RTE-CT-069				
NRC WILDLIFE HABITAT																							
ARCHAEOLOGY SITES									VT-AD-808		VT-AD-808												

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
		5	GJM	BCK	IFC 2016 EDITS (05/2016)	ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
		4	BCK	BCK	SUPPLEMENTAL SURFACE INFO ADDED (3/16/16)	DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
		3	GJM	TDB	VHB HDD AREA REVISIONS (6/24/15)	DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-G-07-010	ACCESS ROAD DETAILS	2	BCK	TDB	VHB EDITS (6/09/15)	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-075	ALIGNMENT SHEET	1	BCK	TDB	ACCESS ROAD "AG" REMOVED (5/14/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-075 | REV. 5

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
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RIGHT-OF-WAY

MATCHLINE

237
N/F
PALMER, JOHN & CARMEN

238
N/F
MIDDLEBURY AREA LAND TRUST

239
N/F
SARAH VIRGINIA
DeGANAHL VENTURE LLC.

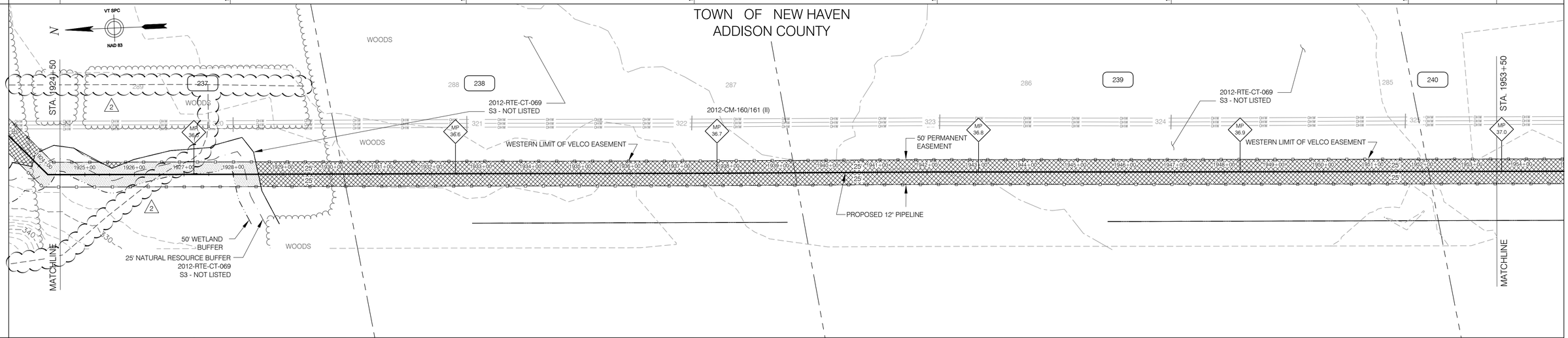
240
N/F
LIVINGSTON, PHIL

MATCHLINE

SURVEY DATA

00'02" LT		00'03" RT		00'13" LT		00'17" RT		00'05" LT		00'00" LT	
S 02° 12' W	1927+84	S 02° 10' W	1932+70	S 02° 14' W	1937+31	S 02° 00' W	1942+21	S 02° 18' W	1946+94	S 02° 13' W	1951+72	S 02° 12' W

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1924+50 TO 1953+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 1924+50 TO 1953+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1924+50 TO 1924+59 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1924+99 TO 1925+15 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 1925+15 TO 1953+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 1924+50 TO 1953+50 LT - 25' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 1924+96

INSTALL MATTING:
STA. 1925+28 TO 1925+86

INSTALL MATTING:
STA. 1928+45 TO 1953+50

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

CONST. TYPE	2A	W	2A		2A	W
SOIL TYPE	Cw (PAS)				Lh	
LC/LU	CROP / AGRICULTURAL				PASTURE / NOT CLASSIFIED	
STREAMS						
WETLANDS					WETLAND 2012-CM-160 STATION 1924+50 TO 1953+50 CLASS II	
VERNAL POOLS						
SIGNIFICANT NATURAL COMMUNITIES						
RTE SPECIES		2012-RTE-CT-069			2012-RTE-CT-069	
NRC WILDLIFE HABITAT						
ARCHAEOLOGY SITES						

MATCH LINE

MATCH LINE

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
							ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
							DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
							DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-G-07-010	ACCESS ROAD DETAILS	2	GJM	BCK		IFC 2016 EDITS (05/2016)	DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-076	ALIGNMENT SHEET	1	BCK	TDB		ACCESS ROAD "AG" REMOVED (5/14/15)	DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-076 | REV. 2

Vermont Gas

CHA
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South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

240
N/F
LIVINGSTON, PHIL

241
N/F
PIDGEON, DAVID

242
N/F
HALL, DOUG

246
N/F
SWEENEY, MICHAEL
& LINDA

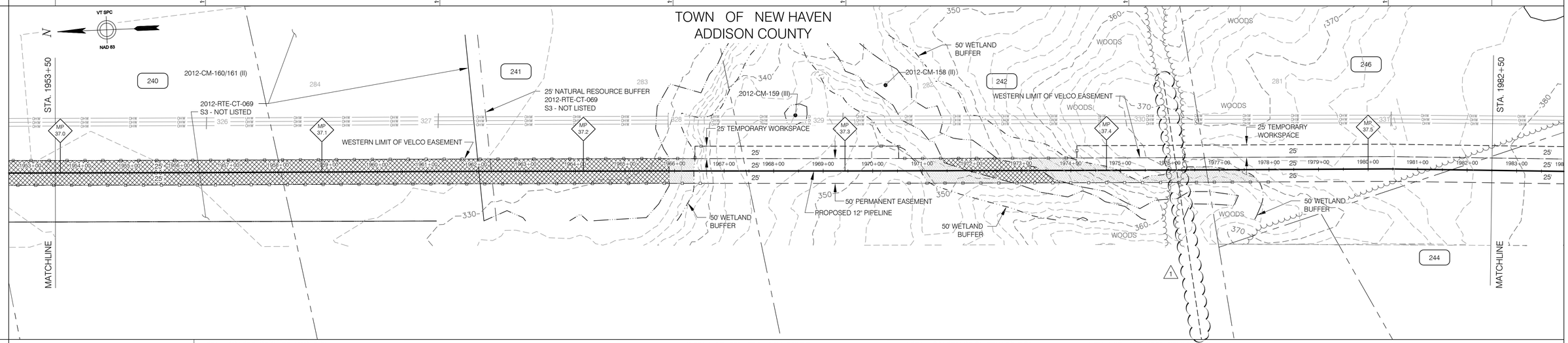
244
N/F
GREEN, DARIN,
HAYES & NANCY

MATCHLINE

SURVEY DATA

S 02° 12' W
00°09' LT 1956+54
S 02° 03' W
00°08' RT 1961+27
S 02° 11' W
00°09' RT 1965+98
S 02° 20' W
00°09' LT 1969+47
S 02° 10' W
00°09' LT 1975+18
S 02° 01' W
01°06' RT 1980+42
S 03° 08' W

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	– – – – – –
CENTERLINE OF STREAM	—— - —— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	— · · — · · —
50' WETLAND BUFFER	— · · — · · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 1953+50 TO 1982+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 1953+50 TO 1966+41 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1953+50 TO 1966+89 RT - 25' FROM NEW 12" PIPE ℄
STA. 1953+50 TO 1966+41 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1953+50 TO 1965+91

INSTALL CONSTRUCTION DEMARCATION:
STA. 1966+41 TO 1970+52 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1966+41 TO 1966+85 LT - 50' FROM NEW 12" PIPE ℄
STA. 1970+02 TO 1970+52 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1970+52 TO 1974+12 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1970+66 TO 1978+30 RT - 25' FROM NEW 12" PIPE ℄
STA. 1970+52 TO 1974+12 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 1971+40 TO 1973+91

INSTALL CONSTRUCTION DEMARCATION:
STA. 1974+12 TO 1982+50 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1974+12 TO 1974+42 LT - 50' FROM NEW 12" PIPE ℄

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

CONST. TYPE: (2A) (W) | (1A) | (2A) | (W) | (1A)

SOIL TYPE: Lh | Cw (PAS) | VgD | VgB (PAS) | VgB (PAS) | VgD | VgB (PAS) | Cw (PAS)

LC/LU: PASTURE | CROP | PASTURE | CROP | PASTURE | FORESTED | CROP | FORESTED | CROP
NOT CLASSIFIED | AGRICULTURAL | POWER LINE | AGRICULTURAL | POWER LINE

STREAMS

WETLANDS: WETLAND 2012-CM-160 - STATION 1953+50 TO 1966+41 CLASS II | WETLAND 2012-CM-158 - STATION 1970+80 TO 1977+80 CLASS II

VERNAL POOLS

SIGNIFICANT NATURAL COMMUNITIES

RTE SPECIES: 2012-RTE-CT-069

NRC WILDLIFE HABITAT

ARCHAEOLOGY SITES

MATCH LINE

MATCH LINE

ANGP-T-C-077	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)
DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION

	BID		CONSTRUCTION	
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
	INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-077 | REV. 1

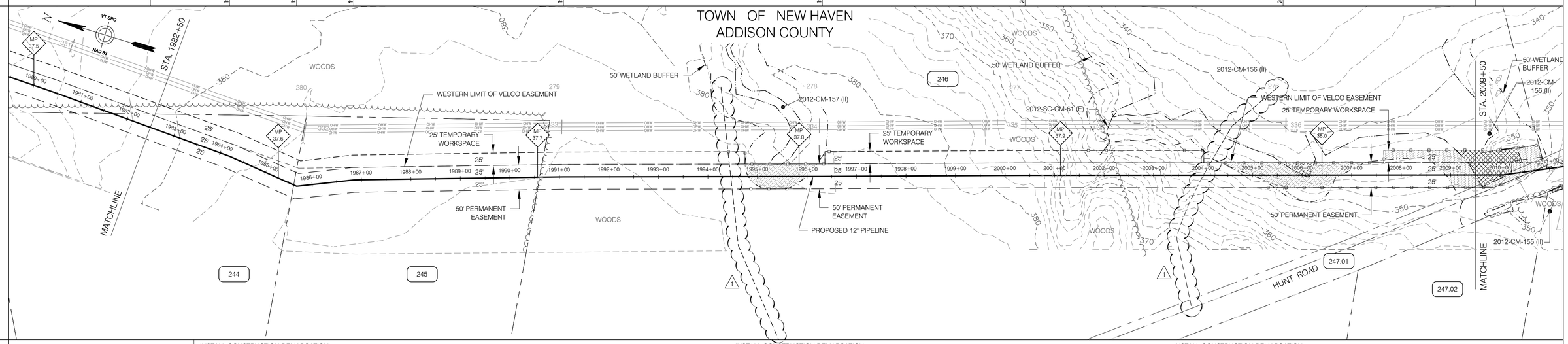
RIGHT-OF-WAY

MATCHLINE | 246 N/F SWEENEY, MICHAEL & LINDA | 244 N/F GREEN, DARIN, HAYES & NANCY | 245 N/F REISS, SCOTT & LYNDA | 246 N/F SWEENEY, MICHAEL & LINDA | MATCHLINE

SURVEY DATA

S 03° 08' W	04°03' RT	S 07° 11' W	30°24' LT	S 23° 14' E	05°31' RT	S 17° 42' E	07°43' RT	S 16° 59' E	00°12' LT	S 17° 11' E	00°16' RT	S 16° 55' E	00°02' LT	S 16° 57' E
1984+21		1985+69		1986+85		1991+08		1996+31		2000+41		2005+62		

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 1982+50 TO 2009+45 RT - 25' FROM NEW 12" PIPE ℄
STA. 1982+50 TO 1994+75 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 1994+75 TO 1996+35 LT - 25' FROM NEW 12" PIPE ℄
STA. 1996+35 TO 2004+01 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2009+45 TO 2009+50 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 2004+01 TO 2007+65 LT - 25' FROM NEW 12" PIPE ℄
STA. 2007+65 TO 2009+50 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 1994+25 TO 1994+75 LT - 50' FROM NEW 12" PIPE ℄
STA. 1994+75 TO 1996+36 LT - 25' FROM NEW 12" PIPE ℄
STA. 1996+36 TO 1996+86 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2001+49 TO 2002+49 LT - 50' FROM NEW 12" PIPE ℄
STA. 2003+50 TO 2004+01 LT - 50' FROM NEW 12" PIPE ℄
STA. 2004+01 TO 2007+65 LT - 25' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2004+94 TO 2009+45 RT - 25' FROM NEW 12" PIPE ℄
STA. 2009+45 TO 2009+50 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 2007+65 TO 2009+50 LT - 50' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 2005+59 TO 2006+24
STA. 2009+10 TO 2009+50

HORIZONTAL SCALE
100 50 0 100 200 300 feet

VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	1A	2A	1A	2A	W	1A / W
SOIL TYPE	Cw (PAS)	Cn (PAS)	VgC (PAS)	VgB (PAS)		Cw (PAS)
LC/LU	CROP / FORESTED / CROP / FORESTED / CROP					
	POWERLINE	AGRICULTURAL	POWERLINE			
STREAMS			STREAM 2012-SC-CM-61 (E) - STATION 2001+92 TO 2001+99			
WETLANDS		WETLAND 2012-CM-157 - STATION 1994+75 TO 1996+19 CLASS II		WETLAND 2012-CM-156 - STATION 2004+36 TO 2007+26 CLASS II		WETLAND 2012-CM-156 - STATION 2007+65 TO 2009+50 CLASS II
VERNAL POOLS						
SIGNIFICANT NATURAL COMMUNITIES						
RTE SPECIES						
NRC WILDLIFE HABITAT						
ARCHAEOLOGY SITES						

MATCH LINE | MATCH LINE

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-078	ALIGNMENT SHEET	1	GJM	BCK	IFC 2016 EDITS (05/2016)

		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

CHA
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South Burlington, VT 05403
Main: (802) 735-0372 - www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-078 | REV. 1

RIGHT-OF-WAY

MATCHLINE

246
N/F
SWEENEY, MICHAEL & LINDA

247
N/F
COUSINO, AMBROSE & STARLYN

247.01
HUNT ROAD

248
N/F
STURTEVANT, ROGER

249
N/F
HILL, RON, BRIAN, KEVIN & JOANNE
dba FOUR HILLS FARM

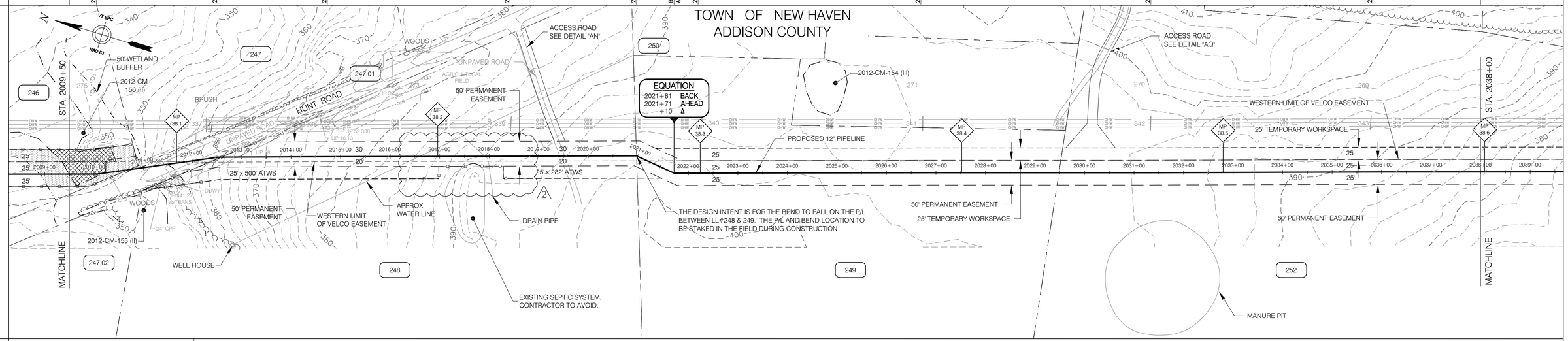
252
N/F
HILL, RON, BRIAN, KEVIN & JOANNE
dba FOUR HILLS FARM

MATCHLINE

SURVEY DATA

S 16° 57' E
2010+06 07°50' LT
S 24° 48' E
2012+54 07°40' RT
S 17° 08' E
2014+75 00°05' RT
S 17° 02' E
2018+44 00°00' RT
S 17° 02' E
2020+98 24°49' RT
S 07° 48' W
10.0 ft.
Bck: 2021+81
Ahd: 2021+71
24°49' LT
S 17° 02' E
2022+21 00°03' RT
S 16° 59' E
2026+71 00°04' RT
S 16° 54' E
2031+36 00°09' LT
S 17° 04' E
2035+84 00°08' RT
S 16° 56' E

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 2009+50 TO 2009+88 RT - 50' FROM NEW 12" PIPE ℄
STA. 2009+88 TO 2010+71 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 2009+50 TO 2010+85 LT - 50' FROM NEW 12" PIPE ℄
STA. 2010+85 TO 2010+91 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2009+50 TO 2009+88 RT - 50' FROM NEW 12" PIPE ℄
STA. 2009+88 TO 2010+71 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 2009+50 TO 2010+85 LT - 50' FROM NEW 12" PIPE ℄
STA. 2010+85 TO 2010+91 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 2009+50 TO 2010+48

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 2010+88 & STA. 2011+88

INSTALL CONSTRUCTION DEMARCATION:
STA. 2010+94 TO 2016+98 RT - 45' FROM NEW 12" PIPE ℄
STA. 2013+22 TO 2021+27 LT - 30' FROM NEW 12" PIPE ℄
STA. 2016+98 TO 2018+16 RT - 20' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2010+94 TO 2012+32 RT - 45' FROM NEW 12" PIPE ℄
STA. 2013+22 TO 2013+72 LT - 30' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 2019+43

INSTALL CONSTRUCTION DEMARCATION:
STA. 2018+16 TO 2020+97 RT - 45' FROM NEW 12" PIPE ℄
STA. 2020+97 TO 2021+12 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 2021+21 TO 2021+71 RT - 20 FROM NEW 12" PIPE ℄
STA. 2021+27 TO 2021+71 LT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 2021+71 TO 2038+00 LT - 50' FROM NEW 12" PIPE ℄
STA. 2021+71 TO 2038+00 RT - 25' FROM NEW 12" PIPE ℄

2

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2016+48 TO 2016+98 RT - 45' FROM NEW 12" PIPE ℄
STA. 2016+98 TO 2017+55 RT - 20' FROM NEW 12" PIPE ℄
STA. 2017+55 TO 2017+88 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2017+88 TO 2018+29 RT - 20' FROM NEW 12" PIPE ℄
STA. 2018+29 TO 2018+79 RT - 45' FROM NEW 12" PIPE ℄

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 2030+00

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

CONST. TYPE: (1A) (W) | (11) | (2D) | (1A)

SOIL TYPE: Cw (PAS) | VgB (PAS) | NeB (PAS) | VgB (PAS) | Cw (PAS) | VgB (PAS)

LC/LU: CROP / AGRIC. | GRAVEL / TRAVEL | FORESTED / NOT CLASSIFIED | CROP / POWER LINE / AGRICULTURAL | GRAVEL / TRAVEL | CROP / POWER LINE / AGRICULTURAL | GRAVEL / TRAVEL | POWER LINE / AGRICULTURAL | GRAVEL / TRAVEL | CROP / POWER LINE / AGRICULTURAL

STREAMS

WETLANDS: WETLAND 2012-CM-155 - STATION 2010+94 TO 2011+81 CLASS II; WETLAND 2012-CM-156 - STATION 2009+50 TO 2010+94 CLASS II

VERNAL POOLS

SIGNIFICANT NATURAL COMMUNITIES

RTE SPECIES

NRC WILDLIFE HABITAT

ARCHAEOLOGY SITES

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS	2	BCK	TDB		EASEMENT ADJUSTMENT & EPSC MEASURES ADDED (5/18/15)
ANGP-T-C-079	ALIGNMENT SHEET	1	BCK	TDB		PERMANENT EASEMENT ADJUSTMENT (5/14/15)

	BID		CONSTRUCTION	
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
	INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-079 | REV. 2

RIGHT-OF-WAY

MATCHLINE

252
N/F
HILL, RON, BRIAN, KEVIN & JOANNE
dba FOUR HILLS FARM

253
N/F
PALMER, PATRICK,
MICHAEL & CATHERINE

254
N/F
CAROTHERS, PETER F.

MATCHLINE

SURVEY DATA

S 16° 56' E
2040+14 — 00°06' LT
S 17° 02' E
2044+82 — 00°03' RT
S 16° 59' E
2047+00 — 44°59' LT
S 61° 59' E
2047+50 — 44°59' RT
S 16° 59' E
2049+65 — 00°07' RT
S 16° 51' E
2054+83 — 00°14' LT
S 17° 06' E
2057+79 — 45°00' RT
S 27° 54' W
Bck. 2058+29 Ahd. 2058+00 45°00' LT — 28.9 ft.
S 17° 06' E
2060+10 — 00°10' RT
S 16° 55' E
2064+50 — 00°01' LT
S 16° 57' E

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	– – – – – –
CENTERLINE OF STREAM	—— - —— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	—··—··—
50' WETLAND BUFFER	— ·· — ·· —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 2038+00 TO 2047+65 RT - 25' FROM NEW 12" PIPE ℄
STA. 2038+00 TO 2047+00 LT - 50' FROM NEW 12" PIPE ℄
STA. 2047+00 TO 2047+45 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2047+65 TO 2057+64 RT - 20' FROM NEW 12" PIPE ℄
STA. 2047+45 TO 2057+80 LT - 30' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2057+64 TO 2066+50 RT - 25' FROM NEW 12" PIPE ℄
STA. 2057+80 TO 2059+10 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2059+10 TO 2066+50 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2058+23 TO 2059+31 RT - 25' FROM NEW 12" PIPE ℄
STA. 2057+91 TO 2059+10 LT - 25' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 2058+37 TO 2058+68

HORIZONTAL SCALE
100 50 0 100 200 300 feet
100 50 0 100 200 300 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	(1A) · (2D) · (2A) · (W) · (1A)
SOIL TYPE	VgB (PAS) · VgC (PAS) · Cw (PAS) · VgC (PAS)
LC/LU	CROP / AGRICULTURAL · POWER LINE · FORESTED / NOT CLASSIFIED · CROP / AGRICULTURAL · FORESTED / NOT CLASSIFIED · CROP / POWER LINE / AGRICULTURAL
STREAMS	STREAM 2012-SC-CM-59 - (E) STATION 2058+69 TO 2058+81
WETLANDS	WETLAND 2012-CM-151 - STATION 2058+37 TO 2058+68 CLASS III
VERNAL POOLS	
SIGNIFICANT NATURAL COMMUNITIES	VALLEY CLAYPLAIN FOREST
RTE SPECIES	
NRC WILDLIFE HABITAT	
ARCHAEOLOGY SITES	

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-080	ALIGNMENT SHEET				

	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-080 | REV. 0

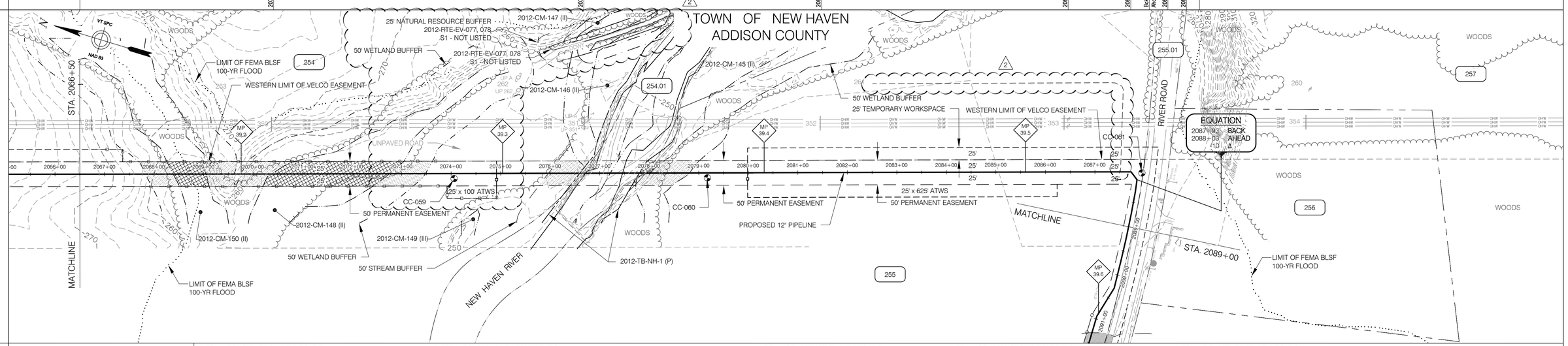
RIGHT-OF-WAY

MATCHLINE | 254 N/F CAROTHERS, PETER F. | 254.01 NEW HAVEN RIVER | 255 N/F HILL, RON, BRIAN, KEVIN & JOANNE dba FOUR HILLS FARM | 255.01 RIVER ROAD | MATCHLINE

SURVEY DATA

S 16° 57' E	00°04' LT	S 17° 01' E	00°02' LT	S 17° 04' E	00°02' RT	S 17° 01' E	00°01' RT	S 16° 60' E	53°01' RT	S 36° 02' W	~10.4 ft.	S 81° 02' W	02°33' RT	S 83° 36' W	01°19' RT	S 84° 55' W
2070+42		2076+68		2081+49		2086+47		2087+73	Bck: 2087+93	Ahd: 2088+03		2088+50		2088+73		

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 2066+50 TO 2073+92 RT - 25' FROM NEW 12" PIPE ℄
STA. 2066+50 TO 2076+80 LT - 50' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2073+92 TO 2074+92 RT - 50' FROM NEW 12" PIPE ℄
STA. 2074+92 TO 2076+40 RT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2074+92

INSTALL CONSTRUCTION DEMARCATION:
STA. 2077+65 TO 2079+99 RT - 25' FROM NEW 12" PIPE ℄
STA. 2077+97 TO 2079+99 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2079+99

INSTALL CONSTRUCTION DEMARCATION:
STA. 2079+99 TO 2086+24 RT - 50' FROM NEW 12" PIPE ℄
STA. 2079+99 TO 2087+73 LT - 50' FROM NEW 12" PIPE ℄
STA. 2086+24 TO 2087+73 RT - 25' FROM NEW 12" PIPE ℄
STA. 2087+73 TO 2088+14 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2088+14 TO 2089+00 RT - 10' FROM NEW 12" PIPE ℄
STA. 2087+73 TO 2087+93 LT - WITH VARIES FROM NEW 12" PIPE ℄
STA. 2088+03 TO 2089+00 LT - 35' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2067+45 TO 2073+92 RT - 25' FROM NEW 12" PIPE ℄
STA. 2066+87 TO 2067+37 LT - 50' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2073+92 TO 2074+92 RT - 50' FROM NEW 12" PIPE ℄
STA. 2067+37 TO 2073+72 LT - 25' FROM NEW 12" PIPE ℄
STA. 2073+72 TO 2074+12 LT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL MATTING: STA. 2068+14 TO 2069+17

INSTALL MATTING: STA. 2070+20 TO 2073+19

INSTALL STABILIZED CONSTRUCTION ENTRANCE:
STA. 2087+87

HORIZONTAL SCALE
100 50 0 100 200 300 feet
VERTICAL SCALE
100 50 0 100 200 300 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE		W	1A	W		8		1A		4B	
SOIL TYPE		VgC (PAS)	VgD	Lf	Wo (PAS)	Hh (PAS)	w	Lf	Wo	Hh (PAS)	Rk
LC/LU		CROP AGRICULTURAL	FORESTED NOT CLASSIFIED	CROP AGRICULTURAL	FORESTED NOT CLASSIFIED	CROP AGRICULTURAL	CROP GRAVEL AGRICULTURAL TRAVEL	FORESTED NOT CLASSIFIED	WATER WATER	FORESTED NOT CLAS.	CROP AGRICULTURAL
STREAMS						STREAM 2012-TB-NH-1 - (P) STATION 2075+77 TO 2078+78					
WETLANDS	MATCH LINE	WETLAND 2012-CM-150 STATION 2067+37 TO 2069+66 CLASS II		WETLAND 2012-CM-148 STATION 2069+66 TO 2073+73 CLASS II					WETLAND 2012-CM-145 STATION 2077+65 TO 2079+02 CLASS II		MATCH LINE
VERNAL POOLS											
SIGNIFICANT NATURAL COMMUNITIES											
RTE SPECIES											
NRC WILDLIFE HABITAT											
ARCHAEOLOGY SITES											

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-G-07-010	ACCESS ROAD DETAILS	2	GJM	BCK	IFC 2016 EDITS (05/2016)
ANGP-T-C-081	ALIGNMENT SHEET	1	GJM	TDB	VHB HDD AREA REVISIONS (6/24/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1"=100' | DWG. ANGP-EPSC-081 | REV. 2

Vanasse Hangen Brustlin, Inc.

Vermont Gas

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RIGHT-OF-WAY

MATCHLINE

255.01
RIVER ROAD

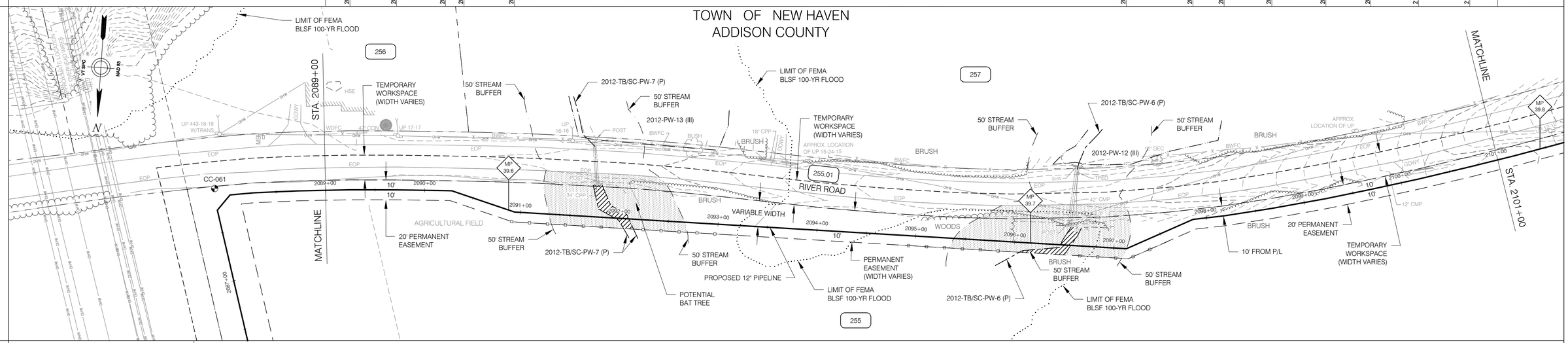
255
N/F
FOUR-HILLS FARM PARTNERSHIP

MATCHLINE

SURVEY DATA

S 84° 55' W	0°11'14" RT	S 86° 10' W	0°0'45" RT	S 86° 56' W	0°0'24" RT	S 87° 20' W	1°7'28" RT	N 75° 11' W	15°17' LT	S 89° 31' W	2°7'08" LT	S 62° 23' W	17°12' RT	S 79° 35' W	0°2'17" LT	S 77° 17' W	0°1'25" LT	S 75° 52' W	0°1'27" LT	S 74° 24' W	0°0'28" LT	S 73° 55' W	0°1'13" LT	S 72° 42' W	0°0'32" LT	S 72° 09' W
2089+25		2089+72		2090+21		2090+27		2090+94		2097+13		2097+66		2098+18		2098+67		2099+22		2099+69		2100+18		2100+71		

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 2089+00 TO 2101+00 RT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2090+73 TO 2092+05 RT - 10' FROM NEW 12" PIPE ℄
STA. 2092+14 TO 2093+20 RT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2094+87 TO 2096+01 RT - 10' FROM NEW 12" PIPE ℄
STA. 2096+50 TO 2097+55 RT - 10' FROM NEW 12" PIPE ℄

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
50 25 0 50 100 150 feet
VERTICAL SCALE
50 25 0 50 100 150 feet

CONST. TYPE			4B				7			4B						7			4B							
SOIL TYPE		Hh (PAS)			Lh				FaE					VgD						VgB (PAS)						
LC/LU		GRASS					WATER			GRASS						WATER			GRASS							
		TRAVEL																								
STREAMS					STREAM 2012-TB/SC-PW-7 - (P) STATION 2091+14 TO 2092+70									STREAM 2012-TB/SC-PW-6 - (P) STATION 2095+37 TO 2097+30												
WETLANDS	MATCH LINE																								MATCH LINE	
VERNAL POOLS																										
SIGNIFICANT NATURAL COMMUNITIES																										
RTE SPECIES																										
NRC WILDLIFE HABITAT																										
ARCHAEOLOGY SITES																										

							BID		CONSTRUCTION	
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-082A	ALIGNMENT SHEET					DESIGN MANAGER	SAB	06/28/13	JEO	05/2016
DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION	INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 50' | DWG. ANGP-EPSC-082A | REV. 0

VHB Vanasse Hangen Brustlin, Inc.

Vermont Gas

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RIGHT-OF-WAY

MATCHLINE

255.01
RIVER ROAD

255 N/F FOUR-HILLS FARM PARTNERSHIP	257.01 N/F LANDON, BEVERLY; & WILLIAM	255 N/F FOUR-HILLS FARM PARTNERSHIP	259.01 N/F CUNNINGHAM, BARBARA

MATCHLINE

SURVEY DATA

Bearing	Station	Deflection
S 72° 09' W	2101+17	00°53' LT
S 71° 16' W	2101+60	00°52' LT
S 70° 23' W	2102+12	02°28' LT
S 67° 54' W	2102+61	03°51' LT
S 64° 03' W	2102+98	03°38' LT
S 60° 25' W	2103+55	06°23' LT
S 54° 01' W	2104+12	07°35' LT
S 46° 25' W	2104+62	03°55' LT
S 42° 30' W	2105+08	01°05' LT
S 41° 24' W	2105+39	00°00' LT
S 41° 24' W	2105+49	00°14' RT
S 41° 39' W	2105+89	01°36' RT
S 43° 15' W	2106+35	03°44' RT
S 47° 00' W	2106+73	05°09' RT
S 52° 10' W	2107+24	05°55' RT
S 58° 05' W	2107+72	03°59' RT
S 62° 04' W	2108+22	02°13' RT
S 64° 17' W	2108+37	15°16' RT
S 79° 33' W	2108+72	12°28' LT
S 67° 05' W	2112+85	16°12' LT
S 50° 52' W	2113+24	18°26' RT
S 69° 18' W	2113+26	00°00' RT
S 69° 18' W	2113+39	00°43' RT
S 70° 02' W	2113+85	00°50' RT
S 70° 52' W	2114+32	00°46' RT
S 71° 39' W	2114+81	00°03' RT
S 71° 43' W	2115+30	00°04' LT
S 71° 38' W		

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — —
TEMPORARY WORKSPACE	- - - - - -
CENTERLINE OF STREAM	—— - —— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	
50' WETLAND BUFFER	— · · — · · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 2101+00 TO 2115+50 RT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2108+05 TO 2110+28 RT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2112+02 TO 2113+05 RT - 10' FROM NEW 12" PIPE ℄
STA. 2113+18 TO 2114+22 RT - 10' FROM NEW 12" PIPE ℄

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
50 25 0 50 100 150 feet
50 25 0 50 100 150 feet
VERTICAL SCALE

CONST. TYPE	④B	⑦	④B	⑦	④B
SOIL TYPE	VgB (PAS)	FaC	VgB (PAS)		AmB (PAS)
LC/LU	GRASS TRAVEL			WATER	FORESTED
STREAMS		STREAM 2012-SC-PW-5 - (I) STATION 2108+60 TO 2111+00		STREAM 2012-TB-PW-4 - (I) STATION 2112+47 TO 2113+72	
WETLANDS					
VERNAL POOLS					
SIGNIFICANT NATURAL COMMUNITIES					
RTE SPECIES					
NRC WILDLIFE HABITAT					
ARCHAEOLOGY SITES					

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-082B	ALIGNMENT SHEET				

	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016 | W.O. | SCALE: 1" = 50' | DWG. ANGP-EPSC-082B | REV. 0

RIGHT-OF-WAY

MATCHLINE

255.01 RIVER ROAD			265.01 ROUTE 7		
259.01 N/F CUNNINGHAM, BARBARA	261.01 N/F LAFRAMBOISE, EDWARD; & BONNIE	263.01 N/F MANY, BRUCE; & BECKY	267.01 NERI, ANTHONY; & NANCY	271.01 BELDEN ROAD	273.01 N/F DUPOISE, STEPHEN; & MARCIA

MATCHLINE

SURVEY DATA

S 71° 38' W	2115+79	00°08' LT
S 71° 29' W	2116+28	00°05' LT
S 71° 24' W	2116+77	00°14' LT
S 71° 09' W	2117+25	00°24' RT
S 71° 33' W	2117+44	00°00' LT
S 71° 33' W	2117+78	00°09' LT
S 71° 24' W	2118+26	00°07' RT
S 71° 32' W	2118+85	00°07' RT
S 71° 40' W	2119+36	00°21' LT
S 71° 18' W	2119+39	24°34' RT
N 84° 08' W	2119+73	24°08' LT
S 71° 44' W	2125+19	00°42' LT
S 71° 01' W	2125+41	00°13' RT
S 71° 15' W	2125+89	00°15' LT
S 70° 59' W	2126+25	47°09' LT
S 23° 49' W	2126+46	47°09' RT
S 70° 59' W	2126+61	00°02' RT
S 71° 01' W	2128+95	45°00' LT
S 26° 01' W	Bck: 2129+05	
S 21° 60' E	Ahd: 2129+09 48°01' LT 2129+38	-4.5 ft. 00°00' LT
S 21° 60' E	2129+61	00°01' LT
S 22° 02' E	2129+88	09°32' LT
S 31° 34' E		

ALIGNMENT DETAIL

EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

PERMANENT EASEMENT	— — — — —
TEMPORARY WORKSPACE	- - - - - - - -
CENTERLINE OF STREAM	—— - —— - ——
TEMPORARY STREAM CROSSING	▨
WETLAND	—··—··—
50' WETLAND BUFFER	— · — · —
TEMPORARY WETLAND MATTING	▩
WETLAND BUFFER WITHIN PROJECT AREA	░
REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL	—□—□—□—

INSTALL CONSTRUCTION DEMARCATION:
STA. 2115+50 TO 2126+70 RT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2119+83 TO 2122+30 RT - 10' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 2120+80 TO 2121+33

INSTALL STABALIZED CONSTRUCTION ENTRANCE:
STA. 2126+78
STA. 2128+62 & 2129+87

HORIZONTAL SCALE
50 25 0 50 100 150 feet
50 25 0 50 100 150 feet
VERTICAL SCALE

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	Ⓦ 4B 9 11
SOIL TYPE	AmB (PAS) Cw (PAS) VgB (PAS)
LC/LU	FORESTED GRASS PAVED GRASS GRAVEL GRASS TRAVEL
STREAMS	
WETLANDS	WETLAND 2012-PW-9 & 2012-PW-10 - STATION 2120+30 TO 2122+45 CLASS II
VERNAL POOLS	
SIGNIFICANT NATURAL COMMUNITIES	
RTE SPECIES	
NRC WILDLIFE HABITAT	
ARCHAEOLOGY SITES	

MATCH LINE

MATCH LINE

	BID		CONSTRUCTION		
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016	
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016	
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016	
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016	
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016	
	INITIALS	DATE	INITIALS	DATE	

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP–T–C–083A	ALIGNMENT SHEET				

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 50' | DWG. ANGP–EPSC–083A | REV. 0

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

265.01
ROUTE 7

273.01
N/F
DUPOISE, STEPHEN;
& MARCIA

MATCH LINE

SURVEY DATA

S 31° 34' E

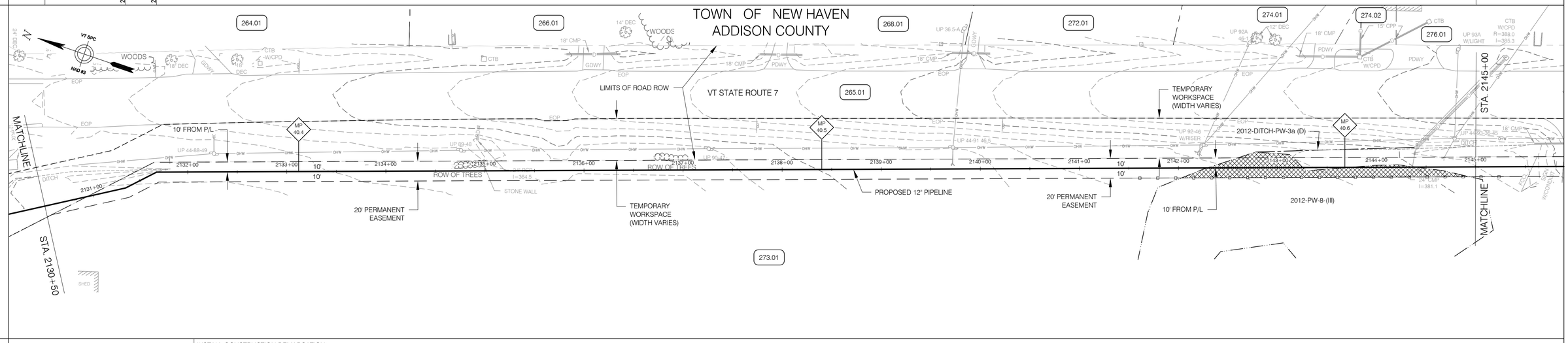
14°29' LT
2131+34

S 46° 03' E

26°55' RT
2131+69

S 19° 08' E

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 2130+55 TO 2130+93 RT - WIDTH VARIES FROM NEW 12" PIPE ℄
STA. 2130+93 TO 2145+00 RT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2141+53 TO 2145+00 RT - 10' FROM NEW 12" PIPE ℄

INSTALL MATTING:
STA. 2141+92 TO 2144+84

HORIZONTAL SCALE
50 25 0 50 100 150 feet
VERTICAL SCALE
50 25 0 50 100 150 feet

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

CONST. TYPE	(11)	(4B)	(W)
SOIL TYPE		VgB (PAS)	
LC/LU		GRASS / TRAVEL	
STREAMS			STREAM 2012-DITCH-PW-3a (D) - STATION 2142+30 TO 2144+10
WETLANDS			WETLAND 2012-PW-8 - STATION 2141+92 TO 2144+84 CLASS III
VERNAL POOLS			
SIGNIFICANT NATURAL COMMUNITIES			
RTE SPECIES			
NRC WILDLIFE HABITAT			
ARCHAEOLOGY SITES			

MATCH LINE

MATCH LINE

VHB Vanasse Hangen Brustlin, Inc.

DESCRIPTION		BID		CONSTRUCTION	
		INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016	
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016	
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016	
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016	
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016	

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

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DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
ANGP-T-C-083B	ALIGNMENT SHEET				

YEAR: 2016 | W.O. | SCALE: 1" = 50' | DWG. ANGP-EPSC-083B | REV. 0

RIGHT-OF-WAY

MATCHLINE

273.01
N/F
DUPOISE, STEPHEN;
& MARCIA

265.01
ROUTE 7

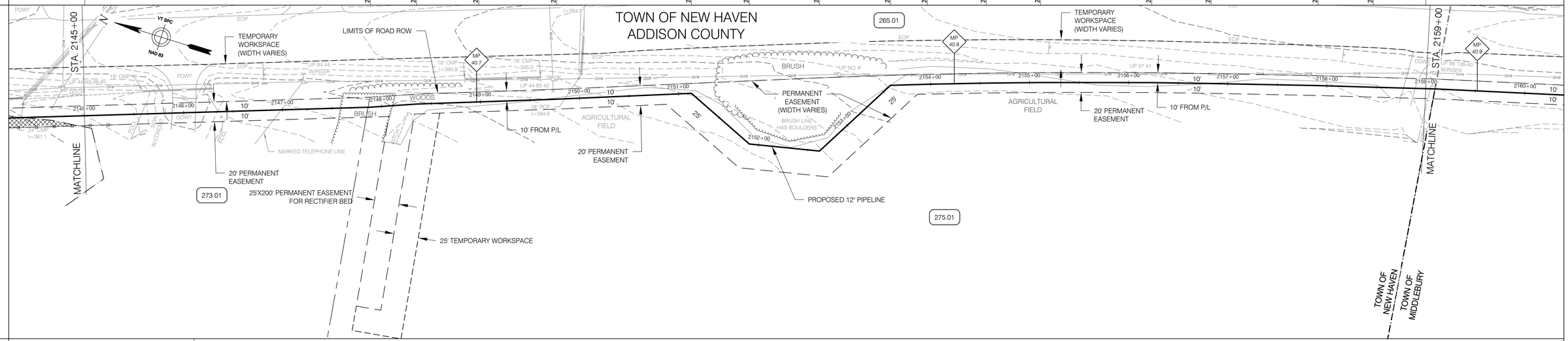
275.01
N/F
DELINEATION CORPORATION;
WEBER, STEVE

MATCHLINE

SURVEY DATA

273.01	02°08" RT	01°52" RT	00°02" RT	00°32" LT	43°42" RT	35°22" LT	48°40" LT	41°14" RT	00°28" RT	00°33" RT	00°39" RT	00°50" RT	00°16" RT	00°37" RT	00°12" RT	275.01
S 19° 08" E	2147+89	S 21° 16" E 2148+35	S 19° 24" E 2148+98	S 19° 22" E 2149+77	S 19° 54" E 2151+13	S 23° 47" W 2151+91	S 11° 35" E 2152+62	S 60° 16" E 2153+60	S 19° 02" E 2153+97	S 18° 33" E 2154+56	S 18° 01" E 2155+11	S 17° 22" E 2156+23	S 16° 32" E 2156+83	S 16° 17" E 2157+91	S 15° 40" E 2158+47	S 15° 52" E

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 2145+00 TO 2148+07 RT - 10' FROM NEW 12" PIPE ℄
STA. 2148+07 TO 2148+32 RT - WIDTH VARIES FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2148+32 TO 2150+87 RT - 10' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2150+87 TO 2153+86 RT - 25' FROM NEW 12" PIPE

INSTALL CONSTRUCTION DEMARCATION:
STA. 2153+86 TO 2159+00 RT - 10' FROM NEW 12" PIPE ℄

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
50 25 0 50 100 150 feet
VERTICAL SCALE
50 25 0 50 100 150 feet

	MATCH LINE		MATCH LINE
CONST. TYPE		4B	
SOIL TYPE		VgB (PAS)	
LC/LU		PASTURE / TRAVEL	
STREAMS			
WETLANDS			
VERNAL POOLS			
SIGNIFICANT NATURAL COMMUNITIES			
RTE SPECIES			
NRC WILDLIFE HABITAT			
ARCHAEOLOGY SITES			

VHB Vanasse Hangen Brustlin, Inc.

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
						DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
						DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-084A	ALIGNMENT SHEET					DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 50' | DWG. ANGP-EPSC-084A | REV. 0

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

RIGHT-OF-WAY

MATCHLINE

265.01
ROUTE 7

275.01
N/F
DELINEATION CORPORATION;
CORBIN, THOMAS

TOWN OF NEW HAVEN
TOWN OF MIDDLEBURY

277.01
N/F
DELINEATION CORPORATION;
CORBIN, THOMAS

265.02
ROUTE 7

279.01
N/F
DRAGON, SANDRA JEANNE

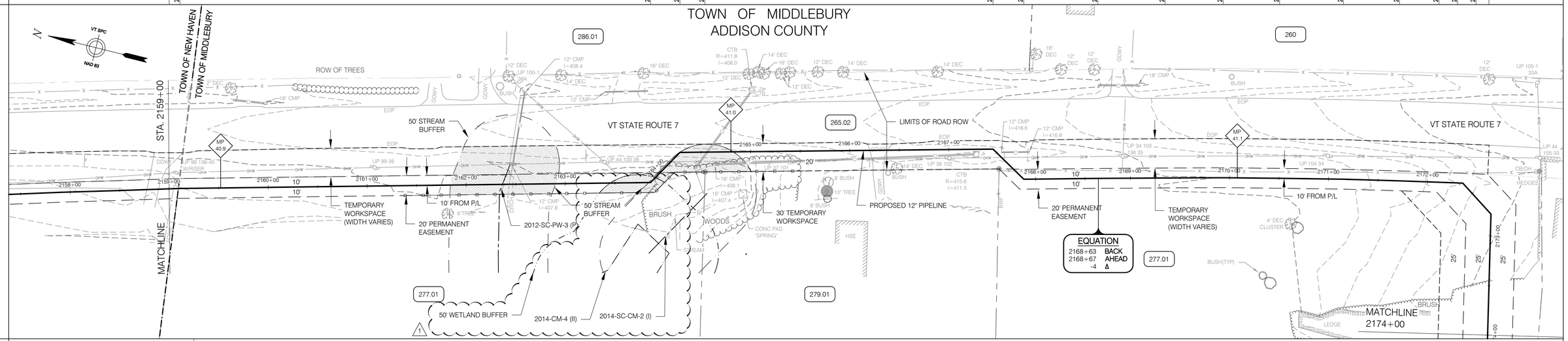
277.01
N/F
DELINEATION CORPORATION;
CORBIN, THOMAS

MATCHLINE

SURVEY DATA

S 15° 52' E	2159+15	01°12' LT
S 14° 40' E	2163+90	44°55' LT
S 59° 35' E	2164+32	44°55' RT
S 14° 40' E	2164+32	00°08' RT
S 14° 32' E	2167+63	44°58' LT
S 30° 25' W	2167+94	44°59' LT
S 14° 34' E	2168+68	00°15' RT
S 14° 20' E	2169+35	00°06' RT
S 14° 13' E	2169+94	00°53' RT
S 13° 20' E	2170+51	00°11' RT
S 13° 08' E	2171+16	00°51' RT
S 12° 16' E	2171+72	00°18' RT
S 11° 58' E	2172+29	00°41' RT
S 11° 16' E	2172+36	44°59' RT
S 33° 43' W	2172+78	43°55' RT
S 77° 39' W		

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 2159+00 TO 2164+10 RT - 10' FROM NEW 12" PIPE ℄

INSTALL REINFORCED PERIMETER CONTROL:
STA. 2161+34 TO 2164+00 RT - 10' FROM NEW 12" PIPE ℄
STA. 2164+00 TO 2165+50 RT - 20' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2164+10 TO 2167+63 RT - 20' FROM NEW 12" PIPE ℄
STA. 2167+63 TO 2171+75 RT - 10' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2171+75 TO 2172+36 RT - WIDTH VARIES' FROM NEW 12" PIPE ℄
STA. 2172+36 TO 2174+00 RT - 50' FROM NEW 12" PIPE ℄
STA. 2172+46 TO 2174+00 LT - 25' FROM NEW 12" PIPE ℄

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
50 25 0 50 100 150 feet
50 25 0 50 100 150 feet
VERTICAL SCALE

CONST. TYPE	④B	⑦	④B	④E	④B	①E

CONST. TYPE: (4B) | (7) | (4B) | (4E) | (4B) | (1E)

SOIL TYPE: VgB (PAS) | NeB (PAS) | NeB (PAS) | VgB (PAS)

LC/LU: GRASS / TRAVEL

STREAMS: STREAM 2012-SC-PW-3 - (P) STATION 2161+78 TO 2162+89 | STREAM 2014-SC-CM-2 (I) | 1

WETLANDS: WETLAND 2014-CM (II)

VERNAL POOLS

SIGNIFICANT NATURAL COMMUNITIES

RTE SPECIES

NRC WILDLIFE HABITAT

ARCHAEOLOGY SITES

MATCH LINE

MATCH LINE

DWG. NO.	REFERENCE DWG.	REV	DSN	CK		DESCRIPTION
ANGP-T-C-084B	ALIGNMENT SHEET	1	BCK	TDB		ENV. EDITS (6/08/15)

	BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE
ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

Vermont Gas

Vanasse Hangen Brustlin, Inc.

CHA
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South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

YEAR: 2016	W.O.	SCALE: 1" = 50'	DWG. ANGP-EPSC-084B	REV. 1

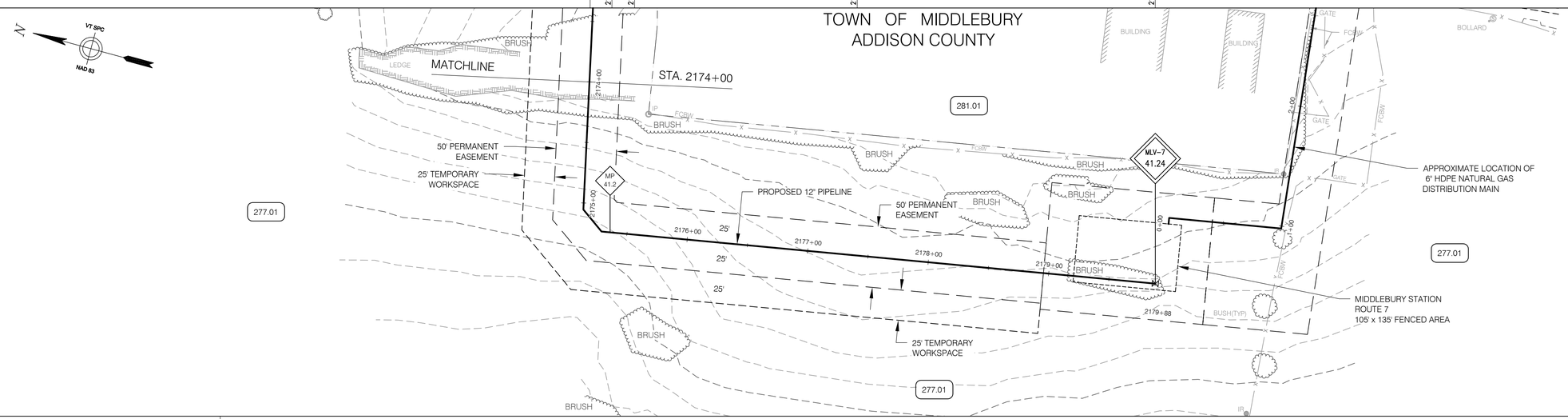
RIGHT-OF-WAY

SURVEY DATA

MATCHLINE | 277.01 N/F DELINEATION CORPORATION CORBIN, THOMAS | END

S 77° 39' W 42'14" LT 2175+05 | S 35° 24' W 45'07" LT 2175+29 | S 09° 43' E | 00'22" LT 2177+41 | S 10° 05' E | 2179+91

ALIGNMENT DETAIL



EROSION PREVENTION & SEDIMENT CONTROL

LEGEND

- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- CENTERLINE OF STREAM
- TEMPORARY STREAM CROSSING
- WETLAND
- 50' WETLAND BUFFER
- TEMPORARY WETLAND MATTING
- WETLAND BUFFER WITHIN PROJECT AREA
- REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROL

INSTALL CONSTRUCTION DEMARCATION:
STA. 2174+00 TO 2178+96 RT - 50' FROM NEW 12" PIPE ℄
STA. 2174+00 TO 2178+96 LT - 25' FROM NEW 12" PIPE ℄

INSTALL CONSTRUCTION DEMARCATION:
STA. 2178+96 TO 2179+88 RT - 30' FROM NEW 12" PIPE ℄
STA. 2178+96 TO 2179+88 LT - 75' FROM NEW 12" PIPE ℄

1. REINFORCED CONSTRUCTION DEMARCATION AND REINFORCED PERIMETER CONTROLS ARE ONLY SHOWN WITHIN 50 FT. OF WATER RESOURCE AREAS AND AT CONSTRUCTION ENTRANCES - SEE "CONSTRUCTION EPSC NOTES" - NOTE #6. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS ARE NOT TO CROSS ACCESS WAYS OR ACTIVE FLOW PATHS. FOR AREAS THAT ARE > 50 FT. FROM WATER RESOURCE AREAS, CONSTRUCTION DEMARCATION IS TO BE INSTALLED ALONG PERIMETER OF PROJECT AREA / LIMITS OF DISTURBANCE AND PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF - SEE NOTE #6.
2. FOR AREAS DESIGNATED AS PRIME AGRICULTURAL SOILS (PAS), SEE "CONSTRUCTION WITHIN PRIME AGRICULTURAL SOILS (PAS) AREAS" (ANGP-T-G-011), FOR SOIL SEGREGATION AND ASSOCIATED CONSTRUCTION PROCEDURES.

HORIZONTAL SCALE
50 25 0 50 100 150 feet
VERTICAL SCALE
50 25 0 50 100 150 feet

	MATCH LINE		END
CONST. TYPE		1E	
SOIL TYPE		VgB (PAS)	
LC/LU		GRASS (TRAVEL / AGRICULTURAL)	
STREAMS			
WETLANDS			
VERNAL POOLS			
SIGNIFICANT NATURAL COMMUNITIES			
RTE SPECIES			
NRC WILDLIFE HABITAT			
ARCHAEOLOGY SITES			

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION		BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE
						ENVIRONMENTAL	JLS	06/28/13	JLS	05/2016
						DRAFTING DESIGNER	GIL	06/28/13	GJM	05/2016
ANGP-EPSC-M-001	EPSC PLAN					DRAFTING SUPERVISOR	BZD	06/28/13	BCK	05/2016
ANGP-T-G-021	STATION AND VALVE DETAILS					DESIGN ENGINEER	MDF	06/28/13	GEW	05/2016
ANGP-T-C-085	ALIGNMENT SHEET					DESIGN MANAGER	SAB	06/28/13	JEO	05/2016

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
EPSC PLAN

LOC. ADDISON COUNTY, VERMONT

YEAR: 2016 | W.O. | SCALE: 1" = 50' | DWG. ANGP-EPSC-085 | REV. 0

Vanasse Hangen Brustlin, Inc.

Vermont Gas

CHA
38 Eastwood Drive, Suite 105
South Burlington, VT 05403
Main: (802) 735-0372 · www.chacompanies.com

TECHNICAL SPECIFICATIONS

FOR

Vermont Gas Systems, Inc.
85 Swift Street
South Burlington, VT 05403

Addison Natural Gas Project (ANGP)
Phase 1

PREPARED BY:

38 Eastwood Drive, Suite 105
South Burlington, VT 05403

April 29, 2015
Sections 137000, 138000 and 312333 Revised 05/2016

PROJECT NO.: 28757

TABLE OF CONTENTS

SECTION 011000 - SUMMARY & SCOPE OF WORK

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification:

1. Addison-Rutland Natural Gas Project (ARNGP) Phase 1: Approximately 41.4 total miles of 12-inch natural gas transmission piping (including approximately 3.7 miles of horizontal directional drills, approximately 5.5 miles of open-cut previously installed and 32.2 miles of remaining open-cut and jack & bore installation). MAOP will be 1,440 psi. Additional project components are indicated on the Construction Plans, including, but not limited to the following:

a. Mainline valve sites,

b. Colchester Tie-in site,

c. 3 Meter & Regulation Stations (previously completed and not in this contract)

2. Vermont Gas Phase 7 Looping: Approximately 3 mile extension of 16-inch natural gas transmission piping, paralleling an existing 10-inch transmission main, including one mainline valve site. MAOP will be 1,440 psi.

3. Project Location:

a. Phase 1: Chittenden County, Vermont (Towns of Colchester, Essex, Williston, St. George, Hinesburg) and Addison Counties, Vermont (Monkton, New Haven and Middlebury)

b. Phase 7: Franklin County, Vermont (Town of Georgia)

4. Owner: Vermont Gas Systems, Inc., 85 Swift Street, South Burlington, Vermont 05403

B. Engineer Identification:

1. Phase 1: The technical specifications (dated 4/29/15) and design plans were prepared for Phase 1 by CHA, 38 Eastwood Drive, Suite 105, South Burlington, Vermont 05403.

2. Phase 7: The design plans dated 9/10/13 (Sheets C-207, 208, 209 have a different date of 5/25/12) were prepared for Phase 7 by consultants noted on plans.

C. Project/Construction Manager: The Owner has engaged with Pricewaterhouse Coopers to function as the Project/Construction Manager for this Project, to serve as an advisor to Owner, and to provide assistance in administering the Construction Contract between Owner and Contractor.

1.2 CONTRACT**S**

A. The Project will be constructed under multiple contracts.

B. Multiple contracts are separate agreements, representing significant construction activities, between Owner and separate contractors. See narrative below for a description of work included under each separate contract. Each contract is performed concurrently and shall be coordinated closely with construction activities performed on Project under other contracts. Contracts for this Project include the following:

1. Phase 1 Horizontal Directional Drilling (HDD) Design-Build Contract – Engineers Construction, Inc. (ECI), of Williston, Vermont, has been retained to complete all HDD's noted on the project plans.

2. Construction of three (3) meter and regulating gate stations – Frank Lill and Sons of Victor, New York has been retained to complete all work associated with the construction of the three gate stations.

3. All remaining construction activities associated with Phase 1 and Phase 7 (excluding scopes described items 1 and 2 above), which is described in these technical specifications, contract terms & conditions, project construction permit conditions, and indicated on the Construction Plans. The Phase 1 and 7 Contract includes, but is not necessarily limited to, the following general scope of work:

    a. Job site safety including compliance with OSHA/VOSHA Laws and Regulations,

    b. Safety training for all appropriate personnel (e.g. VELCO, Owner)

    c. Implementing and maintaining all environmental permit conditions. Fines/penalties imposed on the Owner for Contractor violations of these conditions will be borne exclusively by the Contractor,

    d. Implementing and maintaining all other project permit conditions,

    e. Maintaining construction line list requirements,

    f. Call Dig Safe at 811 before starting any excavation or verify that a Dig Safe ticket exists and is valid for the area. Contractor shall maintain Dig Safe marks and follow all Dig Safe laws. Contractor is responsible for contacting and complying with municipal and private utilities that are not members of Dig Safe. Excavate with care to avoid damage to structures and utilities - excavations shall be completed by hand if necessary. Promptly report any damages to utilities to Utility Owner and Construction Management Team, do not attempt repairs without the Utility Owners consent.Protection of existing Owner gas transmission main and distribution facilities.

    g. Protection and repairs/replacements of all public and private property within the work limits, including, but not limited to the following: existing utilities and infrastructure, structures, drain tiles, and vehicles,

    h. Mobilization/Demobilization of all required equipment, personnel, and materials,

    i. Construction, maintenance, environmental controls and restoration of all staging areas and pipe laydown yards,

    j. Installation, removal and restoration of access roads,

    k. Clearing, grubbing and removal/disposal of any construction debris,

    l. Handling, transportation, unloading/stringing of all transmission pipe and appurtenances,

    m. Trenching, including maintaining soils segregation per permitting conditions,

    n. Jobsite dewatering,

    o. Rock removal and disposal,

    p. Furnishing and installation of rock shield,

    q. Furnishing materials and installation of trench breakers,

    r. Furnishing materials, filling, transportation and installation of "pipesaks"

s. Pipeline (including fittings) welding, field coating, field bending, and lowering into trench,

t. Pipeline welding (including fittings) and field coating repairs and/or replacements,

u. Pipe padding, select backfill, general backfill,

v. Jack & bore installations as noted on project plans,

w. Installation of concrete coating pipe in areas noted on plans (e.g. road crossings and wetlands/streams),

x. Installation of test leads,

y. Contracting with ARK Engineering & Technical Services of Braintree MA for a complete installation of all cathodic protection and AC mitigation project components.

z. Hydrostatic testing of the entire Phase 1 transmission main from the Colchester Tie-in Site to the Middlebury M&R Station. This includes testing pipeline installed by the HDD Contractor and the previous Transmission Main Contractor,

aa. Hydrostatic testing of the Phase 7 transmission main from Sta. 264+40 to 419+81 (entire length of Phase 7),

bb. Pigging (cleaning, drying, geometry/caliper) the transmission mains,

cc. Mainline Valve Sites and Colchester Tie-In construction including all civil/site, mechanical, and electrical work required for a comprehensive installation,

dd. All transmission piping and appurtenances downstream of MLV7 up to 12-inch isolation valve and blind flange at Middlebury M&R Station,

ee. Tie-Ins to previously constructed Metering and Regulation Stations and tie-ins to previously installed transmission main segments,

ff. All construction activities related to gas-up of newly installed transmission line segments, excluding purging and gas up (by Owner),

gg. Installation of pipeline markers,

hh. Coordination with and support for ARK Technical Services (designer and installer of AC Mitigation and Cathodic Protection Systems),

ii. Coordination with and support for ECI for completion of the HDD construction activities,

(1) Load and transport pipe from Swanton, VT to HDD locations in accordance with HDD Contractor's scheduling needs and project permitting requirements. Unload, handle, and string pipe at the HDD site,

(2) Clear and grade HDD sites,

(3) Install timber mats as needed,

(4) Install temporary access roads,

(5) Align, weld, and coat HDD pull back pipe field joints,

(6) Place HDD pipe pull back on rollers,

(7) Install hydrostatic test manifolds on HDD pipe pull back section,

(8) Fill HDD pipe pull back section with water,

(9) Complet successful 4 hour hydrostatic test of HDD pipe pull back section (pre and post-installation). Refer to hydrostatic testing specification for additional requirements,

(10) Provide holiday detector to inspect HDD pipe pull back section for coating holidays during pipe pull back operations,

(11) Repair coating holidays during HDD pipe pull back operations,

(12) Provide all necessary equipment, operators, and laborers to assist HDD Contractor with the installation of HDD pipe pull back section,

(13) Provide all necessary equipment, operators, and laborers to run a 95% ID aluminum sizing plate through HDD pipe pull back section,

(14) Coordinate final tie-ins of HDD pipe pull back section with HDD Contractor,

(15) Remove timber mats from site,

(16) Restore stie to finish grade,

(17) Complete clean up and final restoration.

jj. Coordination and cooperation with all inspection and construction management consultants, NDE personnel, and layout crews/as-built surveyors,

kk. Jobsite and right-of-way cleanup of all debris, trash and deleterious materials,

ll. All traffic control required by permitting conditions, as well as local/state/federal regulations.

mm. Commissioning and startup assistance,

nn. Completion of all warranty items after substantial completion.

1.3 USE OF PREMISES

A. General: The Contractors shall have use of the project right-of-way and defined work limits for construction operations as described below. The Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

1. Phase 1 HDD Contractor (ECI) shall have use of the Williston and Plank Road pipe yards.

2. The contractor retained to complete the remaining Phase 1 transmission main activities as well as Phase 7, will have use of the Williston and Plank Road pipe yards. Coordination and cooperation with the other Phase 1 contractors is a requirement of this transmission contractor.

1.4 FUTURE WORK

A. Future Contracts: Owner will award separate contracts for additional work to be performed at the site after Substantial Completion. Completion of that work will depend on successful completion of preparatory work under this Contract. The Contract for future work will include the following:

1. Landscaping: All landscaping around mainline valve sites and the Colcheter Tie-in Site.

2. Fencing: All fencing around mainline valve sites and the Colchester Tie-in Site.

1.5 OWNER-FURNISHED PRODUCTS AND SERVICES

A. Owner will furnish (delivered to the pipe yards) or has provided the following project components and services. When applicable, the Contractor shall be responsible for transportation (from the designated construction yards to the right-of-way), protection, installation, testing and commissioning, as well as all labor and equipment necessary for a complete installation.

1. 12-inch transmission piping, 12" ell fittings and/or induction bends, valves and appurtenances.

2. 16-inch transmission piping, 16" ell fittings and/or induction bends, valves and appurtenances.

3. Mainline Valve Sites: Fencing, valves, piping, fittings, actuators and all other mechanical appurtenances 2-inches and larger in nominal size.

4. Colchester Tie-In Site: Fencing, valves, piping, fittings, actuators and all other mechanical appurtenances 2-inches and larger in nominal size.

5. AC mitigation and cathodic protection materials.

6. 3,600 timber mats (4'x16'). All additional mats that are required by the Contractor for the complete installation of all contract components shall be furnished, installed, washed (if required by permit conditions), removed and disposed of (if necessary) by the Contractor. If mats are in acceptable working condition (as determined by the Construction Management Team) at the end of the construction phase, contractor shall wash, transport (to Williston Pipe Yard), and unload/stack mats with cribbing/wood to prevent dry rot.

7. Pipeline markers, warning signs, and tape.

8. Hot –tapping materials including tee, plug, blind flange, and valve.

9. Items indicated as by Owner on project plans.

B. The Owner has provided the following construction components and services:

1. The construction of the Williston Road Pipe Yard.

2. Hot-tap of existing 10" steel Natural Gas Transmission Line adjacent to the Colchester Tie-in Site.

3. Construction of the following access roads:

a. Access Road B – Partially constructed.

b. Access Road E – Timber mat road installed.

c. Access Road F – Completed, but may require minor improvements.

d. Access Road D2 – Partially constructed.

e. Access Road D3 – Partially constructed.

f. Access Road H – Installed, but partially restored.

g. Access Road I – Timber mat road installed.

4. Open-cut/jack and bore installation of 12” Steel Transmission Pipe in the following areas:
    a. Mill Pond Road Jack and Bore in Colchester
    b. STA. 126+66 to 158+08
    c. STA. 184+76 to 212+11
    d. STA. 219+57 to 240+37
    e. STA. 322+44 to 356+50
    f. STA 366+15 to 387+97
    g. STA. 400+30 to 553+16
5. Tree clearing of the following areas:
    a. STA. 0+00 to 39+00
    b. STA. 106+00 to 554+00
6. Installation of 12-inch transmission main and associated components as indicated on project plans.
7. Survey Stake-out and as-built of the entire pipeline route, including pipeline centerline and work spaces.
8. Non-destructive examination (NDE) inspection services for welding.

C. The Contractor shall provide support systems to receive Owner’s equipment and furnished products at the construction yards.

1. Owner will arrange and pay for delivery (to the Williston pipe yard) of Owner-furnished items according to Contractor's Construction Schedule.
2. Contractor shall be responsible for providing all labor, materials, equipment, supervision, dunnage, and necessary appurtenances for the unloading and storage of all remaining materials delivered to the Project site. All Project materials are delivered FOB tailgate to the jobsite.
3. After delivery, Owner and Contractor will jointly inspect delivered items for damage. Contractor and Owner shall jointly sign off on material receiving inspection forms indicating the condition of the materials delivered to the Project Site. In the event of a future issue with the condition of any materials the material receiving inspection form shall be governing document to determine responsibility for any repair or replacement costs.
4. If Owner-furnished items are damaged, defective, or missing, Owner will arrange for replacement.
5. Owner will arrange for manufacturer's field services and for delivery of manufacturer's warranties to Contractor.
6. Owner will furnish Contractor the earliest possible delivery date for Owner-furnished products. Using Owner-furnished earliest possible delivery dates, Contractor shall designate delivery dates of Owner-furnished items in Contractor's Construction Schedule. From this schedule the Contractor shall provide the Owner with a delivery schedule of materials needed.

7. Contractor shall review Shop Drawings, Product Data, and Samples and return them to Construction Management Team noting conditions which will preclude the Contractor from adhering to the Project design and construction requirements. Failure by the Contractor to adequately assess the materials provided by the Owner for the intended use in the construction of this Project shall not result in an extension of the Project Schedule or additional costs to the Owner.

8. Contractor is responsible for protecting Owner-furnished items from damage during storage and handling, including damage from exposure to the elements as required by the manufacturer of the materials or coating requirements of the pipe.

9. If Owner-furnished items are damaged as a result of Contractor's operations, Contractor shall repair or replace them at no additional cost to the Owner and without any schedule extensions.

10. Contractor shall collect and deliver (to a location determined by Owner) all unused and scrap Owner supplied materials at the end of Construction. Materials shall be property of the Owner.

D. Contractor shall furnish (subject to Construction Management Team review and approval) all materials, products and services not listed in 1.5A above for a complete installation. All materials and equipment shall be in accordance with applicable specifications and Owner standards. Including, but not limited to, the following:

1. Field coating materials,
2. Rockshield,
3. Geotechnical materials (geotextiles, select backfill, common backfill, other aggregate materials),
4. PipeSaks,
5. Trench breaker materials,
6. Pipe, valves and fittings less than 2-inches in nominal size,
7. EPSC measures and other environmental protection/restoration materials and equipment,
8. Access road materials,
9. All incidental equipment and materials required for pigging operations and for hydrotesting,
10. Insulating Joints as required.
11. Materials and products shown on project plans that are noted to be provided by Contractor.
12. All additional necessary materials required to complete construction in accordance with all Contract Documents.

1.6 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 48-division format and CSI/CSC's "MasterFormat" numbering system.

1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Preliminary Construction Schedule.
2. Contractor's Construction Schedule.
3. Submittals Schedule.
4. Plan of the day reports.
5. Daily construction reports.
6. Material location reports.
7. Field condition reports.
8. Special reports as directed by the Construction Management Team.
9. Construction pictures and videos.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
2. Predecessor activity is an activity that must be completed before a given activity can be started.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. Float: The measure of leeway in starting and completing an activity.

1. Float time is for the exclusive use or benefit of the Owner.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

F. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

G. Major Area: A story of construction, a separate building, or a similar significant construction element.

H. Milestone: A key or critical point in time for reference or measurement.

I. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

1.3 SUBMITTALS

A. Qualification Data: For firms and persons specified in "Quality Assurance" Article and in-house scheduling personnel to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects, engineers, owners, and other information specified.

B. Submittals Schedule: Submit a digital copy of the schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Construction Management Team final release or approval.

C. Preliminary Construction Schedule: Submit a digital copy of the preliminary schedule prior to beginning construction.

D. Contractor's Construction Schedule: Submit a digital copy of initial schedule large enough to show entire schedule for entire construction period.

1. Submit an electronic copy of schedule. Include type of schedule (Initial or Updated) and date on label.

E. CPM Reports: Concurrent with CPM schedule, submit a digital copy of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
3. Total Float Report: List of all activities sorted in ascending order of total float.
4. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed until most recent Application for Payment.

F. Construction Pictures and Videos: Submit digital pictures and videos as requested by Owner.

G. Daily Construction Reports: Submit digital copies daily. Contractor construction reporting forms shall be reviewed and approved by the Construction Management Team and Owner prior to construction.

H. Material Location Reports: Submit digital copies at weekly intervals.

I. Field Condition Reports: Submit digital copies at time of discovery of differing conditions.

J. Special Reports: Submit digital copies at time of unusual event.

1.4 QUALITY ASSURANCE

A. Scheduling Personnel Qualifications: An experienced specialist in CPM scheduling and reporting with at least 5 years of experience in scheduling and tracking of work on projects of this type and magnitude.

B. Prescheduling Conference: Conduct conference at Project site. Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:

1. Review software limitations and content and format for reports.

2. Verify availability of qualified personnel needed to develop and update schedule.

3. Discuss constraints, including phasing, work, stages and interim milestones.

4. Review delivery dates for Owner-furnished products.

5. Review schedule for work of Owner's separate contracts.

6. Review time required for review of submittals and resubmittals.

7. Review requirements for tests and inspections by independent testing and inspecting agencies.

8. Review time required for completion and startup procedures.

9. Review and finalize list of construction activities to be included in schedule.

10. Review submittal requirements and procedures.

11. Review procedures for updating schedule.

1.5 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.

2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2. Initial Submittal: Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

a. At Contractor's option, show submittals on the Preliminary Construction Schedule, instead of tabulating them separately.

3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

B. Time Frame: Extend schedule from date established for the Notice of Award to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 3**0** days, unless specifically allowed by Construction Management Team.

2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

3. Submittal Review Time: Include review and resubmittal times indicated in Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.

4. Gas up: Provide Owner not less than 14 days notice prior to substantial completion.

5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Construction Management Team's administrative procedures necessary for certification of Substantial Completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.

2. Work under More Than One Contract: Include a separate activity for each contract.

3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.

4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.

5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.

6. Work Restrictions: Show the effect of the following items on the schedule:

   a. Coordination with existing construction.

   b. Limitations of continued occupancies.

   c. Partial operation before Substantial Completion.

   d. Use of premises restrictions.

   e. Provisions for future construction.

   f. Seasonal variations.

   g. Environmental control.

   h. State/Federal Holidays.

   i. Seasonal restrictions of the Permits.

   j. State/environmental permit date restrictions.

7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

   a. Subcontract awards.

   b. Submittals.

   c. Purchases.

   d. Fabrication.

   e. Sample testing.

   f. Deliveries.

   g. Installation.

   h. Tests and inspections.

   i. Adjusting.

   j. Startup/commissioning and placement into final use and operation.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to the Notice to Proceed, Substantial Completion, and Final Completion for Phase 1 and 7.

F. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.

G. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

H. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules. Program shall be approved by Owner prior to Notice of Award.

2.3 PRELIMINARY CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within 14 days of date established for the Notice of Award.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

A. General: Prepare network diagrams using AON (activity-on-node) format.

B. Preliminary Network Diagram: Submit diagram within **14** days of date established for the Notice to Proceed. Outline significant construction activities for the first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C. CPM Schedule: Prepare Contractor's Construction Schedule using a CPM network analysis diagram.

1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than **30** days after date established for the Notice to Proceed.

2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
4. Use "one workday" as the unit of time.

D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

a. Preparation and processing of submittals.

b. Purchase of materials.

c. Delivery.

d. Fabrication.

e. Installation.

2. Processing: Process data to produce output data or a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.

3. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

E. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.

2. Description of activity.

3. Principal events of activity.

4. Immediate preceding and succeeding activities.

5. Early and late start dates.

6. Early and late finish dates.

7. Activity duration in workdays.

8. Total float or slack time.

9. Average size of workforce.

10. Dollar value of activity (coordinated with the Schedule of Values).

F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.

2. Changes in early and late start dates.

3. Changes in early and late finish dates.

4. Changes in activity durations in workdays.

5. Changes in the critical path.

6. Changes in total float or slack time.

7. Changes in the Contract Time.

G. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.

2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.

3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.

4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.

   a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.

   b. Submit value summary printouts one week before each regularly scheduled progress meeting.

2.5 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. High and low temperatures and general weather conditions.
5. Accidents.
6. Meetings and significant decisions.
7. Unusual events (refer to special reports).
8. Stoppages, delays, shortages, and losses.
9. Meter readings and similar recording.
10. Emergency procedures.
11. Orders and requests of authorities having jurisdiction.
12. Change Orders received and implemented.
13. Work Change Directives received.
14. Equipment or system tests and startups.
15. Partial Completions.
16. Substantial Completions authorized.

B. Material Location Reports: At monthly intervals, prepare a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with lit a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.

C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.6 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Scheduling Engineer: Provide a scheduling engineer with a minimum of 5 years relevant experience working with an electronic CPM Software package with particular experience in the scheduling and execution of the construction of linear pipeline projects..

1. Meetings: Scheduling Engineer shall attend all meetings related to Project progress, alleged delays, and time impact.

B. Contractor's Construction Schedule Updating: At weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule 24 hours before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.

2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.

3. As the Work progresses, indicate Actual Completion percentage for each activity.

C. Distribution: Distribute copies of approved schedule to Engineer**,** Construction Management Team**,** Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

3.2 CONSTRUCTION DIGITAL PICTURES AND VIDEOS

A. Date Stamp: Unless otherwise indicated, date and time stamp each photograph as it is being taken so stamp is integral to photograph.

B. Preconstruction Pictures and Videos: Before starting construction, take adequate photographs and/or videos of Project site and surrounding properties from different vantage points, as directed by Construction Management Team. Show existing conditions adjacent to property.

C. Periodic Construction Pictures: Provide as requested by Owner.

D. Final Completion Construction Pictures and Videos: Take adequate pictures and videos after date of Substantial Completion for submission as Project Record Documents.

END OF SECTION

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, and other miscellaneous submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Construction Management Team's responsive action.

B. Informational Submittals: Written information that does not require Engineer's and Construction Management Team's approval. Submittals may be rejected for not complying with requirements.

C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.3 SUBMITTAL ADMINISTRATIVE REQUIREMENTS:

A. Engineer's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Engineer for Contractor's use in preparing submittals, if required.

1. Engineer will furnish Contractor one set of digital data drawing files of the Contract Drawings, pending a returned executed CAD release form, for use in preparing Shop Drawings and Project record drawing.

a. Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.

b. Digital Drawing Software Program: The Contract Drawings are available in AutoCAD 2013.

c. Contractor shall execute data licensing agreement.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.

3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

   a. Engineer and Construction Management Team reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Construction Management Team will advise Contractor when a submittal being processed must be delayed for coordination.

2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

3. Resubmittal Review: Allow 15 days for review of each resubmittal.

4. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Engineer and to Engineer's consultants, allow 15 days for review of each submittal. Submittal will be returned to Construction Management Team, through Engineer, before being returned to Contractor.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.

2. Name file with submittal number or other unique identifier, including revision identifier.

   a. File name shall use project identifier, phase identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., the first submittal for Phase 1 regarding painting: ARNGP-PH1-099000.01). Resubmittals shall include a numerical suffix after another decimal point (e.g., the third submittal, second revision for Phase 2 regarding trenching and backfilling: ARNGP-PH2-312333.03-R2).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Engineer and Construction Management Team.

4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:

   a. Project name.

   b. Date.

   c. Name and address of Engineer.

   d. Name of Construction Management Team.

   e. Name of Contractor.

   f. Name of firm or entity that prepared submittal.

   g. Names of subcontractor, manufacturer, and supplier.

   h. Category and type of submittal.

   i. Submittal purpose and description.

   j. Specification Section number and title.

   k. Specification paragraph number or drawing designation and generic name for each of multiple items.

   l. Drawing number and detail references, as appropriate.

   m. Location(s) where product is to be installed, as appropriate.

   n. Indication of full or partial submittal.

   o. Transmittal number

   p. Submittal and transmittal distribution record.

   q. Other necessary identification.

   r. Remarks.

E. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer and Construction Management Team on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

F. Resubmittals: Make resubmittals in same form as initial submittal.

   1. Note date and content of previous submittal.

   2. Note date and content of revision in label or title block and clearly indicate extent of revision.

3. Resubmit submittals until they are marked with approval notation from Construction Management Team's action stamp.

G. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

H. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Engineer's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Submit electronic submittals via email as PDF electronic files.

    a. Engineer, through Construction Management Team, will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

    a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

    a. Manufacturer's catalog cuts.

    b. Manufacturer's product specifications.

    c. Statement of compliance with specified referenced standards.

    d. Testing by recognized testing agency.

    e. Application of testing agency labels and seals.

    f. Notation of coordination requirements.

g. Availability and delivery time information.

h. Inspection Test Plan

4. Submit Product Data in the following format:

a. PDF electronic file.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Engineer's digital data drawing files is otherwise permitted.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.

b. Schedules.

c. Compliance with specified standards.

d. Notation of coordination requirements.

e. Notation of dimensions established by field measurement.

f. Relationship and attachment to adjoining construction clearly indicated.

g. Seal and signature of professional engineer if specified.

h. Inspection Test Plan

2. Submit Shop Drawings in the following format:

a. PDF electronic file.

D. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

E. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."

F. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."

G. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Engineers and owners, and other information specified. Assignments of specified subcontractors or personnel on project components shall be clearly defined. Owner reserves the right to reject any proposed firm/subcontractor or personnel as their discretion without assigning any reason whatsoever.

H. Welding Procedures/Certificates: Contractor shall coordinate and comply with all Owner requirements for welding procedures and/or certificates, and associated documentation.

I. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

J. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

K. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

L. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

M. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

N. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

O. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

P. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

Q. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

R. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

S. Calibration Equipment

T. Construction Pictures and Videos: Comply with requirements in Division 1 Section "Construction Progress Documentation"

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

2.3 CONTRACTOR'S PROJECT HEALTH & SAFETY PLAN

A. No later than the Pre-construction meeting, the Contractor shall submit to the Construction Management Team a written Project Health & Safety Plan which states the Contractor's company policy relative to safety. The plan must also address specific health and safety concerns which are expected to be encountered on the project. As a minimum this plan shall include:

1. Listing of full time on-site project and company safety officers

2. Specific company safety policies

3. Employee Safety Training Program

4. Administrative procedures to handle employee health & safety concerns

5. Procedures for insuring worker compliance with health and safety requirements.

B. The Contractor shall be responsible to insure that each Subcontractor employed on the project complies with the requirements of this section either by submitting a copy of the subcontractor's Project Health & Safety Plan or by submitting a letter from the Subcontractor stating that they will comply with the provisions of the Contractor's Project Health & Safety Plan.

C. In addition to the Contractor's project health and safety plan, Contractor and all subcontractors shall comply with all additional Owner and Construction Management Team health and safety requirements.

D. Submission of the required Project Health & Safety Plan information for Construction Management Team review and approval.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to the Construction Management Team.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ENGINEER'S AND CONSTRUCTION MANAGEMENT TEAM'S ACTION

A. General: Engineer and Construction Management Team will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Engineer and Construction Management Team will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer and Construction Management Team will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. Final Unrestricted Release: Where submittals are marked "No Exceptions Taken," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.

2. Final-But-Restricted Release: When submittals are marked "Make Corrections Noted," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.

3. Returned for Resubmittal: When submittal is marked "Revise and Resubmit," "Rejected," or "Submit Specified Item," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.

a. Do not permit submittals marked "Revise and Resubmit," "Rejected," or "Submit Specified Item" to be used at the Project site, or elsewhere where Work is in progress.

4. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Action Not Required."

C. Informational Submittals: Engineer and Construction Management Team will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Engineer and Construction Management Team will forward each submittal to appropriate party.

D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.

2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.

3. Requirements for Contractor to provide quality-control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Engineer.

C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Construction Management Team

1.4 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

C. Reports: Prepare and submit certified written reports, that include the following:

1. Date of issue.

2. Project title and number.

3. Name, address, and telephone number of testing agency.

4. Dates and locations of samples and tests or inspections.

5. Names of individuals making tests and inspections.

6. Description of the Work and test and inspection method.

7. Identification of product and Specification Section.

8. Complete test or inspection data.

9. Test and inspection results and an interpretation of test results.

10. Ambient conditions at time of sample taking and testing and inspecting.

11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.

12. Name and signature of laboratory inspector.

13. Recommendations on retesting and reinspecting.

D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

B. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

D. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.

G. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed. Each testing agency shall be authorized by the authorities having jurisdiction in the state in which the project is located.

H. Preconstruction Testing: Testing agency shall perform preconstruction testing for compliance with specified requirements for performance and test methods.

1. Contractor responsibilities include the following:
   a. Provide test specimens and assemblies representative of proposed materials and construction. Provide sizes and configurations of assemblies to adequately demonstrate capability of product to comply with performance requirements.
   b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
   c. Fabricate and install test assemblies using installers who will perform the same tasks for Project.
   d. When testing is complete, remove assemblies; do not reuse materials on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to the Construction Management Team, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.6 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.

2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.

3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor**,** and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
   a. Contractor shall not employ the same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.

3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.

D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with the Construction Management Team and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Construction Management Team and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.

5. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.

2. Incidental labor and facilities necessary to facilitate tests and inspections.

3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.

4. Facilities for storage and field-curing of test samples.

5. Delivery of samples to testing agencies.

6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within 30 days of date established for commencement of the Work (i.e., Notice to Proceed).

1. Distribution: Distribute schedule to Owner, Construction Management Team, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Shall": The term “shall”, in all uses within the contract documents, means “must”, “will”, “required”. “Shall” does NOT mean “optional” or “recommended”.

C. “Approved": The term "approved," when used in conjunction with Engineer's action on Contractor's submittals, applications, and requests, is limited to Engineer's duties and responsibilities as stated in the Conditions of the Contract.

D. "Directed": Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean directed by Engineer, requested by Engineer, and similar phrases.

E. "Indicated": The term "indicated" refers to graphic representations, notes, or schedules on Drawings; or to other paragraphs or schedules in Specifications and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the user locate the reference.

F. "Regulations": The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

G. "Furnish": The term "furnish" is used to mean supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

H. "Install": The term "install" is used to describe operations at Project site including unloading, temporary storage, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

I. "Provide": The term "provide" means to furnish and install, complete and ready for the intended use.

J. "Installer": An installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction operation, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

K. The term "experienced," when used with the term "installer," means having successfully completed previous projects similar in size and scope to this Project; being familiar with the special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1. Trades: Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

2. Assignment of Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in the

operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

a. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

L. "Project site" is the space available to the Contractor for performing construction activities, either exclusively or in conjunction with others performing other work as part of Project. The extent of Project site is shown on the Drawings and may or may not be identical with the description of the land on which Project is to be built.

M. Testing Laboratories: A “testing laboratory” is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference, including the following:

1. US Department of Transportation Title 49CFR Part 192 – Transportation of Natural Gas and Other Gas by Pipeline

2. American Society for Mechanical Engineers (ASME) B31.8: Gas Transmission and Distribution Piping Systems

3. ASME Boiler and Pressure Vessel Code (BPVC) Section IX

4. American Petroleum Institute (API) 1104: Welding of Pipelines and Related Facilities

5. Vermont Agency of Transportation (VTrans) Standard Specifications and Construction Standards

6. Vermont Agency of Natural Resources (ANR)/Army Corps of Engineers (ACOE) – Refer to project environmental permits for applicable rules/standards.

7. Occupational Safety and Health Administration (OSHA) / Vermont Occupational Safety and Health Administration (VOSHA)

8. American Society for Testing and Materials (ASTM)

9. National Electric Safety Code (NESC)

10. NACE International

B. Publication Dates: Comply with standards in effect as of the date of the Contract Documents, unless otherwise indicated.

C. Conflicting Requirements: Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Engineer for a decision before proceeding.

1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to Engineer for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source and make them available on request.

E. Abbreviations and Names: Abbreviations and acronyms are frequently used in the Specifications and other Contract Documents to represent the name of a trade association, standards-developing organization, authorities having jurisdiction, or other entity in the context of referencing a standard or publication. Where abbreviations and acronyms are used in the Specifications or other Contract Documents, they mean the recognized name of these entities. Refer to Gale Research's "Encyclopedia of Associations" or Columbia Books' "National Trade & Professional Associations of the U.S.," which are available in most libraries.

1.3 QUALITY ASSURANCE

A. Regulatory Requirements

1. The Engineer has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.

2. Copies of applicable regulations shall be retained at the Project Site and available for reference.

1.4 SUBMITTALS

A. Permits, Licenses, and Certificates: For the Owner’s records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established for compliance with standards and regulations bearing upon performance of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements for temporary services, facilities and controls, including temporary utilities, support facilities, and security and protection facilities. Owner will be responsible for previously installed temporary facilities and Contractor shall be responsible for their own and any new temporary facilities.

B. Temporary utilities include, but are not limited to, the following:

1. Water service if determined necessary for Contractor’s use during construction.
2. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
3. Electric power service.
4. Telephone service.
5. High speed internet.

C. Temporary construction and support facilities include, but are not limited to, the following:

1. Temporary roads, driveways and gravel parking/storage areas.
2. Dewatering facilities and drains.
3. Waste disposal facilities.
4. Contractor field offices.
5. Storage and fabrication sheds.

D. Security and protection facilities include, but are not limited to, the following:

1. Environmental protection.
2. Stormwater control.
3. Tree and plant protection.
4. Security fence enclosure and lockup areas.
5. Barricades, warning signs, and lights.
6. Temporary enclosures.
7. Temporary fire protection as may be required by site conditions.

1.2 USE CHARGES

A. General: The contractor shall be responsible for paying all use charges until the project is substantially complete. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Owner's Construction Team, which includes, but is not limited to the Construction Manager, operations safety personnel, permit compliance inspectors, inspection and survey teams.
2. Engineer.

3. Testing agencies.

4. Personnel of authorities having jurisdiction.

B. Sewer Service: Pay sewer service use charges for sewer usage, by all parties engaged in construction, at Project site.

C. Water Service: Pay water service use charges, whether metered or otherwise, for water used by all entities engaged in construction activities at Project site.

D. Electric Power Service: Pay electric power service use charges, whether metered or otherwise, for electricity used by all entities engaged in construction activities at Project site.

E. Contractor shall provide an on-site ice machine for the use of the Contractor's personnel as well as the Owner's construction Team.

1.3 SUBMITTALS

A. Temporary Utility Reports: Submit reports of tests, inspections, utility billings, and similar procedures performed on temporary utilities.

B. Implementation and Termination Schedule: Within 15 days of date established for submittal of Contractor's Construction Schedule, submit a schedule indicating implementation and termination of each temporary utility.

1.4 QUALITY ASSURANCE

A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.

1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.

2. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

3. Refer to Guidelines for Bid Conditions for Temporary Job Utilities and Services, prepared jointly by AGC and ASC, for industry recommendations.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:

1. Building Code requirements.

2. Health and safety regulations.

3. Utility company regulations.

4. Police, Fire Department and Rescue Squad rules.

1.5 PROJECT CONDITIONS

A. Temporary Utilities: Prepare a schedule indicating date for implementation and terminations of each temporary facility.

B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.

2. Relocate temporary services and facilities as required by progress of the Work.

3. Operate in a safe and efficient manner.

4. Take necessary fire prevention measures.

5. Dot not overload facilities or permit them to interfere with progress.

6. Do not allow hazardous, dangerous or unsanitary conditions or public nuisances to develop or persist on the site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Construction Management Team. Provide materials suitable for use intended.

B. Chain-Link Fencing: Minimum 2-inch, 0.148-inch thick, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts.

C. Water: Provide potable water approved by local health authorities

2.2 EQUIPMENT

A. General: Provide new equipment; if acceptable to the Construction Management Team, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.

B. Field Offices:

1. Owner/Construction Management Team has already provided their own field office facilities.

2. Contractor shall provide their own field office facilities in order to properly complete the project. Field office shall be equipped with the minimum following equipment:

a. First Aid Kit: The Contractor shall keep the kit properly stocked with appropriate first aid supplies at all times.

b. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

1) Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

C. Self-Contained Toilet Units: Contractor shall provide single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material. Number of self-contained toilet units shall be reviewed and approved by the Construction Management Team.

D. Drinking-Water Fixtures: Containerized bottled-water drinking-water units, including paper cup supply shall be supplied by Contractor at field office. If Contractor requires temporary municipal water service(s), they shall coordinate installation with local water authority and bear all connection costs.

E. First Aid Supplies: Comply with governing regulations at each temporary facility site.

F. Storage and Fabrication Sheds: Install storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on the site.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.

3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.

B. Drainage: Provide drainage ditches, stabilization ponds, and similar facilities to do the following. Drainage measures shall comply with applicable environmental permitting regulations and conditions.

1. Filter out excessive soil, construction debris, chemicals, oils, and similar contaminants that might pollute waterways before discharge.

2. Maintain temporary drainage facilities in a clean, sanitary condition. After heavy use, restore normal conditions promptly.

3. Provide temporary filter beds, settlement tanks, separators, and similar devices to purify effluent to levels acceptable to authorities having jurisdiction.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.

2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Provide separate facilities for male and female personnel as required by jurisdictional agency. In any case, a separate female personnel only facility shall be provided at any location where office trailers are located. Retain subparagraph below for large projects, particularly if showers are required. See Evaluations.

3. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel who handle materials that require wash up. Dispose of drainage properly. Supply cleaning compounds appropriate for each type of material handled.

a. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.

D. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.

1. Install electric power service underground, unless overhead service must be used.

2. Install power distribution wiring overhead and rise vertically where least exposed to damage.

E. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.

1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

2. Provide warning signs at power outlets other than 110 to 120 V.

3. Provide metal conduit, tubing, or metallic cable for wiring exposed to possible damage. Provide rigid steel conduits for wiring exposed on grades, floors, decks, or other traffic areas.

4. Provide metal conduit enclosures or boxes for wiring devices.

5. Provide 4-gang outlets, spaced so 100-foot (30-m) extension cord can reach each area for power hand tools and task lighting. Provide a separate 125-V ac, 20-A circuit for each outlet.

F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions, when requested by the Construction Management Team.

1. If night-work is approved by Construction Management Team and authorities having jurisdiction, install exterior-yard site lighting that will provide adequate illumination for construction operations, traffic conditions, and signage visibility when the Work is being performed.

G. Telephone Service: In Contractor's field trailer(s), provide temporary telephone service throughout construction period. Install separate telephone line for each contractor field office and first-aid station.

1. At each telephone, post a list of important telephone numbers.
   a. Police and fire departments.
   b. Ambulance service.
   c. Contractor's home office.
   d. Engineers' offices.
   e. Owner's office.
   f. Principal subcontractors' field and home offices.
2. Provide voice-mail service on each phone line.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.

2. Provide incombustible construction for offices, shops, and sheds located within construction area. Comply with NFPA 241.

3. Maintain support facilities until near Substantial Completion. Remove after Substantial Completion, but prior to Final Completion.

B. Temporary Roads and Gravel Areas: Construct and maintain temporary roads and gravel areas adequate to support loads and to withstand exposure to traffic during construction period. Locate temporary roads and gravel areas within construction limits indicated on Drawings.

1. Provide a reasonably level, graded, well-drained subgrade of satisfactory soil material that has been adequately compacted to accommodate construction equipment.

2. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust. Fugitive dust shall not be permitted to exit the work zone as defined by the limits of disturbance.

3. Provide temporary culverts and drainage features to allow surface water to travel across/under temporary access roads, as necessary.

4. Temporary roads and gravel areas shall be removed after construction and areas shall be restored to pre-construction conditions, or better, as determined by Construction Management Team.

C. Traffic Controls: Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction. Follow Town and/or VTrans permitting conditions when applicable.

D. Dewatering Facilities: Comply with requirements in applicable environmental permits and EPSC drawings for temporary drainage and dewatering facilities and operations not directly associated with construction activities included in individual Sections. Where feasible, use same facilities. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining property nor endanger permanent Work or temporary facilities.

2. Before connection and operation of permanent drainage piping system, provide temporary drainage where roofing or similar waterproof deck construction is completed.

3. Remove snow and ice as required to minimize accumulations and to preclude ice or snow jams in stormwater control channels or ditches.

E. Waste Disposal Facilities: Collect waste from construction areas and elsewhere daily. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.

1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.

2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

F. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site. Any permitting or construction of such sheds shall be in accordance with all jurisdictional authorities.

G. Lifts and Hoists: Provide facilities for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.

B. Stormwater Control: Comply with all applicable permitting conditions.

C. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion.

D. Site Enclosure Fence: If directed by the Construction Management Team, before construction operations begin, install chain-link enclosure fence with lockable entrance gates. Locate where indicated, or enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.

1. Set fence posts in compacted mixture of gravel and earth.

2. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.

3. Maintain security by limiting number of keys and restricting distribution to authorized personnel.

E. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction when storing Owner materials. Provide secure entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

1. Storage: Where owner materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

F. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

C. Termination and Removal: Unless the Construction Management Team requests that it be maintained longer, remove each temporary facility when need for its service has ended, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor.

2. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.

3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION

SECTION 015700 - MAINTENANCE AND PROTECTION OF TRAFFIC

PART 1 - GENERAL

1.1 SUMMARY

A. This section specifies the requirements for maintenance and protection of Traffic during construction of the Project. Contractor shall adhere to maintenance and protection of traffic conditions in all Town and VTrans work permits.

B. General:

1. All streets and travel ways shall remain open to the passage of vehicular and pedestrian traffic during the construction period, unless prior written consent is obtained from the Construction Management Team and the governing body having jurisdiction over the street or travel way.

2. Maintenance and protection of traffic shall be provided in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) and any provisions contained in the plans or the contract documents.

3. Safe and adequate ingress and egress to and from intersecting highways, homes and commercial establishments shall be provided and maintained at all times to the satisfaction of the Construction Management Team.

4. The traffic maintenance schemes shown in the MUTCD describe the minimum methods and control devices necessary. The Construction Management Team may order additional devices and/or methods to meet field conditions. No additional payment will be made for additional devices ordered.

5. The Contractor shall give the required advance notice, as indicated in the contract document or by agreement with the Construction Management Team, of his proposed operations to affected police, fire, and other emergency response departments. The Contractor shall give reasonable notice of his proposed operations to owners and tenants of private properties which will be affected by the construction operations.

C. Submittals:

1. Prior to the start of work, the Contractor must submit any proposed changes to the traffic control plan to the Construction Management Team, Engineer, and agency having authority for approval. Any changes which alters the basic concept of the plan must be approved by the agency having authority prior to implementation.

PART 2 - PRODUCTS

2.1 DEVICES AND EQUIPMENT

A. All signing, operations, safety, and directive devices shall conform to the MUTCD and the Authority having jurisdiction.

1. VTrans Standard Construction Details and the Traffic Control Plans shall be referenced for signing and directive devices.

2. Street Plates: If street plates are used to cover narrow excavations. Street plates shall be secured/anchored to ensure that traffic does not cause plates to shift/move or cause un-safe conditions.

PART 3 - EXECUTION

3.1 MAINTENANCE OF TRAFFIC

A. The Contractor shall provide signs, signals, barricades, flares, lights, and all other equipment, service, and personnel necessary to regulate and protect traffic and warn of hazards. The Contractor shall remove temporary equipment and facilities when no longer required, and restore area to original or specified conditions upon removal.

B. When crossings, obstructions, or the temporary closures of street or travelway are required, the Contractor shall provide and maintain suitable bridges, detours or other temporary measures, all of which must be to the satisfaction of the Construction Management Team, for the accommodation of traffic. The duration of the operation shall be for the minimum time practical. Traffic shall be restored as soon as the street or travelway is safely passable. At least one lane of traffic shall be maintained at all times during working hours. During non-working hours, traffic shall revert to pre-construction conditions.

3.2 WORK ZONES

A. Work zones on opposite sides of the road shall not overlap. A work zone is defined as that area in which traffic is restricted because of construction activities, or that area which involves a drop-off within 10 feet of the edge of pavement.

B. The Contractor shall delineate areas where there is a drop-off near the edge of the traveled way and areas on which it is unsafe to travel. The provisions for delineation shall be as approved by the Construction Management Team, and the governing body having jurisdiction over the street, travelway, or site.

C. Excavations that produce drop-offs on both sides of the traveled way at the same time shall not be permitted, unless explicitly shown on project drawings (e.g. Jack and Bore Pits).

D. The Contractor shall provide 1-inch steel plates to provide for traffic movement over narrow, open excavations. Excavations made for the installation of the pipes will be backfilled at the close of each day. Steel plates shall be anchored or secured to ensure that traffic does not move/shift plates to create an unsafe environment.

E. No material is to be stored on the shoulder or within the 20-foot roadside clear area except that which is to be placed that day, or as allowable by applicable project permitting conditions.

F. The roadside clear area is a strip along the length of the road extending 20 feet from the edge of the travel lane. This distance may be greater along limited access roads (I-289), verify requirements with the VTrans 1111 permit requirements, prior to beginning work.

G. Construction equipment shall be removed from the roadside clear area of all highway pavement during the hours that the Contractor is not working. This requirement shall not be limited to the contract limits.

H. Traffic Signals and Signs:

1. The Contractor shall provide and operate traffic control and directional signals required to direct and maintain an orderly flow of traffic in areas affected by the Contractor's operations.

2. The Contractor shall provide traffic control and direction signs, mounted on barricades or standard posts at each change of direction of a roadway, at each crossroad, at detours, at hazardous areas, and at parking areas.

3. The correct sequence and spacing of signs, either permanent or temporary must be maintained at all times in accordance with MUTCD unless shown otherwise on the plans. All signs, including guide signs, shall indicate actual conditions at all times and shall be covered, moved, removed, or changed immediately as ordered by the Construction Management Team or authority having jurisdiction.

4. In order to maintain effective traffic control, the contractor shall be responsible for the maintenance of all signs, cones, flashers, barrels, and other devices the Contractor shall ensure that they are in place and in good condition.

I. Flag Personnel:

1. The Contractor shall provide suitably qualified and equipped flag personnel when construction operations encroach on traffic lanes. The regulation of traffic by flag personnel shall be in accordance with the requirements of the MUTCD and/or the Authority having jurisdiction. All flag personnel shall have their certification cards present on their body at any time they are performing flagging duties.

J. Flares and Lights:

1. During periods of low visibility the Contractor shall provide flares and lights to guide traffic, to clearly delineate traffic lanes, and to warn of hazardous areas. Flag personnel shall use lights in directing traffic during periods of low visibility. Illumination of critical traffic and parking areas shall be provided by the Contractor during periods of low visibility.

K. Parking Control:

1. The Contractor shall control all Contractor related vehicular parking such that it does not interfere with public traffic and parking, access to emergency vehicles, Owner's operations, or construction operations.

2. The Contractor shall provide parking areas for workman's private vehicles that comply with applicable laws, regulations, codes, and ordinances. The Contractor shall ensure free vehicular access to and through the parking areas. The Contractor shall not permit parking on or adjacent to access roads or in non-designated areas.

L. Haul Routes:

1. The Contractor shall consult with governing authorities and establish thorough fares which shall be used as haul routes and site access. The Contractor shall confine construction traffic to designated haul routes. The Contractor will be required to provide traffic control at critical points of haul routes to expedite traffic flow and minimize interference with normal public traffic. Where required by governing authorities, the Contractor shall prepare and submit traffic control plans for approval by the Construction Management Team and the governing Authority prior to commencement of work.

M. Contractor Operations:

1. If the Construction Management Team or authority having jurisdiction notifies the Contractor or his superintendent of any hazardous construction practices, all operations in that area shall be discontinued and immediate remedial action shall be taken to the satisfaction of the Construction Management Team or authority having jurisdiction before work is resumed.

END OF SECTION

SECTION 017300- EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Coordination of Owner-installed products.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.
8. Correction of the Work.

B. Data provided in tender documents are for guidance only and hence indicative. Revalidation of such data is required to be done by Contractor and Construction of the project will be carried on the revalidated data, and such revalidated data needs to be approved by Owner. No additional compensation in form of time and/or cost will be provided for any such variations between data provided in this document and data after revalidation.

1.2 SUBMITTALS

A. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Engineer's Qualifications: A professional Engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Call Dig Safe at 811 before starting any excavation or verify that a Dig Safe ticket exists and is valid for the area. Contractor shall maintain Dig Safe marks and follow all Dig Safe laws. Contractor is responsible for contacting and complying with municipal and private utilities that are not members of Dig Safe. Excavate with care to avoid damage to structures and utilities - excavations shall be completed by hand if necessary. Promptly report any damages to utilities to Utility Owner and Construction Management Team, do not attempt repairs without the Utility Owners consent.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

a. Description of the Work.

b. List of detrimental conditions, including substrates.

c. List of unacceptable installation tolerances.

d. Recommended corrections.

2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.

4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.

5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Construction Management Team and Owner not less than 7 days in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without Construction Management Team's written permission.

C. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

E. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Construction Management Team. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Submit requests on CSI Form 13.2A, "Request for Interpretation."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to site features and existing benchmarks. If discrepancies are discovered, notify Construction Management Team promptly.

B. General: The Owner will engage a land surveyor to lay out the Work using accepted surveying practices, which are generally as follows.

1. Establish benchmarks and control points to set alignments and workspaces and elsewhere as needed to locate each element of Project. Layout stakes shall be set at all centerline PI’s, as well as at 50’ station intervals along centerline and at 100’ station intervals along edge of clearing limits (limits of easements). Access Easements will be staked at minimum 100’ intervals along clearing limits.

C. Site Improvements: Owner’s land surveyor will layout driveway and fence corners of proposed facilities. Contractor shall layout the remaining required components.

D. Building Lines and Levels: Contractor shall locate and lay out control lines and levels for structures, building foundations, and floor elevations, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer and Construction Management Team.

3.4 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Engineer or Construction Management Team. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Engineer and Construction Management Team before proceeding.

2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points. Replacement shall be completed by a licensed land surveyor.

C. Certified Facilities Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, CONTRACTOR shall coordinate with the Owner to provide a certified survey showing dimensions, locations, angles, and elevations of construction and sitework. This is required for all above ground facilities.

D. Certified Pipeline As-built Survey: Owner shall contract with a land surveyor to complete pipeline as-built survey. Contractor is required to coordinate and communicate with the selected land survey to ensure that the pipeline is properly surveyed. The contractor shall provide a minimum of 24 hours' notice to the survey team for as-built survey needs.

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.

2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Contractor shall comply with all Owner required Operator Qualification testing, certifications and training.

D. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

E. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Construction Management Team.

2. Allow for building movement, including thermal expansion and contraction.

G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

2. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly. All Vermont Agency of Natural Resources, Hazardous Waste Management Regulations, shall be adhered to for spills (24-hour reporting at 800-641-5005).

2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition. Refer to coating specification for requirements.

H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING UP AND ADJUSTING

A. Prior to Owner gas-up, Contractor shall verify that equipment/materials installed are in proper working condition. Any adjustments required shall be completed prior to gas up.

B. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes in accordance with manufacturers' requirements and the specifications.

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

END OF SECTION

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Project Record Documents.

2. Warranties.

3. Final restoration of site.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.

2. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents, if necessary.

3. Prepare and submit Project Record Documents, final reports, Final Completion construction photographs, and similar final record information.

4. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable. Coordinate first subparagraph below with Division 8 door hardware Sections. Revise if Owner makes final changeover or if key-control system manufacturer delivers keys directly to Owner.

5. Submit test records.

6. Terminate and remove temporary facilities from Project site, along with construction tools and equipment, and similar elements.

7. Submit information related to Owner's use, operation, and maintenance.

8. Complete final cleaning requirements.

9. Restoration of site in accordance with project plans and applicable environmental permits.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Construction Manager will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Construction Manager, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment.

2. Submit copy of Construction Manager's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Construction Manager. The copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Construction Manager will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

C. Contractor shall submit Material reconciliation report for Owner furnished products/materials.

1.4 PROJECT RECORD DOCUMENTS

A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Construction Manager's reference during normal working hours.

B. Record Drawings Pipeline and Facilities: Will be completed by a land surveyor retained by Owner and Construction Manager.

C. Record Product Data: Submit one digital copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.

3. Note related Change Orders, Record Drawings where applicable.

D. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.5 WARRANTIES

Submittal Time: Submit written warranties on request of Construction Manager for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers for final cleaning. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, rights-of-way, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

d. Remove tools, construction equipment, machinery, and surplus material from Project site. Return owner supplied materials to the owner’s headquarters or other designated site.

e. Remove snow and ice to provide safe access to building.

f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

g. Remove debris and surface dust from limited access spaces, including roofs, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

h. Sweep concrete floors broom clean in unoccupied spaces.

i. Remove labels that are not permanent.

j. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

k. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

l. Replace parts subject to unusual operating conditions.

m. Ensure all proper line markers and signage is installed.

n. Leave Project clean and properly restored to original conditions.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.2 FINAL RESTORATION

A. For all final restoration activities, Contractor shall comply with applicable environmental permits and conditions.

END OF SECTION

SECTION 023219 - EXPLORATORY EXCAVATION

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes exploratory excavations for the purpose of verifying the exact locations of underground utilities, structures, and other subsurface conditions.

1.2 SUBMITTALS

A. Sketches: Submit a sketch showing the location of the subsurface features which were uncovered in the test pit, including the following information:

1. horizontal location of the subsurface feature relative to three individual surface features.
2. depth of feature below ground surface.
3. diameter, type, material, and condition of pipe or conduit.
4. orientation of pipe, conduit or structure relative to other site features.
5. other pertinent dimensions.
6. exploratory excavation identification number.
7. discrepancies from design plan

1.3 JOB CONDITIONS

A. Call Dig Safe at 811 before starting any excavation or verify that a Dig Safe ticket exists and is valid for the area. Contractor shall maintain Dig Safe marks and follow all Dig Safe laws. Contractor is responsible for contacting and complying with municipal and private utilities that are not members of Dig Safe. Excavate with care to avoid damage to structures and utilities - excavations shall be completed by hand if necessary. Promptly report any damages to utilities to Utility Owner and Construction Management Team, do not attempt repairs without the Utility Owners consent.

B. Contractor shall adhere to all applicable OSHA/VOSHA rules.

C. Perform exploratory excavations only within the limits of the work, easements and rights of way.

D. Work shall conform to all project permit (Local and State) conditions.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL

A. Exploratory excavations shall be performed in advance of construction, where necessary, at the locations shown on the Drawings, or in locations that the Contractor and the Construction Management Team deem necessary. For exploratory excavations intended for verifying underground utilities, the necessary approval of each utility company shall be obtained. The exploratory excavation will be completed in the presence of a utility company representative. Upon completion, excavated areas shall be backfilled to the satisfaction of the existing utilities, or the authority having jurisdiction. Determine the exact location of all pipes, conduits, duct, or other interfering structures in both horizontal and vertical locations. Excavate to the depth and width necessary to accurately determine the locations of the utilities of interest.

B. Contractor shall notify the Construction Management Team immediately if an obstruction or foreign material is encountered. Unanticipated obstructions or foreign materials that are to be removed (as determined by the Construction Management Team or authority having jurisdiction) shall be removed, backfilled, and compacted in accordance with the trenching and backfilling specification.

C. Unanticipated obstructions or utilities that are to remain in place/service shall be carefully exposed and adequately protected to avoid any damage. Backfilling around these items shall meet the requirements of the authority having jurisdiction.

D. If potentially contaminated soils are found, stop work and notify Construction Management Team and Owner.

E. Upon satisfactory execution of the required exploratory excavations the Engineer shall adjust pipe elevations, alignment or design as he feels necessary to minimize interferences.

F. Backfill exploratory excavations in accordance with Section “Trenching and Backfilling”

G. Exploratory excavations performed in areas to be further disturbed shall be graded for temporarily traffic or use.

H. Exploratory Excavations performed in areas not to be further disturbed shall be restored to pre construction conditions.

I. Upon completion of the excavation work, Contractor shall document all findings and provide the information to the Construction Management Team.

END OF SECTION

SECTION 130000 - MINIMUM REQUIREMENTS FOR PIPELINE CONSTRUCTION PARALLELING OVERHEAD ELECTRIC LINES

PART 1 - GENERAL

1.1 MINIMUM REQUIREMENTS FOR PIPELINE CONSTRUCTION PARALLELING OVERHEAD ELECTRIC LINES

A. VELCO requirements shall be maintained at all times. In the event of a conflict between this specification and VELCO requirements, VELCO shall govern,

B. This construction specification applies to pipeline construction that parallels overhead high voltage electric transmission lines and represents minimum requirements only.

C. The purpose of this specification is to cover the procedures and construction techniques which must be used during the construction period to reduce potentials on the pipe and construction equipment to a level less than 15 volts Root Mean Square (RMS) measured between the structure and ground. This is measured using a digital voltmeter.

D. This specification is not all inclusive and is intended to remind the installer of the potential hazards which may be associated with pipeline construction in the vicinity of induced voltage, fault current, and contact to high voltage electric transmission lines.

E. The Contractor should review the project and initiate additional requirements deemed necessary to ensure the safety of persons and property affected thereby. The Contractor shall furnish any special materials required to comply with this section. Consult with the Electrical Transmission & Distribution Utility for specific applications and requirements.

1.2 REFERENCES

A. National Electric Code (NEC)

B. Occupational Safety and Health Administration (OSHA)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 STEEL PIPE INSTALLATIONS PARALLELING HIGH VOLTAGE ELECTRIC LINES

A. When exposed metallic piping is run parallel to overhead A.C. electric lines, the pipe is subject to induced voltages and currents that are the result of electromagnetic, electrostatic and resistive coupling.

B. Induced voltages and currents may cause coating damage as well as damage to cathodic protection and electronic monitoring equipment.

C. Induced voltages and current can be hazardous to personnel working on the pipeline during the construction period when long sections of pipe are exposed above ground. Lightning and faults on the transmission line can be especially dangerous.

3.2 ELECTRICAL SAFETY

A. The contractor will furnish a responsible person that can understand and follow the Technical Specifications and Electrical Safety required for the specific project. The responsible person for electrical safety must be approved by the Owner.

1. The person in charge of electrical safety shall:

a. Assure that all electrical safety requirements and devices are fully understood by all members of the construction forces.

b. Be fully aware of proper grounding procedures and with the dangers associated with electromagnetic and electrostatic couplings, resistive coupling, ground fault current discharge, lightning, etc.

c. Know the proper OSHA and NEC safeguards for the construction equipment being used related to the Owner's "limit of approach" regulations to the specific overhead transmission circuits that will be paralleled.

d. Have the necessary instrumentation, equipment and authority to implement and maintain safe working conditions.

e. Assure all safety devices and practices are properly employed during all periods of construction activity in the proximity of electric overhead transmission systems. This includes the choice of the appropriate rubber gloves for the situation.

f. Communicate at least daily with the dispatcher controlling the involved electric lines to ascertain any scheduled changes in loading, outages and switching operations and to notify of work on their Right-of-Way.

B. The Contractor shall adhere to all safety requirements of the electric utilities. This includes, but is not limited to, the following: training, safety certifications, daily reporting, and other applicable documentation as determined necessary by the electric utility.

3.3 EQUIPMENT SAFETY

A. Each piece of equipment utilized to handle pipe in any way such as unloading, picking up, transporting, bending or setting-in shall be grounded and shall be equipped with a cable assembly capable of grounding the sections of pipe to the piece of equipment handling that pipe.

B. Before any section of pipe is picked up or moved in any way, the ground shall be completed between the section of pipe and the equipment moving that pipe. "Setting-In" booms shall be equipped with ground cable and the ground must be maintained at least until the stringer bead is completed. The ground connection on cranes shall be also made to the upper rotating structure supporting the boom.

C. Pipe shall be unloaded from stringing trucks by a side boom equipped with grounding cable as described above. A ground shall be completed between all sections of pipe to be unloaded and the side boom before unloading cables or slings are attached to the pipe.

3.4 GROUNDING

A. Each continuous segment of pipeline being worked on should be grounded to at least two separate points. This grounding should consist of one of the following alternatives:

B. Grounding should be established by driving one or more ground rods to at least a four-foot depth and connecting these ground rods to each other and the pipeline with a #2 A.W.G. stranded copper cable. Suitable connectors should be utilized to connect the #2 A.W.G. cable to the individual ground rods and to the pipeline. No ground connections should be removed without the knowledge and concurrence of the person responsible for electric safety.

C. Should sub-surface conditions prohibit the driving of ground rods, temporary grounding can be established with one or more ground rods, conduits of aluminum foil installed horizontally and covered with a minimum 4 inches of dirt. The segment of the pipeline being worked on should be bonded to the temporary grounding. This bond should consist of an insulated #2 A.W.G. jumper cable. The grounding cable should first be securely attached to the temporary grounding and then attached to the pipeline. Removal should be in reverse order.

D. It is of the utmost importance that the person making or breaking the connection at the ground rod connection not "bridge the gap" between the ground rod and bond clamp.

E. When installing or removing a grounding or bonding facility, personnel shall wear the class of rubber insulating gloves selected by the person responsible for electrical safety. The following procedures for making and breaking grounding connections shall be strictly adhered to:

1. Using Jumper Cable with End Clamps

a. Making grounding connections

1) Establish temporary grounds (ground rods, bare casings, other appropriate ground).

2) Using jumper cable with end clamps, connect one end clamp to the temporary ground.

3) Using rubber gloves, connect the other end clamp to the structure to be grounded.

b. Disconnecting grounding connections

1) Using rubber gloves, disconnect the clamp attached to the structure end.

2) Disconnect the clamp connected to the temporary ground.

2. Using Clamp Around the Pipe and Jumper Cable with End Clamps

a. Making ground connections

1) Establish temporary ground (ground rods, bare casing, other appropriate ground).

2) Using rubber gloves, connect grounding clamp around the pipe.

3) Connect one end of the grounding cable to the temporary ground.

4) Using rubber gloves, connect the other end of the grounding cable to the grounding clamp around the pipe.

b. Disconnecting grounding connections

1) Using rubber gloves, disconnect the grounding cable from the grounding clamp around the pipe.

2) Using rubber gloves, disconnect the grounding clamp around the pipe.

3) Disconnect the grounding cable from the temporary ground.

4) Proper work procedures related to electrical safety shall be established for all construction activities associated with this project.

F. The person in charge of electrical safety shall check the integrity of each connection by measuring the resistance from a near point on the copper cable to the ground rod or pipeline steel using a suitable Ohm Meter. A good electrical connection will have a resistance of 0.1 Ohm or less.

G. Pipe shall be hauled to the right-of-way and stored in stacks of ten sections or less. Each section of pipe in the stack shall be grounded with a 5/8" min. diameter ground rod driven into the ground at least four (4) feet. All sections in one stack shall be grounded together. This ground shall be maintained until each individual section of pipe has been removed from the stack.

H. When grounding sections of pipe, the ground rod shall be driven and the grounding cable connected to the ground rod first. The grounding cable shall then be connected to the pipe. Cables used for temporary grounding attachments shall have good mechanical strength as well as high conductivity. The cable shall be single conductor #2 A.W.G. stranded copper, cable or equivalent. Cable attachments to temporary grounding systems shall be made by a method that assures good electrical contact while applying firm pressure to the pipe metal. This method of attachment should have a current carrying capacity of at least 200 amperes. When removing grounding cable, the cable shall be removed from the pipe or equipment first and then from the ground rod.

I. All grounding attachments and removals shall be made by or under the direct supervision of the person responsible for electrical safety.

J. Temporary ground connections should be made by electrically connecting the pipeline to each casing. Prior to the installation of the cathodic protection test leads, a bond should be installed using an insulated #2 A.W.G. jumper cable with suitable clamps. Connection shall be made first to the casing and then to the pipe. Removal of bond shall be made on reverse order.

K. If electrolytic grounding cells are to be installed between the pipe and casing as part of the final installation, the bonds shall not be removed until the grounding cells are installed.

L. Before any casing-pipeline temporary bond is removed, the person in charge of electrical safety shall determine that all permanent test wire connections to the pipeline and casing are intact. This shall be done by measuring the potential of the wire to a close copper-sulfate reference electrode using a suitable high resistance volt-meter. A wire connection with good metallic contact will show a potential of from 0.3 to 0.7 volt. A broken or disconnected wire connection will show a potential of 0.2 volt or less.

M. Insulating joints shall be installed with a bond cable shorting out the insulating material. This bond cable shall remain in place until the insulating joint has been welded into the pipeline and a grounding cell has been connected across the insulating flange. The grounding cell with test station must be in service and the bond cable removed before the insulating joint is buried.

1. Each person coming in contact with the pipeline during construction should do so only when:

a. Using rubber-insulating gloves. The person in charge of electrical safety should be in charge of insuring that all rubber-insulating gloves are kept in good insulating condition by following accepted test procedures. All gloves that are damaged (punctured, ripped, torn, etc.) shall be immediately replaced.

b. Standing on a grounding mat that is electrically connected to the pipeline at two separate locations. The grounding mat could consist of a copper weld wire mesh of #8 A.W.G. wire with a 4" x 4" mesh spacing. The mat should be electrically connected to the pipeline through a minimum #2 A.W.G. insulated jumper cables thermo welded to the mat and connected to the pipe using suitable clamps.

N. Temporary gradient control mats shall extend a minimum of 1 meter in all directions outside the work area. There shall be no contact between persons over the gradient mat and those not over the mat, including the handing over of tools, instruments or other materials.

1. Regardless of the approach selected, it is always advisable to handle the pipe (whenever possible) by the coated area of the pipe.

O. All piping at tie-ins shall be bonded across the gap. All piping at cut-outs shall be bonded across before the cut-out is started. Prior to installing the cable bond at tie-ins and prior to removing the cable bond across cut-outs, each side shall be properly grounded as indicated in Item 6.1.

P. Whenever a section of pipe must be lifted free of the earth on a web sling or equivalent for transport, the pipe steel so lifted should be electrically connected to a metallic portion of the tractor doing the lifting and transporting. This requirement may be waived if the lifting and/or transporting of the pipe can be accomplished with connections called for in Item 6 of these recommendations.

Q. A grounding strap or chain shall be attached to each rubber tired vehicle with a secure electrical connection to provide a ground contact for the vehicle during both mobile and stationary operations. The grounding strap or chain shall be of sufficient length to provide three (3) feet of earth contact immediately after the vehicle comes to a stop within 200 feet from the centerline of high voltage overhead conductors.

R. If steel chain is used for the grounding connection, it shall be of a minimum 1/4" size. If a strap is used for the grounding connection, it must be approved by the Owner before utilization.

S. All bonding connections shall be made to driven ground rods as described above. Bonding connections shall not be made between the pipeline and the electric transmission line ground. Such a connection can result in high pipeline potentials during power line faults with current flow through the pipeline that could damage the steel as well as the coating.

T. The pipeline shall not be bonded or grounded to foreign structures without permission of the Owner of the foreign structure. If permission is not granted, the foreign structure shall be electrically isolated from the pipeline under construction.

U. Workers shall avoid at all times making simultaneous contact to a grounded and ungrounded structure.

V. Other grounding materials and suppliers can be used subject to approval by Owner. Examples of other cable jumpers that could be used are:

1. Cable jumpers using 50 lb. minimum pull magnet for connection to pipe, heavy equipment, fuel trucks and general use.

2. Standard welding or battery jumper clamps with well-insulated handles, and teeth to bite into the metal.

W. All grounding attachments and removals should be made by or under the direct supervision of the person in charge of electrical safety.

3.5 VOLTAGE MEASUREMENT

A. The voltage to ground of any string of pipe exposed to contact by personnel shall be measured periodically by reading the voltage between the pipe and a clean steel pin driven in the ground.

B. If the A-C voltage exceeds 15 volts above ground, supplementary grounds must be used to reduce this voltage to less than 15 volts. In the event that measured A-C voltage above ground exceeds 15 volts, the person in charge of electrical safety shall issue appropriate warnings and all work on the pipe string shall be suspended until potential is reduced to less than 15 volts.

C. These grounds shall be maintained at all times. A record of a periodic measurement of induced voltage shall be obtained and the record of these readings maintained. The bonding entities shall be as widely separated as is possible. As the "still-above ground" portion of the construction advances, bonds should be kept close to the construction end. This may only be done by installation of a third or higher number bond near the "construction end" before removing a bond near the completed end.

3.6 VEHICLES

A. Rubber tired equipment parked for any appreciable time on a power line right-of-way can obtain a significant static charge. Vehicles should be parked no closer than 200 feet from the centerline of high voltage overhead conductors.

B. Refueling of any motor vehicles or construction equipment shall not be permitted within 100 yards of any electric overhead transmission facility unless right-of-way conditions are such that this distance is unobtainable, and the electric utility approves. If the 100 yards minimum cannot be complied with, the maximum distance possible shall be obtained, then each fuel truck shall be grounded and shall be equipped with a cable assembly capable of completing an electrical bond between the truck and any piece of equipment to be fueled. This bond must be made each and every time the refueling takes place within 100 yards of any electric overhead transmission facility prior to any part of refueling operation. This bond shall not be removed until all refueling operations are completed. Care should be taken where the cable attachments are made so that good electrical continuity is established. No fueling operations shall be carried out within 50 feet of the power transmission line.

C. At all times during construction, care must be exercised to assure that booms, cables and other equipment are no closer than 25 feet (or greater if stated in OSHA requirements or by the electrical utility) from overhead power lines. Height of conductors above ground shall never be taken for granted but should be investigated in each case. Where operator of equipment is unable to personally assess that minimum distance is maintained, a second person shall be designated to guide the operator. Consideration must also be given to the possibilities of broken cables whip lashing close to power lines. It is recommended that each piece of equipment be positioned so that, should this occur, the cable would not come closer than 25 feet to a power line.

3.7 WEATHER LIMITATIONS

A. All construction work shall be suspended in the area of overhead high voltage power lines during any potential lightning activity.

3.8 WARNING SIGNS

A. The Contractor should post adequate signs warning of possible electrical hazards at each access to the right-of-way and any other measures required to prevent public access to temporary grounding installations.

B. Warning signs shall be posted on all cranes and other hoisting equipment at locations that will always be in plain view of the operator. Said signs shall state: "Danger, do not operate any part of this equipment within 25 feet of the High-Voltage Lines." Similar warning signs shall be posted on various parts of the equipment.

END OF SECTION

SECTION 136000 - MAINLINE VALVE & FACILITY PIPING FABRICATION

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. The Contractor shall furnish all labor, materials as shown on project drawings, tools, and equipment necessary to complete the piping fabrication requirements of the project. Owner supplied materials are shown on project drawings. Included in the piping fabrication work is the following:

1. All above and below ground piping inside Mainline Valve Station and Colchester Tie-in Site boundary limits as shown on project drawings.

B. This specification defines the minimum requirements for shop and field fabrication, erection, inspection and testing of process and utility piping by the CONTRACTOR.

C. The construction drawings and OWNER specifications indicate the required piping class, materials and valve type. CONTRACTOR shall strictly adhere to the requirements of the OWNER specifications for the materials, fabrication erection, inspection and testing procedures.

D. This specification covers the fabrication of metallic pipe only.

1.2 REFERENCES

A. Materials and installation shall be in accordance with the latest revisions of the following codes, standards and specifications, except where more stringent requirements have been specified herein:

1. Part 192, Title 49, Code of Federal Regulation, including section 192.112 covering additional design requirements for steel pipe.

2. API 1104 – Welding of Pipelines and Related Facilities

3. ASME B31.8 – Gas Transmission and Distribution Piping Systems

4. ASME Boiler & Pressure Vessel Code (BPVC) Section IX "Welding and Brazing Qualifications"

5. ASTM material standards as shown in Mainline Valve station drawings.

1.3 CONTRACT DRAWINGS

A. The Owner shall provide the contractor with one set of general construction drawings for the mainline valve stations and Colchester Tie-in Site.

1.4 SHOP AND AS-BUILT DRAWINGS

A. If not provided by OWNER, the CONTRACTOR shall prepare piping isometrics and spool drawings for all piping. The isometric drawings shall show all spool numbers, welded attachments, location and type of welds (shop or field), type of pressure test and test pressure, other notes on construction, post weld heat treatment requirements, NDE requirements and a complete bill of materials. Where the OWNER has supplied isometrics the CONTRACTOR shall review, annotate and prepare all additional isometrics in accordance with the above to fully define the piping spool fabrication and piping installation scope of work. The OWNER will carry out spot checks on the isometrics to ensure that the correct materials are called out.

B. The CONTRACTOR shall ensure that all positions and locations of piping components, piping runs and terminal points are maintained.

C. The CONTRACTOR shall verify that all spools, whether built from isometrics or shop drawings, are of a length which will enable the spool to be trucked if necessary and enable spools to be easily installed. Spools requiring field weld connections shall have ample length at weld connection ends to allow for trim for proper fit and weld bevel preparation.

D. CONTRACTOR shall maintain an up to date, complete and accurate record of all minor changes made to design drawings during the fabrication and erection of the piping. Upon completion of the project, the CONTRACTOR shall mark all changes on one set of shop drawings and "As Built" construction drawings. OWNER will not consider that Work is completed until the as-built drawings are received. If CONTRACTOR was responsible for piping design, the as-built marks shall be incorporated into CONTRACTOR’s drawings for issue with final documentation.

PART 2 - MATERIALS

2.5 GENERAL

A. Upon delivery of any OWNER supplied material, the CONTRACTOR shall assume responsibility of the materials and the certification covering the materials. The CONTRACTOR shall be responsible for the supply of all other materials including temporary material and consumables to enable the work to be completed.

B. The CONTRACTOR shall be responsible for ensuring that all materials fully comply with applicable OWNER specifications. Materials shall not be considered for use unless the CONTRACTOR is in possession of the necessary documentation, e.g., Material Test Reports and other specialized test data as required by the references shown in section 1.2 of this specification.

C. No substitution of materials shall be permitted unless prior written approval is obtained from the OWNER.

D. Should the OWNER discover that "out of specification" material has been utilized, or material has been substituted without the written approval of the OWNER, the CONTRACTOR shall replace all non-specification materials and take remedial actions as required to ensure compliance with specifications. The cost of this work shall be borne by the CONTRACTOR.

E. Material Test Reports (MTR's) shall be provided by CONTRACTOR for all pipe and fittings. Complete traceability of piping material, is required for all piping. Traceability shall be recorded by noting heat number of piping components on piping isometric on spool drawing markups. Heat numbers shall also be marked on the piping components, and be maintained until shop fabrication is completed and numbers are recorded on isometrics.

F. All piping materials must comply with Part 192, Title 49, Code of Federal Regulation, including section 192.112 covering additional design requirements for steel pipe.

2.2 GENERAL FABRICATION

A. All materials which require documentation in use during fabrication or installation that cannot be identified with documentation shall be immediately removed from the area and replaced at the CONTRACTOR's expense.

B. The CONTRACTOR shall maintain "clean" fabrication areas for the fabrication of stainless steel and nickel alloy piping to minimize the possibility of contamination.

C. The CONTRACTOR shall pay specific attention to the segregation of tools and the protection of materials.

D. The CONTRACTOR shall utilize shop tools and equipment compatible with materials in fabrication, including but not limited to grinding discs and power brushes designed for use with stainless steel and/or other high alloy materials.

E. All spools shall have their piece number clearly designated on each spool piece, corresponding to the appropriate drawing.

2.3 PIPING FABRICATION & ASSEMBLY

A. All pipe, fittings, flanges, in-line, on-line and piping specialty items shall be provided and installed in accordance with the OWNER construction drawings.

B. Flange bolt holes shall straddle horizontal and vertical center lines unless noted otherwise on the construction drawings.

C. All flanged connections shall be made up by tightening the flange bolts in an accepted pattern to an even torque. CONTRACTOR shall torque all flange connections with a calibrated torque wrench per a OWNER approved procedure. CONTRACTOR shall hang a torque tag on the flange connection after torquing.

D. Dimensional tolerances for fabrication and installation of piping shall be plus or minus 1/8" at equipment tie-in points unless otherwise noted on the drawings.

E. Flange faces shall be aligned within ± ½º from square with pipe, regardless of orientation.

F. The CONTRACTOR shall be responsible for locating required assembly/field welds. Inclusion of field welds on OWNER provided piping drawings shall not relieve the CONTRACTOR of the responsibility of providing additional assembly/field welds which may be required.

G. CONTRACTOR shall also be responsible for allowing additional cut length at field/assembly welds adequate to accommodate normal fabrication variations in both CONTRACTOR's fabrication and fabrication of OWNER supplied equipment. Unless otherwise noted, minimum 6" of extra cut length shall be provided at field welds indicated on OWNER provided piping isometrics.

H. Piping shall be installed plumb, level and square unless designated otherwise on the construction drawings.

I. Screwed threads shall be clean cut with no burrs or stripping. Dies shall be new, sharp, and properly designed for the piping material. Immediately before erecting the piping, all pipe threads and fittings shall be thoroughly cleaned of cuttings, dirt, oil or other foreign matter. Teflon tape shall be used for all screwed connections. Care shall be taken to ensure that the tape is wound in the correct direction and that the tape does not enter the inside of the pipe.

J. Piping shall be erected and supported in a manner that will not put undue strain on equipment. All equipment, prefabricated piping, and appurtenances shall be fitted and assembled strain-free. The CONTRACTOR shall be prepared to demonstrate, by disassembly of the spool, the strain-free state of all fabricated piping.

K. For screwed or socketweld pipe installations, CONTRACTOR shall install sufficient unions to allow for convenient removal of any spool or component without disassembly or removal of any piece of equipment or major inline instrumentation.

L. Valve handles and wrenches shall be modified by CONTRACTOR where necessary for proper valve operation, and when the valve cannot be otherwise rotated to clear the obstruction.

M. Thread-O-Lets shall not be installed on elbows. Elbow-Lets shall be used for branch connections at elbows.

2.4 PIPE SUPPORT FABRICATION

A. CONTRACTOR shall procure, fabricate, and install all pipe supports as noted on project drawings. CONTRACTOR shall also design pipe supports, if this design is not provided by OWNER, or for supports required which are not included in OWNER designed items.

B. Welding of attachments for the purposes of supports shall be carried out as part of the piping fabrication in accordance with the applicable codes and standards. All other parts shall be fabricated in accordance with ANSI/AWS D1.1 and the guidelines in AISC, "Manual of Steel Construction".

C. If not provided by OWNER, the CONTRACTOR shall purchase and install all support specialty items in accordance with construction drawings, OWNER specifications, and good engineering practice.

D. All relief, blowdown and safety head discharge piping shall be securely braced for relieving conditions.

2.5 WELDING

A. General

1. The CONTRACTOR may utilize either API 1104 or ASME Section IX welding codes to complete mainline valve and facility piping fabrication work.

2. In addition to this specification, all necessary requirements stated in “Section 137000 – Welding” shall be followed. Where there is a difference in requirements, the most stringent shall apply.

3. Where the OWNER does not have an applicable weld procedure for the work to be completed, all costs related to procedure and welder qualification shall be borne by the CONTRACTOR as detailed in the following sections.

B. Cutting and Preparation

1. The ends of all pipe to be butt welded shall be prepared in accordance with ASME B31.8 and the governing welding procedure specification.

2. Bevels shall be made by machine tool or machine thermal cutting. Manual thermal cutting shall not be permitted unless specifically approved by OWNER on a one by one basis. The bevelled ends shall be smooth and uniform, and dimensions shall be in accordance with the qualified welding procedure/drawing requirements. Burrs, small scuff marks, indentations or small defects within the joint preparation area shall be blended out by grinding, otherwise the joint should be re-prepared.

3. The pipe ends and faces forming part of a welded joint shall be cleaned down to sound metal immediately prior to making the joint. All paint, grease, scale, rust, and other extraneous matter shall be removed. The cleaning shall extend for at least 1” from the edge of the bevel on both the internal and external faces of the components to be welded.

C. Weld Procedure Specifications

1. All welding shall be carried out to approved welding procedure specifications. Each welding procedure specification and supporting procedure qualification records shall be submitted to OWNER for approval prior to starting any fabrication.

2. Welding procedures shall be in accordance with ASME Boiler & Pressure Vessel Code (BPVC) Section IX "Welding and Brazing Qualifications" or API 1104.

3. The CONTRACTOR shall bear all costs for preparation and qualification of all weld procedures required for the work.

4. CONTRACTOR shall employ a welding procedure that provides a smooth, regular fully penetrated inner surface for meter tubes.

D. Welder Qualifications

1. Welders to be used on the project shall be qualified for each welding process they will use in the position they will use it in accordance with ASME B31.8 and CFR Title 49, Part 192 Code requirements.

2. The CONTRACTOR shall bear all costs for qualifying all welders. For each welder qualification test, laboratory tests shall be carried out as required by the applicable code.

E. Identification of Welders and Welds

1. Each welder shall be assigned a unique identifying number or symbol that identifies each individual welder's work.

2. All welds shall be stenciled (stamped) with the welder's number or symbol within 1½" of the weld using low stress concentration dies. Pipe with wall thickness too thin to apply stencils without deforming or alloy pipe is to be marked with approved markers or engraved. Stencils are to be recorded on the weld map or spool drawings and included in manufacturing data Welds not stenciled shall be removed and replaced at the CONTRACTOR's expense.

F. Pipe Welding Requirements

1. Preheat shall be in accordance with ASME B31.8 requirements.

2. When the ambient temperature is less than 40 ºF, carbon steel shall be pre-heated to a minimum of 150 ºF prior to welding. Preheat temperatures for low and high alloy steels shall be stated in the welding procedure specifications. Preheat and interpass heating requirements and methods shall be addressed in the appropriate Welding Procedure Specifications. The temperature shall be monitored with the use of temperature indicating crayons placed a minimum of 3" from the edge of the heat affected zone.

3. Any pinholes, cold lap, slag, flux, or other impurities that appear on any surface during or after welding shall be removed by grinding or chipping before depositing the next successive bead.

4. All passes of all welds shall have all oxides and slag removed to permit clear visual inspection and to prevent unacceptable slag indications in radiography film.

G. Weld Repairs

1. All weld repairs shall be carried out to an approved weld repair procedure. The approved procedure shall include for the mechanical removal of defective material, and blending of excavation.

2. Weld repairs shall be inspected and tested in accordance with Section 5. NDE of repairs to be completed using the same method that detected the defect.

3. Additional examination of welds completed by the welding operator is to be completed as required by the governing ASME / API welding code.

PART 3 - EXECUTION

3.1 INSPECTION

A. General

1. OWNER reserves the right to inspect all materials, fabrication, workmanship, welding of materials and fabricated components. OWNER or its representative shall have free entry at all times to any part of the CONTRACTOR's or subcontractor's facility where manufacture of OWNER components occurs.

2. The approval of any work by OWNER and their release of piping for shipment shall in no way relieve CONTRACTOR of any responsibility for carrying out the provisions of this specification, or for compliance with applicable codes.

3. The OWNER shall be responsible for Non-Destructive Testing (NDT) as stated in this specification.

4. The inspection and NDT requirements of this section are those required by the OWNER and are not intended to restrict in any way whatsoever the good working practice and internal QA / QC of the CONTRACTOR.

5. The OWNER reserves the right to carry out NDT in addition to that required by the scope of work. Where the additional NDT shows unacceptable defects then all remedial works for rectification shall be considered wholly within the CONTRACTOR's scope of work.

6. OWNER NDT operators will be trained and qualified in accordance with guidelines SNT-TC-1A of the American Society of Non-Destructive Testing.

B. Non Destructive Testing (NDT)

The OWNER shall be responsible for Non-Destructive Testing (NDT) and for all other NDT requirements specified herein. NDT will be performed on 100% of the welds at the MLV Sites and Colchester Tie-in Site.

1. If NDT shows unacceptable defects, then all remedial works for rectification shall be considered wholly within the CONTRACTOR's scope of work. Further NDT due to unacceptable defects, shall be charged to the CONTRACTOR.

C. Radiographic Inspection

1. Radiographic inspection methods and acceptance criteria will be in accordance with API 1104. All radiographic inspection shall be at OWNER's expense and performed by a third party.

2. Each radiographic film will be properly identified with a corresponding weld map marked drawing, or NDT map.

D. Ultrasonic Inspection

1. Where a weld is subject to 100% radiography but will not yield an interpretable radiograph then the weld shall be subject to ultrasonic inspection or equivalent in lieu of radiography.

2. Ultrasonic inspection methods and acceptance criteria shall be in accordance with API 1104.

E. Magnetic Particle Inspection

1. Magnetic particle inspection shall be used only on carbon steel.

2. Where magnetic particle inspection is specified, only the "wet" method will be used. MT procedures shall detail types of particle suspension fluids, contrast paints, and types of devices used for the inspection.

3. Welds to be examined by magnetic particle inspection shall be sufficiently smooth to avoid false defect indications.

4. Magnetic Particle inspection methods and acceptance criteria shall be in accordance with API 1104.

3.2 TESTING

A. General

1. A pressure test shall be performed on facilities piping with piping spools assembled and joined in the final location. A minimum number of tie-in welds will be permitted with Owner approval

2. The CONTRACTOR shall develop procedures covering system preparation, flushing, pressure testing, drying and preservation and submit for approval. The procedures shall define the methodology, materials, safety equipment, and instrumentation for documentation, testing media, duration and disposal. The procedures shall provide sufficient detail for the OWNER to evaluate the work to be performed. The CONTRACTOR shall be responsible for ensuring the safety of all personnel engaged in and witnessing of the tests. The safety provisions shall be clearly stated in the hydrostatic and pneumatic testing procedures. Pneumatic testing will only be performed with prior written approval from OWNER. A separate procedure shall be submitted outlining all steps of the testing including a safety plan to protect personnel.

3. The CONTRACTOR shall provide all equipment, materials and consumables required for the system preparation, flushing pressure testing, drying, preservation and reinstatement. All test equipment and temporary materials shall be compatible with the pressure rating and material of the system under test. Gaskets intended for final assembly shall not be used for test purposes. The welding of temporary fittings for test purposes shall be carried out to the same standards as the piping under test. No NDT (except for welding attachments to permanent job piping) will be required by the OWNER on these welds unless otherwise stated by OWNER or required by Construction Management Team.

4. Recorders utilized for testing shall be capable of recording pressure & temperature. Recorders and pressure gauges shall be rated at not more than double the test pressure (300 psi gauge for a 150 psi test, etc.)

5. All pressure tests shall be witnessed and accepted by the OWNER, its representatives or a third party inspector authorized by the OWNER.

6. Hydrotest water shall be clean, fresh, non-corrosive water, free of undissolved solids and available at a minimum of 45 ºF. See Hydrostatic Test Section for more details.

B. System Preparation

1. Prior to system preparation all piping shall have been cleaned to remove mill scale, weld spatter, dirt and other foreign matter. All welding, NDT and stress relieving shall be complete and accepted by OWNER as complete. All welds and flanges shall be clean and exposed for external inspection.

a. All in-line equipment or devices which may be damaged or hamper the test shall be removed from the system. All sensitive in-line and on-line instrumentation items shall be removed or isolated and this shall include, but not limited to the following:

1) Pressure vessels or any mechanical equipment

2) Check valves or check valve flappers

3) Restriction orifices / orifice plates

4) Positive displacement meters

5) Turbine type meters

6) Self regulated controllers

7) Relief valves

8) Rupture Discs

9) Level controls and switches

10) Filter elements

11) Diffusers

12) Transmitters

2. Equipment removed for pressure test shall have documentation of manufacturer's pressure ratings and/or factory test records.

C. Pressure Testing

1. All piping shall be subject to a hydrostatic test or pneumatic test in accordance with CFR Title 49, Part 192, Subpart J. Piping shall be tested to 1.5 times MAOP. Test media shall be approved by OWNER and shall not be harmful to the piping materials or the environment.

D. Hydrostatic Test

1. Valves shall generally be in the open, or half open, position for test. A closed valve may be used as isolation of a test only with specific approval of OWNER, and after confirmation that the valve seats are rated for the test pressure. Provisions to vent air from the test arrangement shall be made prior to filling with test media.

2. The area where testing is to be performed is to be barricaded to prevent access by unauthorized personnel during the testing.

3. The piping shall be slowly filled with water until all air is evacuated. Temperature of the pipe shall be allowed to equalize with that of the test media prior to applying pressure. The vents shall be closed and the piping shall be slowly pressurized to 50% of the test pressure and visually inspected for leaks. When it is confirmed no leaks exist, pressure shall be increased in increments of 25% of test pressure until the test pressure is reached. When leaks are identified, the pressure shall be reduced to the level not greater than the previous increment 0 psi before flange bolts shall be torqued to stop the leak. Flange bolts shall not be torqued over allowable stresses. Where the leak cannot be stopped, pressure shall be relieved from the arrangement and inspection to determine the cause of the leak shall be carried out; this may require disassembling connections.

4. The piping shall be carefully inspected for leaks or distortions during the test. Inspection may require remote observation depending on test pressure and/or test media in order to safeguard personnel. For acceptance, no leaks or distortions in the piping are permitted.

E. Pneumatic Testing

1. All applicable guidelines for hydrostatic testing shall be followed. In addition, the space between the faces of all flanges connections shall be wrapped with duct tape shrink wrap, or other media that will seal the area and a small hole shall be punched through the tape, plastic, or other media at the top of the flange.

2. The piping shall be pressurized to 25 PSI and gross air leaks shall be remedied. The piping shall be slowly pressurized to 50% of the test pressure, then increased in increments of 10% until the test pressure is reached. Leak detector solution shall be applied to all threaded connections, welds, and at the holes in the sealing material applied at flange connections. When leaks are identified, the pressure shall be reduced to 0 PSI before flange bolts are retorqued or threaded connections tightened to stop the leak. Where the leak cannot be stopped. Pressure shall be relieved from the arrangement and inspection carried out; this may require disassembling connections.

F. Reading, Measurements & Test Duration

1. Pressure test duration shall be 8 hours, maintained at a pressure equal to or above the test pressure. Both chart recorders and hydraulic deadweight gauges shall be used for test measurement. Deadweight gauge readings shall be taken every hour. Chart recorders and pressure gauges shall have a valid calibration certificate within 6 months.

G. Records

1. The CONTRACTOR shall provide documentation to record each pressure test. CONTRACTOR shall provide test records in accordance with CFR Title 49, Part 192, Subpart J.

2. If the piping fails the pressure test then no test chart will be signed off. The CONTRACTOR shall be responsible for all remedial work, repairs and retesting of piping that fails during testing. All rework shall be carried out in accordance with the relevant specifications and procedures.

H. Reinstatement

1. After a successful test, the piping shall be emptied of the test medium. Where applicable, pressure tested piping shall be reinstated in accordance with project drawings. Where a hydrotest has been completed, pipe shall be dried post-hydrotest using a suitable method to a dew point of -40° F. The piping shall be subject to preservation to ensure no deterioration prior to system commissioning.

END OF SECTION

SECTION 137000 – WELDING

PART 1 – GENERAL

3.1 SUMMARY

A. This section includes the welding of all OWNER pipelines and pipe segments.

B. The general requirements of pipeline welding shall also apply to the welding of pipeline components such as valves, fittings, flanges, crossovers, tie-ins etc.

C. Welding in compliance with ASME Section IX shall only be completed following OWNER written approval with a procedure submitted to and approved by the Owner. This specification is not intended to cover ASME Section IX welding requirements.

3.2 REFERENCES

A. 49 CFR 192 including (but not limited to) sections:

1. 192.225 – Welding procedures
2. 192.227 – Qualification of welders
3. 192.229 – Limitations on welders
4. 192.231 – Protection from weather
5. 192.233 – Miter joints
6. 192.235 – Preparation for welding
7. 192.241 – Inspection and test of welds
8. 192.243 – Nondestructive testing
9. 192.245 – Repair or removal of defects
10. 192.303 – Compliance with Specifications or Standards
11. 192.309 – Repair of Steel Pipe
12. 192.715 – Transmission lines: Permanent repair of welds
13. 192.719 – Transmission lines: Testing of Repairs

B. API 1104 (Edition as Stated in Department of Transportation Title 49 CFR, Part 192, Transportation of Natural Gas and Other Gas by Pipeline, and any PHMSA final rulings)

3.3 SUBMITTALS

A. Prior to the start of any production welding the CONTRACTOR shall submit the following:

1. Plan & description showing:
   a) Overall approach to work
   b) Information on size, number and specific personnel in each welding crew
   c) Allocated weld numbering given to each welding crew

d) Equipment utilized for crews (i.e. tack rigs, types and sizes of welding machines etc.)

2. Table listings of all approved welders stating (as a minimum):

a) Their full name

b) Last four digits of their Social Security Number

c) Welder initials

d) OWNER allocated welder ID number

e) Weld procedure(s) they are qualified to use

f) Welder qualification test reference numbers

g) Dates each welder was qualified on each welding procedure

h) Model and serial number of welding unit used for each welder qualification test

3. All CONTRACTOR personnel training & certification records, including OQ verification reports.

4. Register of all welding equipment including, make, model, serial number and all associated equipment weekly inspection reports.

5. CONTRACTOR shall continually update and re-submit this information as their project team changes, their welding equipment changes or any other listed items change during natural progression of work.

6. During production, the CONTRACTOR will be asked to provide information on daily weld production, welding issues, preventative measures & corrective measures taken and any other information as requested by the OWNER representative.

3.4 QUALITY ASSURANCE & QUALITY CONTROL

A. The OWNER shall provide approved, qualified welding procedures to be used to complete the WORK.

B. Irrespective of any welder qualifications completed on previous projects, all welders shall re-qualify on the OWNER provided weld procedures at the start of the project administered by a Owner representative.

C. A welder ID number will be assigned to each welder by the OWNER upon the successful completion of the welder qualification test. Subsequent to an acceptable test, the welder shall use this OWNER assigned number to identify all production welds.

D. The OWNER shall supply qualified weld inspectors to conduct visual inspection and auditing of the CONTRACTOR's welding process.

E. The OWNER shall supply a 3rd Party radiographic inspection company for non-destructive testing of welds.

F. The CONTRACTOR is expected to co-ordinate and facilitate ongoing daily interface work between weld production, weld inspection and non-destructive examination activities.

G. The OWNER chief inspector or other designated Owner representative shall be the final judge of acceptability on all welds examined. The CONTRACTOR shall repair or replace, as required, all welds rejected by the chief inspector.

H. All welders to be used on the project must pass a destructive butt qualifying test and branch qualifying test as prescribed by API 1104 section 6, under the OWNER'S supervision or Owner's designee and subject to the OWNER'S approval. For making such test, the OWNER will supply the pipe and the CONTRACTOR shall supply all equipment and supplies, including testing machines and jigs, and labor of the welders being qualified. The tensile testing machine shall be calibrated by an independent laboratory prior to use, and the CONTRACTOR shall present the certificate of calibration to the OWNER prior to its use. The CONTRACTOR shall notify the OWNER of the time and location of the welder qualifications tests; whereupon, the OWNER will witness the welding work and subsequent testing. In the event that either the OWNER or the CONTRACTOR are not satisfied with a Welder's Test results, the welder shall not be employed. No extra test coupons shall be allowed. The OWNER shall promptly notify the CONTRACTOR as to the qualification or disqualification of each welder tested.

I. The CONTRACTOR shall take every precaution to produce welds that meet the requirements of these specifications by the initial welding process. Should the number of welds failing to meet these specifications exceed FIVE (5) percent based on total production for one full working day, the OWNER reserves the right to suspend welding operations until the problem is identified and corrective measures are submitted for the OWNER'S approval. Upon resuming welding operations, the CONTRACTOR shall produce a Controlled Welding Section of twenty welds, having opening at each end, which the OWNER will promptly inspect. During the period the Controlled Welding Section is being inspected, the CONTRACTOR may only continue welding operations with the OWNER'S approval. Should the results of the Inspection of the Controlled Welding Section be unacceptable, the CONTRACTOR shall suspend welding operations. Instructions will then be issued by the OWNER regarding further welding operations.

J. All costs associated with unsatisfactory welding shall be at the CONTRACTOR'S expense.

K. In the case of inclement weather, the CONTRACTOR shall provide protection for the welders at their WORK and care shall be taken to see that no welds are subjected to moisture or sudden variations in temperature. All welded sections of pipe shall be properly supported until the welds are thoroughly cool. The CONTRACTOR shall provide sufficient artificial lighting when necessary at no additional cost to the OWNER.

L. Splatter shields shall be utilized during the welding operations to protect the adjacent pipe coating.

3.5 PROJECT REQUIREMENTS

A. Welding Procedure Specifications will be established, qualified and provided by the OWNER.

B. All welding shall meet the requirements of the latest approved edition of API 1104 Welding of Pipelines and Related Facilities, as approved by the Department of Transportation Title 49 CFR, Part 192, Transportation of Natural Gas and Other Gas by Pipeline, and any PHMSA final rulings.

C. CONTRACTOR shall use the shielded metal-arc welding (SMAW) process on all mainline welds (sometimes called “stick electrode welding” or “shield arc process”). Welding will be performed in the vertical downhill direction, except for hot taps.

3.6 SAFETY

A. The OWNER Prevention of Accidental Ignition Procedure shall be followed. At all times that welding or cutting involving live gas facilities is occurring at a work site, a OWNER employee in addition to the welder must be on site (outside of any excavation) to respond to any unusual circumstances.

B. Arc or flame welding and cutting equipment shall be used only by properly trained personnel.

C. Fire, explosion, toxic fumes and possible electric shock are primary hazards which should be guarded against when welding, burning or brazing.

D. A 20lb to 30lb fire extinguisher shall be ready for immediate use when welding or cutting near flammable materials. In addition, a fire watch will be posted during the welding or cutting operations when combustible materials are in the area. The fire watch will be maintained for a reasonable period of time after welding or cutting operations have ceased to ensure flammable materials do not ignite from source such as smoldering slag, etc.

E. Welding and cutting assignments, whether using arc or flame, shall be shielded or barricaded to protect others in the area from spatter and from harmful rays and to prevent ignition of flammable material if they cannot be moved.

F. Proper protective equipment shall be worn during welding and cutting work. Protective equipment for arc or flame welding includes hard hat, approved goggles or safety glasses and hood, long cuffed gloves and fire retardant or leather clothing – the specific protection depends upon the specific job hazards. Clothing shall be free of excessive oil or grease. Other garments should be fastened at neck and ankles.

G. Grinders and other power tools shall have appropriate guards in place at all times.

H. Blowers should be utilized when welding indoors or in a confined space such as a trench when air quality is significantly impacted.

I. Welding or cutting of any pipeline, tank or empty container shall not be performed until it is certain the area is free from an explosive mixture of gases.

J. Hot material should not be left unguarded unless it is plainly marked as being "hot".

K. When necessary for cables or hoses to cross walkways for extended periods of time, they should be suspended or bridged with planking so as to protect them from traffic.

L. In the case of gas welding equipment, grease or oil should never come in contact with regulators, valves, cylinders or hose connections.

M. An approved igniter should be used to light the torch. Do not relight from hot work.

N. When igniting a torch, it should be held away from the body.

O. In the case of a torch flashback, valves at cylinders shall be closed quickly; then check hose, regulators and torch for damage. Check tip for plugging before attempting to relight.

P. An electric welding machine shall be properly grounded, in accordance with the manufacturer's instructions, before using.

Q. Compressed gases shall be used only by experienced and properly instructed persons.

R. When welding or cutting in elevated positions, precaution shall be taken to prevent sparks or hot metal from falling onto people or flammable material below. A non-flammable tarp or its equivalent shall be used.

S. Fire extinguishing equipment shall be immediately available at all locations where welding and cutting equipment is used. Proper eye protection shall be worn to guard against flying particles of scale when the helmet is raised.

T. All arc welding shall be shielded behind flame-proof screens or all persons in the vicinity shall wear approved tinted eye protection. A welder, unless working behind a screen shall not strike an arc with an electrode until nearby persons who may be exposed to the arc have been given ample warning.

U. When gauges are removed and caps replaced, the oxygen and acetylene bottles shall be separated into storage areas no less than 20 feet apart

V. Compressed gas cylinders shall always be stored in the upright position and secured against falling. They shall also be adequately secured while being transported in a motor vehicle.

PART 2 – PRODUCTS

3.1 MATERIALS

A. The CONTRACTOR shall furnish all consumable materials necessary to weld the pipeline and pipeline components into one complete unit.

B. The CONTRACTOR shall furnish all welding supplies and equipment to perform the necessary work. This includes additional safety and QA/QC items as required by this specification, including but not limited to fire extinguishers, blankets, coupon cutting machines and all required temporary lighting.

C. Electrodes shall conform to American Welding Society AWS Rod Classifications. Flux coated electrodes shall be kept dry, stored to prevent moisture loss or moisture absorption, and shall be handled in such a manner as to prevent any damage thereto. Electrodes in opened containers shall be protected from excessive moisture changes. Electrodes which show signs of deterioration or damage shall not be used in any welding procedure.

D. Useable pipe joints:

1. The CONTRACTOR shall promptly collect, re-bevel, clean, haul ahead and place in the pipeline all usable "pup" joints having a minimum length of five (5) feet. "Pup" joints must be separated by a full-length joint. The CONTRACTOR shall be responsible for transferring all of the pipe stencil information to all pup joints.

2. The CONTRACTOR shall be required to re-bevel and weld all surplus pipe that is five (5) feet or more in length into nominal forty (40) foot lengths of pipe upon job completion at the CONTRACTOR'S expense.

3.2 EQUIPMENT

A. The CONTRACTOR shall furnish and maintain in good working condition sufficient equipment necessary to complete the work within the time specified in the contract. OWNER reserves the right to approve all equipment used by the CONTRACTOR. Any equipment that fails to meet these requirements shall be repaired or replaced by the contractor.

B. A mechanical transition machine shall be used to taper bore pipe transitions for adjoining pipe wall thickness differences that exceed weld procedure requirements. Flame cutting or hand grinding internal transition bevels shall not be permitted, unless otherwise approved by Owner.

C. The Owner may require the CONTRACTOR to furnish a minimum of one tensile testing machine with a calibrated pressure gauge, one API 1104 test bend fixture, one strap cutter and all other necessary equipment supplies and labor for the purpose of testing welders.

PART 3 – EXECUTION

3.1 PREPARATION, SETUP AND END OF SHIFT

A. Prior to welding or cutting in or around a structure or area containing gas facilities, a thorough check should be made with a CGI for the presence of a combustible gas mixture. When working in a confined area or trench, appropriate instruments should be used to ensure there is not an oxygen deficient or combustible atmosphere when such atmospheres are reasonably likely to be present.

B. Welding shall not be done when the quality of the completed weld would be significantly impaired by the prevailing weather conditions, including, but not limited to, airborne moisture, blowing sands, or high winds. Wind/rain shields shall be considered when conditions are harsh.

C. Each beveled end of a joint of pipe shall be cleaned in a manner satisfactory to the OWNER to remove dirt, mill scale, and other foreign substances before being placed in alignment for welding.

D. Cleaning methods shall not in any way alter the bevel design specified in the Welding Procedure Specification. Field beveling and cleaning shall be made in accordance with the Welding Procedure Specification.

E. The open ends of all sections of line pipe shall be securely closed with suitable "Night Caps" supplied by the CONTRACTOR at the end of each day's work to prevent the entrance of small animals, water and obstructions. The pipe ends shall not be reopened until the work recommences. Covers shall be canvas type with an air release hole and tie cord (or secured with duct tape). Any obstructions in the line shall be removed by the CONTRACTOR at its' expense and to the satisfaction and approval of the OWNER. The line must be delivered free, from water, dirt, obstructions, and other foreign substances.

F. Pipe and heat numbers shall be transferred to each end of all pipe lengths of cut from any joint of pipe. Pipe shall not be welded until pipe and heat numbers are verified and transferred to the pipe.

3.2 WELDERS

A. No welder shall weld outside the scope of his qualification.

B. No welder may weld using a particular welding process without a requalification test if more than six (6) calendar months have elapsed since that welder last qualified. To re-qualify, a welder must make a butt-weld in the fixed position within the scope of the welder's qualification. The weld shall be examined according to Section 3 (Destructive Testing) or Section 6 (Non-Destructive Testing) of API 1104.

C. After each welder has been accepted as qualified in accordance with Section 3.4 QUALITY ASSURANCE & QUALITY CONTROL, he shall be permitted to weld on production lines subject to OWNER's privilege to cut an additional test weld from the line.

D. For all pipe diameters the test weld shall be radiographed and then followed by a destructive mechanical test procedure meeting the requirements of API 1104. Defective welds will follow criteria of API 1104 to determine acceptability. Where defective welding involves two or more welders, OWNER and CONTRACTOR's welding foreman shall devise further tests and determine which welder is at fault.

E. Each welder shall identify that portion of the weld performed by him on an area adjacent to the weld and in the top quarter of the pipe. Welder shall use their OWNER assigned ID number. Numbers shall be marked with a OWNER approved material. Die stamping will not be used. In the event any welder leaves the job, his number shall not be used by another welder.

3.3 PRODUCTION WELDING

A. Steel die stamping of welds for any reason will not be allowed. Hammering, jacking, gouging, arc burning or other damage inflicting actions will not be allowed.

B. The adjoining lengths of pipe shall be accurately aligned by the use of a suitable alignment clamp of a type and manufacture satisfactory to OWNER. ***If the use of a weld clamp is not feasible, weld shall be lined up in a suitable manner that does not place undue stress on the weld. This method must be approved by an owner's representative.*** The adjoining lengths of pipe shall be aligned and spaced to provide a root face opening per the qualified Welding Procedure Specification (WPS).

C. Weld seams of adjoining pipe shall be staggered a minimum of 30 degrees. The alignment of abutting ends of longitudinal seam pipe, except in bend section, shall be so as to stagger the longitudinal seams and be within the top half of the pipe as laid.

D. The alignment of abutting pipe ends shall be such as to minimize the offset between pipe surfaces. For pipe of the same nominal wall thickness, the offset shall not exceed one sixteenth (1/16) of an inch. Back welding will not be allowed without the express authorization from the OWNER or qualified designee and in no event shall any back welding be done without preheating to the prescribed temperature.

E. A preheat shall be used according to the WPS. Preheat shall cover a band (4) inches wide on each side of the proposed weld. Heating shall not char the pipe coating. The temperature will be measured by temperature measuring crayons or other acceptable tools to be furnished by the CONTRACTOR and approved by Construction Management Team. This process shall be performed immediately prior to welding.

F. The root bead (stringer bead) shall be applied completely around the pipe followed immediately by a thorough cleaning of all scale, coating, slag, etc. The first bead or "stringer" shall be completed prior to the application of subsequent beads. The second bead (hot pass) shall be started immediately after completion of the stringer within the time limits indicated on the Welding Procedure Specification (WPS). The hot pass shall fully fuse the pipe bevel at each side of the stringer, making the deposit a minimum of one-third the pipe wall thickness. On pipe 16" OD and larger the stringer and hot pass shall each require two or more welders working on opposite sides to equalize stress.

G. No tack welds shall be permitted except when using external line up clamps on tie-ins, transitions, and fabrication piping and then only when preheating requirements are met.

H. When internal line-up clamps shall be used, they shall not be relaxed or removed until 100% of the root bead has been completed. When external line-up clamps are used, the clamp shall be held in place until at least 50% of the root bead circumference is welded in increments spaced equally around the pipe circumference. Skids shall be placed in a manner to prevent stress on completed root beads.

I. When welding concrete coated pipe, internal alignment clamps shall not be relaxed until both the root bead and hot pass have been completed.

J. The start of all weld passes shall overlap and no pass shall start closer than two (2) inches from the start of the preceding pass.

K. The "Stringer Bead" and "Hot Pass" welding operation shall not be advanced ahead of the finished welding operations to the extent that the section of line containing unfinished welds would be likely to fall from skids because of contraction and/or expansion of the line due to change in temperature. When the pipe is laid on skids after welding it shall be blocked and secured from rolling off skids in a manner acceptable to the OWNER. The placing of skids shall be close enough to prevent undue stress on the free spanning pipe. Should a section of the line containing unfinished welds fall from the skids, the CONTRACTOR'S representative shall immediately report the same to the OWNER and all cost of any inspection and/or repairs shall be borne by the CONTRACTOR.

L. Arc burns are not permitted under any circumstances. The CONTRACTOR shall take necessary precautions to insure that no arcing occurs between the ground bevels, leads of the welding machines and the pipe. Striking the arc on the pipe at any point other than the welding groove shall not be permitted. All arc burns occurring outside the welding groove shall be removed from the pipeline by cutting out a cylinder of pipe containing the arc burn or arc burns and replacing it with new pipe at the CONTRACTOR'S sole expense. Said cylinders are the property of the OWNER and shall not be destroyed or tested on by the CONTRACTOR.

M. Grinding shall not be permitted outside of the beveled surfaces, unless pipe wall is verified and approved by Construction Management Team. Grinding marks located outside the bevel shall be removed from cutting out a cylinder of pipe containing the grinding mark and replacing it with new pipe at the CONTRACTOR'S sole expense.

N. Tack welding of grounding clamps and other devices to pipe shall not be permitted.

O. Roll welding, when permitted, shall be carried out in accordance with a qualified welding procedure.

P. Hot weld shall be protected at all times from sudden cooling, water quenching or movement.

Q. Welding rod stubs or unused welding rod shall be carefully removed from the site and shall not be discarded in the ditch, right-of-way or elsewhere on the site.

R. No miter joints allowed.

S. During the final tie-in section the pipe shall be supported by side booms until all filler passes are complete.

3.4 WELD INSPECTION & NON-DESTRUCTIVE EXAMINATION

A. All welds shall be 100% radiographically inspected at the OWNER'S expense according to API 1104. If the results of these inspections indicate the welds to be defective, CONTRACTOR shall replace or repair the defective welds at CONTRACTOR'S expense. If the cut-out method of examination of weld is employed by the OWNER, the OWNER may, in the judgment of its OWNER INSPECTOR, cut-out and test any welds designated by him. Should such cut-out welds pass the requirements of API 1104, the cost of cutting out and subsequent tie-in will be borne by the OWNER. The cost of cutting out and replacing any welds that fail the tests shall be borne by the CONTRACTOR.

B. Liquid dye penetrant inspection, magnetic particle inspection or ultrasonic inspection may be utilized by OWNER on a case-by-case basis. Acceptance criteria for these inspections are as stated in API 1104.

3.5 WELD REPAIRS

A. Any defect found in a weld, which is determined to be detrimental to its serviceability, shall be either ground out and re-welded, or removed from the line as a cylinder and replaced by welding in a new section of pipe.

B. If visual or radiographic inspection indicates a weld to be defective, the CONTRACTOR, at no additional cost to the OWNER, shall cut a cylinder of pipe containing such weld from the pipeline and replace it with new pipe or shall have the defective weld repaired in accordance with API 1104. Correction of an individual bead prior to the laying of a succeeding bead is not considered a repair of a defect under these specifications.

C. Preheating shall be used according to the WPS. Such preheating shall be accomplished by a method acceptable to the OWNER and shall cover at least four (4) inches wide on each side of the weld. Heating shall not char the pipe coating. Preheat temperature shall be checked by use of temperature indicating crayons.

D. All repair and replacement welds shall be 100% radiographically inspected and shall meet the acceptance standards of API 1104.

E. Only one repair shall be allowed per girth weld. The necessity of a second weld repair constitutes a mandatory cut-out.

F. The accumulated length of weld repairs shall not exceed 8% of the total length of the girth weld.

G. Under no circumstances should attempts be made to repair cracks in a weld. All cracks shall be cut outs.

H. When welding the line pipe together at places where cut-outs have been made, one replacement weld will be used if it is practical to pull the line back into position; otherwise, two welds will be made by fitting in a "pup joint", which shall have a length of not less than five (5) feet.

3.6 FINAL WELDING DOCUMENTATION

A. After completion of production welding, CONTRACTOR shall submit all final copies of submittals stated in section 3.3.

END OF SECTION

SECTION 138000 – COATINGS

PART 1 – GENERAL

3.1 SUMMARY

A. This section includes the field coating of all field welded joints and field pipe coating repairs.

B. The CONTRACTOR scope of work shall include, but not be limited to: cleaning and preparing piping for coating, coating application, inspection, testing and making repairs.

C. This section is relevant for epoxy repair coatings and shrink sleeves only. This specification is not intended to cover original fusion bonded epoxy, polyethylene or above ground pipe coatings.

3.2 REFERENCES

A. CFR 49, Part 192, Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Safety Standards, including (but not limited to) section:

1. 192.461 External corrosion control: Protective coating

B. NACE RP0105, Latest Edition, Liquid Epoxy Coatings for External Repair, Rehabilitation and Weld Joints on Buried Steel Pipelines

C. NACE SP0490, Latest Edition, Holiday Detection of Fusion Bonded Epoxy External Pipeline Coatings of 10 to 30 mils.

D. NACE RP0274, Latest Edition, High Voltage Electrical Inspection of Pipeline Coatings

E. NACE RP0602, Latest Edition, Field-Applied Coal Tar Enamel Pipe Coating Systems: Application, Performance, and Quality Control.

F. SSPC-10/NACE 2 Near White Blast Cleaning

3.3 SUBMITTALS

A. Prior to the start of coating, the CONTRACTOR shall provide the following submittals to the OWNER for review and approval:

B. Overall quality assurance plan for applying and testing field applied coating

1. Contractor coating personnel employed, training, qualifications and previous experience
2. Crew size & overall approach to coating activities
3. Scheduled dates for training and coating activities

C. CONTRACTOR coating personnel qualification & training records, including Operator Qualification in compliance with the Owner Operator Qualification Plan.

D. Daily coating log template that will be used including:

1. Coating date & contractor foreman
2. Product description, Coating batch numbers (Part A and Part B), Manufacturer and shelf life date
3. Ambient weather conditions
4. Ambient temp
5. % humidity
6. Dew point
7. Substrate temperature (Prior to application)
8. Surface preparation
9. Abrasive type
10. Substrate temperature at application
11. Hours uncoated (The time after surface preparation until application)
12. Method of application
13. Surface profile achieved & check
14. WFT check DFT check
15. Jeep Holiday voltage & pass check
16. Location where work was performed

E. Listing of all inspection and test equipment that will be used by the CONTRACTOR.

F. Proposed coating product data sheets and MSDS

3.4 QUALITY ASSURANCE & QUALITY CONTROL

A. The CONTRACTOR shall provide a representative from the field coating manufacturer to conduct coating product field application training. The following personnel shall attend the organized training:

1. All CONTRACTOR personnel responsible for applying the field joint coating and inspection over the installation and application of the field coating.
2. All CONTRACTOR personnel responsible for repairing the coating holidays.
3. All OWNER inspectors responsible for ongoing inspection and monitoring activities relating to field coating application.

B. All Splattering of coatings falling on nearby surfaces shall be removed by the CONTRACTOR at his expense. Coating damage to automobiles or any other surrounding structures caused by wind drift shall be the CONTRACTOR'S responsibility.

C. All coating shall be completed in accordance with manufacturer's recommendations, standards referenced in Section 3.2 and all other sections of this specification. Where there is a difference in requirements, the most stringent requirement shall apply.

D. CONTRACTOR shall be responsible for conducting and recording all inspections and tests. CONTRACTOR's coating foreman shall inspect and monitor the work of painters and blasters under his direction.

E. Daily coating logs and inspection reports shall be kept by the CONTRACTOR and available for inspection by the Construction Management Team.

F. OWNER inspection personnel will inspect and audit coatings compliance against the requirements of this specification, referenced specifications and industry good practice.

3.5 PROJECT REQUIREMENTS

A. CONTRACTOR shall conduct all below grade coatings in accordance with the stated requirements.

B. All coatings shall be selected in accordance with the following Coating Repair Product Matrix in this section. Coating product shall be selected by the CONTRACTOR after consultation with the coatings manufacturer. All coatings shall comply with coating performance requirements stated in NACE RP0105. CONTRACTOR may only use alternative coating products with prior OWNER approval.

C. The field coating system shall be compatible with any existing coatings. The CONTRACTOR is required to obtain OWNER approval of the selected coating.

D. All coatings shall be applied having a dry film thickness of at least 20 mils or the manufacturer's coating thickness recommendation, whichever is greater.

E. Additional sacrificial coatings and protection over girth welds on HDD pipe strings may be used with approval from an owner's representative.

Coating Repair Product Matrix

~~Material Coated~~	~~Welded Joint Coating~~	~~Holiday Repairs - 2 Sq. In or less~~	~~Holiday Repairs - in excess of 2 Sq. In~~
~~Fusion Bonded Epoxy (FBE) Coated Pipe~~	~~SPC 2888 2-part epoxy~~ ~~-or-~~ ~~DENSO Protal 7200~~ ~~-or-~~ ~~Canusa HBE 95 2-part epoxy~~ ~~-or-~~ ~~Powercrete R95 2-part epoxy (for use in an abrasive environment).~~	~~Patch stick not recommended. Any use of patch stick repairs to be agreed with OWNER before use.~~ ~~All coating repair products to be as per the FBE welded joint coatings.~~	~~All coating repair products to be as per the FBE welded joint coatings.~~
~~Abrasion Resistant Overcoat (ARO) Coated Pipe~~	~~Powercrete R95 2-part epoxy~~ ~~-or-~~ ~~Powercrete J 2-part epoxy~~	~~No patch stick repairs allowed.~~ ~~All coating repair products to be as per the ARO welded joint coatings.~~	~~No patch stick repairs allowed.~~ ~~All coating repair products to be as per the ARO welded joint coatings.~~ ~~.~~

~~Material Coated~~	~~Welded Joint Coating~~	~~Holiday Repairs - 2 Sq. In or less~~	~~Holiday Repairs - in excess of 2 Sq. In~~
~~Below Ground Bare Pipe~~	~~SP 2888 two part epoxy. - on bare pipe and welded joints~~	~~SP 2888 two part epoxy.~~	~~SP 2888 two part epoxy.~~
~~Air/soil Transition Areas (12" above and below grade transition)~~	~~Carboline Bitumastic with Rockshield wrap -or- Tapecoat TC Color Primer, Tapecoat (wax tape) over the primer, Tapecoat Rugged Wrap overcoat~~		

	Welded Joint Coating	***Holiday Repairs –2 Sq. In or less***	***Holiday Repairs –in excess of 2 Sq. In***	***Holiday Repairs – Shrink Sleeve***
Pritec Coated Pipe	***Canusa Shrink Sleeve.*** ***Canusa recommended sleeves are:*** ***Canusa K-60 Shrink Sleeves, "L" Thickness, yellow color. Model K-60/L YE.*** ***Sleeve width to be agreed between Contractor and Owner.***	***Patch repair, in accordance with Liberty Coating Company SOP RM-002 or CRP-65 with melt stick or mastic filler.***	***Patch repair, in accordance with Liberty Coating Company SOP RM-002 or CRP-65 with melt stick or mastic filler.***	***Canusa Shrink Sleeve.*** ***Canusa recommended sleeves are:*** ***Canusa K-60 Shrink Sleeves, "L" Thickness, yellow color. Model K-60/L YE.*** ***Sleeve width to be agreed between Contractor and Owner.***
Fusion Bonded Epoxy (FBE) Coated Pipe	***Approved products from Durabond (FBE Coaters) are:*** ***SPC-2888 2-part epoxy*** ***-or-*** ***DENSO Protal 7200*** ***-or-*** ***Canusa HBE 95 2 part epoxy*** ***-or-*** ***Powercrete R95 2-part epoxy (for use in an abrasive environment).***	***Patch stick not recommended. Any use of patch-stick repairs to be agreed with Owner before use.*** ***All coating repair products to be as per the FBE welded joint coatings.***	***All coating repair products to be as per the FBE welded joint coatings.***	***N/A***
Abrasion Resistant Overcoat (ARO) Coated Pipe	***Approved products from Womble (ARO Coaters) are:*** ***Powercrete R95 2-part epoxy*** ***-or-*** ***Powercrete J 2-part epoxy***	***No patch stick repairs allowed.*** ***All coating repair products to be as per the ARO welded joint coatings.***	***No patch stick repairs allowed.*** ***All coating repair products to be as per the ARO welded joint coatings.*** ***.***	***N/A***
Pritec Pipe to Fusion Bonded Epoxy / Epoxy Pipe Coating	***Canusa Shrink Sleeve. Shrink sleeve type and ordering options to be agreed with Owner.*** ***Any alternatives shall be reviewed and agreed by Owner.***	***N/A***	***N/A***	***N/A***

	Welded Joint Coating	*Holiday Repairs –2 Sq. In or less*	*Holiday Repairs –in excess of 2 Sq. In*	*Holiday Repairs – Shrink Sleeve*
Below Ground Bare Pipe	***SP 2888 two part epoxy. – on bare pipe and welded joints***	***SP 2888 two part epoxy. Repair product and application to be agreed with Owner.***	***SP 2888 two part epoxy. Repair product and application to be agreed with Owner.***	***N/A***
Air/soil Transition Areas	***Carboline Bitumastic with Rockshield wrap -or- Tapecoat TC Color Primer, Tapecoat (wax tape) over the primer, Tapecoat Rugged Wrap overcoat – Use of tape product to comply with VGS Operating Procedure 'Corrosion Control – Protective Coating'.***			

3.6 SAFETY & ENVIRONMENT

A. The CONTRACTOR is responsible for collecting, clean-up and placing into barrels, furnished by the CONTRACTOR, all hazardous grit-blasting waste. The OWNER will mark the barrels as hazardous material and arrange for proper disposal at an approved hazardous waste site. The barrels will become property of the OWNER. All barrels provided by the CONTRACTOR shall be new, clean, rust & dent free, and shall have removable lids.

B. The CONTRACTOR is responsible for collecting clean-up and disposal of all non-hazardous waste. The contractor shall dispose of all material at and approved waste site.

PART 2 – PRODUCTS

3.1 MATERIALS

A. All coating material, coating equipment and inspection & testing equipment shall be supplied by the CONTRACTOR.

B. The CONTRACTOR shall be responsible for the storage and application of all field-coating materials in accordance with the manufacturer's specifications. The CONTRACTOR shall provide necessary coating storage per manufacturer's product information.

C. Crystalline silica sand will not be permitted for use in abrasive blasting operations. The CONTRACTOR shall be permitted to use "Black Beauty" or equivalent.

3.2 EQUIPMENT

A. Any compressed air supplies used for grit blasting shall be free of detrimental amounts of water and oil. Adequate separators and traps shall be provided, kept emptied and operational.

B. CONTRACTOR shall provide and utilize wet and dry film thickness, temperature and humidity gauges as required by the performance of the work and approved by the Construction Management Team.

C. Magnetic dry film thickness (DFT) gauges shall be calibrated using either test blocks bearing nonmagnetic coatings that are traceable to a known standard or plastic shims provided by maker of electronic DFT gauges.

D. Contractor shall furnish two (2) or more holiday detectors, in good condition and properly calibrated in accordance with NACE requirements. All calibration records shall be available for OWNER inspector's review.

E. The holiday detector manufacturers approved by the OWNER are:

1. D.E. Stearns Company
2. SPY Holiday Detectors
3. Tinker & Rasor
4. Other manufacturers can be submitted and approved by the Owner.

F. CONTRACTOR may submit alternate equipment for approval by the OWNER.

G. The OWNER will have the right to inspect or test equipment to determine if it is in proper working condition.

H. CONTRACTOR shall use Press-O-Film tape to verify the piping or substrate surface profile measurement achieved prior to coating.

PART 3 – EXECUTION

3.1 PREPARATION, SETUP AND HANDLING

A. Prior to coating, all oil, grease or other deleterious matter shall be removed prior to blast cleaning.

B. All exterior surfaces of below grade pipe to be coated shall be blast cleaned to NACE 2 / SSPC SP10 (~~or at a minimum to the coating manufacturer's specifications~~) for required cleanliness and profile before any coating is applied.

C. For weld joint repairs, the CONTRACTOR shall utilize blast cleaning to achieve the necessary surface profile. Mechanical abrasion techniques may only be used after full OWNER review and approval.

D. Pinholes and areas less than 1.5 in^2 requiring small spot repairs (not down to bare metal) shall be cleaned using a surface grinder or by sanding the areas with 80 grit sandpaper or carborundum cloth to remove dirt, scale, rust, damaged coating, or any other foreign material. All dust produced by the cleaning and feathering shall be wiped off with a toluene or xylene soaked cloth before patching commences.

E. Areas larger than 1.5 in^2 requiring repairs shall be cleaned by a surface grinder or by grit blasting to remove dirt, scale, rust, damaged coating, or any other foreign material. Edges of the adjacent coating shall be feathered, and all dust produced by the cleaning and feathering shall be wiped off with a toluene soaked cloth before patching commences.

F. Irrespective of repair area, any repair where bare metal is exposed (and/or scale or rust is showing) shall be grit blasted to the appropriate surface profile.

G. Unless otherwise stated by the manufacturer, the angular surface profile achieved shall be 2 to 4 mils, measured from peak to valley.

H. After blasting, Contractor will thoroughly clean all blast grit and dust from both internal and external surfaces, including from crevices, recesses, etc.

I. The edges of the existing coating shall be roughened by sweep (or brush) blasting the existing coating for a distance of 1-inch minimum, or as defined by the coating product data sheet. Existing coating shall be roughened and not removed.

J. Abrasive blasting shall be completed during daylight hours.

K. Blast-cleaned surfaces shall be coated during the same day as blasting and at least one hour prior to sundown of that day and also before any rusting occurs.

L. If required by ambient weather conditions or by the coating product, the pipe or substrate surface shall be preheated prior to coating application.

M. Acceptable methods of heating the pipe surface include the use of an induction coil, a catalytic infra-red heater, or a propane torch. Care shall be exercised to prevent any charring or burning of the mill applied pipe coating adjacent to the cutback. If a propane torch is to be used the following requirements are applicable:

1. Any contamination due to heating shall be removed by wiping with a clean rag and isopropyl alcohol.

2. If heating with a propane torch after blast cleaning, a brush blast will be required if flash rusting occurs prior to coating application.

N. Pipe shall never be heated to above 250°F. Surface preheat shall be measured by thermocouple, temperature 'tempilstik' or approved equal.

3.2 APPLICATION

A. Coating manufacturer's application instructions shall be followed at all times.

B. No coating shall be applied at ambient temperatures below 50 deg. F. or on surface temperatures less than 5 deg. F above the dew point.. If such conditions exist, manufacturer's data on surface heating shall be followed and Contractor shall provide means/methods that are acceptable by the Construction Management Team.

C. No condensation, precipitation, or any other form of contamination is allowed on the blasted surface prior to coating. Coating shall commence immediately after surface preparation has been completed.

D. Application may be performed by brushing, rolling or any other manual techniques as approved by the coating product manufacturer.

E. When liquid epoxy is used as the primary corrosion coating, backfill time shall be determined by the "thumb nail test." The "thumb nail test" is defined by when one can no longer make a permanent indentation in the coating with his/her thumb nail.

F. When liquid epoxy coatings are applied for the purpose of abrasion resistance, or sacrificial coating, a Shore D hardness of 75 or greater must be achieved prior to dry film thickness measurements, holiday detection, handling, backfilling or installation.

G. The coating must achieve a full chemical cure before it is backfilled. An acceptable field test to determine whether the coating has achieved a full chemical cure is to rub a solvent such as Xylene, MEK, or Toluene onto the coating. If the gloss or sheen is removed, the coating is not yet fully cured.

H. Over coating, when necessary, shall follow manufacturer's recommendations.

3.3 INSPECTION AND TESTING

A. CONTRACTOR coating testing and testing frequency shall be in accordance with the following table:

Test	Frequency	Acceptance limits
Daily conditions	At the start of every shift	-
Surface Profile Checks	Once at the start of blasting. Once every 4 hours. Once at the end of blasting.	2 to 4 mils, using press-o-film testing tape.
Cleanliness	Every welded joint repair	Near White (SSPC SP-10) by visual inspection.
Preheat Temperature	Each time preheat is required	Maximum 250°F measured by thermocouple or temperature stick
Wet Film Thickness	Every coating at 3, 6, 9 and 12 O'clock positions	500 microns (20 mils) minimum
Dry Film Thickness	Every coating at 3, 6, 9 and 12 O'clock positions	500 microns (20 mils) minimum
Hardness	All coated areas - prior to lowering in	Thumb nail Test
	ARO coating repairs – prior to pullback or lowering in	Shore D Hardness of 75
Holiday Test	All piping to be buried	As per manufacturer's recommendations or if no recommendation exists, then 125 DC Volts per mil DFT coating
Adhesion Test	***Refer to Field Adhesion Test procedure in Inspection Manual***	***Refer to Field Adhesion Test procedure in Inspection Manual***

B. Wet and dry film thickness readings shall be measured on the 3, 6, 9 and 12 O'clock positions on every girth weld and recorded. Marks made by the wet film gauge shall be smoothed and covered using a brush.

C. The applied coating will be generally smooth and free of excessive material protruding from the surface and holidays. No drips, runs, sags, or other discontinuities are acceptable. "Icicles" on the bottom of the weld will not be acceptable. In the event "icicles" occur at the bottom, they will be smoothed with the adjacent coating to eliminate the possibility of chipping or breakage during lowering in operations.

D. Holiday inspection shall be performed on all pipe and fittings with an electronic holiday detector, supplied by the CONTRACTOR, and operated in such a manner as to audibly and visually detect the presence of all holidays.

E. Excluding voltage settings described above, holiday inspection shall be performed as outlined in NACE Standards RP0105, RP0274 and SP0490, latest revisions, with a certified holiday detector. This inspection shall occur on all piping to be buried.

F. Holiday detectors shall have adequate grounding at all times.

G. If a jeep voltage is not specified by the manufacturer then the holiday detection voltage shall be determined by V = 125 X T, Where T = coating film thickness in mils. Proper voltage settings shall be confirmed by detecting three artificial holidays placed in the initial joint. For fabrication inspection, the electrode shall be a wet sponge detector supplied by the CONTRACTOR. For pipe inspection, the electrode shall be the pipe OD and consist of a rolling spring composed of square stainless steel wire. The spring length shall fit securely to the surface of the pipe.

H. Upon completion of the pipeline construction final clean up, the OWNER may elect to conduct a DCVG (Direct Current Voltage Gradient) Coating Survey. The CONTRACTOR shall uncover all of the holidays detected. The coating shall be cleaned, dried, jeeped, and the uncovered coating defects shall be repaired. Any Coating Integrity indications uncovered that require coating repair will be at the CONTRACTOR'S expense, including the excavation, coating repair, backfill and final clean up. Should the OWNER elect to perform a DCVG Survey the cost to perform the DCVG Survey will be borne by the OWNER.

I. Immediately prior to and during lowering in, the CONTRACTOR shall check the coating with an electrical holiday inspection instrument supplied by the CONTRACTOR and approved by the OWNER. All pipe shall be inspected for holidays and all holidays shall be repaired in accordance with these specifications.

J. Holiday testing shall be done before any rock shield, pipe saks, concrete coating or any other type of additional materials are applied to the pipe.

~~K. At no time shall the pipe be jeeped or lowered in without a OWNER inspector present.~~ ***Final jeeping and lowering cannot take place without an OWNER inspector present.***

L. During lowering operations, coated pipe shall be handled by use of adequately spaced lowering in belts or cradles. ~~Belts shall be at a minimum equal to the diameter of the pipe width and made of proper material,~~ ***Belts and cradles shall sufficiently support the pipe and be made of proper material,*** which shall be free of protrusions that may cause damage to the protective coating. Roller cradles shall have nylon/neoprene roller wheels.

M. If the OWNER inspector suspects coating was damaged during lowering in, OWNER reserves the right to elect further CONTRACTOR holiday testing while pipe is in the trench.

3.4 COATING REPAIRS

A. All coating repairs required are to follow this specification. Upon completing coating repairs, the CONTRACTOR shall retest the pipe in accordance with section 3.2H.

B. The CONTRACTOR shall be responsible for all damages to pipe or pipe coating caused by equipment, rough treatment, handling or ditch conditions. The CONTRACTOR shall repair coating damage and piping damage at no additional cost to the OWNER.

C. Any field joints or pipe with inadequate or excessive film thickness, uncured coating or disbanded/non-adherent coating shall be completely re-blasted to base pipe and recoated by the CONTRACTOR at no additional cost to the OWNER.

D. Contaminated coatings shall be reblasted by CONTRACTOR to bare metal and reapplied as originally specified.

E. Where joints have excessive holiday detections and coatings cannot be adequately repaired, joint shall be completely replaced at no additional cost to OWNER.

3.5 FINAL COATING DOCUMENTATION

A. The contractor shall supply the following as part of their final Coating documentation:

1. Daily coating and inspection logs
2. Replica tape of surface profile shall be attached to the coating logs
3. Example photos of coating preparation, application and testing
4. Equipment calibration logs
5. List and details of all coating batch numbers used.
6. ***Field Adhesion Test Report***

END OF SECTION

SECTION 139000 – HYDROTESTING

PART 1 – GENERAL

1.1 SUMMARY

A. This section includes the hydrostatic testing of all OWNER pipelines and pipe segments including crossings, horizontal directional drills and piping assemblies fabricated off-site intended for pipeline use.

B. The CONTRACTOR scope of work shall include, but not be limited to: cleaning and preparing pipeline for test, filling and completing the test, dewatering the pipeline, making repairs in the event of failure, drying the pipeline, and reconnecting or capping the pipeline following successful completion of the test.

C. This specification is not intended to cover pneumatic testing.

1.2 REFERENCES

A. 49 CFR 192 – Subpart J: Transportation of Natural and Other Gas By Pipeline: Minimum Federal Safety Standards. Subpart J – Test Requirements.

B. ASME B31.8 – Gas Transmission and Distribution Piping Systems

1.3 SUBMITTALS

A. The following submittals shall be provided by the CONTRACTOR prior to hydrotest:

1. Overall hydrotest plan showing number of hydrotests to be completed, estimated schedule and water fill volumes of each hydrotest.

2. Hydrotest plan and procedure for the specific pipe segment to be tested. This shall include OWNER supplied drawings marked up with:

a) Test section limits

b) Test site & manifold test header elevations and locations.

c) Location and elevation of deadweight pressure recorders and chart recorders

d) Elevation high point of pipe tested

e) Elevation low point of pipe tested

f) Hydrostatic test pressure required at deadweight pressure recorder site and chart recorder sites (potentially at varying heights and pressures) to ensure all piping is tested to the minimum test pressure. All calculations are to be included.

3. Hydrotest temporary evacuation and security plan for each location.

4. Water supply location(s), including necessary permits/approvals if necessary.

5. A list of all instrumentation to be used showing manufacturer rating, range, accuracy, limits, etc., complete with certified copies of all calibration reports. Certification to be current within three months.

6. Test Header certification details including:

a) Material test reports on the header pipe, cap, valves and fittings, with a complete bill of materials.

b) Acceptable radiography report of each weld on the test manifold/header

c) Serial numbers for all valves and other equipment on the test header

7. CONTRACTOR shall submit a marked up drawing indicating the location for dewatering and verification that the dewatering area is acceptable under the Project Permits. CONTRACTOR to also supply calculations indicating the rate at which the pipe will be drained to ensure that the maximum flow of water into and out of the dewatering area does not exceed the permitted velocities. If CONTRACTOR is planning to utilize a non-approved dewatering area for the test, then the coordination and all costs associated with obtaining approval for the use of the alternate dewatering area shall be the responsibility of the CONTRACTOR, including any and all consultant costs, project delay costs, regulatory compliance costs, etc.

8. CONTRACTOR pipeline drying procedure

B. For submittals, records and documentation to be provided post-testing, CONTRACTOR shall comply with section 3.1 of this specification.

1.4 QUALITY ASSURANCE & QUALITY CONTROL

A. The OWNER will supply a designated representative to witness the hydrostatic tests. The OWNER designated representative shall be present for the duration of the test as well as all pressurization and depressurization activities.

B. The CONTRACTOR shall supply sufficient qualified personnel experienced with the operation of all required testing instruments and equipment in accordance with the provisions of this CONTRACT.

C. The CONTRACTOR shall supply a test supervisor, experienced in pipeline hydrotesting to manage all test activities.

D. Test activities shall only commence once all submittals are approved by OWNER, and all safety and quality assurance requirements detailed in this specification and the contract are met. OWNER shall not be responsible or liable for any testing activities which commenced without OWNER approval. CONTRACTOR shall allow for 15 days turn around for the approval of the Test Plan by the OWNER.

E. Test activities shall only commence once all pipeline radiography and other nondestructive examination is complete and approved by the OWNER.

F. Test activities shall only commence after the OWNER designated representative and the CONTRACTOR have had an on-site walk through of the planned test to verify all of the requirements of this section, including any safety issues or concerns.

G. During testing activities, all quality control and safety issues shall be immediately communicated to the CONTRACTOR's test supervisor and OWNER designated representative.

1.5 PROJECT REQUIREMENTS

A. Unless otherwise stated by the OWNER, minimum test pressure shall be 1.5 times pipeline Maximum Allowable Operating Pressure (MAOP). Pipelines shall be tested in accordance with this specification and 49 CFR 192, Subpart J.

B. All buried pipeline and appurtenances shall be tested to the pressure designated by the OWNER for a period of eight and one-half (8.5) continuous hours; whereas, pre installation (above ground) testing shall be for a period of four and one-quarter (4.25) continuous hours.

C. Pipe installed at HDD crossings shall be hydrostatically tested a period of four and one-quarter (4.25) continuous hours at a pressure specified by the OWNER, both prior to, and after installation. All hydrostatic tests at HDD's shall comply with this specification and 49 CFR 192 Subpart J. Any exceptions to this specification shall be agreed with written approval of the OWNER prior to the start of test.

D. Whenever possible, all fabricated assemblies shall be hydrostatically tested as an integral part of the mainline pipeline, in accordance with this specification. However, situations may arise which result in the fabricated assemblies not being in place at the time of mainline testing. With prior written approval of the OWNER, fabricated assemblies may be proof tested above ground for eight and one-half (8.5) hours duration, prior to installation in the pipeline. Such tests shall be performed in general accordance with these specifications, 49 CFR 192 and ASME B31.8.

E. All testing operations involving work on the RIGHT-OF-WAY or on the pipeline, including but not limited to move-in/move-out, cutting fences, handling the OWNER furnished materials, bending, welding, coating, tie-ins and backfilling shall be in accordance with the applicable sections of the project specifications.

F. Once the appropriate submittals have been approved by the Owner, the CONTRACTOR shall provide the OWNER a minimum of 5 working days' notice prior to the date of the scheduled test. Testing shall not be scheduled to occur on a weekend, unless approved by Construction Management Team.

1.6 SAFETY

A. During all testing operations, the CONTRACTOR shall take all necessary safety precautions to protect all persons and property including the temporary evacuation and lodging of property owners/residents/tenants as required by the OWNER'S specifications. This shall include, but not be limited to, keeping all persons not directly engaged in the testing operations off the construction right-of-way of the test section during the pressure stabilization and holding periods. Warning signs shall be placed along the right-of-way at points of public crossings and must remain in place throughout the pressurizing and holding periods.

B. Existing conditions or any, which are unsafe in the opinion of the OWNER representative, shall be corrected immediately. The test shall not proceed until the unsafe conditions have been corrected to the satisfaction of the OWNER.

C. Supply whips for hoses and other necessary appurtenances.

PART 2 – PRODUCTS

2.1 MATERIALS

A. The CONTRACTOR shall furnish all materials and equipment necessary for the completion of all preparation, testing and post-test completion activities.

B. Even if not called out on project drawings, CONTRACTOR shall supply all required properly rated blind flanges, caps, plugs, gaskets, hoses, bolts and temporary valves as required to complete the test activities.

2.2 EQUIPMENT

A. The CONTRACTOR shall furnish equipment which complies with the following specifications:

1. Fill lines and pumps shall be in good operating condition, capable of pumping a minimum of one thousand five hundred (1500) gallons per minute to a pressure of two hundred (200) psi.

2. Filters shall be installed between all unprocessed water sources and the pipeline. Filters shall be equipped with one hundred (100) mesh screen or equivalent and capable of removing particles one hundred sixty (160) microns and larger. Filters shall be installed in such a manner to permit back flushing or change out without interruption of the pumping operation and without bypassing the filtration system.

B. High-pressure pumps shall be in good operating condition, capable of pumping a minimum of fifty (50) gallons per minute, and rated at least fifty-percent (50%) above maximum required test pressures. Pumps shall be equipped with a stroke counter or other means of volume measurement and a variable speed control to reduce capacity to three (3) gallons per minute. High pressure pumps shall be mobile enough to allow movement from one location to another without causing delay.

C. Air compressors required for dewatering shall have a total capacity of not less than 1200 CFM.

D. For test instrumentation and measurement, the following minimum requirements shall be met:

1. Deadweight pressure gauges 0-3000 psig with readings to the nearest 1 psig, complete with a current test certificate in accordance with the requirements of the governing authorities.

2. Pressure recording gauges 0-3000 psig with twelve (12) inch minimum diameter or width chart with pressure increments of 20 psig maximum complete with a current test certificate in accordance with specification requirements.

3. Temperature recording gauges for pipe temperature, soil temperature and air temperature, range 32 °F to 120°F, twelve (12) inch minimum dial diameter with temperature increments 1°F maximum, complete with a current test certificate in accordance with the specification requirements.

PART 3 – EXECUTION

3.1 PREPARATION & SETUP

A. Prior to commencing the Hydrotest activities, CONTRACTOR shall provide, for OWNER approval, all submittals as stated in section 1.3. CONTRACTOR shall provide submittals for review no less than thirty (30) days prior to the first planned hydrotest date.

B. The CONTRACTOR shall ensure that the pipeline and appurtenances are free of dirt and debris prior to filling the test section. The CONTRACTOR shall furnish compressed air to run a minimum of one (1) CONTRACTOR furnished wire brush pig with cups prior to filling the segment with water. The OWNER may request additional runs at no additional cost to the OWNER.

C. A Deadweight pressure gauge shall be installed at one end of each test section, whereas a pressure recorder and ambient and pipe temperature recorders shall be installed at both ends of each test section. Dial-type pressure gauges may be installed as required by the CONTRACTOR, however, they shall not be used for formal test pressure recording.

D. Four temperature recorders total (one in the backfill at pipeline depth and one on the pipe, at each end of the pipeline) shall be set up prior to the start of the test pressurizing.

E. The deadweight pressure gauge, pressure recorder, and dial pressure gauge shall be tied into a common manifold which is connected to the test section by a high pressure hose. This manifold and the instrumentation shall be located a minimum of fifty (50) feet from the test section being tested. The same criteria shall hold true for the pressure recorder and dial pressure gauge located at the other end of the test section. CONTRACTOR shall demonstrate recent calibration (within the previous six (6) months) of the deadweights and chart recorders.

F. The CONTRACTOR shall provide test manifolds with the exception of the line pipe provided by the OWNER. The CONTRACTOR shall install manifolds at locations agreed in the CONTRACTOR submitted test plan. The installed test manifolds and headers shall be 100% visually examined and welding completed, inspected and verified by the CONTRACTOR prior to test in accordance with project specifications. Owner reserves the right to perform NDE on said test headers prior to pressurization.

G. Water used for testing purposes shall comply with water discharge permits and be kept free of additives including acids or other material detrimental to the pipe metal. Unless otherwise specified, the CONTRACTOR shall utilize commercial or public water sources, complying with applicable environmental permitting conditions, unless otherwise approved by the OWNER. All efforts will be made to locate the water source on the Working side of the right-of-way.

H. Filling shall be continuous and accomplished with one (1) of more bi-directional squeegee pigs (four (4) disk minimum) furnished by the CONTRACTOR. The CONTRACTOR shall regulate the speed of travel of the fill pig(s) to the satisfaction of the OWNER in order to prevent water from bypassing the pigs during the filling and dewatering operations. The CONTRACTOR, at no additional cost to the OWNER, shall cut from the line any pig which stops during filling, dewatering or drying, and cannot be dislodged, and repair the line in accordance with the OWNER'S specifications.

I. The temporary piping at the fill point shall include a water meter and a recording pressure gauge for the purpose of estimating the location of the fill pig. A check valve shall be installed at the point where the fill pump discharge piping is tied into the pipeline.

J. Testing against a closed valve is not permitted. All plug valves shall be in full open position and all ball and gate valves shall be in half open position prior to test.

3.2 TESTING

A. All record keeping will be the responsibility of the CONTRACTOR. The original copy of all hydrostatic test records are to be submitted to the OWNER upon completion of each hydrostatic test. Each hydrostatic test must be approved and signed by the OWNER's representative prior to the depressurization of the test station.

B. CONTRACTOR shall commence record keeping at the start of pressurization and provide a full pressure record over the complete ramp-up, 60% test pressure hold period, pressure-volume plot and test pressure hold period.

C. Unless otherwise noted during the pressure-volume plot, Deadweight pressure gauge readings shall be recorded every 15 minutes.

D. The filling and testing operation shall not be commenced or terminated without the OWNER Representative's approval.

E. The CONTRACTOR shall not be permitted to tighten or otherwise disturb any flange or pipeline appurtenance that is under pressure. The piping must be fully depressurized before addressing any leaks.

F. Regular checks shall be made on all instrumentation during the test period to detect any malfunction and ensure continuous legible recordings.

G. Leak tests, pressurizing, and associated yield plotting shall be conducted during daylight hours unless impractical. If testing at night is necessary, adequate lighting acceptable to the OWNER shall be provided by the CONTRACTOR.

H. The CONTRACTOR shall perform and provide a pressure-volume (P-V) plot for all hydrostatic tests. This requirement is not required for the above ground pre-installation hydrostatic test on HDD locations. P-V plots are required on post installation HDD hydrostatic tests, unless otherwise approved by Construction Management Team.

I. The pipeline shall be pressurized to sixty (60) percent of the test pressure at a controlled rate.

J. At Sixty (60) percent of the specified test pressure a stabilization period shall start. The temperature stabilization period of the test medium shall be continued for a minimum of one (1) hour and until a temperature-time plot is asymptotic to the ground temperature. During the stabilization period, all appurtenances (mainline valves, test connections, etc.) shall be checked for leakage and be in the open position for the remainder of the test.

K. Starting at sixty (60) percent of the test pressure specified for the test point location, the pressure shall be continually checked with the deadweight test gauge until the specified test pressure is reached. Also, during this portion of the test, the volume of test medium added shall be measured by one of the following methods:

1. A calibrated turbine meter and totalizer installed in a manner approved by the OWNER.
2. A counting device installed on the positive displacement pump which will record the number of pump strokes.

L. After termination of stabilization period, the pressure-volume plot shall commence. A constant pumping rate will be maintained to obtain a suitable pressurizing rate of not more than 15 psi increase per minute. As each 15 psi increment is indicated on the deadweight gauge, the cumulative volume of test medium added shall be recorded. This pressure and volume information shall be recorded in tabular form and immediately transferred to produce a graph of pressure versus cumulative volume or “yield plot”.

M. The yield plot will form a straight line unless the elastic limit of a portion of the pipe is reached, at which time it will gradually curve to the right of the projected straight line. Pressurizing shall cease when either the required test pressure has been reached or a pressure has been reached which corresponds to a deviation from a straight line proportionality of 0.2 percent (offset method on the pressure volume plot for the section being tested.

N. Upon reaching the required test pressure, the pressure reading shall be monitored until it stabilizes with pipe fluid temperature and ground temperature. The CONTRACTOR shall start the test hold period once stabilization is confirmed.

3.3 TESTING LEAKS AND FAILURES

A. If any leaks or breaks occur during any of the testing operations, the CONTRACTOR shall locate, repair and retest the Test Section in which the failure took place. The CONTRACTOR shall immediately notify the OWNER of all pipe failures and all suspected leaks complete with all particulars.

B. Leaks or breaks occurring in the pipe metal or pipe seam shall be repaired by cutting out and replacing the entire joint. If the leak or break has been caused by construction damage only and is in a straight joint of pipe, it may not be necessary to replace the full joint and repairs shall be as directed by the OWNER. Leaks occurring in the circumferential welds shall be replaced with a 10ft minimum length pup. Failures occurring in field bends shall be replaced with field bends of the same degree. No cuts shall be made closer than twelve (12) inches to a defect.

C. For all leaks and breaks, accurate records shall be kept from the time the leak or break is first indicated until it has been located, repaired, refilled and re-pressurized to the same pressure at which the failure was first indicated.

D. Records shall detail the quantities of materials and supplies used. All supervision, labor, and equipment shall be classified by operational and standby time.

E. All pipeline sections containing leaks or breaks which are cut out of the pipeline shall be handled in accordance with the pipe manufacturer's representatives or the OWNER'S instruction's so as not to damage the defective areas. All such cut out pipe shall be clearly marked with paint immediately after removal from the ditch to show the OWNER stationing and date of failure. The edges of the defect shall be protected with grease. Defective pipe shall be transported as directed by the OWNER.

F. Leaks or breaks occurring in the pipeline during any of the testing operations which are a result of defective permanent materials furnished by the OWNER shall be located, repaired and the repaired test section refilled and re-pressurized to the same pressure which the failure was first indicated, all by the CONTRACTOR at the OWNER'S expense.

3.4 POST – TESTING

A. After successful completion of the test and after approval by the OWNER designated representative, the pressure shall be bled down only to the hydrostatic head at the bleed off point. The bleed off point shall be the highest point of the two ends in the Test Station, the intent being to bleed excess pressure from the pipeline while preventing air from entering the pipeline.

B. Dewatering shall be performed in accordance with the OWNER'S environmental permits, discharge permits, and all applicable Federal, State and local Regulations.

C. Dewatering shall be accomplished with one (1) or more bi-directional OWNER approved four (4) disk squeegee pigs that are not excessively worn or damaged and one (1) or more bi-directional poly pigs furnished by the CONTRACTOR. The bi-directional poly pig may be loaded in the receiving manifold prior to the filling operation such that if may be run in combination with the squeegee fill pig during the initial dewater run.

D. Drying shall be accomplished utilizing compressed air furnished by the CONTRACTOR with OWNER approved directional squeegee or poly pigs furnished by the CONTRACTOR. A minimum of two (2) separate air propelled runs will be run. Additional foam pig drying runs may be requested by the OWNER at the CONTRACTOR'S expense. The CONTRACTOR shall provide pipeline dryers to achieve a minus 40 degree dew point of the finished pipeline. Pipeline dryers and labor to be furnished by the CONTRACTOR at no additional expense to OWNER. CONTRACTOR shall demonstrate recent calibration (within the previous three (3) months) of dew point tester.

E. All areas disturbed by any of the testing operations, including but not limited to filling, pressurizing, failure repairs, buckle repairs, manifold or temporary scraper trap removal and water damage to previously cleaned-up RIGHT-OF-WAY shall be cleaned up immediately after testing operations have been completed in accordance with these Specifications.

3.5 FINAL TEST DOCUMENTATION

A. The OWNER will furnish the forms for and the CONTRACTOR shall prepare the following records for each Test Section:

1. A Log of deadweight pressure readings taken every 15 minutes during stabilization period, yield plot and eight (8) hour hold test.
2. Pressure recording charts for:
    a) Pressurizing and stabilization period
    b) Eight (8) hour hold test.
3. Ambient, Soil and Pipe Temperature recording charts for:
    a) Pressurizing and stabilization period
    b) Eight (8) hour hold test.
4. Report on any leak or break including location, pressure, dimensions of defect, pipe manufacturer heat number and joint number, how repaired, etc. defect, pipe manufacturer heat number and joint number, how repaired, etc.
5. All engineering calculations for the highest and lowest elevations along the tested pipeline that demonstrate that: the lowest elevations were not structurally damaged by excessive pressure and; the highest elevations were equal to, or exceed, the minimum required test pressure.
6. All the above records shall show:
    a) the size and name of the pipeline
    b) OWNER name & OPERATOR name, CONTRACTOR name and names of any 3rd party or subcontracted test companies used.
    c) Names of OPERATOR / OWNER & CONTRACTOR personnel responsible for making the test.
    d) Test medium, pressure and duration
    e) the location of the Test Section, the location of the test gauge, and the quantities of each wall thickness of pipe included in the Test Section, and the starting and ending times/dates of tests. Elevation variations.
    f) Any fittings or other permanent equipment included in the test.

7. These records shall be signed by the authorized representatives of the CONTRACTOR and the OWNER. Original signed copies of all records for each Test Section shall be turned over the OWNER immediately after the successful completion of the test in that section. All records shall be in accordance with DOT Part 192.

3.6 PERMITTING REQUIREMENTS

A. The OWNER will secure hydrostatic test water discharge permits. Copies of the hydrostatic test water discharge permits will be furnished to the CONTRACTOR.

B. The CONTRACTOR shall be required to comply with all applicable water acquisition and dewatering permit requirements furnished by the OWNER and in accordance with the OWNER'S Environmental Mitigation Plan. The CONTRACTOR shall obtain approval from the OWNER Test Engineer before discharging any test water.

END OF SECTION

SECTION 260501 - ELECTRICAL – GENERAL INSTALLATION REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. This specification is for general site electrical work only relating to the CHA design drawings. This specification is not intended to be used with any other project design work/consultants including ARK Engineering.

B. This specification covers the requirements for the supply of equipment, material, labor, tools, services and supervision as required for the installation, testing and placing into satisfactory operation of the electrical systems detailed in this specification and the attached drawings.

C. Any equipment and materials, other than those identified as being pre-purchased by the Owner, necessary for the installation and wiring of the equipment within the scope of this contract shall be supplied by the Contractor.

D. The drawings presented outline the scope of the work required of the Contractor and are to be the basis of the Contractor's bid. The Contractor may offer for consideration alternates that are cost effective so long as these are clearly defined and approved by the Owner.

E. The Contractor shall be responsible for sizing of all junction boxes and splitter boxes, verification of conduit sizes, conduit fill and loadings, cable ampacities and short circuit ratings for all Contractor-supplied equipment and materials.

1.2 REFERENCES

A. Materials and installation shall be in accordance with the latest revisions of the following codes, standards and specifications, except where more stringent requirements have been specified herein:

1. Local Building Codes
2. Building Code of Vermont
3. Fire Code of Vermont
4. National Fire Protection Association (NFPA)
5. National Electrical Code(NEC)
6. Underwriters Laboratories, Inc. (UL)
7. National Electrical Manufacturers Association (NEMA)
8. Institute of Electrical and Electronic Engineers (IEEE)
9. American Society of Testing Materials (ASTM)
10. Insulated Cable Engineers Association (ICEA)
11. Association of Edison Illuminating Companies (AEIC)
12. American National Standard Institute (ANSI)

B. In general, all electrical equipment furnished shall be listed and labeled by Underwriters Laboratories, Inc. (UL) or another acceptable organization to the "Authority having Jurisdiction" and the Owner. This requirement will be waived only when the specified equipment is not available from any manufacturer with such a label or listing.

1.3 WORK TO BE DONE

A. The work to be done by the Contractor under this specification consists of the installation, supply of materials, off-loading of equipment, and inspection and testing, as specified.

B. Electrical equipment installed by the Contractor shall include equipment in Vermont Gas Systems – Addison Natural Gas Project Mainline Valve Sites, Colchester Launcher Site and the Phase 7 Looping Project Mainline Valve Site.

C. In general, the equipment to be supplied and installed by the Contractor shall consist of, but not be limited to the following:

1. Supply and installation of all low voltage, control, signal and communication conduits and cabling.
2. Installation of any Owner pre-purchased equipment.
3. Installation and termination of all RTU / DAC Panels in electronics buildings as shown on Drawings.
4. Supply, installation and termination of all junction boxes as shown on Drawings.
5. All conduit and raceway systems.
6. Electrical check-out of all equipment installed and provide assistance to Owner with commissioning and operational testing of all equipment and facility systems.

1.4 QUALITY ASSURANCE

A. Uniformity: Unless otherwise specified, equipment or material of same type of classification, used for the same purpose shall be products of same manufacturer. All material shall be new and of the current design of manufacturer providing equipment or material. All materials shall be as stated on project drawings. Any substitutions by contractor shall be approved by Owner.

B. Design: Equipment and accessories not specifically described or identified by manufacturer's catalog numbers shall be designed in conformity with NEMA, IEEE, or other applicable technical standards and shall have neat and finished appearance.

C. Installation: Erect equipment in neat and workmanlike manner; align, level and adjust for satisfactory operation; install so that parts are easily accessible for inspection, operation, maintenance and repair. Minor deviations from indicated arrangements may be made, but only after obtaining approval from Owner.

1.5 CONTRACT DRAWINGS

A. Location Approximate

1. The locations of equipment, fixtures, outlets and similar devices shown on the Contract Drawings are approximate only.

2. The Contractor shall determine the exact locations of the equipment, outlets, box-outs, sleeves and of similar items required for the coordination of electrical work with the structural, architectural, mechanical and other work as necessary.

B. Drawings Diagrammatic

1. Circuit diagrams shown are diagrammatic and functional only and are not intended to show exact circuit layouts, number of fittings, or other installation details.

2. The Contractor shall furnish all labor and materials necessary to install and place in satisfactory operation all power, lighting and other electrical systems.

1.6 CONTINUITY OF SERVICES

A. Schedules for various phases of Work shall be coordinated with all other trades and with Owner.

B. Provide necessary and temporary connections and relocations as required to maintain systems in operation.

C. When connecting new facilities, do not shut off any Mechanical/Electrical facilities or services without prior written approval of the Owner.

1.7 PROTECTED WORK

A. Hazardous Locations

1. In the areas designated as Hazardous and where explosion-proof work is shown or specified, all work and electrical equipment shall meet the requirements of the NEC for Class I Division 1 and 2 Group D locations unless otherwise noted.

B. Wet Locations

1. Where installed outdoors or in areas designated as Wet Locations, all work and electrical equipment shall meet the requirements of the NEC for Wet Locations.

1.8 INSPECTIONS AND APPROVAL

A. The Contractor shall have all electrical work inspected by the following agencies and this work shall pass such inspection:

1. Vermont Division of Fire Safety

B. The Contractor shall furnish to the Owner a certificate of compliance stating that the completed installation complies with the requirements of the National Electrical Code. This certificate shall be completed by the agency listed above.

C. Any changes required by the authorities resulting from deficiencies in the Contactor's workmanship shall be implemented by the Contractor without cost to the Owner.

1.9 SUBMITTALS

A. Contractor shall supply a submittal for all Contractor-supplied materials and equipment as indicated in the Electrical Technical Specifications.

PART 2 - PRODUCTS

2.1 EQUIPMENT AND MATERIALS SUPPLIED BY CONTRACTOR

A. The Contractor shall supply all equipment and materials needed for the electrical installation as shown on drawings.

2.2 MATERIAL CONTROL

A. The Contractor shall establish a very strict and comprehensive material control scheme, to warn of any potential material shortages.

2.3 DELIVERY, HANDLING AND STORAGE OF MATERIAL

A. Materials and equipment shall be delivered to the site of the work in their original containers, and containers shall not be opened until inspected by the Owner.

B. Electrical equipment shall at all times during construction be adequately protected against mechanical injury or damage by weather.

C. If any materials or apparatus have been damaged, the apparatus or materials shall be restored to a new condition, subject to the inspection and approval of the Owner, or replaced with new materials or apparatus.

D. Equipment shall be stored in accordance with manufacturer's recommendations. Temporary heaters shall be provided as required to prevent buildup of condensation in the equipment.

PART 3 - EXECUTION

3.1 GENERAL EQUIPMENT INSTALLATION

A. The installation of equipment shall be defined as the receiving, off-loading, storing where necessary, moving into its designated location, uncrating, assembly, setting up, connection to other equipment and preparing for operation, all in accordance with the Specification and with the Vendor’s instructions and Installation Manuals.

B. The installation of cables shall be defined as the receiving, off-loading, storing where necessary, pulling out of cables, placing in conduit as required, entering the cables into panels and terminating.

C. The Contractor shall ensure that the cables and equipment are kept clean and are protected against damage, dust and moisture.

D. Cable ends shall be kept sealed to prevent the ingress of moisture.

E. Unless otherwise specified, the Contractor shall supply, fabricate, construct and erect all support brackets on mountings for all equipment supplied by the Contractor.