File Name: G:\TechSupp\Traffic\TRFCRES\TR_TM\JAMAR\PETRA\Data Files\2011\Merged\100-2_5merged11.ppd
Start Date: 7/27/2011
Start Time: 6:00:00 AM
Site Code: 31322820
Comment 1: Counter: T2089
Comment 2: Counted by: E Fournier
Comment 3: Weather: Partly cloudy
Comment 4: Town: 100-2.5 Wilmington

1456 Haystack
TMC totals

	VT 100 from Dover From North				From East				VT 100 from VT 9 From South				Coldbrook Rd from Dover From West				Total	Vehicles
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Vehicles	per hour
06:00 AM	0	11	0	0	0	0	0	0	1	7	0	0	0	0	3	0	22	
06:15 AM	0	5	0	0	0	0	0	0	0	3	0	0	2	0	1	0	11	
06:30 AM	0	17	0	0	0	0	0	0	7	12	0	0	0	0	0	0	36	
06:45 AM	0	18	2	0	0	0	0	0	3	19	0	0	3	0	3	0	48	117
07:00 AM	0	14	1	0	0	0	0	0	1	13	0	0	1	0	1	0	31	126
07:15 AM	0	21	1	1	0	0	0	0	2	24	0	0	1	0	0	0	49	164
07:30 AM	0	22	6	1	0	0	0	0	4	22	0	0	1	0	3	1	58	186
07:45 AM	0	24	2	2	0	0	0	0	5	27	0	0	1	0	2	0	61	199
08:00 AM	0	24	2	0	0	0	0	0	4	24	0	0	3	0	3	0	60	228
08:15 AM	0	26	3	1	0	0	0	0	5	20	0	0	3	0	6	0	63	242
08:30 AM	0	39	2	0	0	0	0	0	6	31	0	0	3	0	2	1	83	267
08:45 AM	0	49	2	0	0	0	0	0	5	30	0	2	4	0	7	0	97	303
09:00 AM	0	32	2	0	0	0	0	0	7	46	0	0	6	0	7	0	100	343
09:15 AM	0	33	2	0	0	0	0	0	4	29	0	0	1	0	7	0	76	356
09:30 AM	0	36	5	2	0	0	0	0	9	26	0	0	0	0	6	0	82	355
09:45 AM	0	32	4	0	0	0	0	0	4	31	0	0	5	0	3	0	79	337
10:00 AM	0	29	2	0	0	0	0	0	5	36	0	0	1	0	5	4	78	315
10:15 AM	0	54	2	0	0	0	0	0	5	24	0	0	4	0	5	2	94	333
10:30 AM	0	37	0	0	0	0	0	0	6	38	0	0	2	0	3	0	86	337
10:45 AM	0	31	2	0	0	0	0	0	4	37	0	0	5	0	3	0	82	340
11:00 AM	0	29	6	0	0	0	0	0	10	40	0	0	5	0	5	0	95	357
11:15 AM	0	30	4	1	0	0	0	0	6	36	0	0	1	0	10	0	87	350
11:30 AM	0	41	3	0	0	0	0	0	4	28	0	0	5	0	8	0	89	353
11:45 AM	0	47	2	1	0	0	0	0	2	49	0	0	3	0	7	0	110	381
12:00 PM	0	42	4	0	0	0	0	0	2	46	0	0	7	0	5	0	106	392
12:15 PM	0	38	2	0	0	0	0	0	8	40	0	0	4	0	4	0	96	401
12:30 PM	0	51	4	0	0	0	0	0	5	35	0	0	5	0	5	0	105	417
12:45 PM	0	34	8	0	0	0	0	0	8	34	0	2	0	0	7	0	91	398
01:00 PM	0	41	5	0	0	0	0	0	3	41	0	0	8	0	5	0	103	395
01:15 PM	0	28	1	0	0	0	0	0	4	28	0	0	3	0	6	0	70	369
01:30 PM	0	37	1	0	0	0	0	0	10	24	0	0	9	0	3	0	84	348
01:45 PM	0	34	3	0	0	0	0	0	3	31	0	0	4	0	3	0	78	335
02:00 PM	0	38	5	0	0	0	0	0	5	68	0	0	6	0	7	0	129	361
02:15 PM	0	39	4	0	0	0	0	0	7	28	0	0	4	0	10	1	92	383
02:30 PM	0	34	5	0	0	0	0	0	6	42	0	0	3	0	6	0	96	395
02:45 PM	0	36	1	0	0	0	0	0	3	45	0	0	5	0	5	0	95	412
03:00 PM	0	39	5	0	0	0	0	0	3	36	0	0	8	0	9	0	100	383
03:15 PM	0	47	5	0	0	0	0	0	5	46	0	0	2	0	4	0	109	400
03:30 PM	0	31	5	0	0	0	0	0	4	43	0	0	6	0	6	0	95	399
03:45 PM	0	48	3	0	0	0	0	0	4	37	0	0	3	0	7	0	102	406
04:00 PM	0	49	5	0	0	0	0	0	5	35	0	0	1	0	4	0	99	405
04:15 PM	0	46	5	0	0	0	0	0	2	47	0	0	6	0	12	0	118	414
04:30 PM	0	51	3	0	0	0	0	0	6	42	0	0	3	0	6	1	111	430
04:45 PM	0	46	6	0	0	0	0	0	6	51	0	0	3	0	8	0	120	448
05:00 PM	0	41	5	0	0	0	0	0	2	40	0	0	3	0	12	0	103	452
05:15 PM	0	35	3	0	0	0	0	0	2	43	0	0	7	0	5	0	95	429
05:30 PM	0	27	4	0	0	0	0	0	4	23	0	0	1	0	1	0	60	378
05:45 PM	0	26	4	0	0	0	0	0	2	35	0	0	0	0	4	0	71	329
Peak Hour TMC's	0	184	19		0	0	0		16	180	0		15	0	38		Peak Hour 4:15-5:15	452

Project: 1456 Haystack

Date: 7/28/2014 Description: Design Hourly Volume
Vermont Route 100

Beginning	Ending	2012 AADT	EQ	"K"
Stowe Hill Rd	Coldbrook Rd	4700	682.54	651.42
Coldbrook Rd	Higley Hill Rd/Haskel Hill Rd	4100	611.62	568.26

Poll Group (Seasonal Adjustment Factor Group)	Equation	"k" Factor
1. Rural Interstate	DHV = 0.1191 * AADT + 80	0.1236
2. Rural Non-Interstate	DHV = 0.1089 * AADT + 26	0.1127
3. Urban	None – Use "k" Factor	0.1056
4. Summer Recreational	$DHV = AADT^{0.7612}$	0.1308
5. Summer/Winter Recreational US and VT Routes	DHV = 0.1182 * AADT + 127	0.1386
6. Summer/Winter Recreational Town Highways	Use locally derived equations or "k" factors.	

TABLE I. DHV Calculation by Poll Group (seasonal adjustment factor group).

For poll groups 1, 2, 4 & 5, calculate DHV using both the equation and the "k" factor. Use the lower value. For poll group 3, use the "k" factor of 10.56%. For poll group 6, use locally derived equations or "k" factors. After calculation, values are to be rounded to the nearest 10.

VERMONT AGENCY OF TRANSPORTATION
POLICY, PLANNING AND INTERMODAL DEVELOPMENT DIVISION
Traffic Research Unit

					BEGINNING REFERENCE:			ENDING REFERENCE:					2008	2010	2012
TYPE	NO.	NAME	FC	TOWN	MM	NAME	NUMBER	MM	NAME	NUMBER	ATR STA	STATUS	AADT	AADT	AADT
VT	74		07	CORNWALL	1.153	BINGHAM ST/N BINGHAM ST	TH-1/TH-7	2.899	VT 30		A153	A	2000 E	2000 E	2000 E
VT ROUTE 78															
VT	78		02	ALBURG	0.000	US 2/TH-4	US 2/TH-4	2.614	ALBURG SPRINGS RD	TH-2	G110	H	4600 E	5300 A	5400 E
VT	78		02	ALBURG	2.614	ALBURG SPRINGS RD	TH-2	3.333	SWANTON TL		G111	H	1900 E	4600 E	6000 E
VT	78		02	SWANTON	0.000	ALBURG TL		1.091	TABOR PT RD/CHURCH RD	TH-10/TH-13		H	4800 E	4800 E	5300 E
VT	78		02	SWANTON	1.091	TABOR PT RD/CHURCH RD	TH-10/TH-13	5.598	JONERGIN DR	TH-60	F112	H	5400 E	5300 E	5800 E
VT	78		02	SWANTON	5.598	JONERGIN DR	TH-60	6.320	BROOKLYN ST	TH-15		H	6300 E	6200 E	6600 E
VT	78	N RIVER ST	02	SWANTON	6.320	BROOKLYN ST	TH-15	6.514	RIVER ST	TH-4	F185	H/A	8500 E	9000 E	9400 E
VT	78	DEPOT ST	02	SWANTON	6.514	RIVER ST	TH-4	6.748	GRAND AVE/CA (joins US 7 for 0.1 mi)	US 7 (TH-1)	F184	H/A	10100 E	10300 E	10700 E
VT	78		02	SWANTON	6.748	GRAND AVE	US 7 (TH-1)	7.152	LIBERTY ST		F179	H/A	6900 E	8300 E	8200 E
VT	78	FIRST ST	02	SWANTON	7.152	LIBERTY ST		7.572	I 89 RAMPS A/B: EXIT 21		F183/015	H/A	11500 E	12500 E	10600 E
VT	78	FIRST ST	02	SWANTON	7.572	I 89 RAMPS A/B: EXIT 21		7.677	I 89 RAMPS C/D: EXIT 21			H	10300 E	10300 E	8300 E
VT	78		07	SWANTON	7.677	I 89 RAMPS C/D: EXIT 21		8.072	TORRIE RD	TH-59	F037	H/A	9200 E	8800 E	6800 E
VT	78		07	SWANTON	8.072	TORRIE RD	TH-59	8.135	HIGHGATE TL			H	3600 E	3600 E	3500 E
VT	78		07	HIGHGATE	0.000	SWANTON TL		2.352	CARTER HILL RD	TH-1	F327	H/A	3600 E	3600 E	3500 A
VT	78		07	HIGHGATE	2.352	CARTER HILL RD		2.876	HIGHGATE FALLS RD	VT 207 S	F325	H/A	4300 E	4300 E	4200 E
VT	78		07	HIGHGATE	2.876	HIGHGATE FALLS RD	VT 207 S	3.138	VT 207 N	TH-2		H	6100 E	6000 E	5700 E
VT	78		07	HIGHGATE	3.138	VT 207 N	TH-2	4.648	FRANKLIN RD	TH-3		H	2500 E	2500 E	2400 E
VT	78		07	HIGHGATE	4.648	FRANKLIN RD	TH-3	7.735	SHELDON TL		F321/322	H/A	1900 E	1900 E	1700 E
VT	78		07	SHELDON	0.000	HIGHGATE TL		0.419	SHAWVILLE RD/RICE HILL RD	TH-1/TH-9		H	1900 E	1900 E	1700 E
VT	78		07	SHELDON	0.419	SHAWVILLE RD/RICE HILL RD	TH-1/TH-9	1.841	VT 105		F335	H/A	1400 A	1600 A	1600 E
VT ROUTE 100															
VT	100		07	STAMFORD	0.000	MASSACHUSETTS SL		0.815	JEPSON RD	TH-2	B132	A	2700 E	2600 E	2600 E
VT	100		07	STAMFORD	0.815	JEPSON RD	TH-2	2.233	OLD MAIN RD	TH-25	B133	A	1500 A	1400 A	1400 E
VT	100		07	STAMFORD	2.233	OLD MAIN RD	TH-25	5.752	READSBORO TL		B067	A	1100 E	1000 E	1000 E
VT	100		07	READSBORO	0.000	STAMFORD TL		1.423	WILLIAMS RD	TH-36	B134	A	1100 A	1000 A	1000 E
VT	100		07	READSBORO	1.423	WILLIAMS RD	TH-36	2.193	VT 8				870 E	870 E	800 E
VT	100		07	READSBORO	2.193	VT 8		6.853	BRANCH HILL RD	TH-3	B197/135	A	680 A	610 A	620 E
VT	100		07	READSBORO	6.853	BRANCH HILL RD	TH-3	7.076	TUNNEL ST/E MAIN ST	TH-2/TH-23			700 E	630 E	640 E
VT	100		07	READSBORO	7.076	TUNNEL ST/E MAIN ST	TH-2/TH-23	7.232	SHERMAN ST	TH-4	B201	A	700 E	630 E	640 E
VT	100		07	READSBORO	7.232	SHERMAN ST	TH-4	8.038	WHITINGHAM TL				720 E	830 E	840 E
VT	100		07	WHITINGHAM	0.000	READSBORO TL		4.041	SCHOOL ST	TH-17	X119	H	720 A	830 A	840 E
VT	100		07	WHITINGHAM	4.041	SCHOOL ST	TH-17	5.882	GOODNOW/WILMINGTON CROSSROADS	TH-3	X118	A	950 E	1100 E	1000 E
VT	100		07	WHITINGHAM	5.882	GOODNOW/WILMINGTON CROSSROADS	TH-3	7.638	VT 112		X042	H	950 E	1100 A	910 A
VT	100		06	WHITINGHAM	7.638	VT 112		9.492	WILMINGTON CROSSROADS	TH-3	X117	A	1600 A	1800 A	1800 E
VT	100		06	WHITINGHAM	9.492	WILMINGTON CROSSROADS	TH-3	10.730	WILMINGTON TL				2400 E	2700 E	2600 E
VT	100		06	WILMINGTON	0.000	WHITINGHAM TL		1.271	BOYD HILL RD	TH-34	X116	H	2400 E	2700 E	2600 E
VT	100		06	WILMINGTON	1.271	BOYD HILL RD	TH-34	2.469	VT 9 E (JOINS VT 9 FOR 1.1 MI)		X043/081	H	2300 A	3200 A	2900 A
VT	100		06	WILMINGTON	2.469	VT 9 W		2.991	STOWE HILL RD	TH-21	X190	A	5300 E	5000 A	5100 E
VT	100		06	WILMINGTON	2.991	STOWE HILL RD	TH-21	4.980	COLD BROOK RD	TH-1	X400	A	4500 A	4600 A	4700 E
VT	100		06	WILMINGTON	4.980	COLD BROOK RD	TH-1	5.636	HIGLEY HILL RD/HASKEL HILL RD	TH-3/TH-80	X079	A	1600 A	4100 A	4100 E
VT	100		06	WILMINGTON	5.636	HIGLEY HILL RD/HASKEL HILL RD	TH-3/TH-80	6.429	E DOVER RD	TH-2	X399	A	4700 E	4200 E	4200 E

…Continued from Previous Page

C: Rural Primary and Secondary

Site ID	Route No	Town	Regression Analysis Year	20 Year GF 2013 to 2033	Short term GF 2008 to 2013
P6A018	US7	Leicester	1994	1.01	0.96
P6A019	VT22A	Orwell	1994	1.12	1.00
P6A041	US7	New Haven	1994	1.05	1.01
P6B026	VT11	Winhall	1994	1.05	1.02
P6B282	US7	Shaftsbury	1994	1.05	1.08
P6C007	VT15	Hardwick	1994	1.13	1.07
P6C028	US2	Danville	1994	1.13	0.99
P6D132	US7	Charlotte	1994	1.05	1.01
P6F029	US7	Georgia	1994	1.03	1.03
P6G025	US2	Grand Isle	1994	1.15	1.00
P6L047	VT12	Elmore	1994	0.98	1.07
P6L057	VT108	Stowe	1994	1.32	1.14
P6P004	VT100	Westfield	1994	1.05	1.00
P6R005	US4	Killington	1994	0.75	0.97
P6R017	VT103	Mt Holly	1994	0.93	1.04
P6R084	US4	West Rutland	1994	1.04	0.95
P6X008	US5	Rockingham	1994	0.89	0.96
P6X027	VT9	Wilmington	1994	0.82	1.04
P6X249	VT103	Rockingham	1994	1.11	0.96
P6Y031	US5	Norwich	1994	1.00	0.97
P6Y033	VT10A	Norwich	1994	0.99	0.94
			GROUP AVG	1.03	1.01

E: Ski Stations

Site ID	Route No	Town	Regression Analysis Year	20 Year GF 2013 to 2033	Short term GF 2008 to 2013
P6C043	VT114	Burke	1994	1.06	0.94
P6D059	MC0223	Bolton	1994	1.25	0.91
P6R054	MC0159	Killington	1994	0.36	1.02
P6W055	VT17	Fayston	1994	1.07	1.05
P6W062	MC0203	Warren	1994	0.78	1.10
P6X064	VT100	Dover	1994	0.61	0.99
				NA	NA

C: Rural Primary and Secondary

					Short Term Growth				2008 to 2013		2013 to 2033	1.01 1.03
	2008	2009	2010	2011	20 Year Growth 2012	2013	2014	2015	2016	2017	2018	2019
2008	1.00											
2009	1.00	1.00										
2010	1.00	1.00	1.00									
2011	1.01	1.00	1.00	1.00								
2012	1.01	1.01	1.00	1.00	1.00							
2013	1.01	1.01	1.01	1.00	1.00	1.00						
2014						1.00	1.00					
2015						1.00	1.00	1.00				
2016						1.00	1.00	1.00	1.00			
2017						1.01	1.00	1.00	1.00	1.00		
2018						1.01	1.01	1.00	1.00	1.00	1.00	
2019						1.01	1.01	1.01	1.00	1.00	1.00	1.00
2020						1.01	1.01	1.01	1.01	1.00	1.00	1.00
2021						1.01	1.01	1.01	1.01	1.01	1.00	1.00
2022						1.01	1.01	1.01	1.01	1.01	1.01	1.00
2023						1.02	1.01	1.01	1.01	1.01	1.01	1.01
2024						1.02	1.01	1.01	1.01	1.01	1.01	1.01
2025						1.02	1.02	1.01	1.01	1.01	1.01	1.01
2026						1.02	1.02	1.02	1.01	1.01	1.01	1.01
2027						1.02	1.02	1.02	1.02	1.01	1.01	1.01
2028						1.02	1.02	1.02	1.02	1.02	1.01	1.01
2029						1.02	1.02	1.02	1.02	1.02	1.02	1.01
2030						1.03	1.02	1.02	1.02	1.02	1.02	1.02
2031						1.03	1.03	1.02	1.02	1.02	1.02	1.02
2032						1.03	1.03	1.03	1.02	1.02	1.02	1.02
2033						1.03	1.03	1.03	1.03	1.02	1.02	1.02
2034						1.03	1.03	1.03	1.03	1.03	1.02	1.02
2035						1.03	1.03	1.03	1.03	1.03	1.03	1.02
2036						1.03	1.03	1.03	1.03	1.03	1.03	1.03
2037						1.04	1.03	1.03	1.03	1.03	1.03	1.03
2038						1.04	1.04	1.03	1.03	1.03	1.03	1.03
2039						1.04	1.04	1.04	1.03	1.03	1.03	1.03
2040						1.04	1.04	1.04	1.04	1.03	1.03	1.03
2041						1.04	1.04	1.04	1.04	1.04	1.03	1.03
2042						1.04	1.04	1.04	1.04	1.04	1.04	1.03
2043						1.05	1.04	1.04	1.04	1.04	1.04	1.04
2044						1.05	1.04	1.04	1.04	1.04	1.04	1.04
2045						1.05	1.05	1.04	1.04	1.04	1.04	1.04
2046						1.05	1.05	1.05	1.04	1.04	1.04	1.04
2047						1.05	1.05	1.05	1.05	1.04	1.04	1.04
2048						1.05	1.05	1.05	1.05	1.05	1.04	1.04
2049						1.05	1.05	1.05	1.05	1.05	1.05	1.04
2050						1.06	1.05	1.05	1.05	1.05	1.05	1.05
2051						1.06	1.06	1.05	1.05	1.05	1.05	1.05
2052						1.06	1.06	1.06	1.05	1.05	1.05	1.05
2053						1.06	1.06	1.06	1.06	1.05	1.05	1.05
2054						1.06	1.06	1.06	1.06	1.06	1.05	1.05
2055						1.06	1.06	1.06	1.06	1.06	1.06	1.05
2056						1.06	1.06	1.06	1.06	1.06	1.06	1.06
2057						1.07	1.06	1.06	1.06	1.06	1.06	1.06
2058						1.07	1.07	1.06	1.06	1.06	1.06	1.06

TRIP GENERATION WORKSHEET

x= 35 Dwelling Units
Existing

LUC: Recreational Homes (260)
Village Road

WEEKDAY

Average Rate =	3.16	
Total Trips =		110.6

Fitted Curve Equation = Not Given

AM PEAK HOUR of ADJACENT STREET

Average Rate =	0.16	
Total Trips =		5.6
67% of Trips In =		4
33% of Trips Out =		2

Fitted Curve Equation = Not Given

PM PEAK HOUR of ADJACENT STREET

Average Rate =	0.26	
Total Trips =		9.1
41% of Trips In =		4
59% of Trips Out =		5

Fitted Curve Equation = Not Given

AM PEAK HOUR of GENERATOR

Average Rate =	0.30	
Total Trips =		10.5
49% of Trips In =		5
51% of Trips Out =		5

Fitted Curve Equation = T = 0.24 * (X) + 20.78

Total Trips =	29.18
49% of Trips In =	14
51% of Trips Out =	15

PM PEAK HOUR of GENERATOR

Average Rate =	0.31	
Total Trips =		10.85
44% of Trips In =		5
56% of Trips Out =		6

Fitted Curve Equation = T = 0.26 * (X) + 14.87

Total Trips =	23.97
44% of Trips In =	11
56% of Trips Out =	13

SATURDAY

Average Rate =	3.07	
Total Trips =		107.45

Fitted Curve Equation = Not Given

PEAK HOUR of GENERATOR

Average Rate =	0.36	
Total Trips =		12.6
48% of Trips In =		6
52% of Trips Out =		7

Fitted Curve Equation = T = 0.24 * (X) + 40.86

Total Trips =	49.26
48% of Trips In =	24
52% of Trips Out =	26

SUNDAY

Average Rate =	2.93	
Total Trips =		102.55

Fitted Curve Equation = Not Given

PEAK HOUR of GENERATOR

Average Rate =	0.36	
Total Trips =		12.6
46% of Trips In =		6
54% of Trips Out =		7

Fitted Curve Equation = T = 0.24 * (X) + 39.71.

Total Trips =	48.11
46% of Trips In =	22
54% of Trips Out =	26

ITE TRIP GENERATION
9TH EDITION

CONLEY
ASSOCIATES

Haystack Turning Movements Last Updated: 9/15/2014

	existing	no build	hermitage	Haystack	east	west	ski	airport	trip gen	build	
NBT	57	61	5	20	5	0	0	0	30	91	TANNERY
NBR	43	43	5	22	5	0	0	0	32	75	
WBL	64	64	5	19	5	0	0	0	29	93	
WBR	41	42	0	0	0	0	0	0	0	42	
SBL	149	150	0	0	0	0	0	0	0	150	
SBT	241	244	5	17	5	0	0	0	27	271	
EBR	9	10	10	5	0	0	0	0	15	25	HERMITAGE
EBL	4	3	8	5	0	0	0	0	13	16	
NBL	6	5	9	4	0	0	0	0	13	18	
NBT	108	113	0	37	10	0	0	0	47	160	
SBT	123	127	0	31	10	0	0	0	41	168	
SBL	17	18	10	5	0	0	0	0	15	33	
NBT	110	114	9	41	0	0	0	0	50	164	VILLAGE
NBR	3	3	0	0	13	0	0	0	13	16	
WBL	3	3	0	0	13	0	0	0	13	16	
WBR	4	4	0	0	10	0	0	0	10	14	
SBL	3	3	0	0	10	0	0	0	10	13	
SBT	127	130	8	36	0	0	0	0	44	174	
EBL	3	3	0	37	6	0	0	0	43	46	HAYSTACK
EBR	3	3	0	33	0	0	30	0	63	66	
NBL	3	3	0	28	0	0	5	0	33	36	
NBT	109	113	9	4	7	0	0	0	20	133	
NBR	1	1	0	0	0	0	0	0	0	1	
WBL	1	1	0	0	0	0	0	0	0	1	
WBR	1	1	0	0	0	0	0	0	0	1	
SBL	1	1	0	0	0	0	0	0	0	1	
SBT	125	128	8	5	7	0	0	0	20	148	
SBR	4	4	0	31	6	0	0	0	37	41	
EBL	32	36	3	10	0	0	2	0	15	51	HAYSTACK/COLDBROOK
EBR	38	38	0	0	0	0	0	0	0	38	
NBL	44	44	0	0	0	0	0	0	0	44	
NBT	77	77	6	22	7	0	3	0	38	115	
SBT	63	63	5	24	7	0	15	0	51	114	
SBR	62	65	3	14	0	0	15	0	32	97	
EBL	41	41	1	9	2	0	10	0	22	63	ROUTE 100/ COLDBROOK
EBR	60	60	4	15	5	0	5	0	29	89	
NBL	68	68	4	15	5	0	1	0	25	93	
NBT	403	422	0	0	0	0	0	0	0	422	
SBT	361	376	0	0	0	0	0	0	0	376	
SBR	53	53	2	7	2	0	2	0	13	66	
EBL	15	17	2	6	0	0	1	0	9	26	HAYTACK/ROUTE 9
EBT	130	145	0	0	0	0	0	0	0	145	
WBT	207	228	0	0	0	0	0	0	0	228	
WBR	16	18	1	4	0	0	1	0	6	24	
SBL	58	60	1	1	0	0	10	0	12	72	
SBR	44	45	2	13	0	0	5	0	20	65	
EBL	56	57	0	0	0	0	0	0	0	57	ROUTE 9/ SOUTH MAIN
EBT	221	235	1	1	0	0	5	0	7	242	
EBR	13	13	0	0	0	0	0	0	0	13	
NBL	23	23	0	0	0	0	0	0	0	23	
NBT	25	25	0	0	0	0	0	0	0	25	
NBR	26	26	0	0	0	0	0	0	0	26	
WBL	7	7	0	0	0	0	0	0	0	7	
WBT	146	157	1	0	0	0	0	0	1	158	
WBR	89	91	4	15	5	0	1	0	25	116	
SBL	389	401	4	15	5	0	5	0	29	430	
SBT	27	27	0	0	0	0	0	0	0	27	
SBR	130	140	0	0	0	0	0	0	0	140	
EBT	313	328	5	16	5	0	4	0	30	358	ROUTE 9/ROUTE 100
EBR	283	294	0	0	0	0	3	0	3	297	
NBL	80	85	0	0	0	0	1	0	1	86	
NBR	22	22	0	0	0	0	0	0	0	22	
WBL	22	22	0	0	0	0	0	0	0	22	
WBT	153	161	5	15	5	0	0	0	25	186	

TRIP GENERATION WORKSHEET

x= 10 Dwelling Units
No Build

LUC: Recreational Homes (260)
Someday Subdivision

WEEKDAY

Average Rate =	3.16
Total Trips =	31.6

Fitted Curve Equation = Not Given

AM PEAK HOUR of ADJACENT STREET

Average Rate =	0.16
Total Trips =	1.6
67% of Trips In =	1
33% of Trips Out =	1

Fitted Curve Equation = Not Given

PM PEAK HOUR of ADJACENT STREET

Average Rate =	0.26
Total Trips =	2.6
41% of Trips In =	1
59% of Trips Out =	2

Fitted Curve Equation = Not Given

AM PEAK HOUR of GENERATOR

Average Rate =	0.30
Total Trips =	3
49% of Trips In =	1
51% of Trips Out =	2

Fitted Curve Equation = T = 0.24 * (X) + 20.78

Total Trips =	23.18
49% of Trips In =	11
51% of Trips Out =	12

PM PEAK HOUR of GENERATOR

Average Rate =	0.31
Total Trips =	3.1
44% of Trips In =	1
56% of Trips Out =	2

Fitted Curve Equation = T = 0.26 * (X) + 14.87

Total Trips =	17.47
44% of Trips In =	8
56% of Trips Out =	10

SATURDAY

Average Rate =	3.07
Total Trips =	30.7

Fitted Curve Equation = Not Given

PEAK HOUR of GENERATOR

Average Rate =	0.36
Total Trips =	3.6
48% of Trips In =	2
52% of Trips Out =	2

Fitted Curve Equation = T = 0.24 * (X) + 40.86

Total Trips =	43.26
48% of Trips In =	21
52% of Trips Out =	22

SUNDAY

Average Rate =	2.93
Total Trips =	29.3

Fitted Curve Equation = Not Given

PEAK HOUR of GENERATOR

Average Rate =	0.36
Total Trips =	3.6
46% of Trips In =	2
54% of Trips Out =	2

Fitted Curve Equation = T = 0.24 * (X) + 39.71.

Total Trips =	42.11
46% of Trips In =	19
54% of Trips Out =	23

ITE TRIP GENERATION
9TH EDITION

CONLEY ASSOCIATES

TRIP GENERATION WORKSHEET

x= 14 Dwelling Units

LUC: Recreational Homes (260)

No Build

Seasons Drive

WEEKDAY

Average Rate =	3.16	
Total Trips =		44.24

Fitted Curve Equation = Not Given

AM PEAK HOUR of ADJACENT STREET

Average Rate =	0.16	
Total Trips =		2.24
67% of Trips In =		2
33% of Trips Out =		1

Fitted Curve Equation = Not Given

PM PEAK HOUR of ADJACENT STREET

Average Rate =	0.26	
Total Trips =		3.64
41% of Trips In =		1
59% of Trips Out =		2

Fitted Curve Equation = Not Given

AM PEAK HOUR of GENERATOR

Average Rate =	0.30	
Total Trips =		4.2
49% of Trips In =		2
51% of Trips Out =		2

Fitted Curve Equation = T = 0.24 * (X) + 20.78

Total Trips =	24.14
49% of Trips In =	12
51% of Trips Out =	12

PM PEAK HOUR of GENERATOR

Average Rate =	0.31	
Total Trips =		4.34
44% of Trips In =		2
56% of Trips Out =		2

Fitted Curve Equation = T = 0.26 * (X) + 14.87

Total Trips =	18.51
44% of Trips In =	8
56% of Trips Out =	10

SATURDAY

Average Rate =	3.07	
Total Trips =		42.98

Fitted Curve Equation = Not Given

PEAK HOUR of GENERATOR

Average Rate =	0.36	
Total Trips =		5.04
48% of Trips In =		2
52% of Trips Out =		3

Fitted Curve Equation = T = 0.24 * (X) + 40.86

Total Trips =	44.22
48% of Trips In =	21
52% of Trips Out =	23

SUNDAY

Average Rate =	2.93	
Total Trips =		41.02

Fitted Curve Equation = Not Given

PEAK HOUR of GENERATOR

Average Rate =	0.36	
Total Trips =		5.04
46% of Trips In =		2
54% of Trips Out =		3

Fitted Curve Equation = T = 0.24 * (X) + 39.71.

Total Trips =	43.07
46% of Trips In =	20
54% of Trips Out =	23

ITE TRIP GENERATION
9TH EDITION

CONLEY ASSOCIATES

TRIP GENERATION WORKSHEET

x= 32 Dwelling Units

LUC: Residential Condominium/Townhouse (230)
East

WEEKDAY

Average Rate =	5.81	Fitted Curve Equation =	Ln (T) = 0.870* Ln(X) +2.46
Total Trips =	185.92	Total Trips =	238.70

AM PEAK HOUR of ADJACENT STREET

Average Rate =	0.44	Fitted Curve Equation =	Ln (T) = 0.80* Ln(X) +0.26
Total Trips =	14.08	Total Trips =	20.75
17% of Trips In =	2	17% of Trips In =	4
83% of Trips Out =	12	83% of Trips Out =	17

PM PEAK HOUR of ADJACENT STREET

Average Rate =	0.52	Fitted Curve Equation =	Ln (T) = 0.82* Ln(X) +0.32
Total Trips =	16.64	Total Trips =	23.62
67% of Trips In =	11	67% of Trips In =	16
33% of Trips Out =	5	33% of Trips Out =	8

AM PEAK HOUR of GENERATOR

Average Rate =	0.44	Fitted Curve Equation =	Ln (T) = 0.82* Ln(X) +0.15
Total Trips =	14.08	Total Trips =	19.92
19% of Trips In =	3	19% of Trips In =	4
81% of Trips Out =	11	81% of Trips Out =	16

PM PEAK HOUR of GENERATOR

Average Rate =	0.52	Fitted Curve Equation =	T=0.34(X)+35.87
Total Trips =	16.64	Total Trips =	46.75
64% of Trips In =	11	64% of Trips In =	30
36% of Trips Out =	6	36% of Trips Out =	17

SATURDAY

Average Rate =	5.67	Fitted Curve Equation =	T= 3.62 (X) + 427.93
Total Trips =	181.44	Total Trips =	543.77

PEAK HOUR of GENERATOR

Average Rate =	0.47	Fitted Curve Equation =	T= 0.29 (X) + 42.63
Total Trips =	15.04	Total Trips =	51.91
54% of Trips In =	8	54% of Trips In =	28
46% of Trips Out =	7	46% of Trips Out =	24

SUNDAY

Average Rate =	4.84	Fitted Curve Equation =	T=3.13 (X) + 357.26
Total Trips =	154.88	Total Trips =	457.42

PEAK HOUR of GENERATOR

Average Rate =	0.45	Fitted Curve Equation =	T=0.23 (X) +50.01
Total Trips =	14.4	Total Trips =	57.37
49% of Trips In =	7	49% of Trips In =	28
51% of Trips Out =	7	51% of Trips Out =	29

ITE TRIP GENERATION
9TH EDITION

CONLEY
ASSOCIATES

TRIP GENERATION WORKSHEET

x= 88 Dwelling Units

LUC: Recreational Homes (260)
East

WEEKDAY

Average Rate =	3.16
Total Trips =	278.08

Fitted Curve Equation = Not Given

AM PEAK HOUR of ADJACENT STREET

Average Rate =	0.16
Total Trips =	14.08
67% of Trips In =	9
33% of Trips Out =	5

Fitted Curve Equation = Not Given

PM PEAK HOUR of ADJACENT STREET

Average Rate =	0.26
Total Trips =	22.88
41% of Trips In =	9
59% of Trips Out =	13

Fitted Curve Equation = Not Given

AM PEAK HOUR of GENERATOR

Average Rate =	0.30
Total Trips =	26.4
49% of Trips In =	13
51% of Trips Out =	13

Fitted Curve Equation = T = 0.24 * (X) + 20.78

Total Trips =	41.90
49% of Trips In =	21
51% of Trips Out =	21

PM PEAK HOUR of GENERATOR

Average Rate =	0.31
Total Trips =	27.28
44% of Trips In =	12
56% of Trips Out =	15

Fitted Curve Equation = T = 0.26 * (X) + 14.87

Total Trips =	37.75
44% of Trips In =	17
56% of Trips Out =	21

SATURDAY

Average Rate =	3.07
Total Trips =	270.16

Fitted Curve Equation = Not Given

PEAK HOUR of GENERATOR

Average Rate =	0.36
Total Trips =	31.68
48% of Trips In =	15
52% of Trips Out =	16

Fitted Curve Equation = T = 0.24 * (X) + 40.86

Total Trips =	61.98
48% of Trips In =	30
52% of Trips Out =	32

SUNDAY

Average Rate =	2.93
Total Trips =	257.84

Fitted Curve Equation = Not Given

PEAK HOUR of GENERATOR

Average Rate =	0.36
Total Trips =	31.68
46% of Trips In =	15
54% of Trips Out =	17

Fitted Curve Equation = T = 0.24 * (X) + 39.71.

Total Trips =	60.83
46% of Trips In =	28
54% of Trips Out =	33

ITE TRIP GENERATION
9TH EDITION

CONLEY
ASSOCIATES

TRIP GENERATION WORKSHEET

x= 376 Dwelling Units

LUC: Residential Condominium/Townhouse (230)
Main Base Area

WEEKDAY

Average Rate =	5.81	Fitted Curve Equation =	Ln (T) = 0.870* Ln(X) +2.46
Total Trips =	2184.56	Total Trips =	2036.00

AM PEAK HOUR of ADJACENT STREET

Average Rate =	0.44	Fitted Curve Equation =	Ln (T) = 0.80* Ln(X) +0.26
Total Trips =	165.44	Total Trips =	148.96
17% of Trips In =	28	17% of Trips In =	25
83% of Trips Out =	137	83% of Trips Out =	124

PM PEAK HOUR of ADJACENT STREET

Average Rate =	0.52	Fitted Curve Equation =	Ln (T) = 0.82* Ln(X) +0.32
Total Trips =	195.52	Total Trips =	178.09
67% of Trips In =	131	67% of Trips In =	119
33% of Trips Out =	65	33% of Trips Out =	59

AM PEAK HOUR of GENERATOR

Average Rate =	0.44	Fitted Curve Equation =	Ln (T) = 0.82* Ln(X) +0.15
Total Trips =	165.44	Total Trips =	150.24
19% of Trips In =	31	19% of Trips In =	29
81% of Trips Out =	134	81% of Trips Out =	122

PM PEAK HOUR of GENERATOR

Average Rate =	0.52	Fitted Curve Equation =	T=0.34(X)+35.87
Total Trips =	195.52	Total Trips =	163.71
64% of Trips In =	125	64% of Trips In =	105
36% of Trips Out =	70	36% of Trips Out =	59

SATURDAY

Average Rate =	5.67	Fitted Curve Equation =	T= 3.62 (X) + 427.93
Total Trips =	2131.92	Total Trips =	1789.05

PEAK HOUR of GENERATOR

Average Rate =	0.47	Fitted Curve Equation =	T= 0.29 (X) + 42.63
Total Trips =	176.72	Total Trips =	151.67
54% of Trips In =	95	54% of Trips In =	82
46% of Trips Out =	81	46% of Trips Out =	70

SUNDAY

Average Rate =	4.84	Fitted Curve Equation =	T=3.13 (X) + 357.26
Total Trips =	1819.84	Total Trips =	1534.14

PEAK HOUR of GENERATOR

Average Rate =	0.45	Fitted Curve Equation =	T=0.23 (X) +50.01
Total Trips =	169.2	Total Trips =	136.49
49% of Trips In =	83	49% of Trips In =	67
51% of Trips Out =	86	51% of Trips Out =	70

ITE TRIP GENERATION
9TH EDITION

CONLEY ASSOCIATES

TRIP GENERATION WORKSHEET

x= 34 Dwelling Units

LUC: Residential Condominium/Townhouse (230)
Fannie

WEEKDAY

Average Rate =	5.81	Fitted Curve Equation =	Ln (T) = 0.870* Ln(X) +2.46
Total Trips =	197.54	Total Trips =	251.62

AM PEAK HOUR of ADJACENT STREET

Average Rate =	0.44	Fitted Curve Equation =	Ln (T) = 0.80* Ln(X) +0.26
Total Trips =	14.96	Total Trips =	21.78
17% of Trips In =	3	17% of Trips In =	4
83% of Trips Out =	12	83% of Trips Out =	18

PM PEAK HOUR of ADJACENT STREET

Average Rate =	0.52	Fitted Curve Equation =	Ln (T) = 0.82* Ln(X) +0.32
Total Trips =	17.68	Total Trips =	24.82
67% of Trips In =	12	67% of Trips In =	17
33% of Trips Out =	6	33% of Trips Out =	8

AM PEAK HOUR of GENERATOR

Average Rate =	0.44	Fitted Curve Equation =	Ln (T) = 0.82* Ln(X) +0.15
Total Trips =	14.96	Total Trips =	20.94
19% of Trips In =	3	19% of Trips In =	4
81% of Trips Out =	12	81% of Trips Out =	17

PM PEAK HOUR of GENERATOR

Average Rate =	0.52	Fitted Curve Equation =	T=0.34(X)+35.87
Total Trips =	17.68	Total Trips =	47.43
64% of Trips In =	11	64% of Trips In =	30
36% of Trips Out =	6	36% of Trips Out =	17

SATURDAY

Average Rate =	5.67	Fitted Curve Equation =	T= 3.62 (X) + 427.93
Total Trips =	192.78	Total Trips =	551.01

PEAK HOUR of GENERATOR

Average Rate =	0.47	Fitted Curve Equation =	T= 0.29 (X) + 42.63
Total Trips =	15.98	Total Trips =	52.49
54% of Trips In =	9	54% of Trips In =	28
46% of Trips Out =	7	46% of Trips Out =	24

SUNDAY

Average Rate =	4.84	Fitted Curve Equation =	T=3.13 (X) + 357.26
Total Trips =	164.56	Total Trips =	463.68

PEAK HOUR of GENERATOR

Average Rate =	0.45	Fitted Curve Equation =	T=0.23 (X) +50.01
Total Trips =	15.3	Total Trips =	57.83
49% of Trips In =	7	49% of Trips In =	28
51% of Trips Out =	8	51% of Trips Out =	29

ITE TRIP GENERATION
9TH EDITION

CONLEY
ASSOCIATES

TRIP GENERATION WORKSHEET

x= 15 Dwelling Units

LUC: Recreational Homes (260)
Fannie

WEEKDAY

Average Rate =	3.16
Total Trips =	47.4

Fitted Curve Equation = Not Given

AM PEAK HOUR of ADJACENT STREET

Average Rate =	0.16
Total Trips =	2.4
67% of Trips In =	2
33% of Trips Out =	1

Fitted Curve Equation = Not Given

PM PEAK HOUR of ADJACENT STREET

Average Rate =	0.26
Total Trips =	3.9
41% of Trips In =	2
59% of Trips Out =	2

Fitted Curve Equation = Not Given

AM PEAK HOUR of GENERATOR

Average Rate =	0.30
Total Trips =	4.5
49% of Trips In =	2
51% of Trips Out =	2

Fitted Curve Equation = T = 0.24 * (X) + 20.78

Total Trips =	24.38
49% of Trips In =	12
51% of Trips Out =	12

PM PEAK HOUR of GENERATOR

Average Rate =	0.31
Total Trips =	4.65
44% of Trips In =	2
56% of Trips Out =	3

Fitted Curve Equation = T = 0.26 * (X) + 14.87

Total Trips =	18.77
44% of Trips In =	8
56% of Trips Out =	11

SATURDAY

Average Rate =	3.07
Total Trips =	46.05

Fitted Curve Equation = Not Given

PEAK HOUR of GENERATOR

Average Rate =	0.36
Total Trips =	5.4
48% of Trips In =	3
52% of Trips Out =	3

Fitted Curve Equation = T = 0.24 * (X) + 40.86

Total Trips =	44.46
48% of Trips In =	21
52% of Trips Out =	23

SUNDAY

Average Rate =	2.93
Total Trips =	43.95

Fitted Curve Equation = Not Given

PEAK HOUR of GENERATOR

Average Rate =	0.36
Total Trips =	5.4
46% of Trips In =	2
54% of Trips Out =	3

Fitted Curve Equation = T = 0.24 * (X) + 39.71.

Total Trips =	43.31
46% of Trips In =	20
54% of Trips Out =	23

ITE TRIP GENERATION
9TH EDITION

CONLEY
ASSOCIATES

TRIP GENERATION WORKSHEET

x= 52 Dwelling Units

LUC: Recreational Homes (260)
Via Hermitage

WEEKDAY

Average Rate =	3.16
Total Trips =	164.32

Fitted Curve Equation = Not Given

AM PEAK HOUR of ADJACENT STREET

Average Rate =	0.16
Total Trips =	8.32
67% of Trips In =	6
33% of Trips Out =	3

Fitted Curve Equation = Not Given

PM PEAK HOUR of ADJACENT STREET

Average Rate =	0.26
Total Trips =	13.52
41% of Trips In =	6
59% of Trips Out =	8

Fitted Curve Equation = Not Given

AM PEAK HOUR of GENERATOR

Average Rate =	0.30
Total Trips =	15.6
49% of Trips In =	8
51% of Trips Out =	8

Fitted Curve Equation = T = 0.24 * (X) + 20.78

Total Trips =	33.26
49% of Trips In =	16
51% of Trips Out =	17

PM PEAK HOUR of GENERATOR

Average Rate =	0.31
Total Trips =	16.12
44% of Trips In =	7
56% of Trips Out =	9

Fitted Curve Equation = T = 0.26 * (X) + 14.87

Total Trips =	28.39
44% of Trips In =	12
56% of Trips Out =	16

SATURDAY

Average Rate =	3.07
Total Trips =	159.64

Fitted Curve Equation = Not Given

PEAK HOUR of GENERATOR

Average Rate =	0.36
Total Trips =	18.72
48% of Trips In =	9
52% of Trips Out =	10

Fitted Curve Equation = T = 0.24 * (X) + 40.86

Total Trips =	53.34
48% of Trips In =	26
52% of Trips Out =	28

SUNDAY

Average Rate =	2.93
Total Trips =	152.36

Fitted Curve Equation = Not Given

PEAK HOUR of GENERATOR

Average Rate =	0.36
Total Trips =	18.72
46% of Trips In =	9
54% of Trips Out =	10

Fitted Curve Equation = T = 0.24 * (X) + 39.71.

Total Trips =	52.19
46% of Trips In =	24
54% of Trips Out =	28

ITE TRIP GENERATION
9TH EDITION

CONLEY ASSOCIATES

Haystack Master Plan April 2013

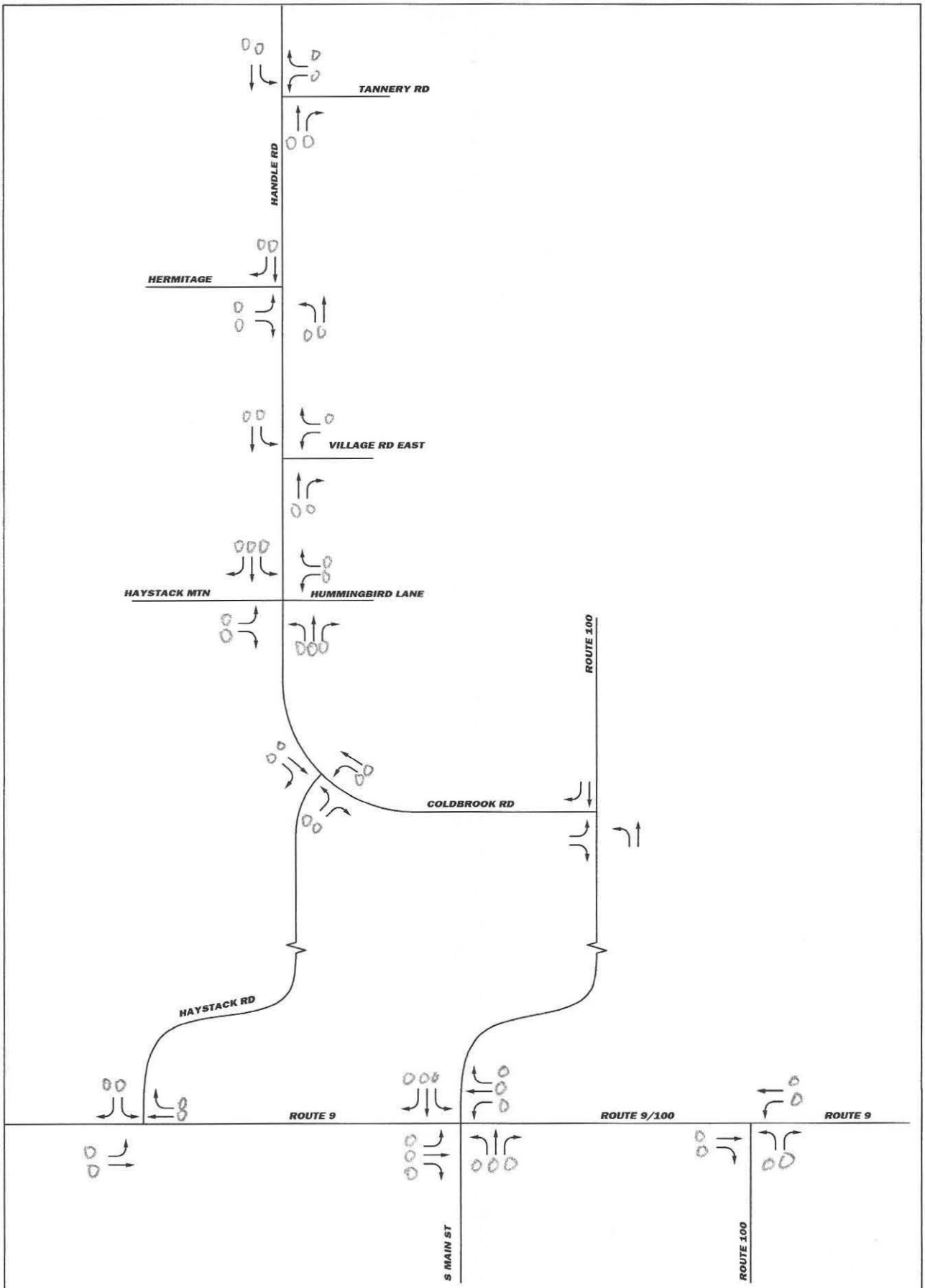
Hermitage Trip Generation

	total	in	out					
rest	45	27	18					
rooms	7	4	3					
ancillary	12	2	10					
cross								
rest	11.25	6.75	4.5	25% of inn guests (25 rooms) will visit restaurant				
rooms	0	0	0					
ancillary	3	0	3	25% ancillary trips generated by inn and rest guests				
redux cross								
rest	33.75	20.25	13.5					
rooms	7	4	3					
ancillary	9	2	7					
walk/shuttle								
rest	3.375	2.025	1.35	only 10% via shuttle from resort hotels				
rooms	1.75	1	0.75	25% of room trips are returning from skiing				
ancillary	0	0	0					
drive								
rest	30.375	18.225	12.15					
rooms	5.25	3	2.25					
ancillary	9	2	7					
TOTAL	**44.625**	**23.225**	**21.4**		**23**	**21**		
22%	**mt snow**	**5.1095**	**4.708**		**5**	**5**	0.217391	0.238095
22%	**n 100**	**5.1095**	**4.708**		**5**	**5**	0.217391	0.238095
9%	**s local**	**2.09025**	**1.926**		**2**	**2**	0.086957	0.095238
16%	**between***	**3.716**	**3.424**		**4**	**3**	0.173913	0.142857
22%	**s 100**	**5.1095**	**4.708**		**5**	**5**	0.217391	0.238095
9%	**100 local**	**2.09025**	**1.926**		**2**	**1**	0.086957	0.047619
100%		23	21	total	23	21		

Haystack Master Plan Sept. 2014
Haystack Resort Trip Generation

	total	in	out	
condo Main	176	95	81	
SF	0	0	0	
condo Fannie	16	9	7	
SF via Fannie	6	3	3	
SF via Herm	19	9	10	
cross				no cross trips
condo Main	0	0	0	
SF				
condo Fannie	0	0	0	
SF via Fannie	0	0	0	
SF via Herm	0	0	0	
redux cross				
condo Main	176	95	81	
SF	0	0	0	
condo Fannie	16	9	7	
SF via Fannie	6	3	3	
SF via Herm	19	9	10	
ski/walk/shuttle				
condo Main	61.6	43.12	18.48	35% trips ski/walk home from skiing/shuttle to other dest
SF				
condo Fannie	5.6	3.92	1.68	35% trips ski/walk home from skiing/shuttle to other dest
SF via Fannie	2.1	1.47	0.63	35% trips ski/walk home from skiing/shuttle to other dest
SF via Herm	0	0	0	
	69.3			
vehicle trips				
condo Main	114.4	51.88	62.52	
SF	0	0	0	
condo Fannie	10.4	5.08	5.32	
SF via Fannie	3.9	1.53	2.37	
SF via Herm	19	9	10	
TOTAL	**147.7**	**67.49**	**80.21**	**63** **75**

25%	**mt snow**	**16.8725**	**20.0525**	**16**	**19**	0.253968	0.253333
25%	**n 100**	**16.8725**	**20.0525**	**16**	**19**	0.253968	0.253333
10%	**s local**	**6.749**	**8.021**	**6**	**7**	0.095238	0.093333
5%	**between***	**3.3745**	**4.0105**	**3**	**4**	0.047619	0.053333
25%	**s 100**	**16.8725**	**20.0525**	**16**	**19**	0.253968	0.253333
10%	**100 local**	**6.749**	**8.021**	**6**	**7**	0.095238	0.093333
100%			total	63	75		



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1456cadNetworks.dwg

FIGURE
HAYSTACK MASTER PLAN
AIRPORT
PEAK HOUR TRAFFIC VOLUMES
WILMINGTON and WEST DOVER, VT

PROJ. NO. 1456 DATE: JUNE 2014 NOT TO SCALE

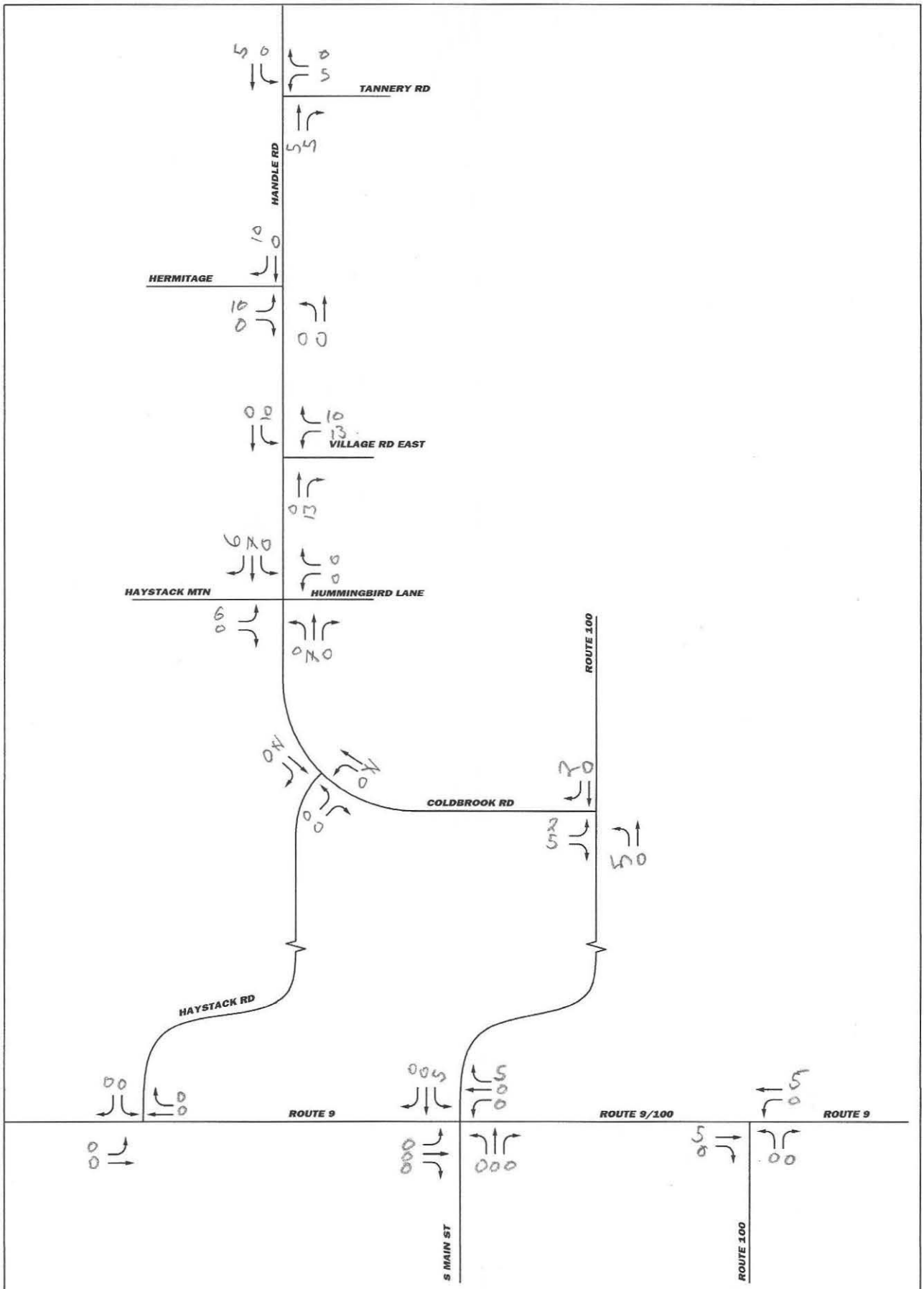

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FIGURE
HAYSTACK MASTER PLAN
EAST
PEAK HOUR TRAFFIC VOLUMES
WILMINGTON and WEST DOVER, VT

PROJ. NO. 1456 DATE: JUNE 2014 NOT TO SCALE

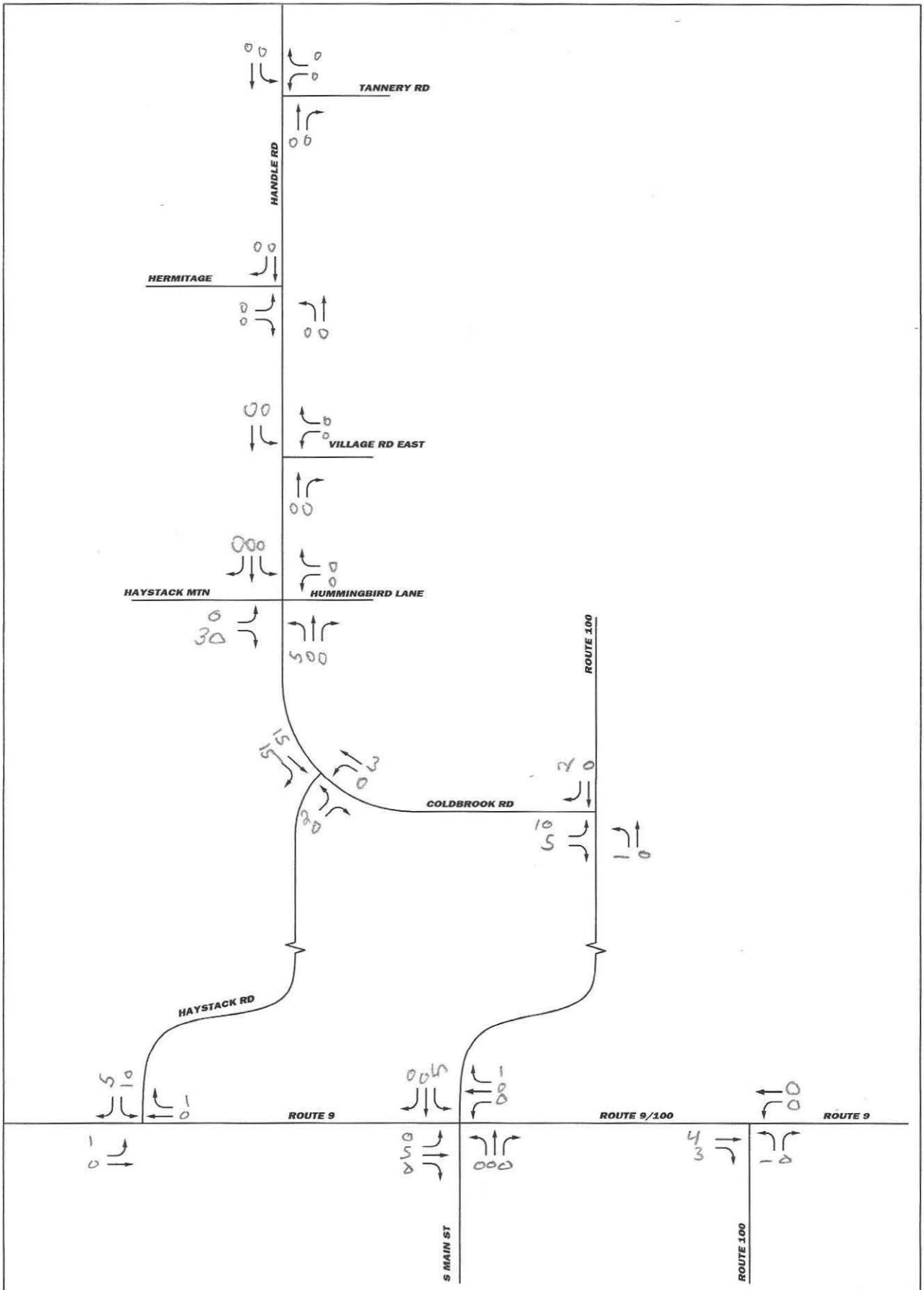

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FIGURE
HAYSTACK MASTER PLAN
SKI
PEAK HOUR TRAFFIC VOLUMES
WILMINGTON and WEST DOVER, VT

PROJ. NO. 1456 DATE: JUNE 2014 NOT TO SCALE

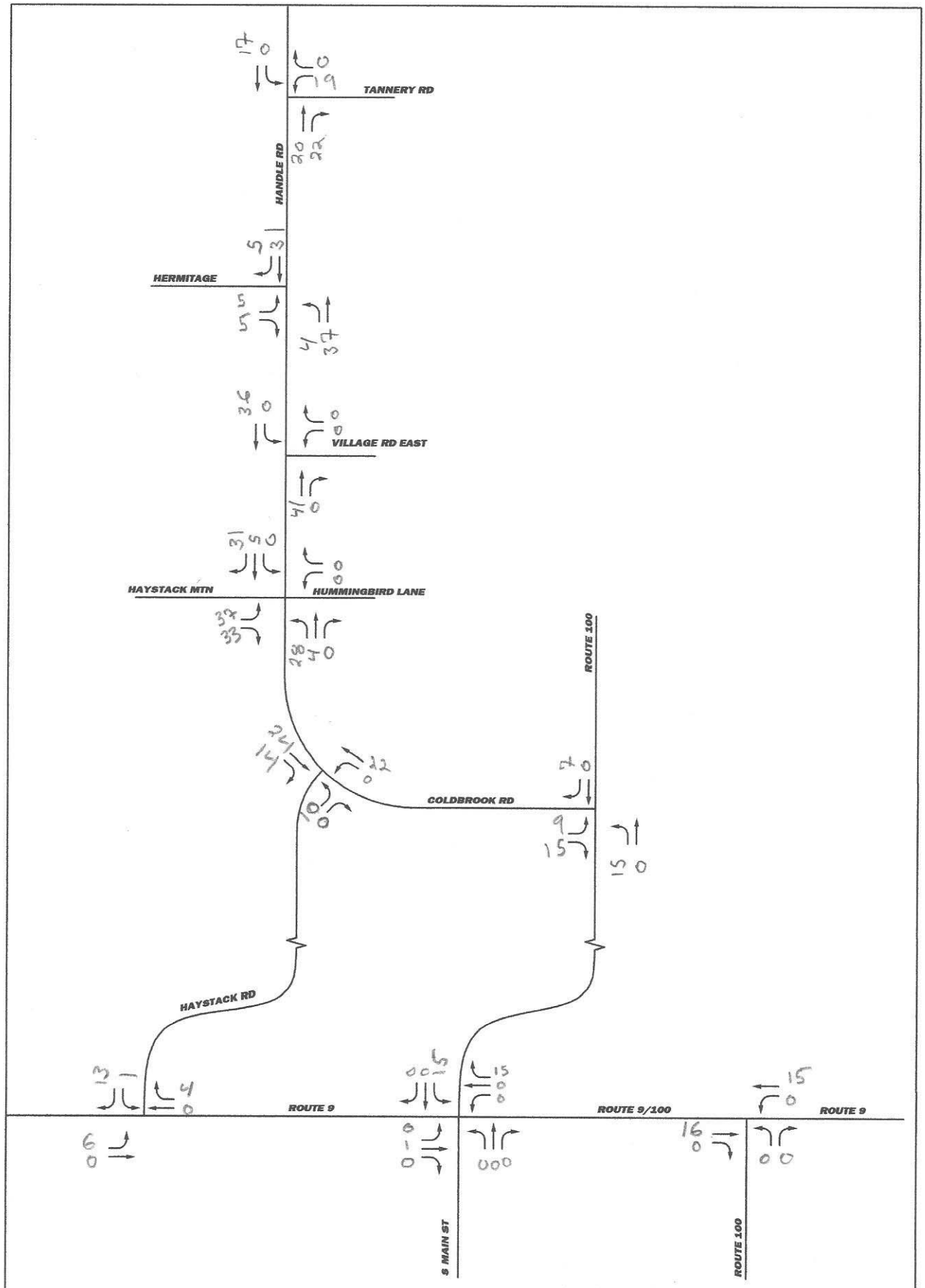

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FIGURE
HAYSTACK MASTER PLAN
HAYSTACK
PEAK HOUR TRAFFIC VOLUMES
WILMINGTON and WEST DOVER, VT

PROJ. NO. 1456 DATE: SEPTEMBER 2014 NOT TO SCALE

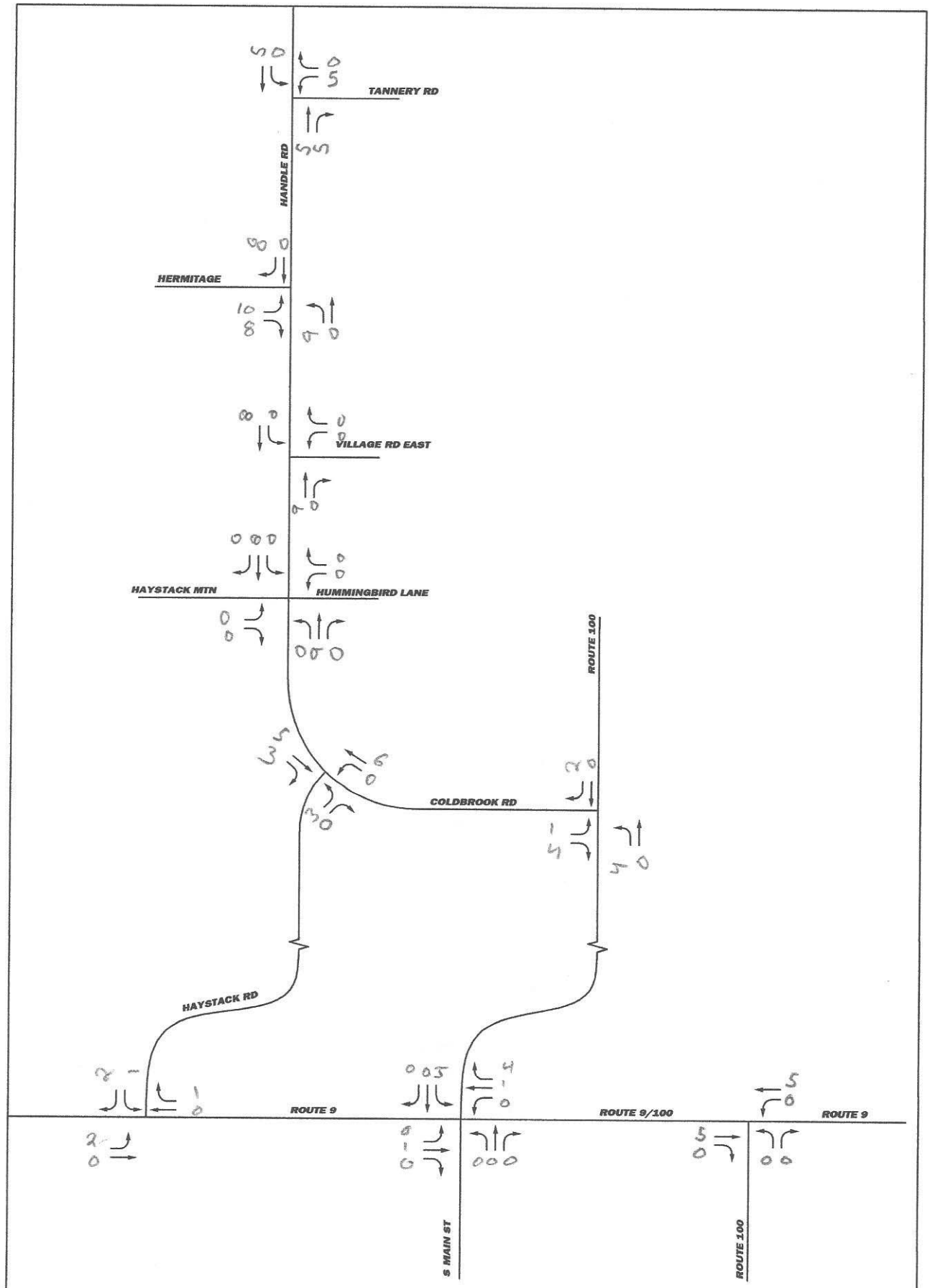

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FIGURE
HAYSTACK MASTER PLAN
HERMITAGE INN
PEAK HOUR TRAFFIC VOLUMES
WILMINGTON and WEST DOVER, VT

PROJ. NO. 1456 DATE: SEPTEMBER 2014 NOT TO SCALE

CONLEY
ASSOCIATES

TRANSPORTATION MASTER PLAN
HERMITAGE CLUB AT HAYSTACK MOUNTAIN

APPENDIX B
INTERSECTION OPERATIONS
EXISTING CONDITIONS

SEPTEMBER 2014

40 Warren St #346, 3rd Floor, Boston, MA 02129 (617) 742-5111
349 Lakewood Drive, Killington, VT 05751 (802) 345-2321
www.ConleyAssociates.com

Intersection	
Int Delay, s/veh	4.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	64	41	57	43	149	241
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	45	62	47	162	262

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	671	85	0	0	109	0
Stage 1	85	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	422	974	-	-	1481	-
Stage 1	938	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	368	974	-	-	1481	-
Mov Cap-2 Maneuver	368	-	-	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	485	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	486	1481	-
HCM Lane V/C Ratio	-	-	0.235	0.109	-
HCM Control Delay (s)	-	-	14.7	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.9	0.4	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	9	4	6	108	123	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	4	7	117	134	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	273	143	152	0	-	0
Stage 1	143	-	-	-	-	-
Stage 2	130	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	716	905	1429	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	712	905	1429	-	-	-
Mov Cap-2 Maneuver	712	-	-	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	892	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1429	-	762	-	-
HCM Lane V/C Ratio	0.005	-	0.019	-	-
HCM Control Delay (s)	7.5	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	3	4	110	3	3	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	4	120	3	3	138

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	266	121	0	0	123	0
Stage 1	121	-	-	-	-	-
Stage 2	145	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	723	930	-	-	1464	-
Stage 1	904	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	722	930	-	-	1464	-
Mov Cap-2 Maneuver	722	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	880	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	828	1464	-
HCM Lane V/C Ratio	-	-	0.009	0.002	-
HCM Control Delay (s)	-	-	9.4	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	3	0	3	1	0	1	3	109	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	3	1	0	1	3	118	1

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	266	266	138	268	268	119	140	0	0
Stage 1	140	140	-	126	126	-	-	-	-
Stage 2	126	126	-	142	142	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-
Pot Cap-1 Maneuver	687	640	910	685	638	933	1443	-	-
Stage 1	863	781	-	878	792	-	-	-	-
Stage 2	878	792	-	861	779	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	685	638	910	681	636	933	1443	-	-
Mov Cap-2 Maneuver	685	638	-	681	636	-	-	-	-
Stage 1	861	780	-	876	790	-	-	-	-
Stage 2	875	790	-	857	778	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	9.6	9.6	0.2
HCM LOS	A	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1443	-	-	782	787	1468	-	-
HCM Lane V/C Ratio	0.002	-	-	0.008	0.003	0.001	-	-
HCM Control Delay (s)	7.5	0	-	9.6	9.6	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	1	125	4
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	1	136	4

Major/Minor	Major2		
Conflicting Flow All	120	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1468	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1468	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0.1
HCM LOS	

Minor Lane/Major Mvmt

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	63	62	44	77	32	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	67	48	84	35	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	136	0	281	102
Stage 1	-	-	-	-	102	-
Stage 2	-	-	-	-	179	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1448	-	709	953
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	852	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1448	-	684	953
Mov Cap-2 Maneuver	-	-	-	-	684	-
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	822	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	808	-	-	1448	-
HCM Lane V/C Ratio	0.094	-	-	0.033	-
HCM Control Delay (s)	9.9	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	41	60	68	403	361	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	65	74	438	392	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1007	421	450	0	-	0
Stage 1	421	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	267	632	1110	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	249	632	1110	-	-	-
Mov Cap-2 Maneuver	249	-	-	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	519	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.9	1.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1110	-	389	-	-
HCM Lane V/C Ratio	0.067	-	0.282	-	-
HCM Control Delay (s)	8.5	-	17.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.1	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	15	130	207	16	58	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	141	225	17	63	48

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	242	0	-	0	408	234
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	174	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1324	-	-	-	599	805
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	856	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1324	-	-	-	591	805
Mov Cap-2 Maneuver	-	-	-	-	591	-
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	845	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1324	-	-	-	668
HCM Lane V/C Ratio	0.012	-	-	-	0.166
HCM Control Delay (s)	7.8	0	-	-	11.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	313	283	22	153	80	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	340	308	24	166	87	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	648	0	708	494
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	214	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	938	-	401	575
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	822	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	938	-	390	575
Mov Cap-2 Maneuver	-	-	-	-	390	-
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	799	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	16.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	419	-	-	938	-
HCM Lane V/C Ratio	0.265	-	-	0.025	-
HCM Control Delay (s)	16.7	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	221	13	7	146	89	23	25	26	389	27	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.950			0.953			0.968	
Flt Protected		0.990			0.998			0.985			0.966	
Satd. Flow (prot)	0	1485	0	0	1431	0	0	1416	0	0	1411	0
Flt Permitted		0.883			0.989			0.829			0.738	
Satd. Flow (perm)	0	1324	0	0	1418	0	0	1192	0	0	1078	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			34			28			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		330			430			172			330	
Travel Time (s)		7.5			9.8			3.9			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	61	240	14	8	159	97	25	27	28	423	29	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	315	0	0	264	0	0	80	0	0	593	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.30	1.14	1.14	1.30	1.14	1.14	1.30	1.14	1.14	1.30	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	42.0	42.0		42.0	42.0		42.0	42.0		42.0	42.0	
Total Split (%)	42.0%	42.0%		42.0%	42.0%		42.0%	42.0%		42.0%	42.0%	
Maximum Green (s)	38.0	38.0		38.0	38.0		38.0	38.0		38.0	38.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	

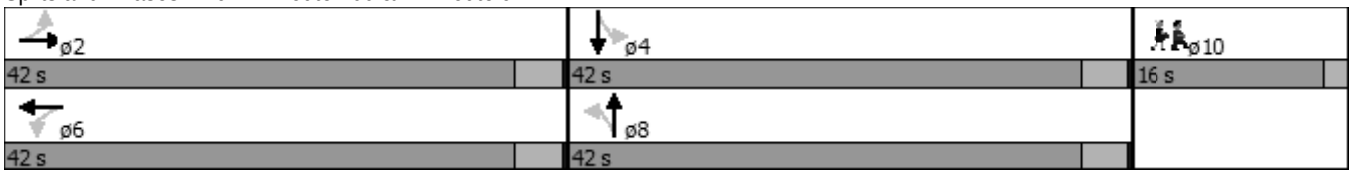
Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	16.0
Total Split (s)	16.0
Total Split (%)	16%
Maximum Green (s)	14.0
Yellow Time (s)	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		21.5			21.5			39.3			39.3	
Actuated g/C Ratio		0.30			0.30			0.55			0.55	
v/c Ratio		0.79			0.59			0.12			0.99	
Control Delay		37.4			24.0			9.8			55.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		37.4			24.0			9.8			55.0	
LOS		D			C			A			D	
Approach Delay		37.4			24.0			9.8			55.0	
Approach LOS		D			C			A			D	
Queue Length 50th (ft)		114			77			8			195	
Queue Length 95th (ft)		256			184			53			#720	
Internal Link Dist (ft)		250			350			92			250	
Turn Bay Length (ft)												
Base Capacity (vph)		730			795			668			601	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.43			0.33			0.12			0.99	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 71.4			
Natural Cycle: 110			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 41.1		Intersection LOS: D	
Intersection Capacity Utilization 83.2%		ICU Level of Service E	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: VT Route 100 & VT Route 9



Lane Group	ø10
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	9.0
Pedestrian Calls (#/hr)	10
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

CONLEY
ASSOCIATES

TRANSPORTATION MASTER PLAN
HERMITAGE CLUB AT HAYSTACK MOUNTAIN

APPENDIX C
INTERSECTION OPERATIONS
NO BUILD CONDITIONS

SEPTEMBER 2014

40 Warren St #346, 3rd Floor, Boston, MA 02129 (617) 742-5111
349 Lakewood Drive, Killington, VT 05751 (802) 345-2321
www.ConleyAssociates.com

Intersection	
Int Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	64	42	61	43	150	244
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	46	66	47	163	265

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	681	90	0	0	113	0
Stage 1	90	-	-	-	-	-
Stage 2	591	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	416	968	-	-	1476	-
Stage 1	934	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	362	968	-	-	1476	-
Mov Cap-2 Maneuver	362	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	481	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.8	0	2.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	481	1476	-
HCM Lane V/C Ratio	-	-	0.24	0.11	-
HCM Control Delay (s)	-	-	14.8	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.9	0.4	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	10	3	5	113	127	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	3	5	123	138	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	282	148	158	0	-	0
Stage 1	148	-	-	-	-	-
Stage 2	134	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	708	899	1422	-	-	-
Stage 1	880	-	-	-	-	-
Stage 2	892	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	705	899	1422	-	-	-
Mov Cap-2 Maneuver	705	-	-	-	-	-
Stage 1	880	-	-	-	-	-
Stage 2	888	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1422	-	742	-	-
HCM Lane V/C Ratio	0.004	-	0.019	-	-
HCM Control Delay (s)	7.5	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	3	4	114	3	3	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	4	124	3	3	141

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	274	126	0	0	127	0
Stage 1	126	-	-	-	-	-
Stage 2	148	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	716	924	-	-	1459	-
Stage 1	900	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	715	924	-	-	1459	-
Mov Cap-2 Maneuver	715	-	-	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	878	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	821	1459	-
HCM Lane V/C Ratio	-	-	0.009	0.002	-
HCM Control Delay (s)	-	-	9.4	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	3	0	3	1	0	1	3	113	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	3	1	0	1	3	123	1

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	273	273	141	275	276	123	143	0	0
Stage 1	143	143	-	130	130	-	-	-	-
Stage 2	130	130	-	145	146	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-
Pot Cap-1 Maneuver	679	634	907	677	632	928	1440	-	-
Stage 1	860	779	-	874	789	-	-	-	-
Stage 2	874	789	-	858	776	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	677	632	907	673	630	928	1440	-	-
Mov Cap-2 Maneuver	677	632	-	673	630	-	-	-	-
Stage 1	858	778	-	872	787	-	-	-	-
Stage 2	871	787	-	854	775	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	9.7	9.6	0.2
HCM LOS	A	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1440	-	-	775	780	1463	-	-
HCM Lane V/C Ratio	0.002	-	-	0.008	0.003	0.001	-	-
HCM Control Delay (s)	7.5	0	-	9.7	9.6	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	1	128	4
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	1	139	4

Major/Minor	Major2		
Conflicting Flow All	124	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1463	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1463	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0.1
HCM LOS	

Minor Lane/Major Mvmt

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NEL	NER
Vol, veh/h	63	65	44	77	36	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	71	48	84	39	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	139	0	283	104
Stage 1	-	-	-	-	104	-
Stage 2	-	-	-	-	179	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1445	-	707	951
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	852	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1445	-	682	951
Mov Cap-2 Maneuver	-	-	-	-	682	-
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	822	-

Approach	EB	WB	NE
HCM Control Delay, s	0	2.8	10
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	798	-	-	1445	-
HCM Lane V/C Ratio	0.101	-	-	0.033	-
HCM Control Delay (s)	10	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	41	60	68	422	376	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	65	74	459	409	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1045	438	466	0	-	0
Stage 1	438	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	253	619	1095	-	-	-
Stage 1	651	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	236	619	1095	-	-	-
Mov Cap-2 Maneuver	236	-	-	-	-	-
Stage 1	651	-	-	-	-	-
Stage 2	507	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.6	1.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1095	-	373	-	-
HCM Lane V/C Ratio	0.068	-	0.294	-	-
HCM Control Delay (s)	8.5	-	18.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.2	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	17	145	228	18	60	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	158	248	20	65	49

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	267	0	-	0	453	258
Stage 1	-	-	-	-	258	-
Stage 2	-	-	-	-	195	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1297	-	-	-	565	781
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	838	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1297	-	-	-	557	781
Mov Cap-2 Maneuver	-	-	-	-	557	-
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	825	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1297	-	-	-	635
HCM Lane V/C Ratio	0.014	-	-	-	0.18
HCM Control Delay (s)	7.8	0	-	-	11.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	328	294	22	161	85	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	357	320	24	175	92	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	676	0	739	516
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	223	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	915	-	385	559
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	814	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	915	-	374	559
Mov Cap-2 Maneuver	-	-	-	-	374	-
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	790	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	17.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	401	-	-	915	-
HCM Lane V/C Ratio	0.29	-	-	0.026	-
HCM Control Delay (s)	17.6	-	-	9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	235	13	7	157	91	23	25	26	401	27	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.952			0.953			0.967	
Flt Protected		0.991			0.999			0.985			0.966	
Satd. Flow (prot)	0	1486	0	0	1435	0	0	1416	0	0	1409	0
Flt Permitted		0.864			0.989			0.818			0.740	
Satd. Flow (perm)	0	1296	0	0	1421	0	0	1176	0	0	1080	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			27			28			23	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		330			430			172			280	
Travel Time (s)		7.5			9.8			3.9			6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	62	255	14	8	171	99	25	27	28	436	29	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	331	0	0	278	0	0	80	0	0	617	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.30	1.14	1.14	1.30	1.14	1.14	1.30	1.14	1.14	1.30	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	31.0	31.0		31.0	31.0		53.0	53.0		53.0	53.0	
Total Split (%)	31.0%	31.0%		31.0%	31.0%		53.0%	53.0%		53.0%	53.0%	
Maximum Green (s)	27.0	27.0		27.0	27.0		49.0	49.0		49.0	49.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	

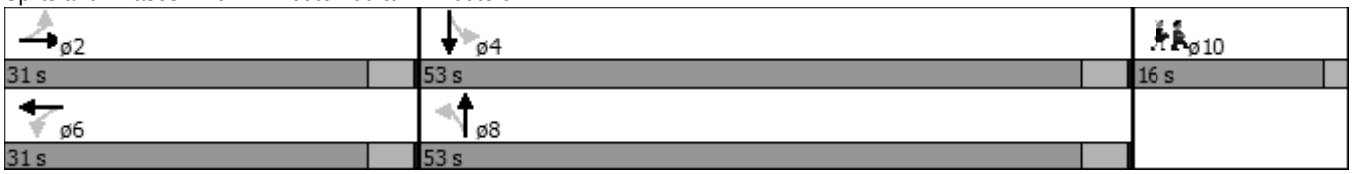
Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	16.0
Total Split (s)	16.0
Total Split (%)	16%
Maximum Green (s)	14.0
Yellow Time (s)	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		27.1			27.1			49.2			49.2	
Actuated g/C Ratio		0.31			0.31			0.56			0.56	
v/c Ratio		0.82			0.60			0.12			1.00	
Control Delay		47.1			30.5			7.9			56.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		47.1			30.5			7.9			56.6	
LOS		D			C			A			E	
Approach Delay		47.1			30.5			7.9			56.6	
Approach LOS		D			C			A			E	
Queue Length 50th (ft)		157			109			11			277	
Queue Length 95th (ft)		#381			239			43			#673	
Internal Link Dist (ft)		250			350			92			200	
Turn Bay Length (ft)												
Base Capacity (vph)		404			461			676			619	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.82			0.60			0.12			1.00	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 87.2			
Natural Cycle: 140			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 45.6		Intersection LOS: D	
Intersection Capacity Utilization 86.3%		ICU Level of Service E	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: VT Route 100 & VT Route 9



Lane Group	ø10
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	9.0
Pedestrian Calls (#/hr)	10
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

CONLEY
ASSOCIATES

TRANSPORTATION MASTER PLAN
HERMITAGE CLUB AT HAYSTACK MOUNTAIN

APPENDIX D
INTERSECTION OPERATIONS
BUILD CONDITIONS

SEPTEMBER 2014

40 Warren St #346, 3rd Floor, Boston, MA 02129 (617) 742-5111
349 Lakewood Drive, Killington, VT 05751 (802) 345-2321
www.ConleyAssociates.com

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	93	42	91	75	150	271
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	46	99	82	163	295

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	761	140	0	0	180	0
Stage 1	140	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	373	908	-	-	1396	-
Stage 1	887	-	-	-	-	-
Stage 2	536	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	321	908	-	-	1396	-
Mov Cap-2 Maneuver	321	-	-	-	-	-
Stage 1	887	-	-	-	-	-
Stage 2	461	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19	0	2.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	402	1396	-
HCM Lane V/C Ratio	-	-	0.365	0.117	-
HCM Control Delay (s)	-	-	19	7.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0.4	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	25	16	18	160	168	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	17	20	174	183	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	414	201	218	0	-	0
Stage 1	201	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	595	840	1352	-	-	-
Stage 1	833	-	-	-	-	-
Stage 2	823	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	585	840	1352	-	-	-
Mov Cap-2 Maneuver	585	-	-	-	-	-
Stage 1	833	-	-	-	-	-
Stage 2	810	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1352	-	664	-	-
HCM Lane V/C Ratio	0.014	-	0.067	-	-
HCM Control Delay (s)	7.7	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	16	14	164	16	13	174
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	15	178	17	14	189

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	404	187	0	0	196	0
Stage 1	187	-	-	-	-	-
Stage 2	217	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	603	855	-	-	1377	-
Stage 1	845	-	-	-	-	-
Stage 2	819	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	596	855	-	-	1377	-
Mov Cap-2 Maneuver	596	-	-	-	-	-
Stage 1	845	-	-	-	-	-
Stage 2	810	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	694	1377	-
HCM Lane V/C Ratio	-	-	0.047	0.01	-
HCM Control Delay (s)	-	-	10.4	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	46	0	66	1	0	1	36	133	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	50	0	72	1	0	1	39	145	1

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	409	409	183	444	431	145	205	0	0
Stage 1	185	185	-	223	223	-	-	-	-
Stage 2	224	224	-	221	208	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-
Pot Cap-1 Maneuver	553	532	859	524	517	902	1366	-	-
Stage 1	817	747	-	780	719	-	-	-	-
Stage 2	779	718	-	781	730	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	539	515	859	469	500	902	1366	-	-
Mov Cap-2 Maneuver	539	515	-	469	500	-	-	-	-
Stage 1	792	746	-	756	697	-	-	-	-
Stage 2	754	696	-	715	729	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	11.3	10.9	1.6
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1366	-	-	691	617	1436	-	-
HCM Lane V/C Ratio	0.029	-	-	0.176	0.004	0.001	-	-
HCM Control Delay (s)	7.7	0	-	11.3	10.9	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0	0	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	1	148	41
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	2	2	2
Mvmt Flow	1	161	45

Major/Minor	Major2		
Conflicting Flow All	146	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1436	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1436	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0
HCM LOS	

Minor Lane/Major Mvmt

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	114	97	44	115	51	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	124	105	48	125	55	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	229	0	398	177
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	221	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1339	-	607	866
Stage 1	-	-	-	-	854	-
Stage 2	-	-	-	-	816	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1339	-	583	866
Mov Cap-2 Maneuver	-	-	-	-	583	-
Stage 1	-	-	-	-	854	-
Stage 2	-	-	-	-	784	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	678	-	-	1339	-
HCM Lane V/C Ratio	0.143	-	-	0.036	-
HCM Control Delay (s)	11.2	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	63	89	93	422	376	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	97	101	459	409	72

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1106	445	480	0	-	0
Stage 1	445	-	-	-	-	-
Stage 2	661	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	233	613	1082	-	-	-
Stage 1	646	-	-	-	-	-
Stage 2	514	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	211	613	1082	-	-	-
Mov Cap-2 Maneuver	211	-	-	-	-	-
Stage 1	646	-	-	-	-	-
Stage 2	466	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.9	1.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1082	-	343	-	-
HCM Lane V/C Ratio	0.093	-	0.482	-	-
HCM Control Delay (s)	8.7	-	24.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.3	-	2.5	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	26	145	228	24	72	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	158	248	26	78	71

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	274	0	-	0	475	261
Stage 1	-	-	-	-	261	-
Stage 2	-	-	-	-	214	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1289	-	-	-	548	778
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	822	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1289	-	-	-	535	778
Mov Cap-2 Maneuver	-	-	-	-	535	-
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	802	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1289	-	-	-	628
HCM Lane V/C Ratio	0.022	-	-	-	0.237
HCM Control Delay (s)	7.9	0	-	-	12.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	358	297	22	186	86	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	389	323	24	202	93	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	712	0	801	551
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	250	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	888	-	354	534
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	888	-	343	534
Mov Cap-2 Maneuver	-	-	-	-	343	-
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	768	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	19.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	370	-	-	888	-
HCM Lane V/C Ratio	0.317	-	-	0.027	-
HCM Control Delay (s)	19.2	-	-	9.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	242	13	7	158	116	23	25	26	430	27	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.944			0.953			0.968	
Flt Protected		0.991			0.999			0.985			0.965	
Satd. Flow (prot)	0	1486	0	0	1423	0	0	1416	0	0	1409	0
Flt Permitted		0.845			0.990			0.812			0.736	
Satd. Flow (perm)	0	1267	0	0	1410	0	0	1168	0	0	1075	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			35			28			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		330			430			172			280	
Travel Time (s)		7.5			9.8			3.9			6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	62	263	14	8	172	126	25	27	28	467	29	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	339	0	0	306	0	0	80	0	0	648	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.30	1.14	1.14	1.30	1.14	1.14	1.30	1.14	1.14	1.30	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	31.0	31.0		31.0	31.0		53.0	53.0		53.0	53.0	
Total Split (%)	31.0%	31.0%		31.0%	31.0%		53.0%	53.0%		53.0%	53.0%	
Maximum Green (s)	27.0	27.0		27.0	27.0		49.0	49.0		49.0	49.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	16.0
Total Split (s)	16.0
Total Split (%)	16%
Maximum Green (s)	14.0
Yellow Time (s)	2.0

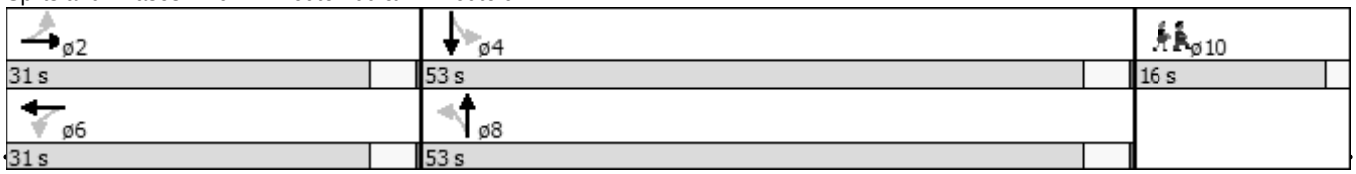
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		27.1			27.1			49.2			49.2	
Actuated g/C Ratio		0.31			0.31			0.56			0.56	
v/c Ratio		0.86			0.66			0.12			1.05	
Control Delay		51.6			32.3			7.9			72.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		51.6			32.3			7.9			72.0	
LOS		D			C			A			E	
Approach Delay		51.6			32.3			7.9			72.0	
Approach LOS		D			C			A			E	
Queue Length 50th (ft)		163			121			11			~333	
Queue Length 95th (ft)		#399			#287			43			#720	
Internal Link Dist (ft)		250			350			92			200	
Turn Bay Length (ft)												
Base Capacity (vph)		395			462			672			616	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.86			0.66			0.12			1.05	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 87.2			
Natural Cycle: 140			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 54.4		Intersection LOS: D	
Intersection Capacity Utilization 90.3%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: VT Route 100 & VT Route 9



Lane Group	ø10
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	9.0
Pedestrian Calls (#/hr)	10
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Proposed Roadways

A number of new roadways are proposed as a part of the Hermitage Club Master Plan. The local topography results in various roadway grades, however, each roadway will meet the local bylaws regarding roadway width and grades. The specific widths and grades by roadway are provided in Table 1 below.

Table 1: New Roadway Design

	Roadway Width (ft)	Maximum Grade (%)
Lower Mountain		
Pump Station Access	24	5
Stag's Leap Phase II	24	5
Mid Mountain		
Stag's Leap Lane	24	5
Haystack Mountain Lane	24	5
Chamonix Trail	24	12
Base Lodge Access Road	24	9
Garmisch Court Way (East)	24	5
Garmisch Court Way (West)	24	
Upper Mountain		
McGovern Lane	24	5
Driveway A off of McGovern Lane	12	5
Driveway B off of McGovern Lane	12	5
Driveway C off of McGovern Lane	12	5
High Country Road	24	16
Upper Mountain Road	24	16
Hermitage Area		
Road off of Hermitage Drive	24	12

In addition to the roadway widths and grades on new roadways, Conley Associates, Inc. worked with Harrington Engineering to determine the available sight lines anticipated at each intersection. The available sight lines are summarized in Table 2 below.

Table 2: Available Sight Lines

	Available Sight Lines	
	From North/East	**From West/South**
Lower Mountain		
Fannie Hill Road at Stag's Leap Phase II	300	200[1]
Mid Mountain		
Gate House Trail at Stag's Leap Lane	200	500
Gate House Trail at Haystack Mountain Lane and Chamonix Trail	300	200
Chamonix Trail at Base Lodge Access Road	400	500
Chamonix Trail at Garmisch Court Way	200	300
Upper Mountain		
Fannie Hill Road at McGovern Lane	300	300
Fannie Hill Road at High Country Road	200	200
McGovern Lane at High Country Road	200	200
High Country Road at New Minor Road	300	200
Hermitage Area		
Hermitage Road at New Minor Road	200	200

[1] Limited by location of intersection to the south

Transportation Demand Management

The Hermitage Club is committed to reducing the number of automobile trips during the peak hours, especially through the critical intersection of Route 9 at Route 100. In order to accomplish this, the following commitments are being made.

Guest Policies:

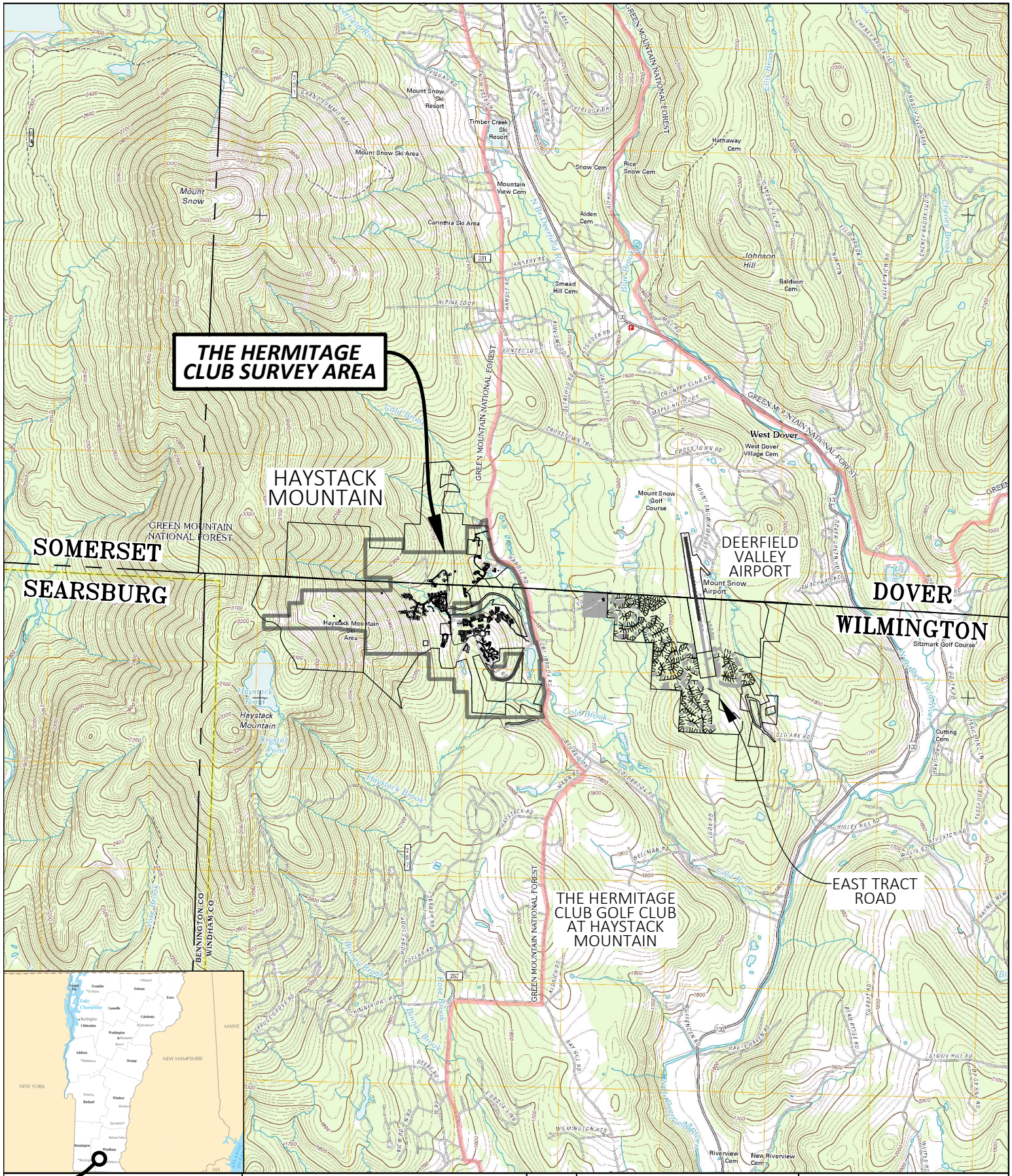
1. The Hermitage Club will encourage guests to approach and depart the Hermitage Club using routes that avoid the intersection of Route 9 at Route 100. In the event that visitors need to pass through that intersection, they will be directed to us Haystack Road and Mann Road. This route will create more through trips through the intersection of Route 9 and Route 100 during peak hours rather than the southbound left turn movements that cause additional delay during peak exiting hours.

2. The Hermitage Club will coordinate with Mount Snow in order to provide Hermitage members and guests with up to date information on the queuing present on Route 100 south at the traffic signal at Route 9 in Wilmington.
3. The Hermitage Club will operate a resort shuttle in order to reduce single occupant trips as much as possible. This will enable large groups to travel to and from the Hermitage Club using fewer trips, knowing that their transportation needs are being taken care of upon arrival.
4. The Hermitage Club will promote Sunday afternoon/night activities to encourage later departures.

Employee Incentives and Policies:

1. All efforts will be made to create shifts for employees that would restrict the number of trips made during the Sunday 3:00 to 5:00 PM timeframe. During employee orientation, employees would be made aware of this critical traffic timeframe and encouraged not to travel during that time.
2. The Hermitage Club will provide ride-matching services for all employees that are interested in such services, especially those with residences to the east along Route 9 in order to reduce travel through the intersection of Route 9 and Route 100.
3. Any employee who participates in a rideshare, who experiences an emergency during the day that requires that employee leave earlier than his/her ride, will be guaranteed a ride home as a part of the program (arranged with other staff or a cab service).

The Hermitage Club will commit to provide Remote Traffic Signal Operation equipment to VTrans in order for them to provide the most efficient traffic signal timings at the intersection of Route 9 and Route 100. The cost of this equipment is estimated at $50,000. Although the Hermitage Club is only contributing a small percentage to the traffic increases at this location (five percent), the Hermitage Club is proposing to contribute the cost of this equipment to ensure optimal operations at this location.



SITE LOCATION IN VERMONT

3960 0 1980 3960

SCALE: 1"= 3960'(3/4 mile)

HARRINGTON ENGINEERING, INC.
P.O. BOX 248
NORTH POMFRET, VT 05053
(802) 457-3151

THE HERMITAGE Club AT HAYSTACK MOUNTAIN

PROJECT:
HAYSTACK MOUNTAIN

SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS
July 22 2015
Site Location Map EXHIBIT 19

FILE NAME: Wetlands ACOE Title
Printed: 7/22/2015 2:58:18 PM

EXISTING LEGEND

- 2100 — Existing Contours
- II 501 / III 505 — Wetland Boundary (Class II & III)
- WB — WB — Wetland Buffer (50' Class II, 25' Class III)
- SB — SB — Stream Buffer (75' unless field located)
- River / Stream / Water Body
- IS — Intermittent Stream / Ditch
- PS — Perennial Stream / Ditch
- UK — Unknown Stream / Ditch
- TOB — Top of Bank
- TOSB — Top of Stream Bank
- FLWAY / FLPL — FEMA Floodway / Flood Plain
- FEHB — Fluvial Erosion Hazard Boundary
- ROW± — Right-Of-Way
- PL± — Property Line
- Tree Line
- Building
- Road / Drive / Parking / Trail
- X — Fence
- Stone / Retaining Wall
- Culvert
- (W) — Drilled Bedrock Well
- EW12 — Water Line (size as indicated)
- 6" Fire Hydrant w/Valve
- OE — Overhead Power w/ Pole & Guy
- ES6 — Sewer Main / Manhole (size as indicated)
- EPS3 — Pressure Sewer (size as indicated)
- ESnow — Snowmaking Line (size as indicated)
- Ski Lift w/ Clearing Offset
- JENNIFER'S RUN — Ski Trail Names
- Building Under Construction
- Vernal Pool
- Existing Snowmobile Trail
- DH.105 — Existing Lot Numbers
- Bear Scarred Beech Trees
- Archaeologically Sensitive Areas

PROPOSED LEGEND

- 1960 — Contours
- Top/Toe of Slope
- Building / Envelope
- Road / Drive / Parking / Trail
- GS — Grass Ditch / Swale
- SS — Stone Ditch / Swale
- W12 — Water Line w/ valve (size as indicated)
- 6" Fire Hydrant w/Valve
- WS — Well Shield (100' Downhill, 200' Uphill)
- S4 — Gravity Sewer Connection (PVC SDR 35) w/ Cleanout (Size as indicated)
- S8 — Gravity Sewer Line (PVC SDR 35) w/ Manhole (Size as indicated)
- PS3 — Pressure Sewer Force Main (Size as indicated)
- U – E3 – T3 – C2 — 3" Electric Conduit, 3" Telephone Conduit, 2" Cable Conduit - Common Trench
- U – E5 – T3 – C2 — 5" Electric Conduit, 3" Telephone Conduit, 2" Cable Conduit - Common Trench
- U – 2E5 – 2T3 – 2CI3 — Underground Common Trench Conduits (2-5" Electric, 2-3" Telephone, 2-3" Cable/Internet)
- UE — Underground Common Trench
- TL — Snowmaking Water Transfer Line
- Precast Catch Basin (48") w/ ADS Pipe (size as indicated)
- ADS Smooth Lined Culvert w/ Tee and Grate (Drop Inlet)
- 30" — Future Stormwater Pipe (size as indicated)
- Top of Berm (Pond & Forebay)
- 3'x50' — Open Bottom Arch Culvert (size as indicated)
- Level Spreader
- Ski Lift w/ Clearing Offset
- Tree Line (Limit Of Disturbance)
- LOD — Limit Of Disturbance
- LODU — Limit Of Disturbance (Future Utilities)
- River / Stream / Water Body
- Ski Trail
- Property Easement
- Zoning Setback
- Proposed Snowmobile Trail

FILE NAME: Wetlands ACOE Title
Printed: 7/22/2015 2:55:27 PM

HARRINGTON ENGINEERING, INC.
P.O. BOX 248
NORTH POMFRET, VT 05053
(802) 457-3151

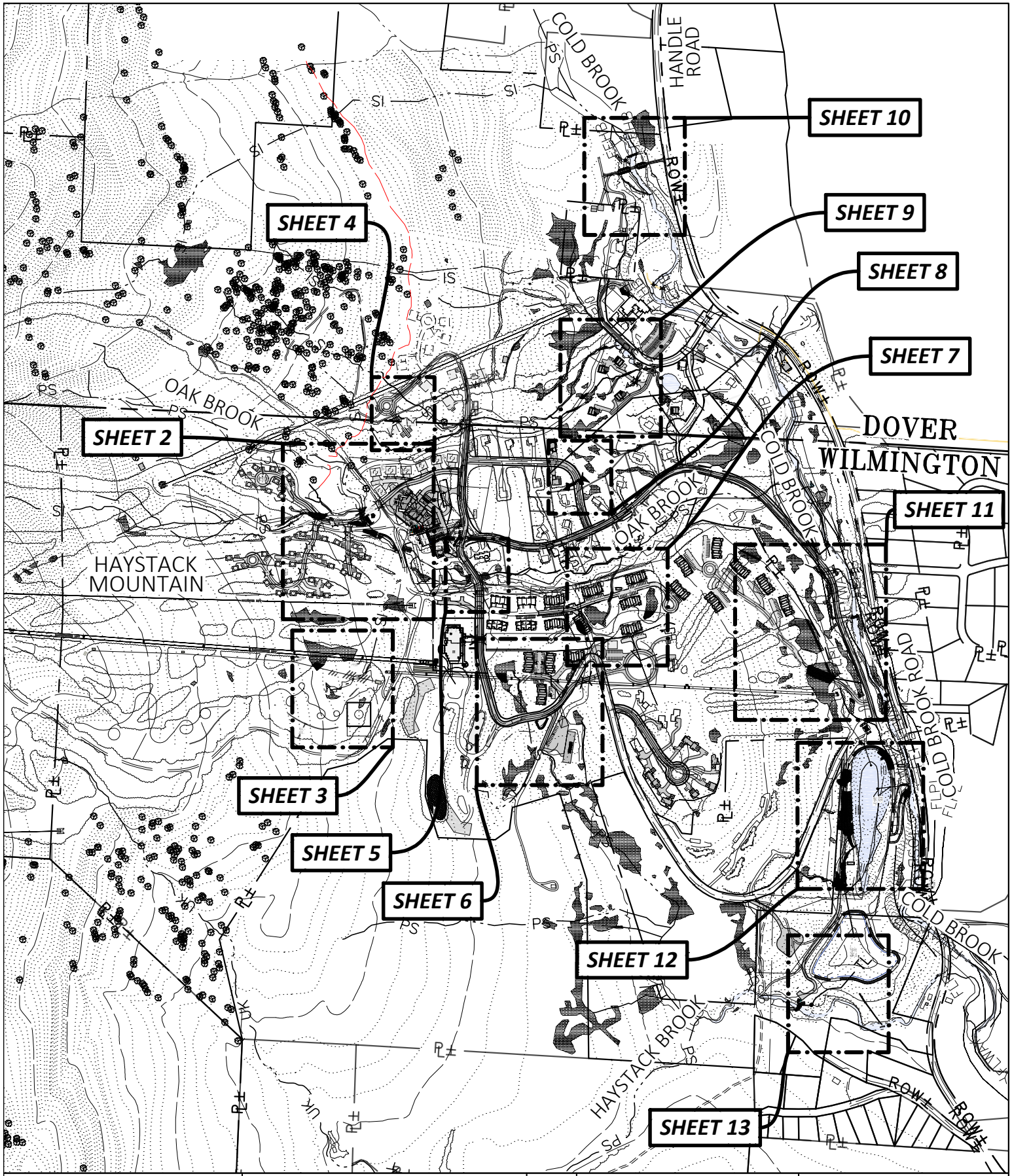
THE HERMITAGE Club
AT HAYSTACK MOUNTAIN

PROJECT:
HAYSTACK MOUNTAIN

SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS

July 22 2015

LEGEND EXHIBIT 19



Wetland
PS Perennial Stream
IS Intermittant Stream
UK Unknown Stream

800 0 400 800

SCALE: 1"= 800'

HARRINGTON ENGINEERING, INC.
P.O. BOX 248
NORTH POMFRET, VT 05053
(802) 457-3151

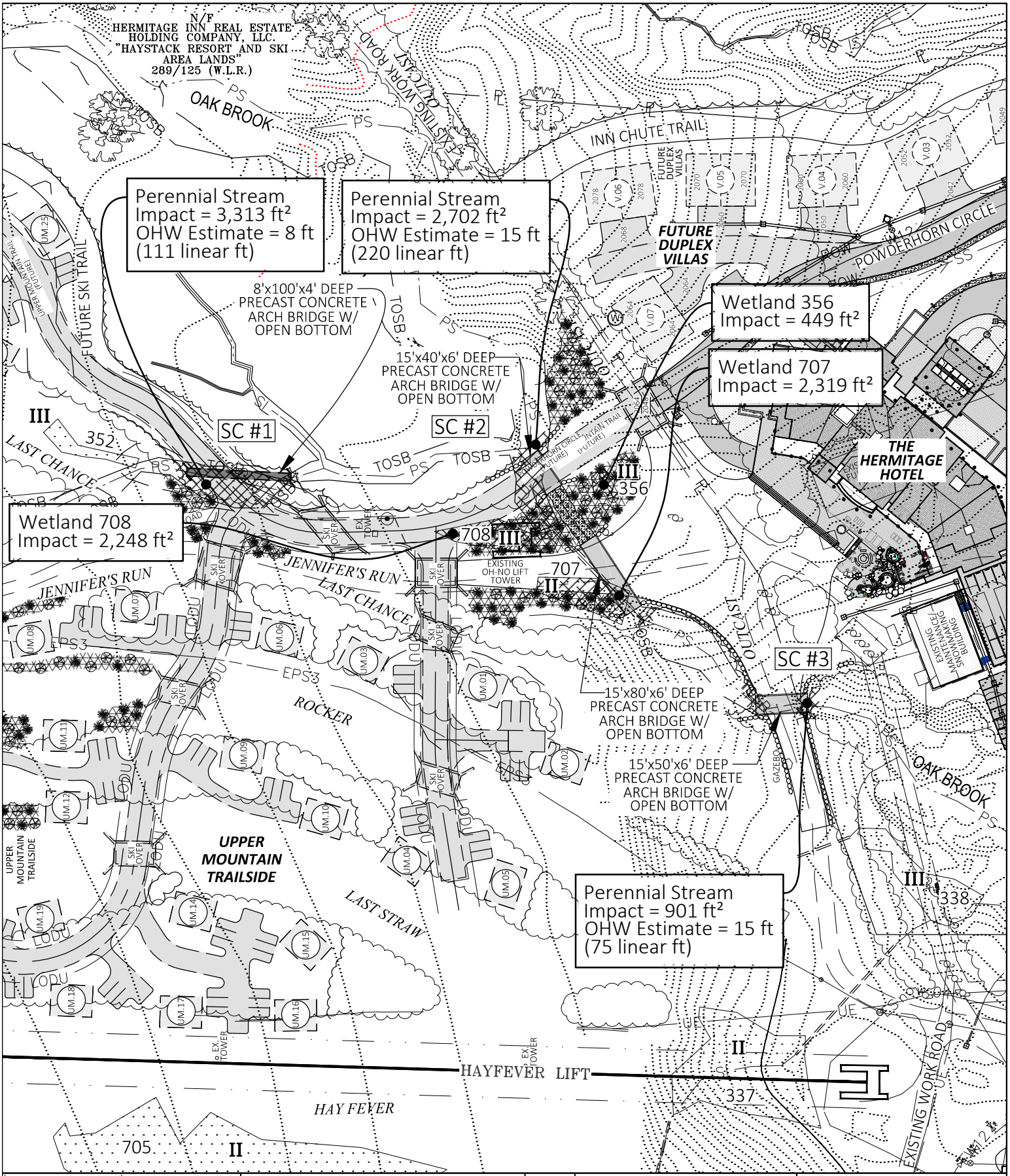
THE HERMITAGE Club
AT HAYSTACK MOUNTAIN

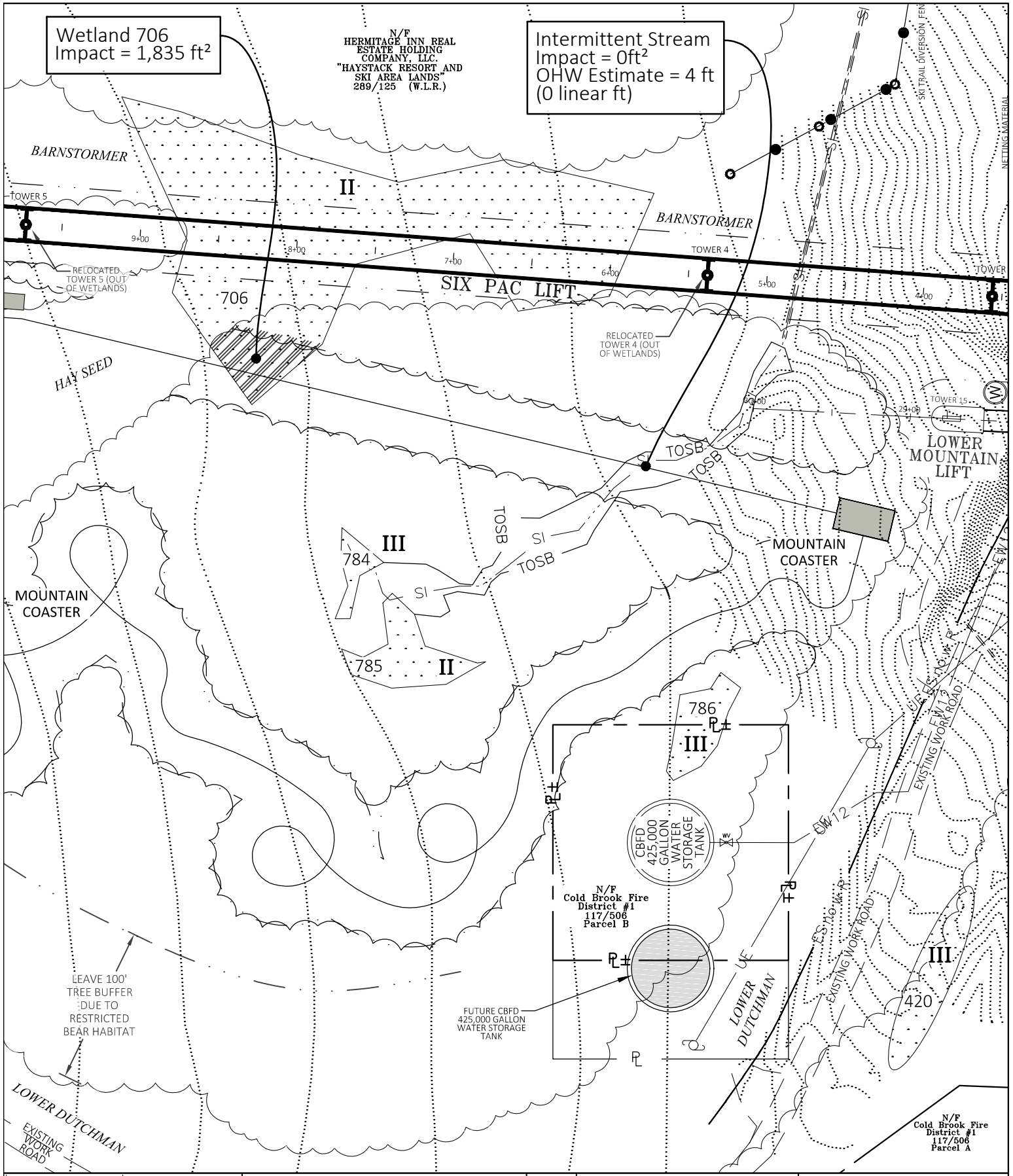
PROJECT:
HAYSTACK MOUNTAIN

SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS
August 19 2015

SHEET #1 EXHIBIT 19

FILE NAME: Wetlands ACOE MTN
Printed: 8/19/2015 4:39:21 PM


N/F
HERMITAGE INN REAL ESTATE HOLDING COMPANY, LLC.
"HAYSTACK RESORT AND SKI AREA LANDS"
289/125 (W.L.R.)
Perennial Stream
Impact = 3,313 ft²
OHW Estimate = 8 ft
(111 linear ft)
Perennial Stream
Impact = 2,702 ft²
OHW Estimate = 15 ft
(220 linear ft)
8'x100'x4' DEEP PRECAST CONCRETE ARCH BRIDGE W/ OPEN BOTTOM
15'x40'x6' DEEP PRECAST CONCRETE ARCH BRIDGE W/ OPEN BOTTOM
SC #1
SC #2
SC #3
Wetland 356
Impact = 449 ft²
Wetland 707
Impact = 2,319 ft²
Wetland 708
Impact = 2,248 ft²
15'x80'x6' DEEP PRECAST CONCRETE ARCH BRIDGE W/ OPEN BOTTOM
15'x50'x6' DEEP PRECAST CONCRETE ARCH BRIDGE W/ OPEN BOTTOM
Perennial Stream
Impact = 901 ft²
OHW Estimate = 15 ft
(75 linear ft)
FUTURE DUPLEX VILLAS
THE HERMITAGE HOTEL
EXISTING OH-NO LIFT TOWER
HAYFEVER LIFT
FUTURE SKI TRAIL
UPPER MOUNTAIN TRAILSIDE
LAST CHANCE
JENNIFER'S RUN
ROCKER
LAST STRAW
HAY FEVER
OUTCAST
OAK BROOK
INN CHUTE TRAIL
POWDERHORN CIRCLE
EXISTING WORK ROAD
352
356
707
708
705
338
337
Wetland
Perennial Stream
Intermittant Stream
Unknown Stream
OHW (TOSB)
Primary Impacted (Grading) Area
Secondary (Clearing) Impacted Area
120 0 60 120
SCALE: 1"= 120'
HARRINGTON ENGINEERING, INC.
P.O. BOX 248
NORTH POMFRET, VT 05053
(802) 457-3151
THE HERMITAGE Club
AT HAYSTACK MOUNTAIN
PROJECT:
THE HERMITAGE HOTEL; UPPER MOUNTAIN TRAILSIDE
SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS
August 19 2015
SHEET #2 EXHIBIT 19
FILE NAME: Wetlands ACOE MTN
Printed: 8/19/2015 5:04:46 PM



Wetland
PS Perennial Stream
IS Intermittant Stream
UK Unknown Stream
TOSB OHW (TOSB)
Primary Impacted (Grading) Area
Secondary (Clearing) Impacted Area

FILE NAME: Wetlands ACOE MTN
Printed: 7/22/2015 2:22:05 PM

80 0 40 80
SCALE: 1"= 80'

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P.O. BOX 248
NORTH POMFRET, VT 05053
(802) 457-3151

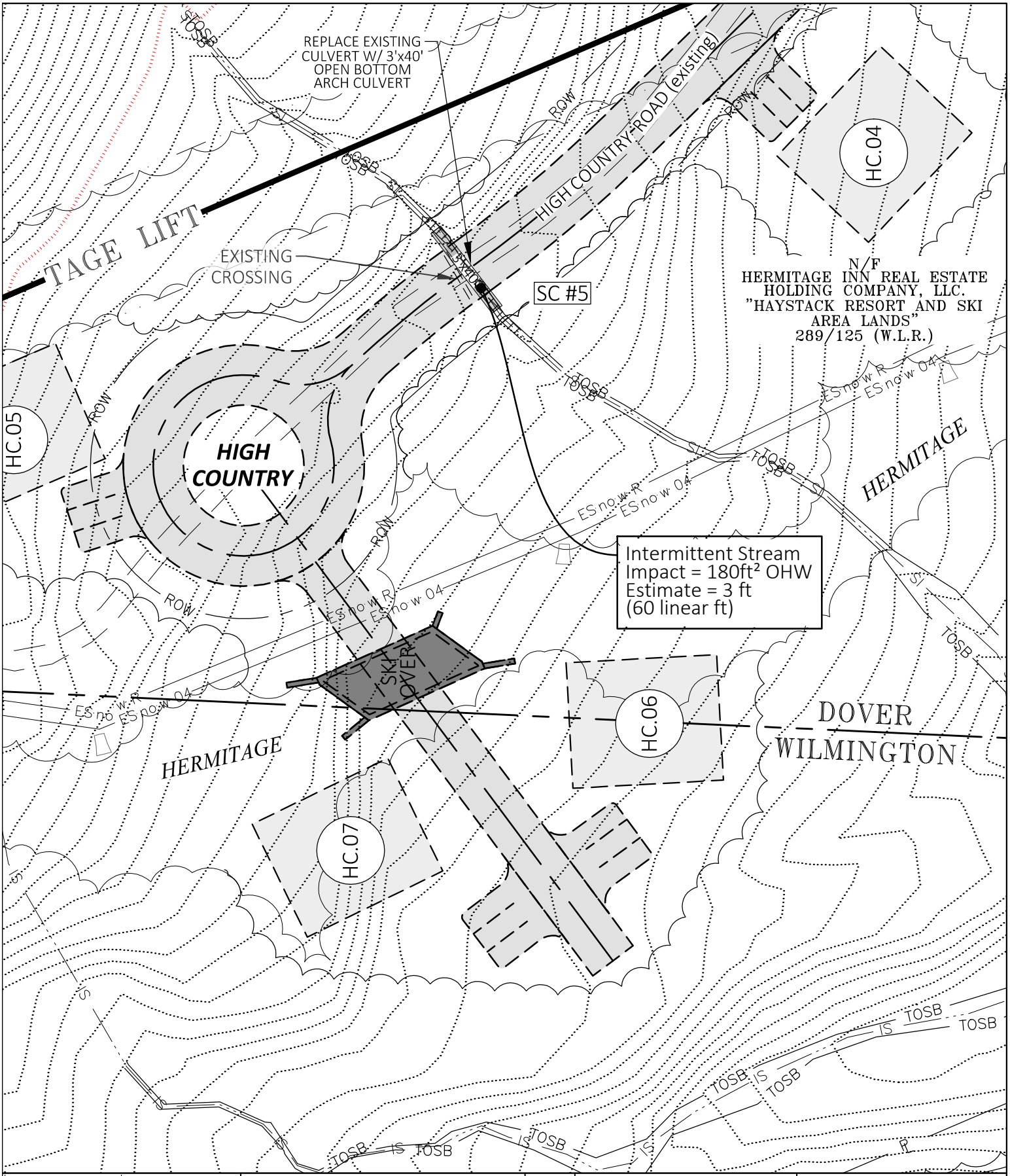
THE HERMITAGE Club
AT HAYSTACK MOUNTAIN

PROJECT:
MOUNTAIN COASTER;
SIX PAC LIFT

SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS

July 22 2015

SHEET #3 EXHIBIT 19



PS	Wetland
IS	Perennial Stream
UK	Intermittant Stream
TOSB	Unknown Stream
	OHW (TOSB)
	Primary Impacted (Grading) Area
	Secondary (Clearing) Impacted Area

FILE NAME: Wetlands ACOE MTN
Printed: 7/22/2015 2:22:46 PM

50 0 25 50
SCALE: 1"= 50'

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(802) 457-3151

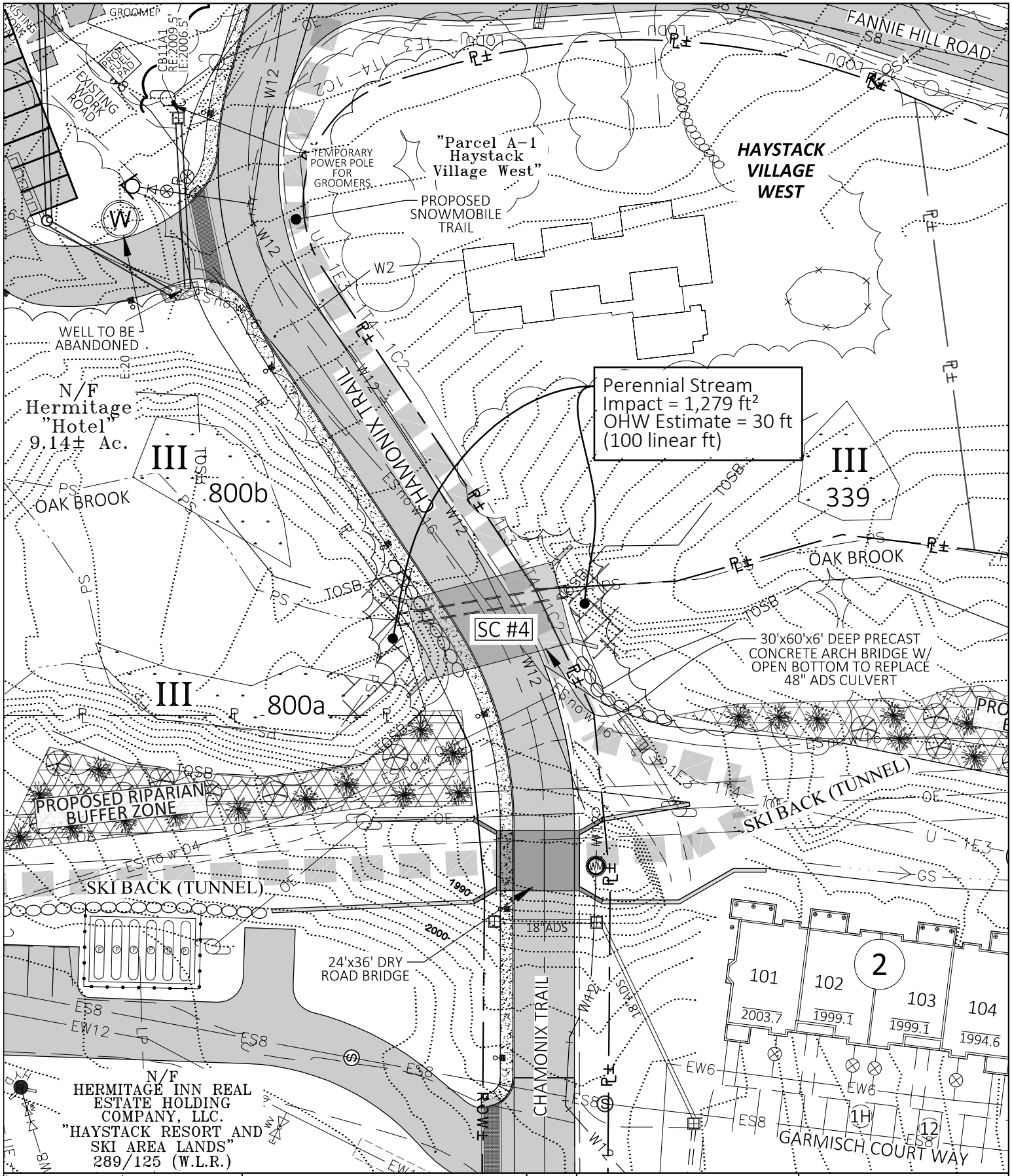
THE HERMITAGE Club
AT HAYSTACK MOUNTAIN

PROJECT:
HIGH COUNTRY

SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS

July 22 2015

SHEET #4 EXHIBIT 19



FILE NAME: Wetlands ACOE MTN
Printed: 8/19/2015 4:59:54 PM

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P.O. BOX 248
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(802) 457-3151

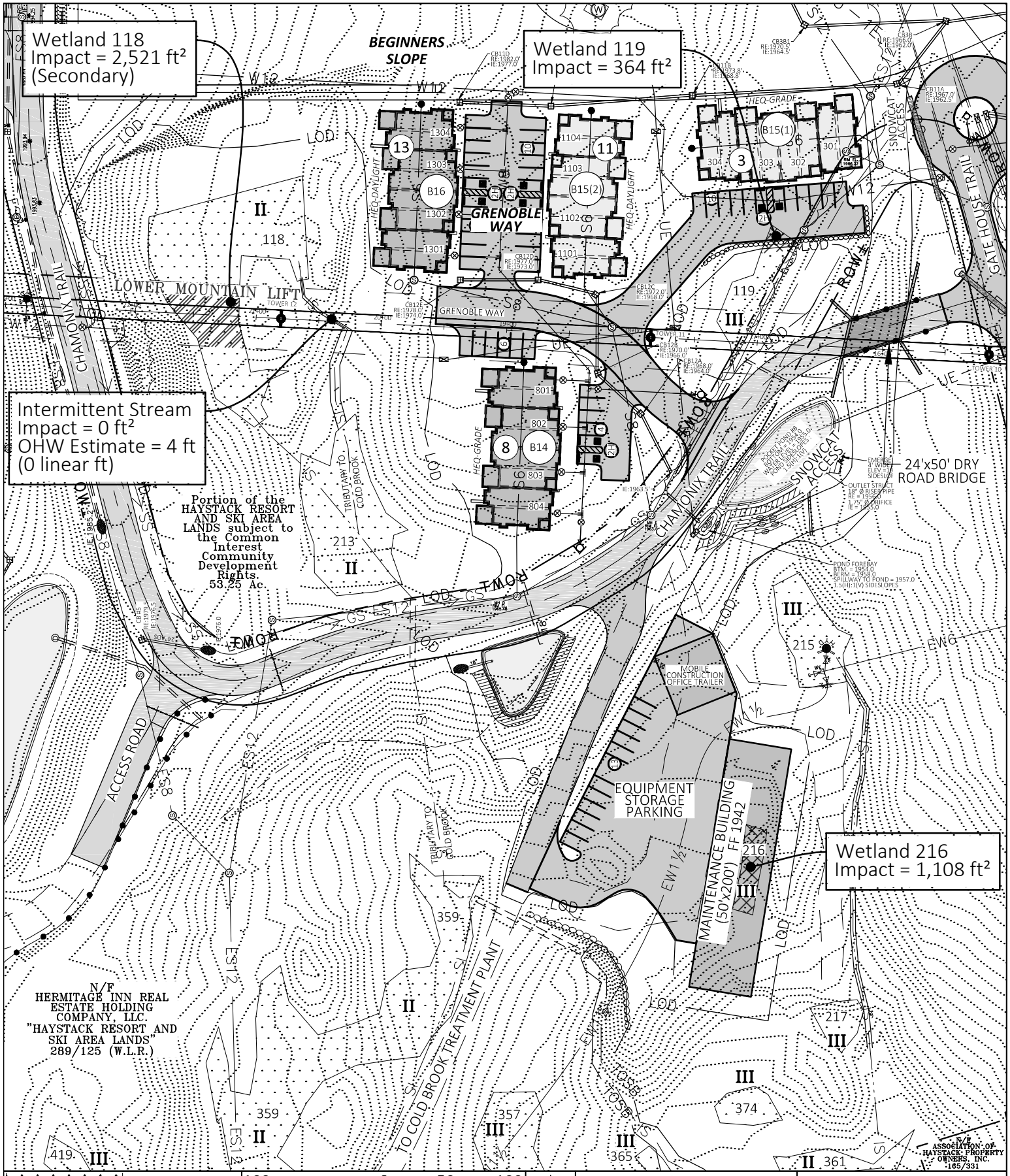
THE HERMITAGE Club
AT HAYSTACK MOUNTAIN

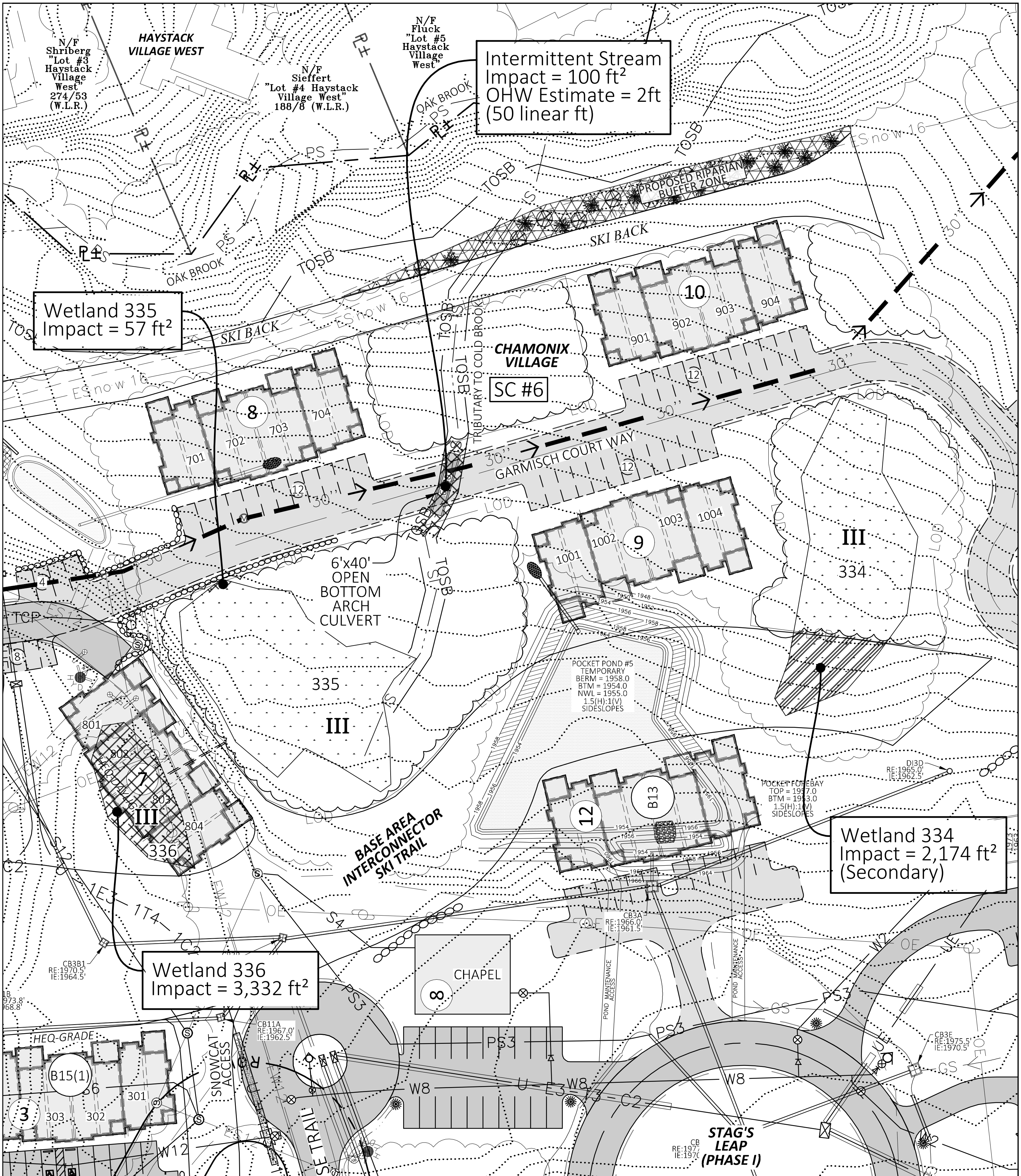
PROJECT:
CHAMONIX TRAIL CROSSING

SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS

August 19 2015

SHEET #5 EXHIBIT 19


Wetland 118
Impact = 2,521 ft²
(Secondary)
Wetland 119
Impact = 364 ft²
Intermittent Stream
Impact = 0 ft²
OHW Estimate = 4 ft
(0 linear ft)
Wetland 216
Impact = 1,108 ft²
BEGINNERS SLOPE
GRENOBLE WAY
LOWER MOUNTAIN LIFT
CHAMONIX TRAIL
GATE HOUSE TRAIL
SNOWCAT ACCESS
ACCESS ROAD
24'x50' DRY ROAD BRIDGE
Portion of the HAYSTACK RESORT AND SKI AREA LANDS subject to the Common Interest Community Development Rights. 53.25 Ac.
EQUIPMENT STORAGE PARKING
MAINTENANCE BUILDING (50'x200') FF 1942
MOBILE CONSTRUCTION OFFICE TRAILER
TRIBUTARY TO COLD BROOK
TO COLD BROOK TREATMENT PLANT
N/F HERMITAGE INN REAL ESTATE HOLDING COMPANY, LLC. "HAYSTACK RESORT AND SKI AREA LANDS" 289/125 (W.L.R.)
N/F ASSOCIATION OF HAYSTACK PROPERTY OWNERS, INC. -165/331
Wetland
PS Perennial Stream
IS Intermittant Stream
UK Unknown Stream
TOSB OHW (TOSB)
Primary Impacted (Grading) Area
Secondary (Clearing) Impacted Area
100 0 50 100
SCALE: 1"= 100'
HARRINGTON ENGINEERING, INC.
P.O. BOX 248
NORTH POMFRET, VT 05053
(802) 457-3151
THE HERMITAGE Club
AT HAYSTACK MOUNTAIN
PROJECT:
CHAMONIX VILLAGE; PROP. MAINTENANCE
SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS
July 22 2015
SHEET #6 EXHIBIT 19
FILE NAME: Wetlands ACOE MTN
Printed: 7/22/2015 2:25:39 PM



Legend	
	Wetland
— PS —	Perennial Stream
— IS —	Intermittant Stream
— UK —	Unknown Stream
— TOSB —	OHW (TOSB)
	Primary Impacted (Grading) Area
	Secondary (Clearing) Impacted Area

FILE NAME: Wetlands ACOE MTN

Printed: 8/19/2015 4:46:20 PM

80 0 40 80

SCALE: 1"= 80'

HARRINGTON ENGINEERING, INC.
P.O. BOX 248
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(802) 457-3151

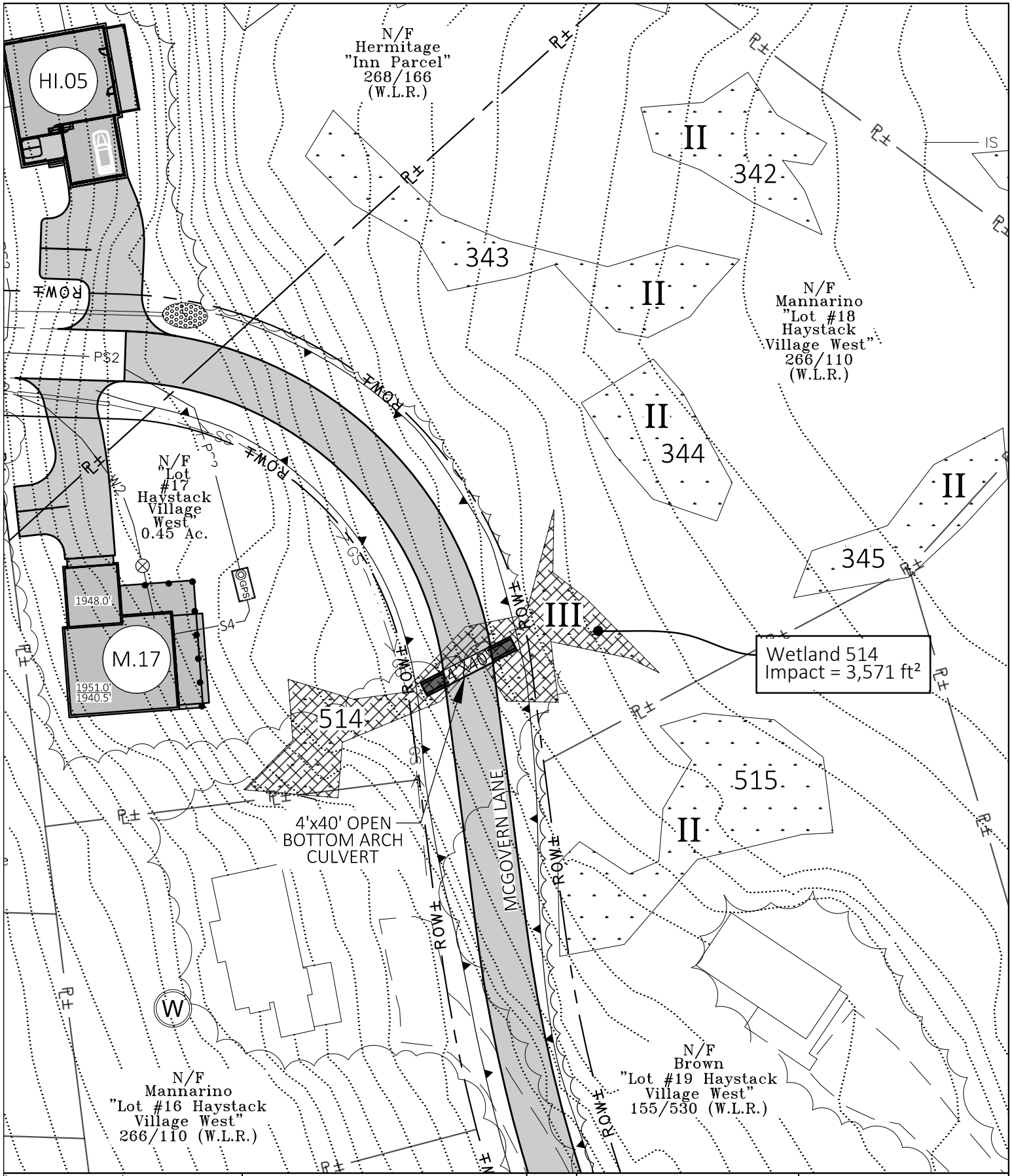
THE HERMITAGE Club AT HAYSTACK MOUNTAIN

PROJECT:
CHAMONIX VILLAGE

SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS

August 19 2015

SHEET #7 EXHIBIT 19



	Wetland
PS	Perennial Stream
IS	Intermittant Stream
UK	Unknown Stream
TOSB	OHW (TOSB)
	Primary Impacted (Grading) Area
	Secondary (Clearing) Impacted Area

FILE NAME: Wetlands ACOE MTN
Printed: 7/22/2015 2:27:17 PM

50 0 25 50
SCALE: 1"= 50'

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P.O. BOX 248
NORTH POMFRET, VT 05053
(802) 457-3151

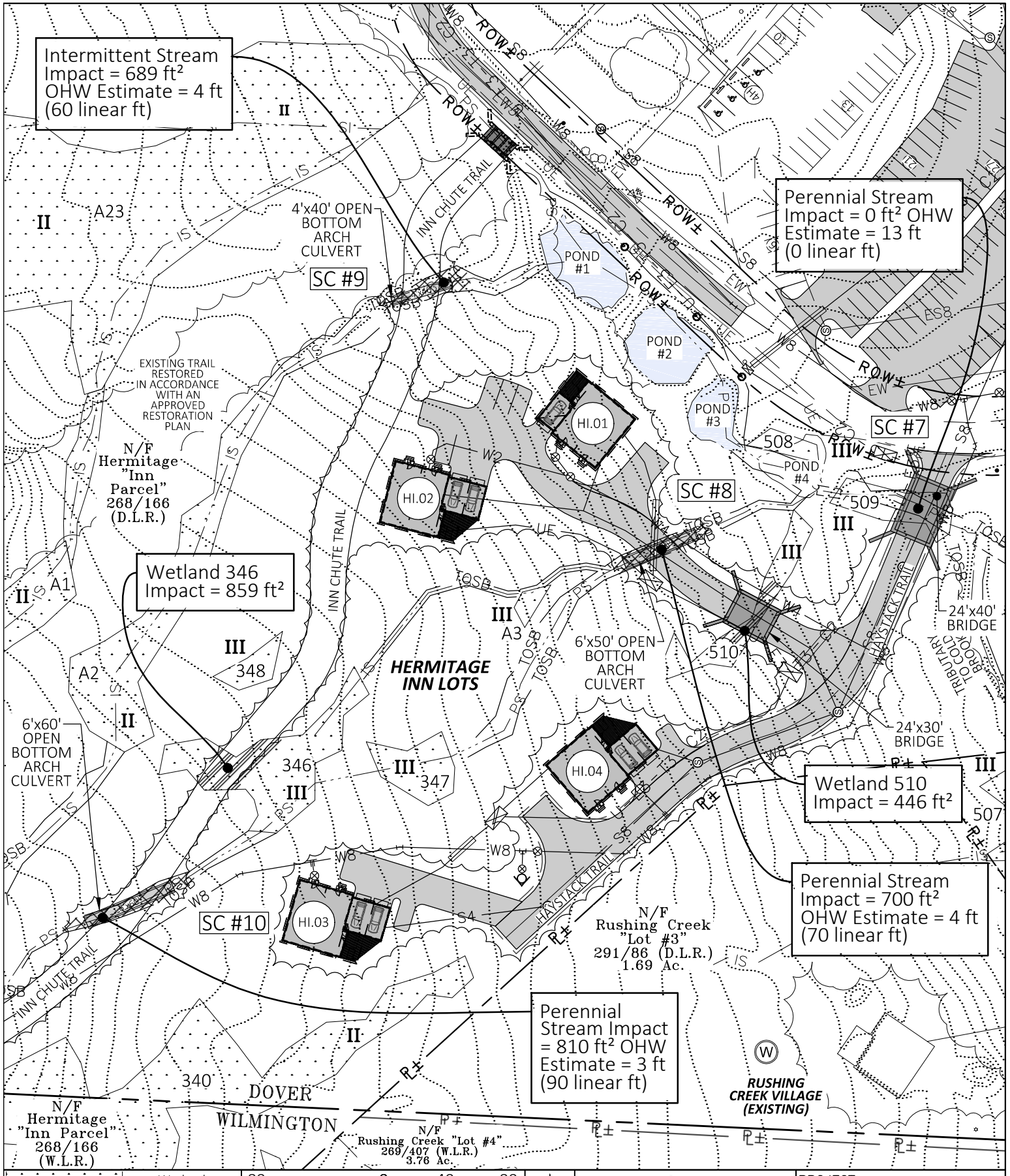
THE HERMITAGE Club
AT HAYSTACK MOUNTAIN

PROJECT:
HAYSTACK VILLAGE WEST - MCGOVERN LANE

SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS

July 22 2015

SHEET #8 EXHIBIT 19



Wetland
PS Perennial Stream
IS Intermittant Stream
UK Unknown Stream
TOSB OHW (TOSB)
Primary Impacted (Grading) Area
Secondary (Clearing) Impacted Area

FILE NAME: Wetlands ACOE MTN
Printed: 8/19/2015 4:41:13 PM

80 0 40 80
SCALE: 1"= 80'

HARRINGTON ENGINEERING, INC.
P.O. BOX 248
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(802) 457-3151

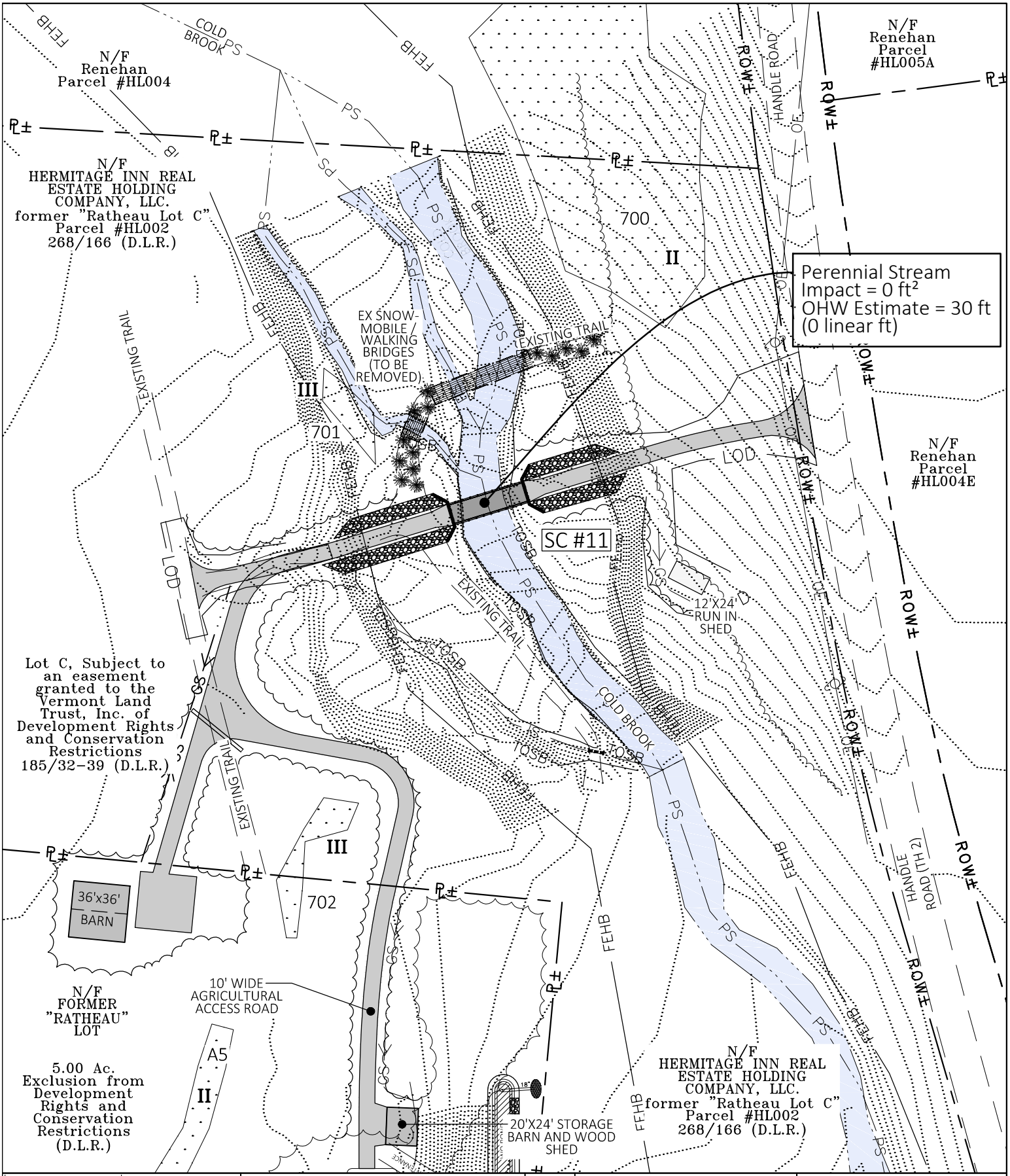
THE HERMITAGE Club
AT HAYSTACK MOUNTAIN

PROJECT:
HERMITAGE INN LOTS;
INN CHUTE TRAIL

SHEET TITLE:
WETLANDS & SURFACE
WATER IMPACT AREAS

August 19 2015

SHEET #9 EXHIBIT 19



Wetland	
PS	Perennial Stream
IS	Intermittant Stream
UK	Unknown Stream
TOSB	OHW (TOSB)
	Primary Impacted (Grading) Area
	Secondary (Clearing) Impacted Area

FILE NAME: Wetlands ACOE MTN
Printed: 7/22/2015 2:28:32 PM

80 0 40 80
SCALE: 1"= 80'

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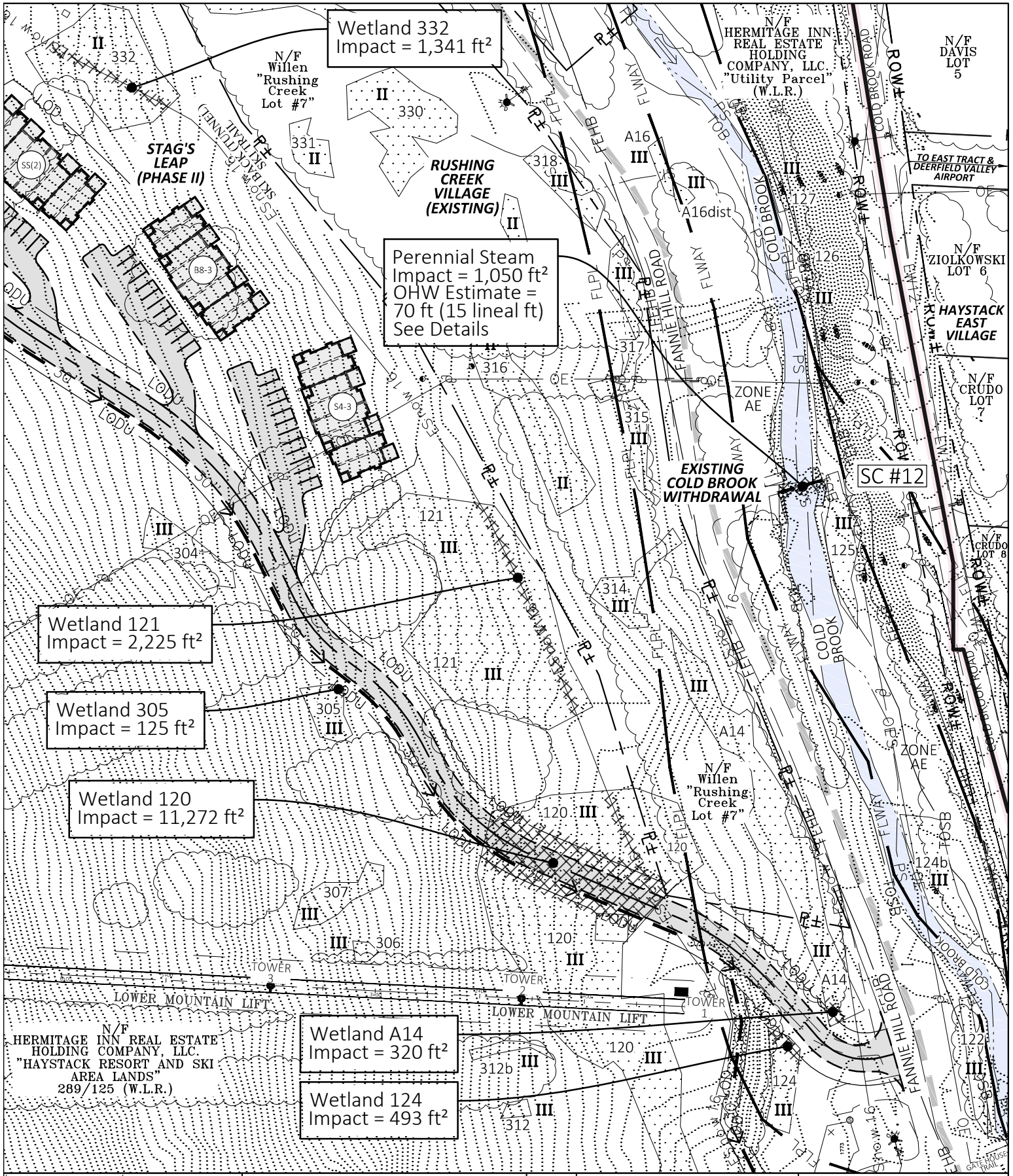
P.O. BOX 248
NORTH POMFRET, VT 05053
(802) 457-3151

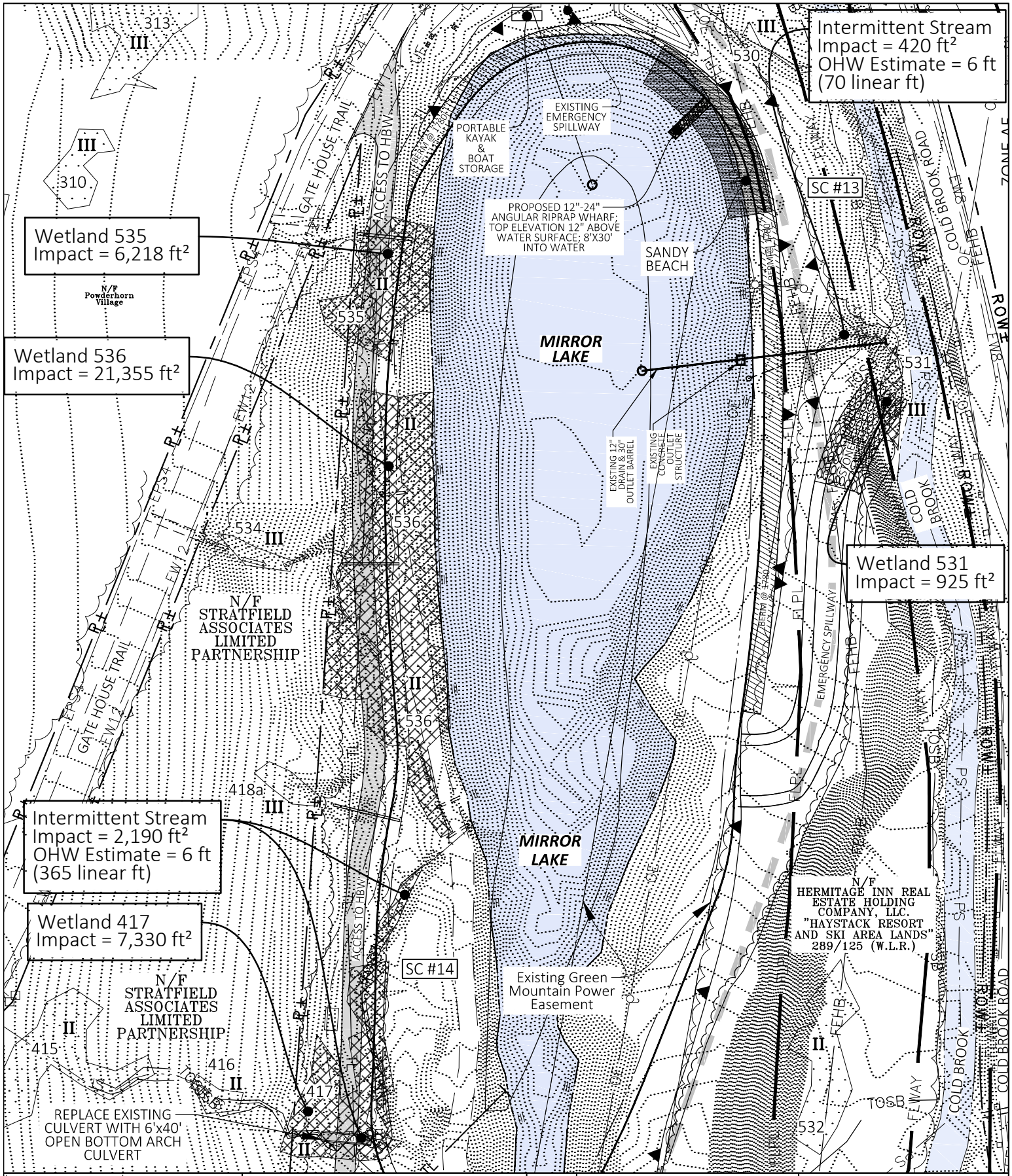
THE HERMITAGE *Club*
AT HAYSTACK MOUNTAIN

PROJECT:
KINGSLEY BRIDGE

SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS
July 22 2015

SHEET #10


Wetland 332
Impact = 1,341 ft²
Perennial Steam
Impact = 1,050 ft²
OHW Estimate =
70 ft (15 lineal ft)
See Details
Wetland 121
Impact = 2,225 ft²
Wetland 305
Impact = 125 ft²
Wetland 120
Impact = 11,272 ft²
Wetland A14
Impact = 320 ft²
Wetland 124
Impact = 493 ft²
STAG'S LEAP (PHASE II)
RUSHING CREEK VILLAGE (EXISTING)
EXISTING COLD BROOK WITHDRAWAL
HAYSTACK EAST VILLAGE
SC #12
N/F Willen "Rushing Creek Lot #7"
N/F HERMITAGE INN REAL ESTATE HOLDING COMPANY, LLC. "Utility Parcel" (W.L.R.)
N/F DAVIS LOT 5
N/F ZIOLKOWSKI LOT 6
N/F CRUDO LOT 7
N/F CRUDO LOT 8
N/F HERMITAGE INN REAL ESTATE HOLDING COMPANY, LLC. "HAYSTACK RESORT AND SKI AREA LANDS" 289/125 (W.L.R.)
TO EAST TRACT & DEERFIELD VALLEY AIRPORT
FANNIE HILL ROAD
COLD BROOK ROAD
LOWER MOUNTAIN LIFT
TOWER 1
TOWER 2
TOWER 3
ZONE AE
ROW
FLPL
FEHB
FLWAY
TOB
TOSB
LODU
Wetland
Perennial Stream
Intermittant Stream
Unknown Stream
OHW (TOSB)
Primary Impacted (Grading) Area
Secondary (Clearing) Impacted Area
120 0 60 120
SCALE: 1"= 120'
FILE NAME: Wetlands ACOE MTN
Printed: 7/22/2015 2:33:47 PM
HARRINGTON ENGINEERING, INC.
P.O. BOX 248
NORTH POMFRET, VT 05053
(802) 457-3151
THE HERMITAGE Club
AT HAYSTACK MOUNTAIN
PROJECT:
STAG'S LEAP (PHASE II); COLD BROOK WITHDRAWAL
SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS
July 22 2015
SHEET #11 EXHIBIT 19



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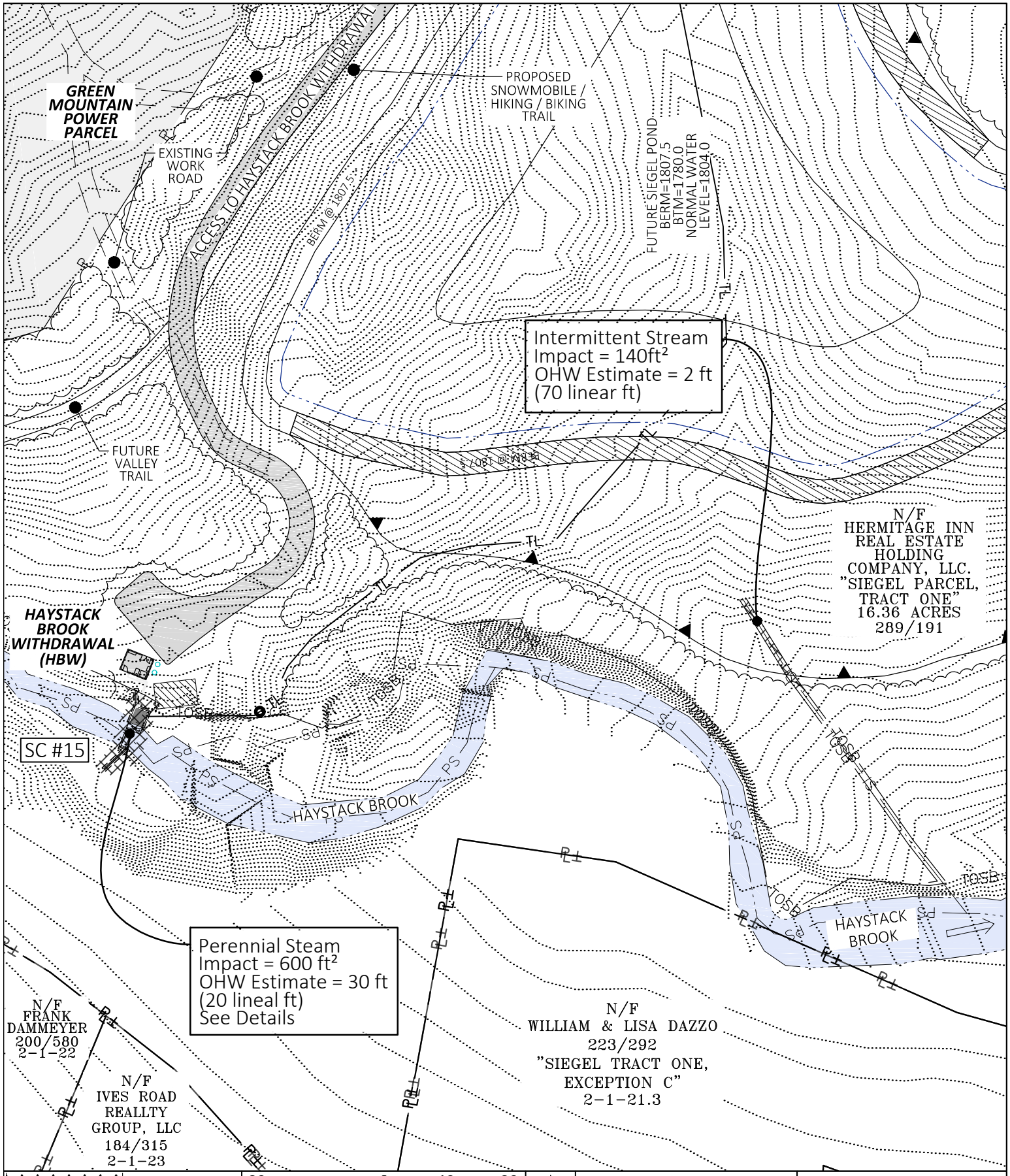
THE HERMITAGE Club
AT HAYSTACK MOUNTAIN

PROJECT:
MIRROR LAKE

SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS

July 22 2015

SHEET #12 EXHIBIT 19



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Printed: 7/22/2015 2:36:12 PM

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NORTH POMFRET, VT 05053
(802) 457-3151

THE HERMITAGE Club
AT HAYSTACK MOUNTAIN

PROJECT:
HAYSTACK BROOK WITHDRAWAL, SIEGEL POND

SHEET TITLE:
WETLANDS & SURFACE WATER IMPACT AREAS

July 22 2015

SHEET #13 EXHIBIT 19

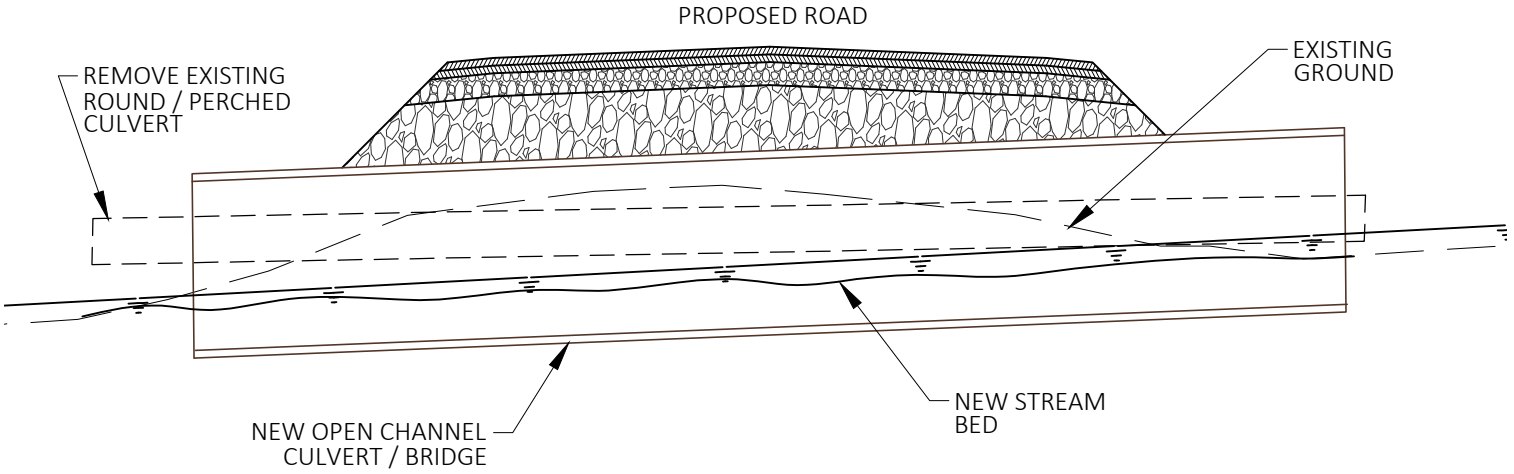
TYPICAL ROUND CULVERT REPLACEMENT WITH OPEN CHANNEL STREAM CROSSING

NTS

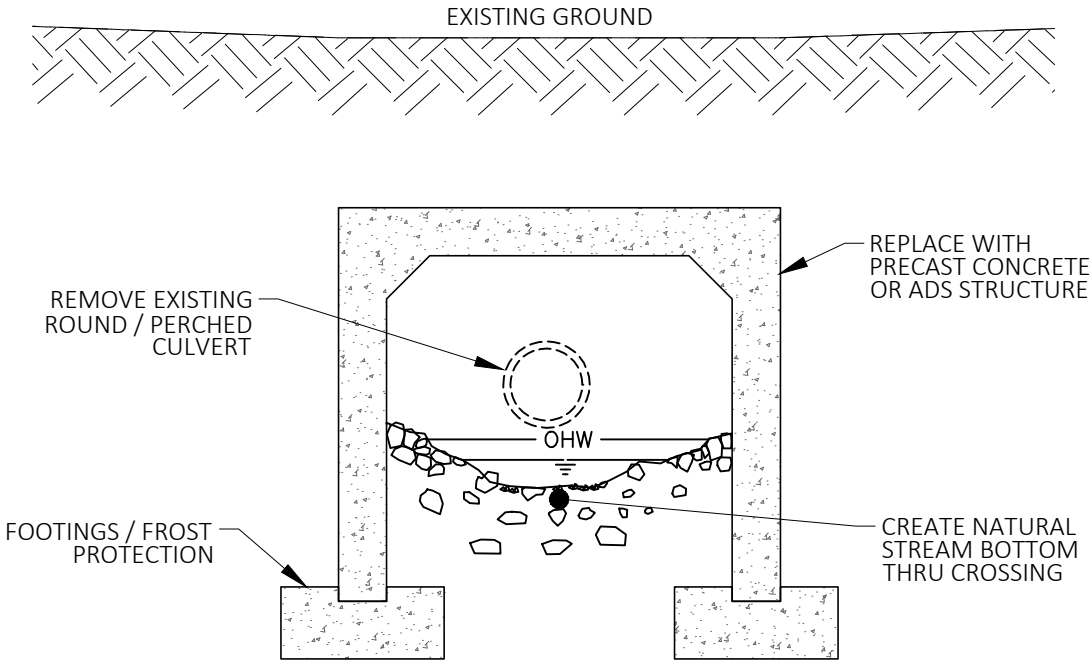
NOTES:

1. PRECAST CONCRETE BOX CULVERT WITH BAFFLES WHERE SLOPE ALLOWS.
2. ALL CROSSINGS TO BE INDIVIDUALLY ENGINEERED.

PROFILE



CROSS SECTION



HARRINGTON ENGINEERING, INC.
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NORTH POMFRET, VT 05053
(802) 457-3151

FILE NAME: Wetlands ACOE MTN
Printed: 7/22/2015 2:17:42 PM

THE HERMITAGE Club
AT HAYSTACK MOUNTAIN

PROJECT:
HAYSTACK MOUNTAIN

SHEET TITLE:
STREAM CROSSING DETAILS

July 22 2015

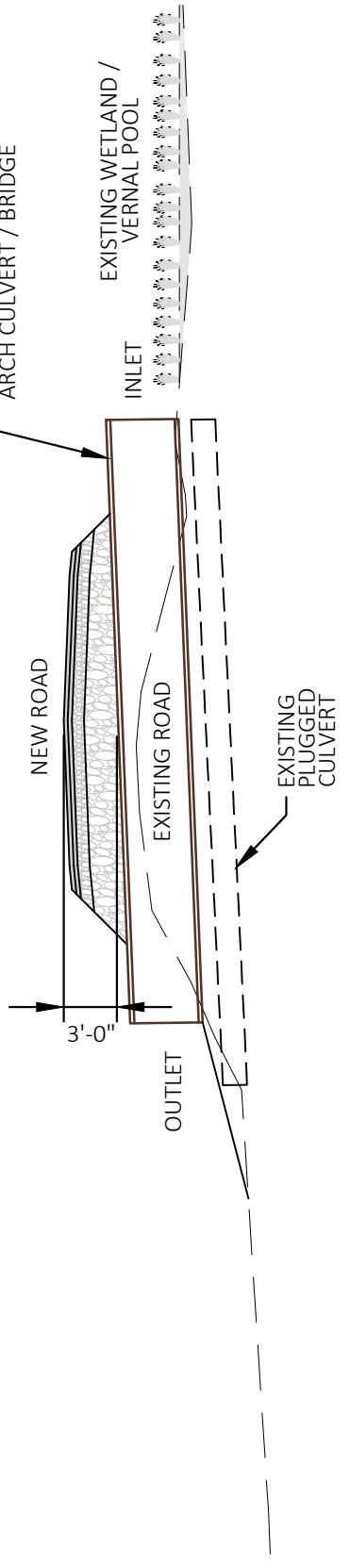
SHEET #14 EXHIBIT 19

AMPHIBIAN ROAD CROSSING – EAST TRACT ROAD

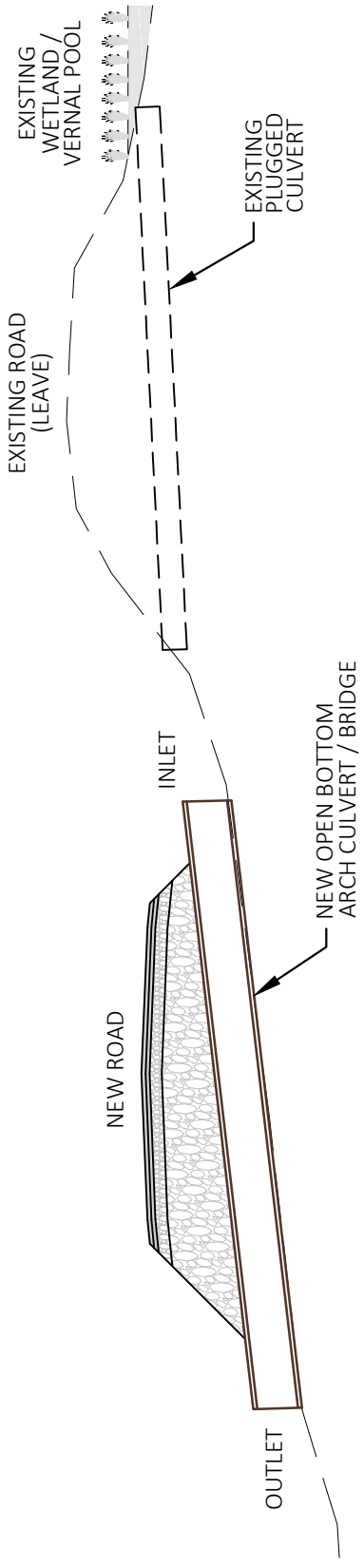
(ALL STREAMS & DRAINAGE WITH WETLANDS ABOVE ROADWAY)

METHOD A – ROAD BUILDUP

INSTALL ARCH CULVERT, BUILD ROAD UP 3 FEET, FEATHER OUT OVER 200 FEET.



METHOD B – MOVE ROAD DOWNHILL, LEAVE EXISTING



General Notes:

- 9020 (Erosion Control) and 9015 (Stormwater) Permits required prior to construction
- No treatment or direct discharges to any wetlands or vernal pools
- Post-development runoff same or less than pre-development runoff. No open detention ponds.

HARRINGTON ENGINEERING, INC.
P.O. BOX 248
NORTH POMFRET, VT 05053
(802) 457-3151

FILE NAME: Wetlands ACOE MTN
Printed: 7/22/2015 2:17:09 PM

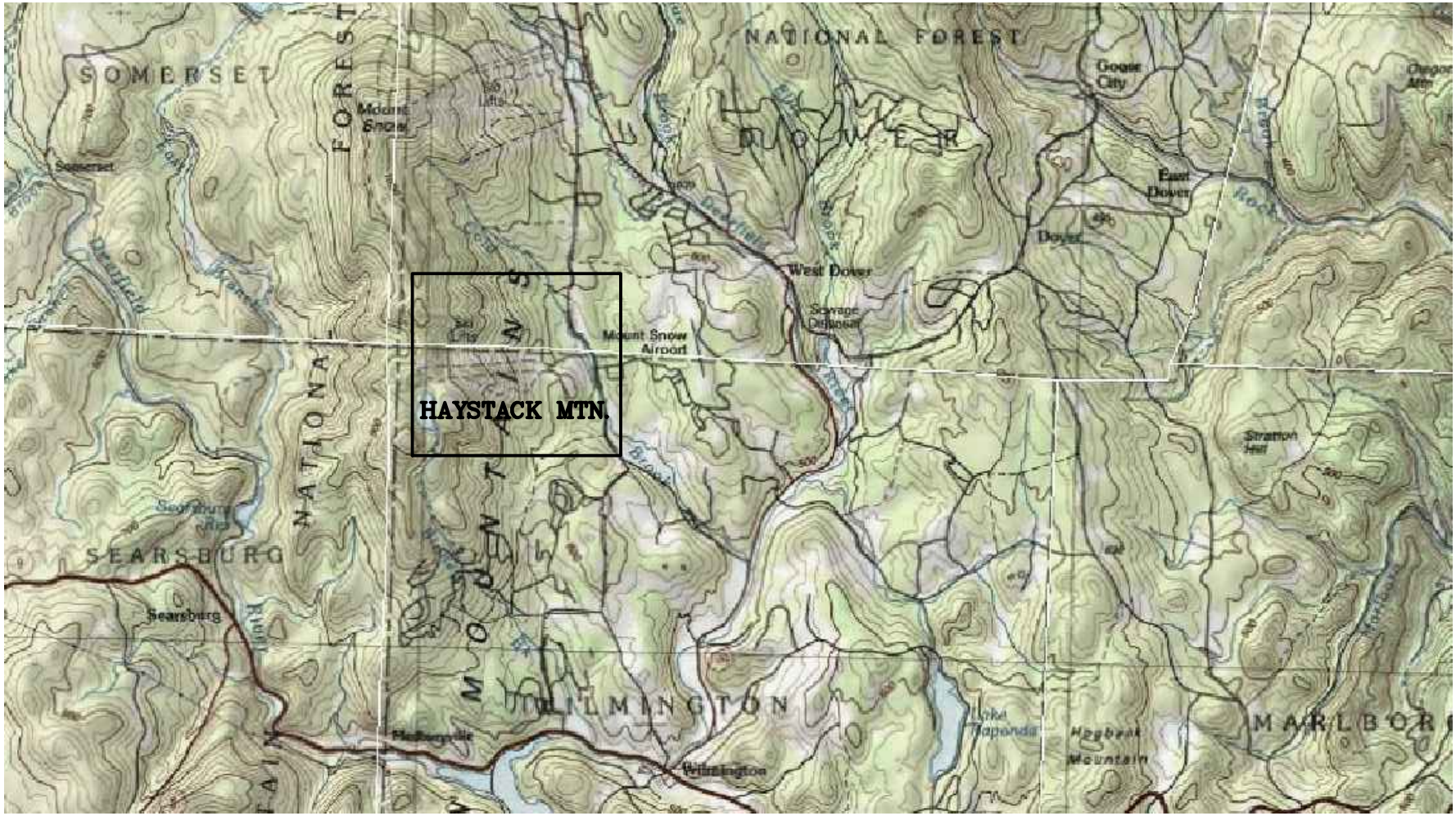
THE HERMITAGE Club
AT HAYSTACK MOUNTAIN

PROJECT:
HAYSTACK MOUNTAIN

SHEET TITLE:
AMPHIBIAN ROAD CROSSING DETAILS

July 22 2015

SHEET #15 EXHIBIT 19



NOT TO SCALE

THE HERMITAGE CLUB
AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

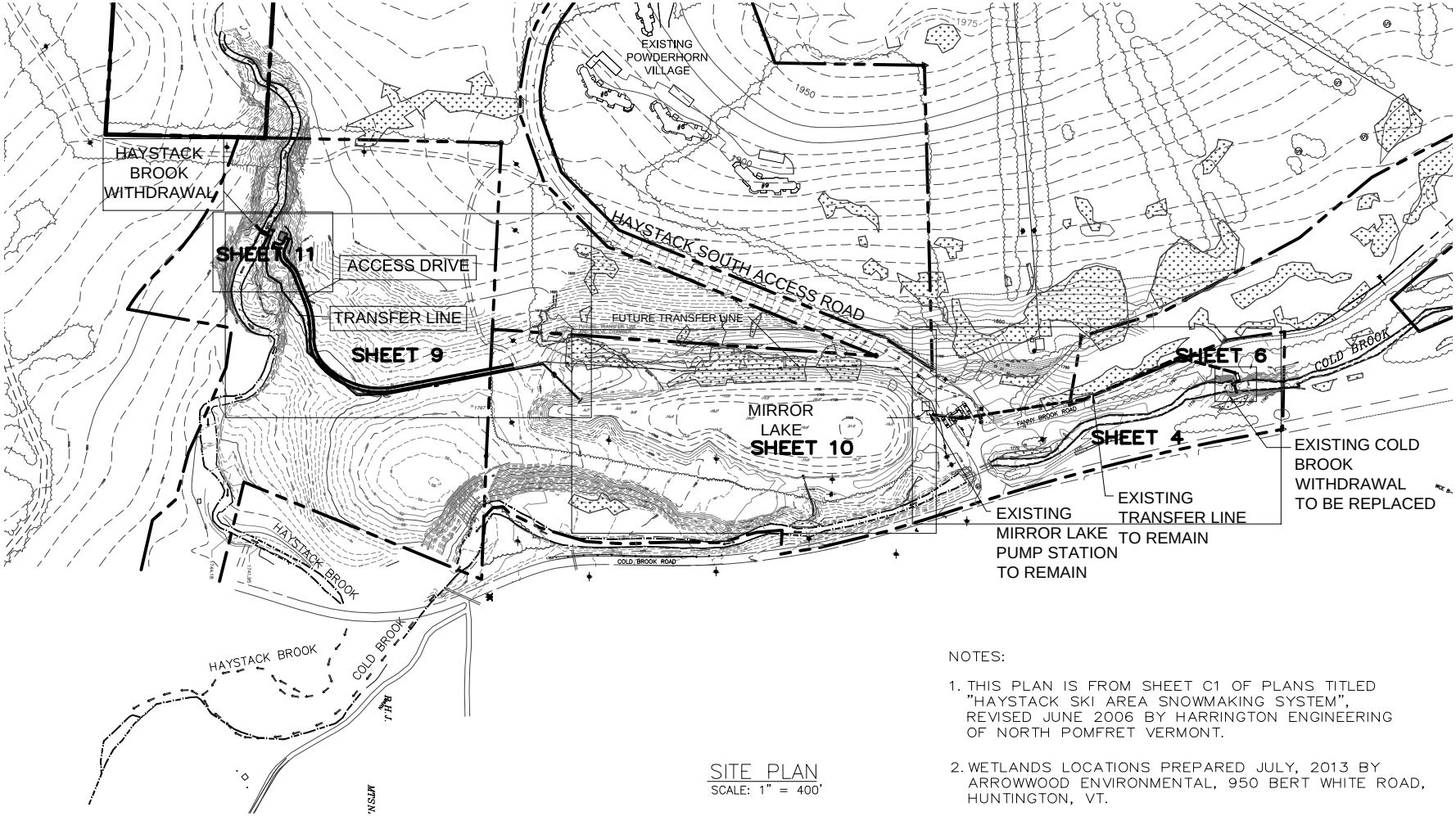
WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

PROJECT LOCATION MAP

SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 1
JULY 13, 2015



SITE PLAN
SCALE: 1" = 400'

NOTES:

1. THIS PLAN IS FROM SHEET C1 OF PLANS TITLED "HAYSTACK SKI AREA SNOWMAKING SYSTEM", REVISED JUNE 2006 BY HARRINGTON ENGINEERING OF NORTH POMFRET VERMONT.
2. WETLANDS LOCATIONS PREPARED JULY, 2013 BY ARROWWOOD ENVIRONMENTAL, 950 BERT WHITE ROAD, HUNTINGTON, VT.

--1840-- EXIST. CONTOUR
EXIST. STREAM
WETLANDS
TL NEW TRANSFER LINE
E EXIST. POWER POLE AND HIGH VOLTAGE POWER LINE
APPROX. PROPERTY LINE

400 0 400
1 in = 400 ft.

THE HERMITAGE CLUB
AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

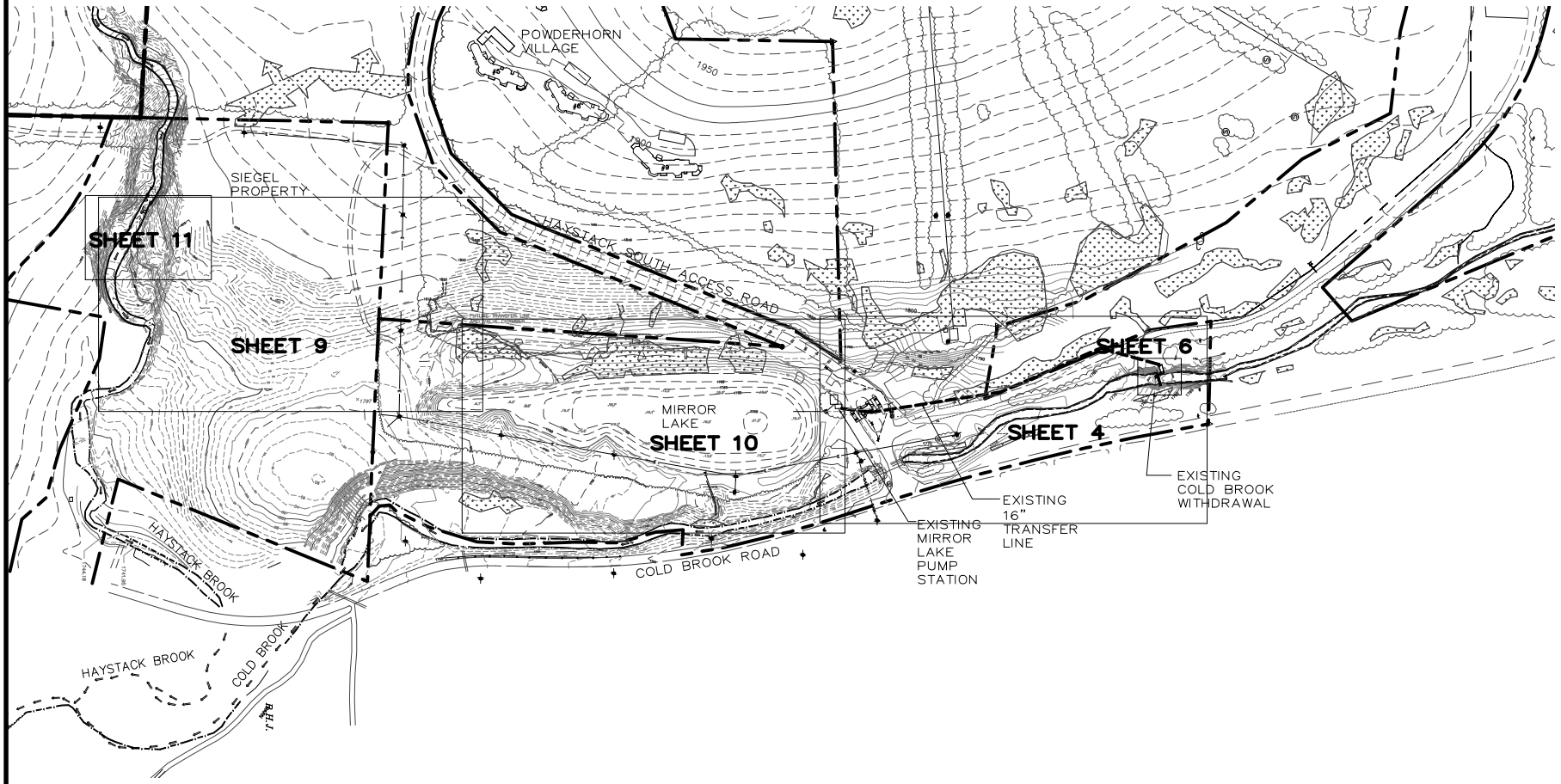
WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

PROJECT SUMMARY

SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 2
JULY 13, 2015



--1840-- EXIST. CONTOUR

EXIST. STREAM

WETLANDS

TL NEW TRANSFER LINE

E EXIST. POWER POLE AND HIGH VOLTAGE POWER LINE

APPROX. PROPERTY LINE

400 0 400

1 in = 400 ft.

THE HERMITAGE CLUB AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

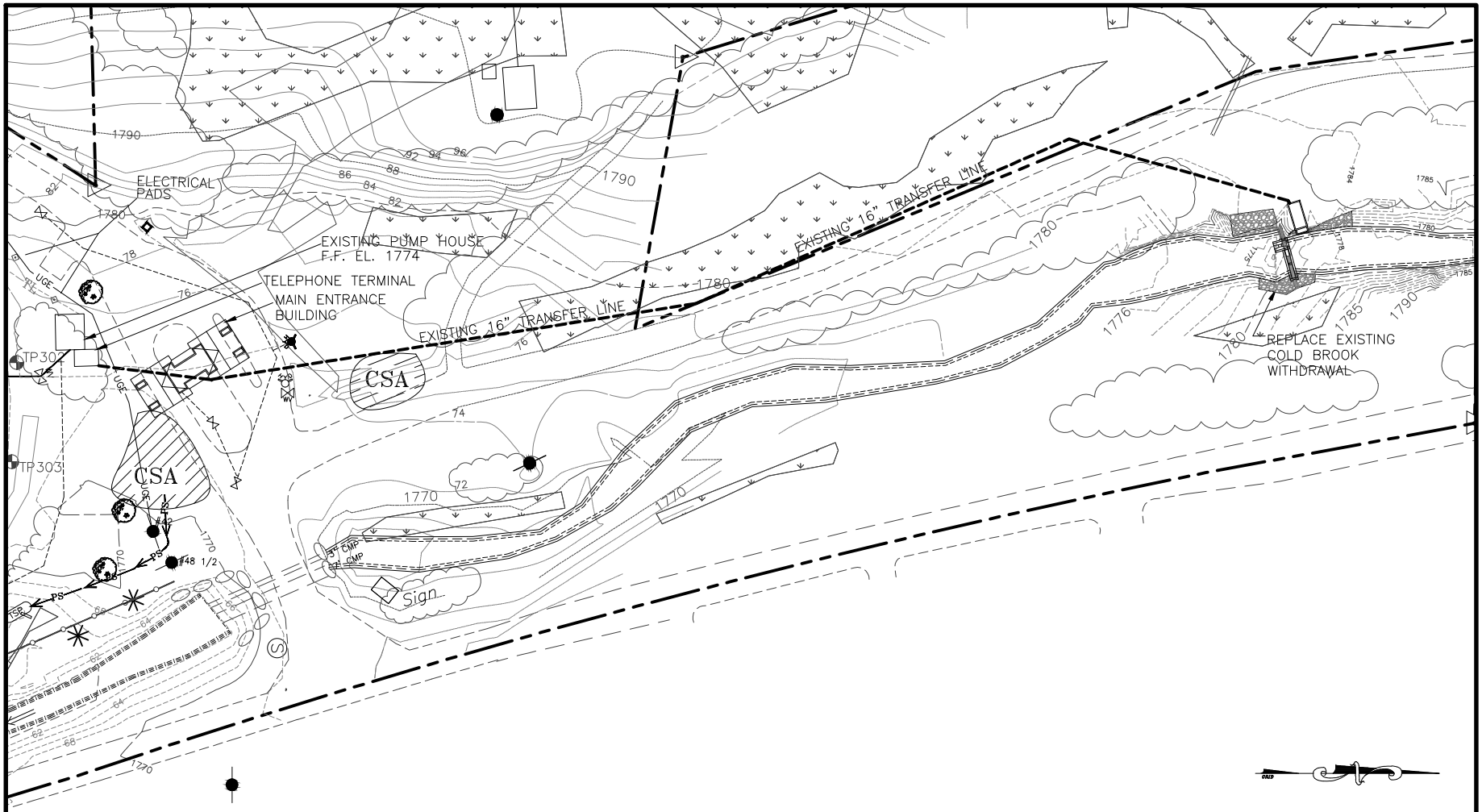
EXISTING CONDITIONS

SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 3

JULY 13, 2015



--1840-- EXIST. CONTOUR	UGE — UNDERGROUND ELECT.	
EXIST. STREAM	TSP TEMP. SED. PONDS	
WETLANDS	PS PERIMETER SWALE	
—TL— NEW TRANSFER LINE	CSA CONSTR. STAGING AREA	
EXIST. POWER POLE		
APPROX. PROPERTY LINE		

100' 0 100'

1 in = 100 ft.

THE HERMITAGE CLUB
AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

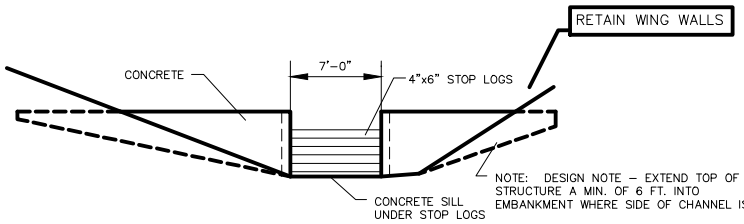
WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

COLD BROOK
EXISTING CONDITIONS

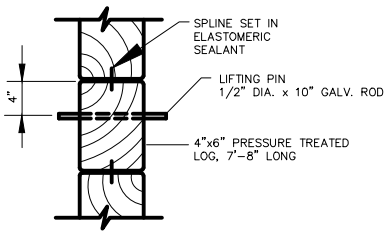
SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

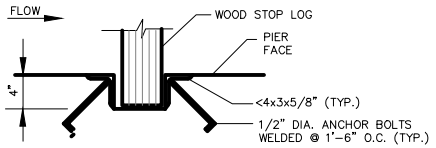
SHEET 4
JULY 13, 2015



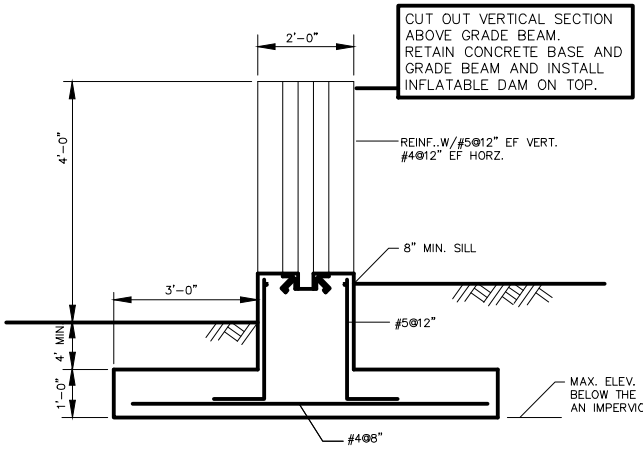
EXISTING WEIR ELEVATION
NOT TO SCALE



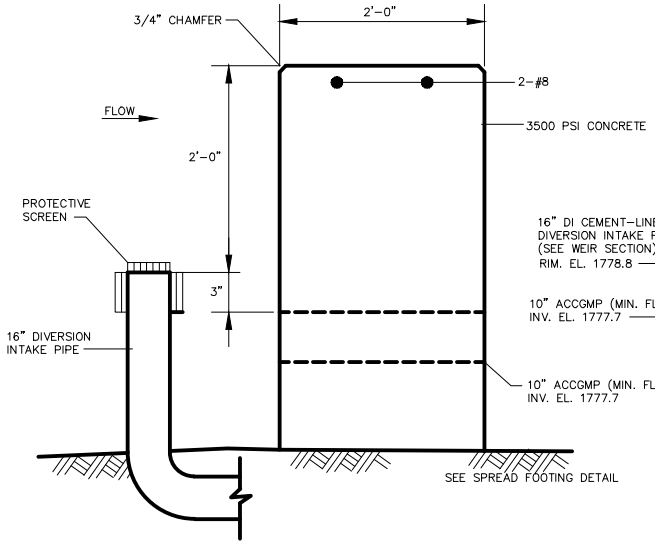
EXISTING STOP LOG SLOT DETAIL
NOT TO SCALE



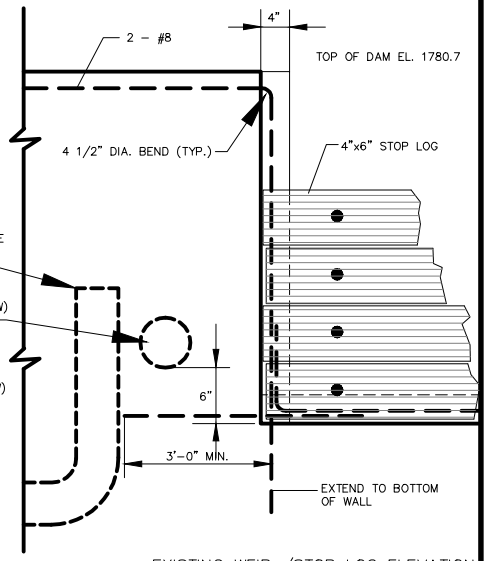
EXISTING STOP LOG SLOT DETAIL
NOT TO SCALE



EXISTING GRAVITY SUPPORT WEIR SECTION
1/4"=1'-0"



EXISTING WEIR SECTION
NOT TO SCALE



EXISTING WEIR /STOP LOG ELEVATION
NOT TO SCALE

NOTE: ABOVE DETAILS FROM A PLAN TITLED "SNOWMAKING POND PLAN AND DETAILS", RECORD DWG. DATED 2/11/85 BY DUFRESNE–HENRY, INC., NO. SPRINGFIELD, VT.

4' 0 4'
1/4 in = 1ft.

THE HERMITAGE CLUB
AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

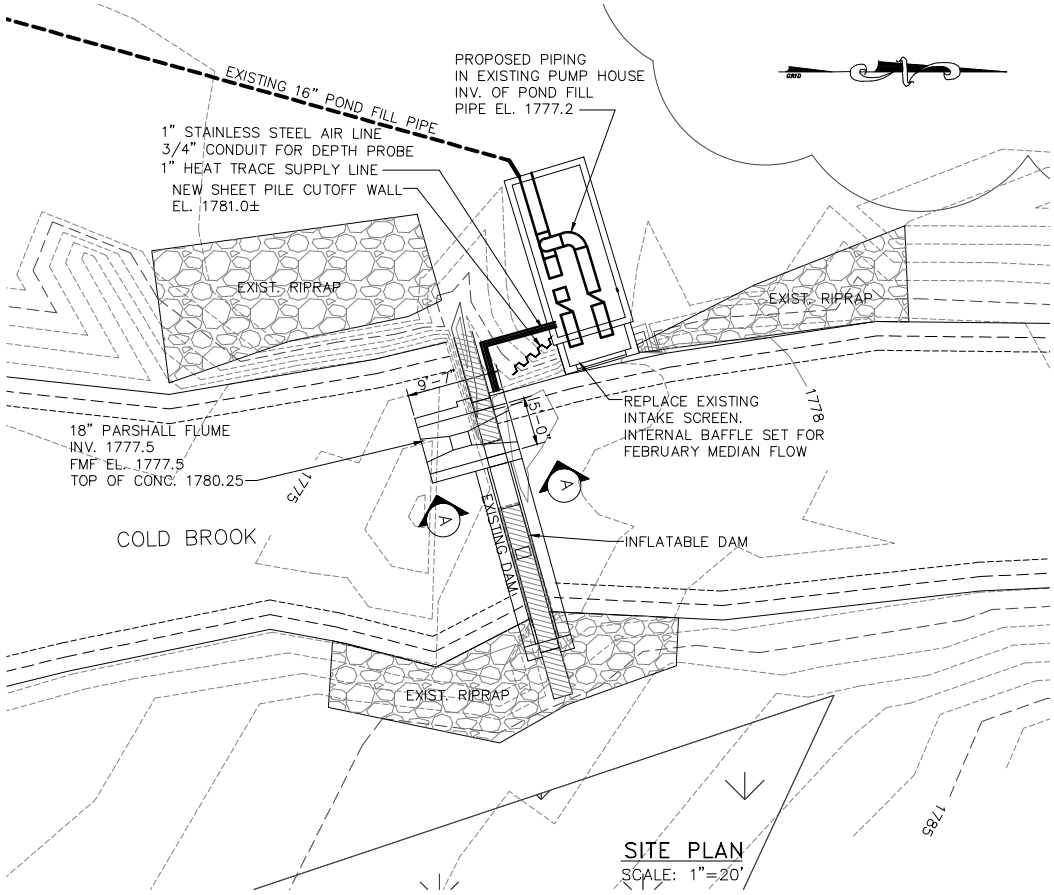
WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

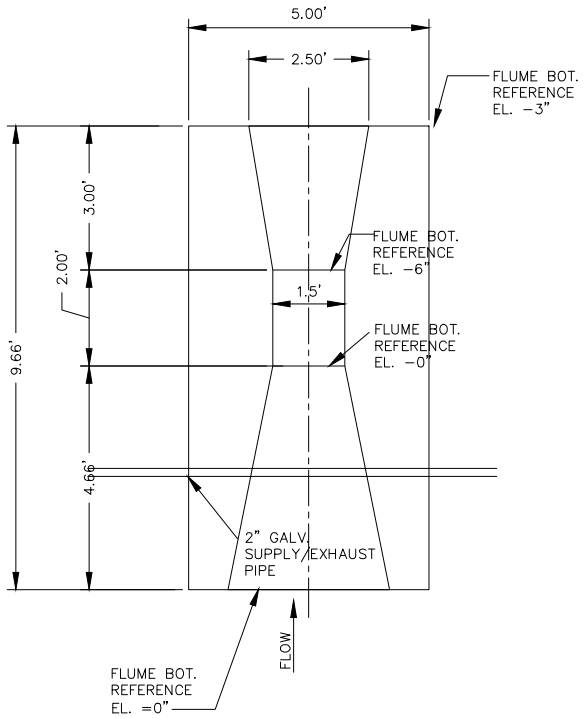
EXISTING DETAILS AT COLD BROOK

SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 5
JULY 13, 2015





PARSHALL FLUME PLAN
SCALE: 1/4"=1'-0"

WETLANDS LOCATIONS PREPARED JULY, 2013 BY ARROWWOOD ENVIRONMENTAL, 950 BERT WHITE ROAD, HUNTINGTON, VT.

--1840-- EXIST. CONTOUR
EXIST. STREAM
WETLANDS
—TL— NEW TRANSFER LINE
—E— EXIST. POWER POLE AND HIGH VOLTAGE POWER LINE
APPROX. PROPERTY LINE

20' 0 20'
1 in = 20 ft.

EXISTING STONEWALL
DAM AREA
EXISTING HYDRANT
EXISTING TREE LINE
CULVERT
PT PERMEABILITY TEST
TP TEST PIT LOCATION
B1 SOIL BORING LOCATION

THE HERMITAGE CLUB
AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

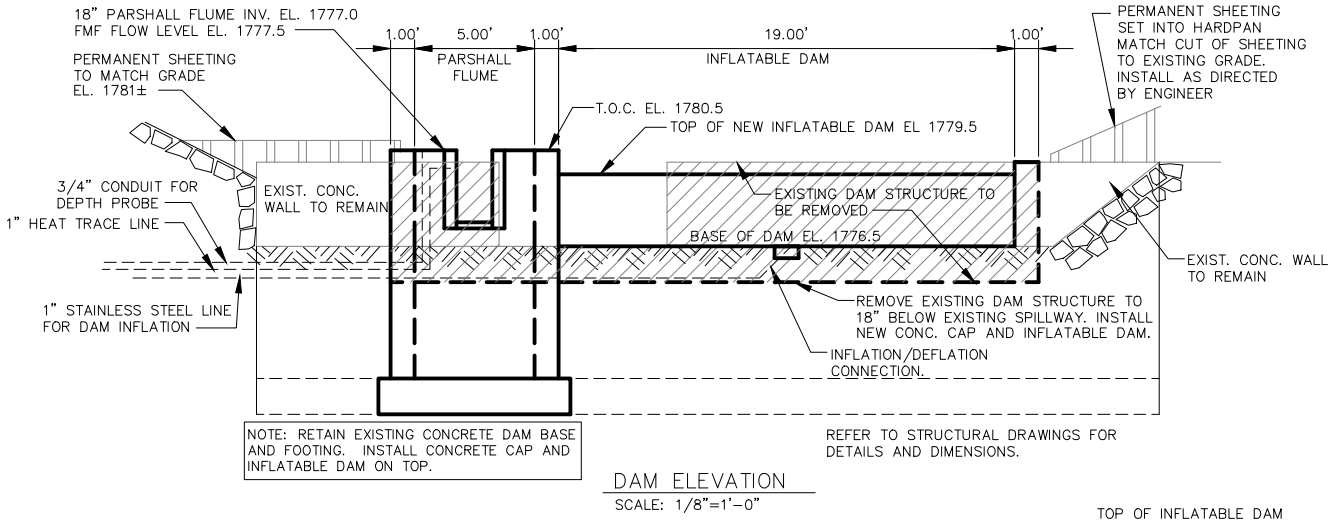
WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

COLD BROOK WITHDRAWAL
SITE PLAN AND DETAILS

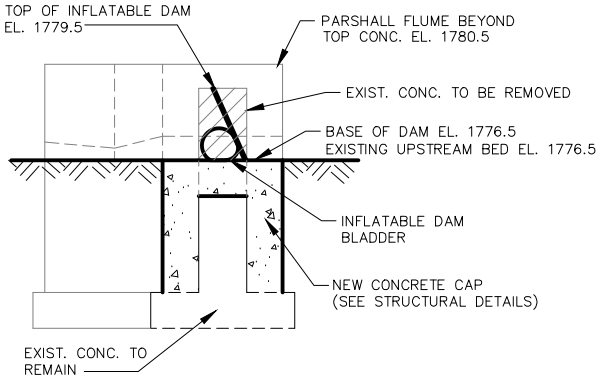
SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 6
JULY 13, 2015



DAM ELEVATION
SCALE: 1/8"=1'-0"



SECTION A
SCALE: 1/8"=1'-0"

--1840-- EXIST. CONTOUR
EXIST. STREAM
WETLANDS
TL NEW TRANSFER LINE
E EXIST. POWER POLE AND HIGH VOLTAGE POWER LINE
APPROX. PROPERTY LINE

8' 0 8'
1/8 in = 1 ft.

EXISTING STONEWALL
DAM AREA
EXISTING HYDRANT
EXISTING TREE LINE
CULVERT
PT PERMEABILITY TEST
TP TEST PIT LOCATION
B1 SOIL BORING LOCATION

THE HERMITAGE CLUB
AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

COLD BROOK WITHDRAWAL
SITE PLAN AND DETAILS

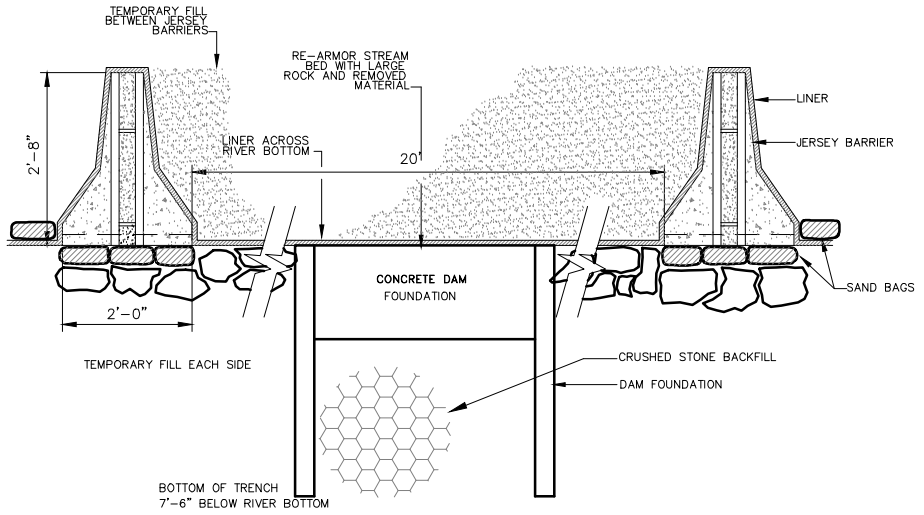
SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 7
JULY 13, 2015

CONSTRUCTION SCHEDULE

1. Construct temporary sedimentation basin and outlet filter.
2. Install double row silt fence downhill from intake structure.
3. Set concrete Jersey barriers in river to form L shape. Set barriers on sand bags for a firm even bedding.
4. Drape synthetic liner material over the barriers and across bottom of contained area.
5. Fill contained area. As fill is placed pump displaced water out to sedimentation basin.
6. Install intake structure and Parshall Flume along stream edge. All dewatering for construction pumped into the temporary sedimentation basin.
7. Excavate and remove fill material. Install silt fence around temporary stockpiles. Remove Jersey barriers.
8. Set concrete Jersey barrier on south side of river to direct water away from south wingwall site. Set barriers on sand bags for an even firm even bedding.
9. Drape synthetic liner material over the barriers and across bottom of stream bed area disturbed.
10. Fill contained area. As fill is placed pump displaced water out into the sedimentation basin.
11. Construct the south wing wall along edge of stream.
12. Excavate and remove fill material. Remove Jersey barrier.
13. Set concrete Jersey barriers in river to form L shape. barriers will be set on sand bags for an even bedding.
14. Drape a synthetic material over the barriers and across bottom of contained area – hold with sand bags.
15. install one side of the grade beam for the dam structure.
16. Excavate and remove fill material remove Jersey barriers, stabilize river bank.
17. Repeat steps 13 through 16 on opposite side.
18. Remove all silt fencing, snow fencing and temporary site stabilization measures upon project completion or final site stabilization as approved by the engineer, whichever occurs last. Seed and mulch any areas disturbed by the removal of temporary measures.



RIVER CROSSING SECTION

NOT TO SCALE

1 INCH 0 1 INCH

THE HERMITAGE CLUB
AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

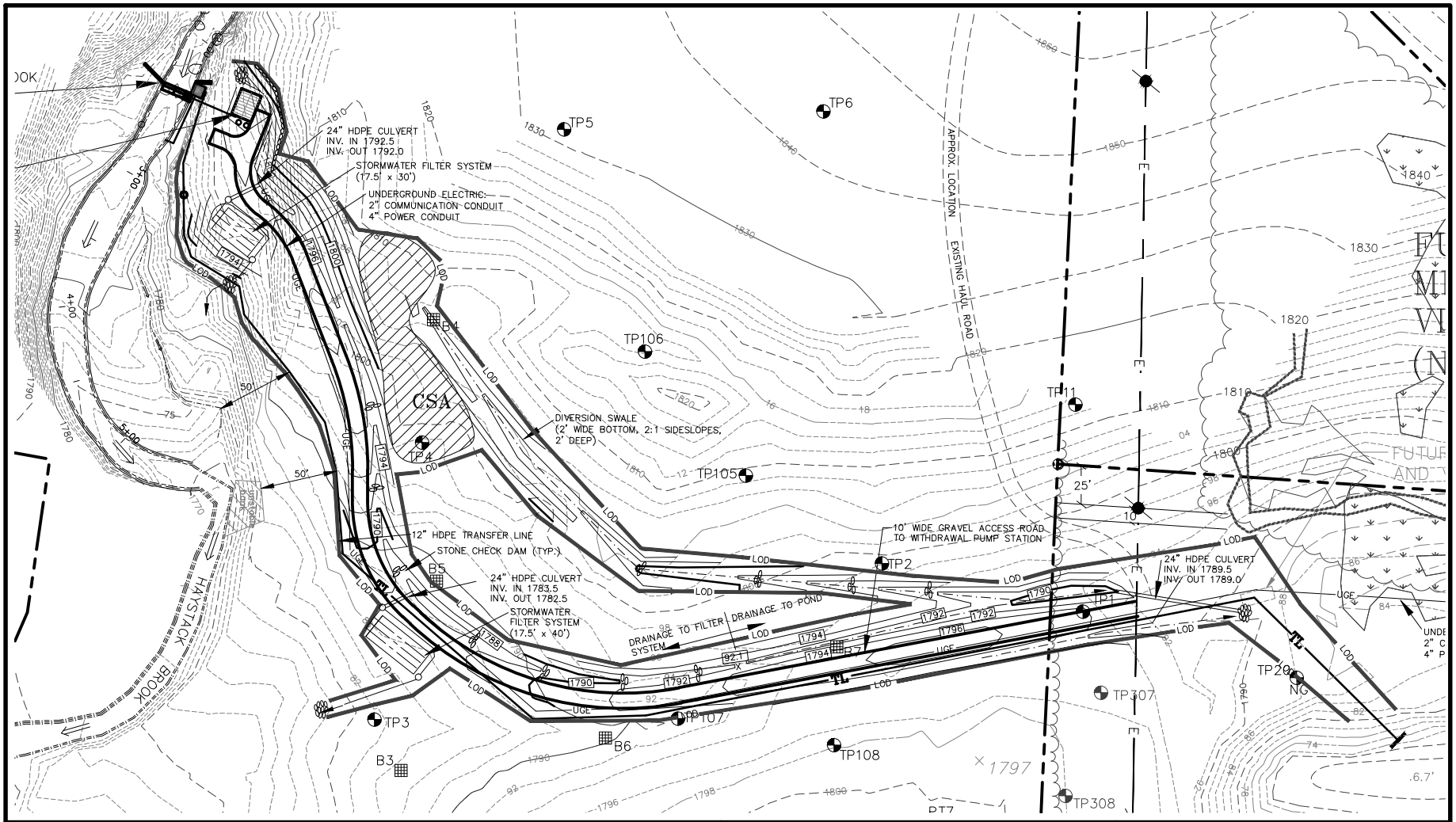
COLD BROOK WITHDRAWAL CONSTRUCTION SEQUENCE

SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 8

JULY 13, 2015



1840 EXIST. CONTOUR

EXIST. STREAM

WETLANDS

TL NEW TRANSFER LINE

E EXIST. POWER POLE AND HIGH VOLTAGE POWER LINE

APPROX. PROPERTY LINE

B BUFFER

LOD LIMITS OF DISTURBANCE

STONE CHECK DAM

CSA CONSTR. STAGING AREA

100 0 100

1 in = 100 ft.

THE HERMITAGE CLUB AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

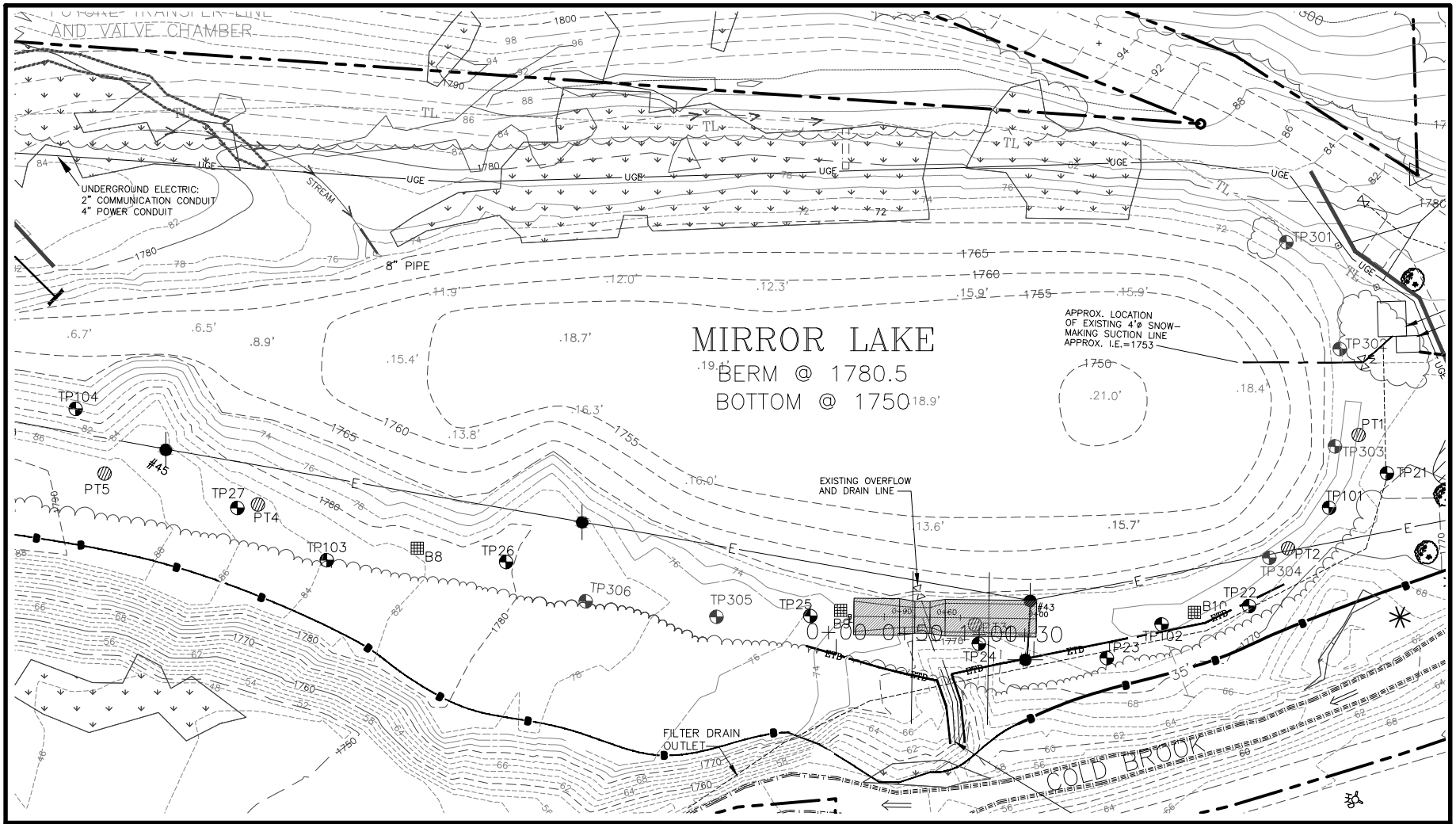
HAYSTACK BROOK WITHDRAWAL ACCESS DRIVE

SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 9

JULY 13, 2015



1840 EXIST. CONTOUR
EXIST. STREAM
WETLANDS
TL NEW TRANSFER LINE
E EXIST. POWER POLE AND HIGH VOLTAGE POWER LINE
APPROX. PROPERTY LINE

B BUFFER
LOD LIMITS OF DISTURBANCE
STONE CHECK DAM
CSA CONSTR. STAGING AREA

100 0 100
1 in = 100 ft.

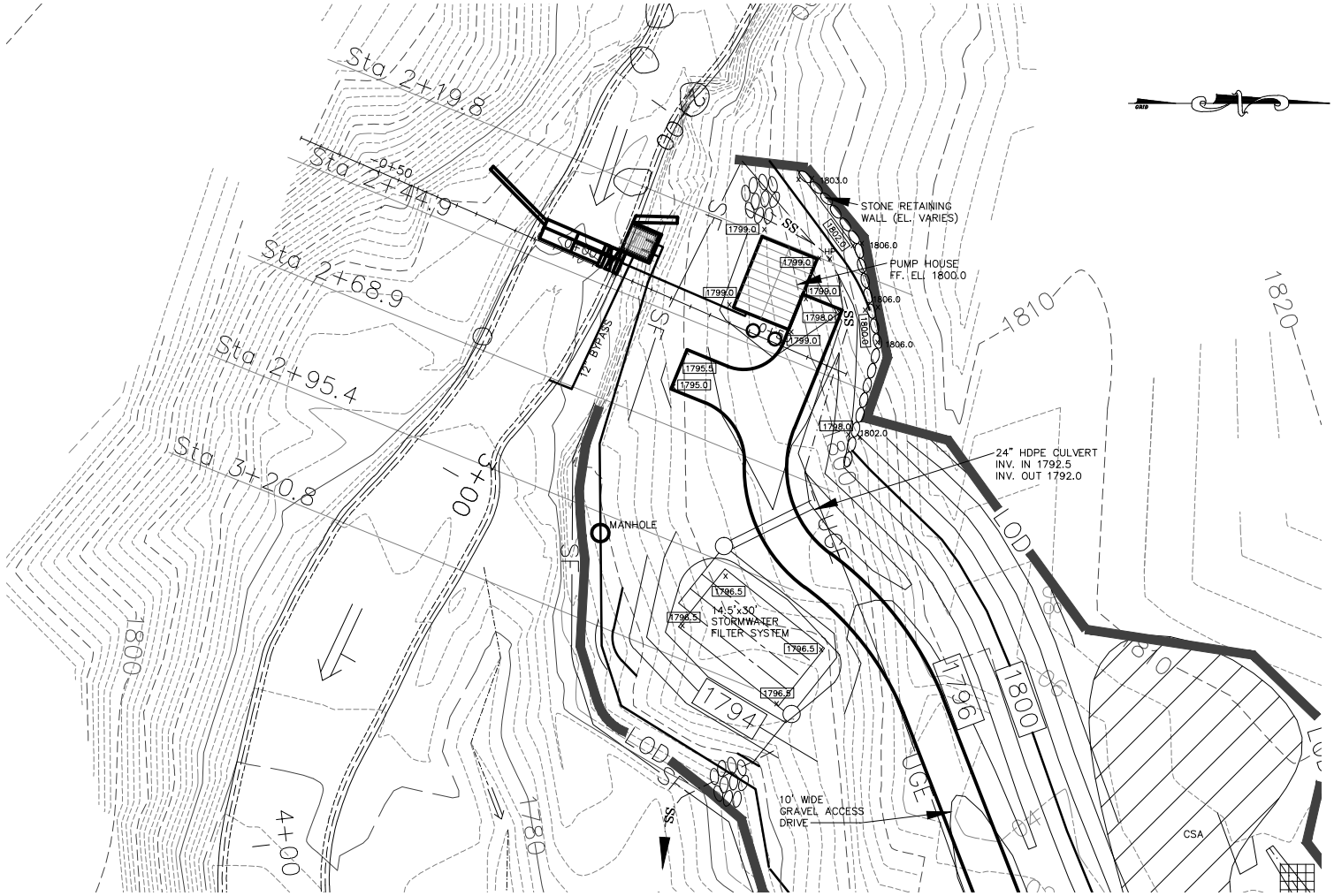
THE HERMITAGE CLUB AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

MIRROR LAKE

SHEET 10
JULY 13, 2015



--1840-- EXIST. CONTOUR

EXIST. STREAM

WETLANDS

TL NEW TRANSFER LINE

E EXIST. POWER POLE AND HIGH VOLTAGE POWER LINE

APPROX. PROPERTY LINE

40' 0 40'

1 in = 40 ft.

STONE CHECK DAM

SF SILTATION FENCE

LOD LIMITS OF DISTURBANCE

LEVEL SPREADER

SS STONE LINED SWALE

CSA CONSTR. STAGING AREA

THE HERMITAGE CLUB AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

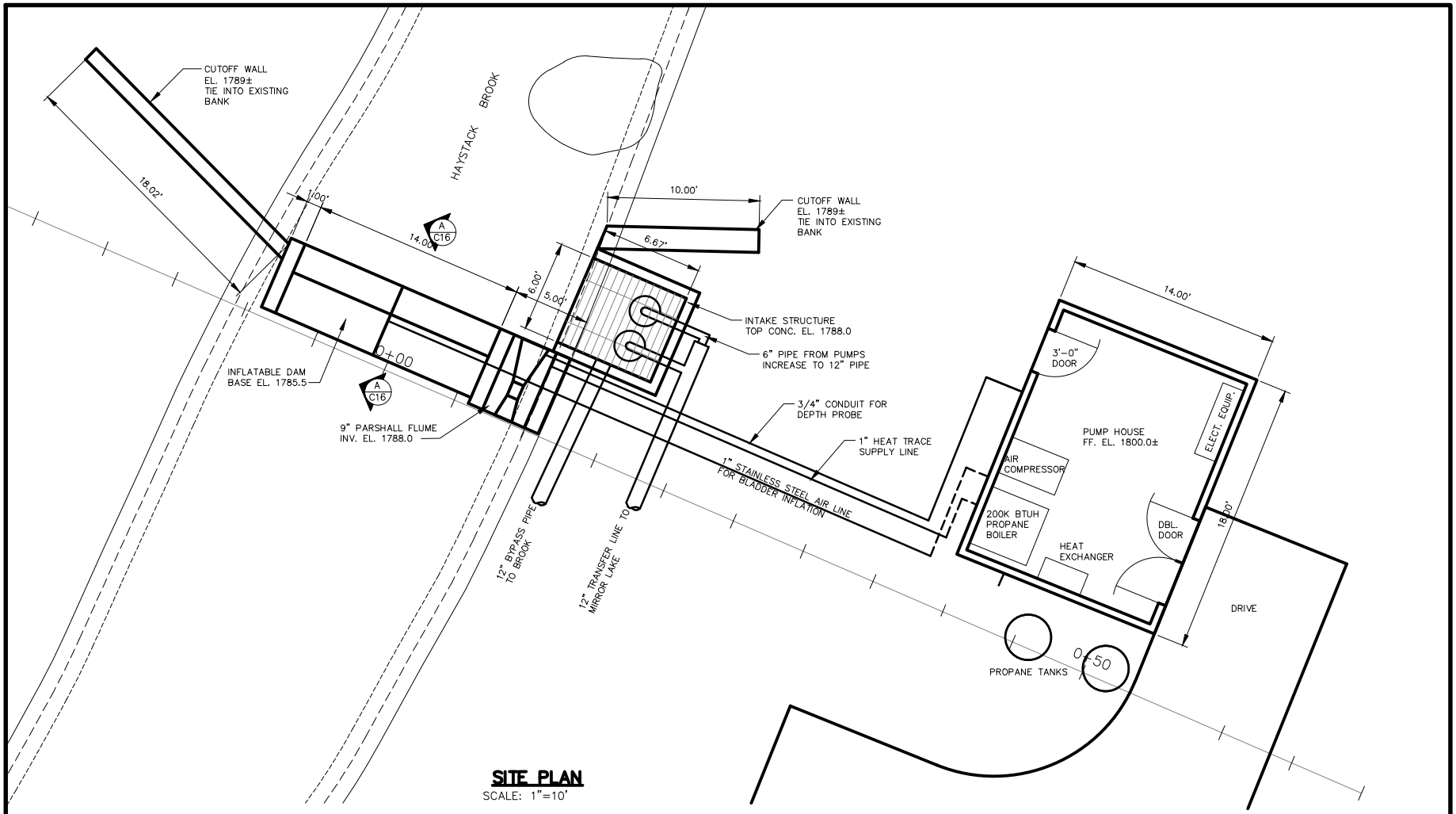
WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

HAYSTACK BROOK WITHDRAWAL SITE GRADING PLAN

SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 11
JULY 13, 2015



SITE PLAN
SCALE: 1"=10'

10 0 10
1 in = 10 ft.

THE HERMITAGE CLUB
AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

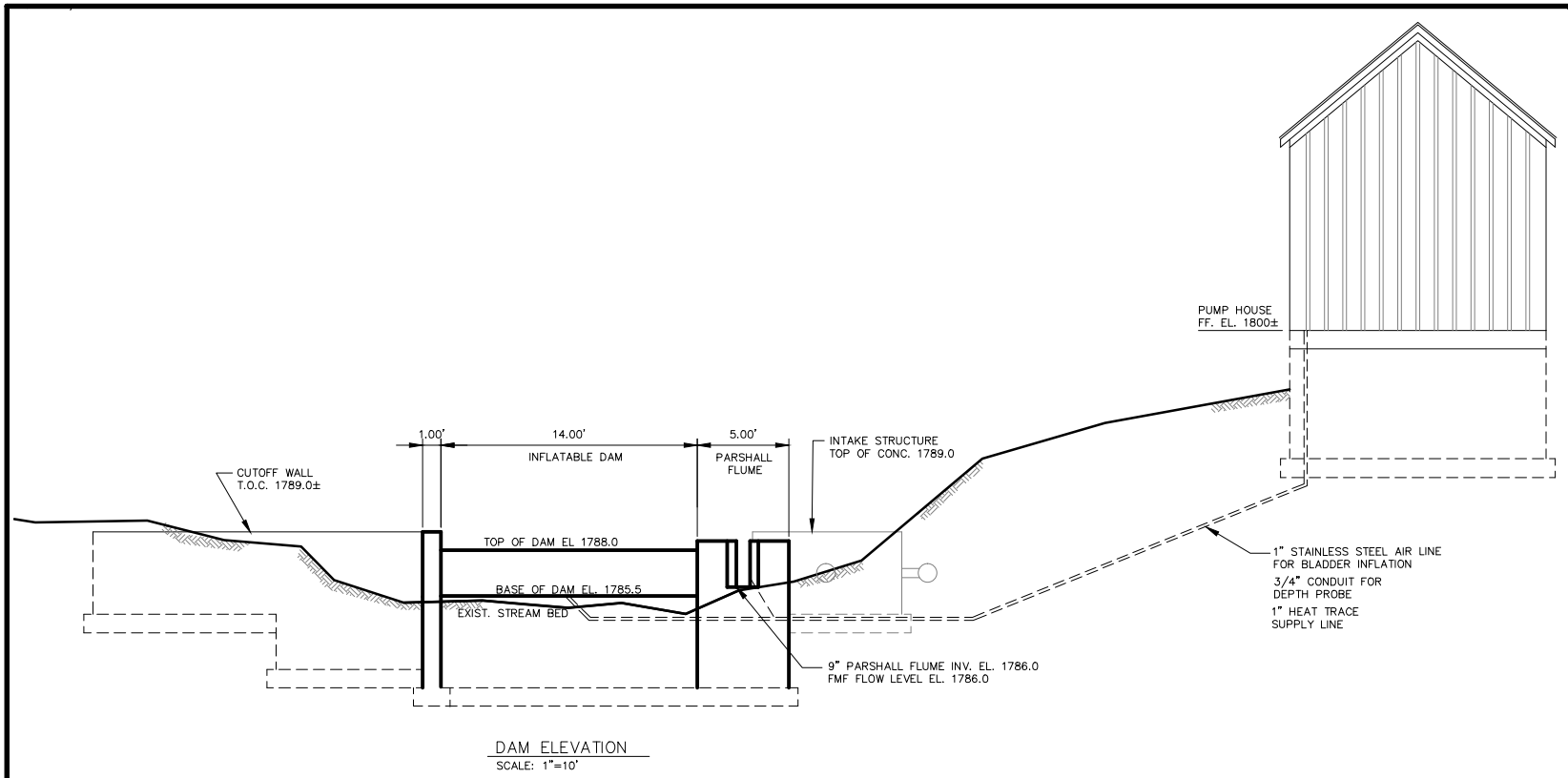
WATER WITHDRAWALS AT
HAYSTACK BROOK AND COLD BROOK

HAYSTACK BROOK WITHDRAWAL
SITE LAYOUT PLAN

SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 12
JULY 13, 2015



DAM ELEVATION
SCALE: 1"=10'

10' 0 10'
1 in = 10 ft.

THE HERMITAGE CLUB
AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

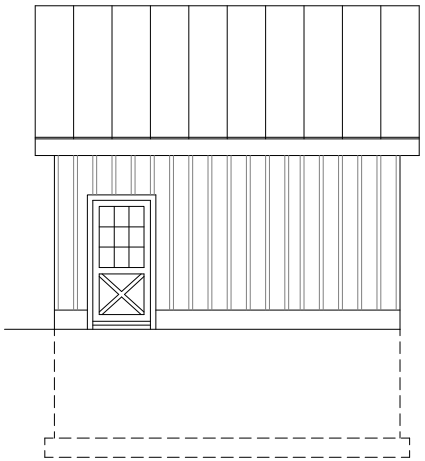
WATER WITHDRAWALS AT
HAYSTACK BROOK AND COLD BROOK

HAYSTACK BROOK WITHDRAWAL
DAM ELEVATION

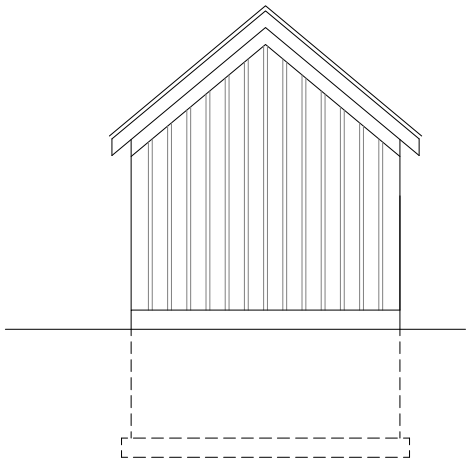
SITE/ENVIRONMENTAL
CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

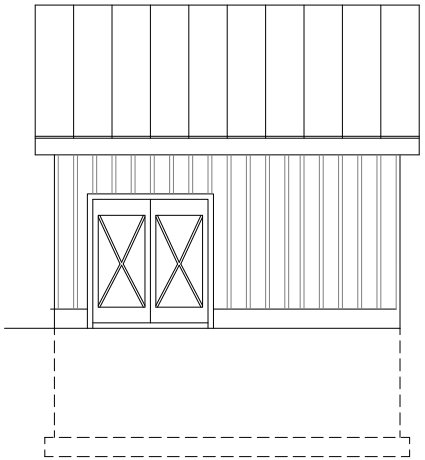
SHEET 13
JULY 13, 2015



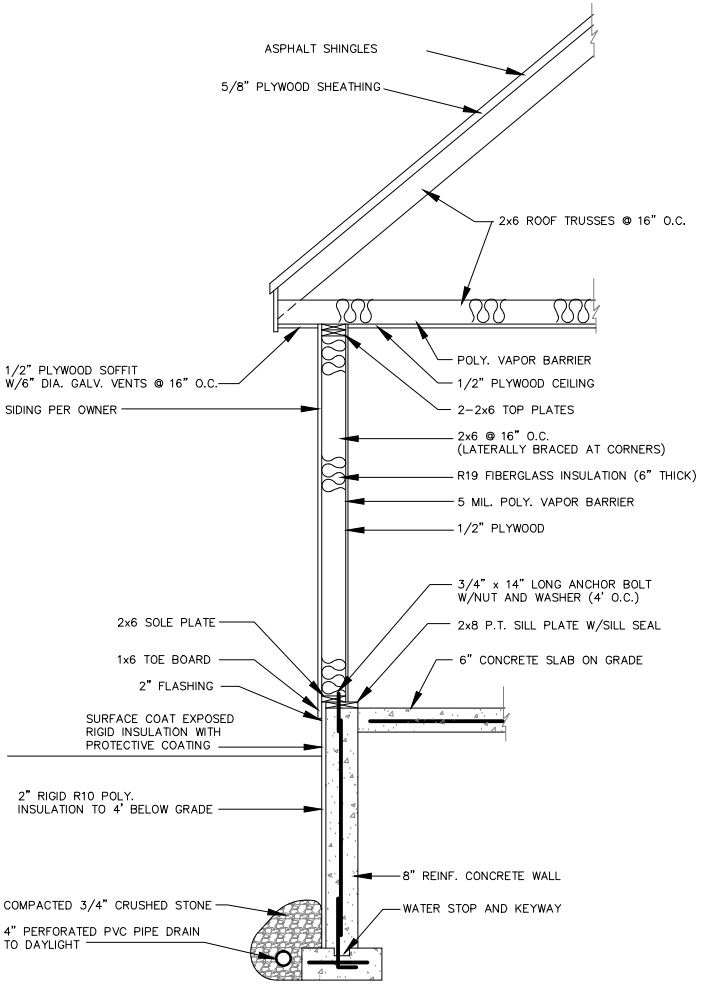
SOUTH ELEVATION
SCALE: 1"=10'



WEST ELEVATION
SCALE: 1"=10'



NORTH ELEVATION
SCALE: 1"=10'



TYPICAL BUILDING SECTION
NOT TO SCALE

10' 0 10'
1 in = 10 ft.

THE HERMITAGE CLUB
AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

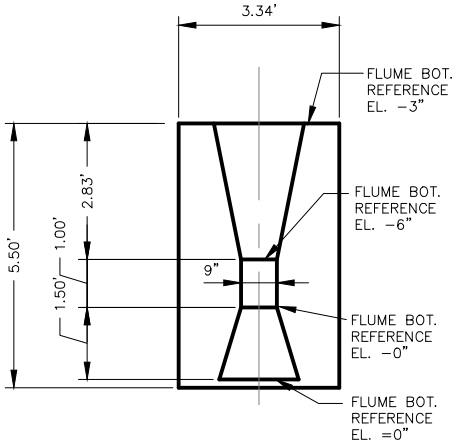
WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

HAYSTACK BROOK WITHDRAWAL BUILDING DETAILS

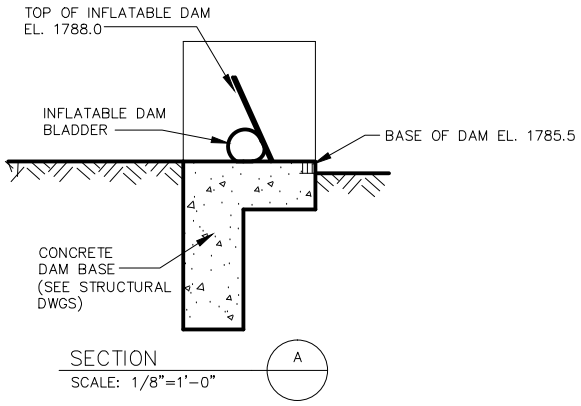
SITE/ENVIRONMENTAL CONSULTING:

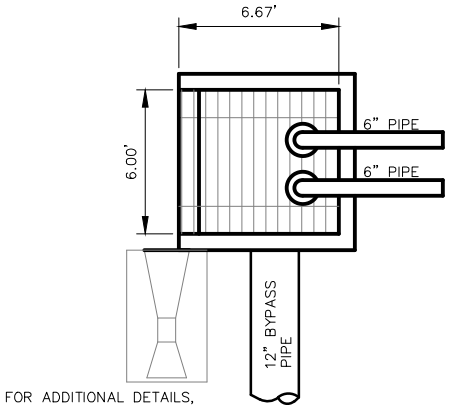
TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 14
JULY 13, 2015



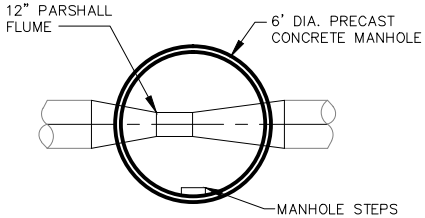
PARSHALL FLUME PLAN
SCALE: 1/4"=1'-0"





FOR ADDITIONAL DETAILS, SEE STRUCTURAL AND MECHANICAL DWGS.

INTAKE STRUCTURE PLAN
SCALE: 1/8"=1'-0"



METER PIT PLAN
SCALE: 1/8"=1'-0"

4' 0 4'
1/4 INCH = 1'-0"

THE HERMITAGE CLUB
AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

HAYSTACK BROOK WITHDRAWAL DETAILS

SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 1
JULY 13, 2015

CONSTRUCTION SCHEDULE

1. Construct temporary sedimentation basin and outlet filter.
2. Install double row silt fence downhill from intake structure.
3. Set concrete Jersey barriers in river to form L shape. Set barriers on sand bags for a firm even bedding.
4. Drape synthetic liner material over the barriers and across bottom of contained area.
5. Fill contained area. As fill is placed pump displaced water out to sedimentation basin.
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13. Set concrete Jersey barriers in river to form L shape. barriers will be set on sand bags for an even bedding.
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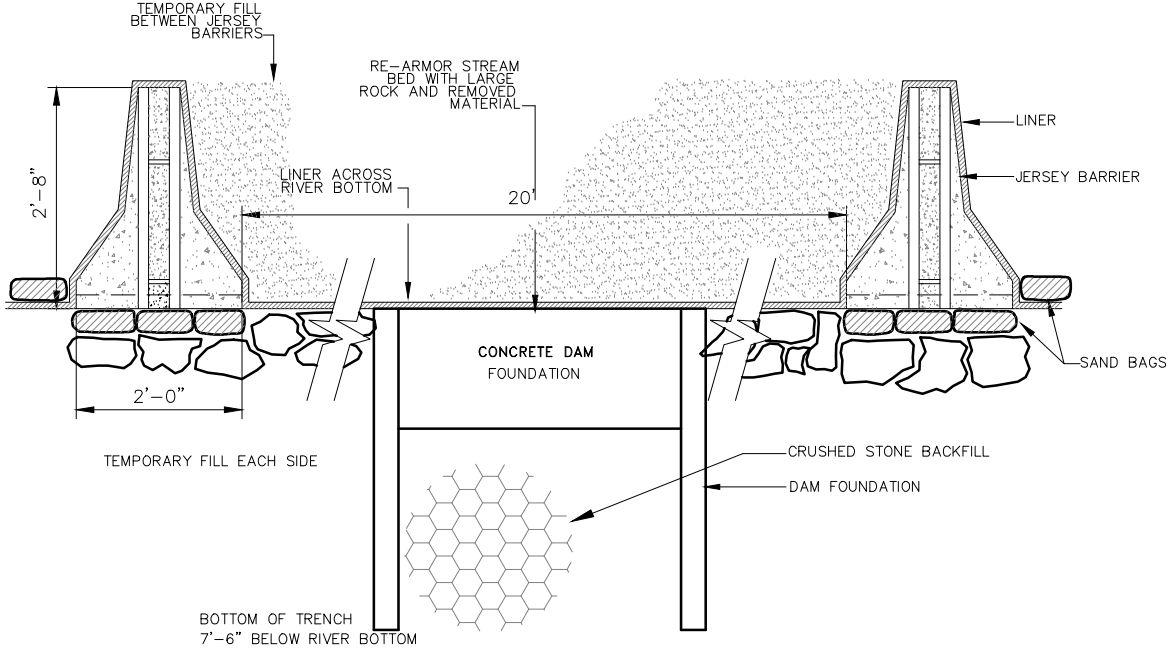
15. install one side of the grade beam for the dam structure.
16. Excavate and remove fill material remove Jersey barriers, stabilize river bank.
17. Repeat steps 13 through 16 on opposite side.
18. Remove all silt fencing, snow fencing and temporary site stabilization measures upon project completion or final site stabilization as approved by the engineer, whichever occurs last. Seed and mulch any areas disturbed by the removal of temporary measures.



RIVER CROSSING SECTION

NOT TO SCALE

1 INCH 0 1 INCH

THE HERMITAGE CLUB
AT HAYSTACK MOUNTAIN

PROPOSED SNOWMAKING SYSTEM IMPROVEMENTS

WATER WITHDRAWALS AT HAYSTACK BROOK AND COLD BROOK

HAYSTACK BROOK WITHDRAWAL CONSTRUCTION SEQUENCE

SITE/ENVIRONMENTAL CONSULTING:

TECHNICON, P.C.
PO BOX 437, 145 MAIN ST.
LUDLOW, VT 05149

SHEET 16

JULY 13, 2015

Riparian Management Plan

Tree Planting Matrix:

Mix1: Sugar Maple (4), White Birch(4), Beech(4)
Mix2: Eastern Hemlock(15), Sugar Maple(15), Yellow Birch(15), Beech(15)

All trees 4-6' planted on random placement
uneven spacing averaging approx. 20-25' on center.

Project Phasing:
All proposed construction activites in the vicinity of the Riparian Management Areas to be completed fully and stabilized prior to implementation of Riparian Management Plan. This includes activities associated with the skiback tunnel construction as well as proposed Master Plan activities such as replacement of the existing Oak Brook culvert, installation of utiity, water and sewer infrastructure, road reconstruction, etc. An existing work road in the area of Riparian Management Zone A, west of the Skier Bridge, will continue to be utilized during construction activities.

Upon completion of proposed construction activities in the vicinity, currently anticipated for late 2016, the work road west of the Skier Bridge will be discontinued. Any gravel surface will be removed, finished with topsoil and stabilized with conservation seed mix and straw mulch followed by implementation of this Management Plan.

Existing Baselodge Area

existing work road/proposed road

existing work road, to be discontinued

existing ski trail

proposed ski trail

Riparian Management Zone A ~420 sf

Oak Brook

Existing Road Connects to Fannie Hill Rd.

Existing Culvert

Previously Permitted Skier Bridge

Existing Private Residence

Existing Road

maintenance trail access

proposed ski trail

existing ski trail

continues along edge of ex. work road

Riparian Management Zone B ~2200 sf see CW-104D for full extent

Oak Brook

Existing Chamonix Village Area

Riparian Management Plan
-All management zones to be planted following completion of all site grading and ground stabilization as prescribed in applicable erosion control plans and documents.
-Replanted stream buffers are to remain forested following restoration and will be marked with signage indicating “Riparian - Management Area: No Tree Cutting”.
-All management zones will be planted with an even species composition per Tree Planting Matrix as follows:
Zone A- Mix 1: 12 trees
Zone B- Mix 2: 60 trees
-Plantings will be spaced unevenly with random species distribution on spacing averaging 20-25’ between stems.
-All plantings to be guaranteed for a period of 2 years at which point any dead or dying trees are to be replaced.
-Following planting, an As-Built plan will be prepared followed by annual monitoring for a period of 3 years (4 years total).

Roads
Proposed Skier Bridge
Proposed Retaining Wall
Existing Buildings
Existing Forest
Riparian Mgmt Zones
Stream Top of Bank
Streams
Wetlands

0 50 100 Feet
1 inch = 50 feet

Hermitage Inn
Dover & Wilmington, Vt

THE HERMITAGE Club
AT HAYSTACK MOUNTAIN

Skiers Tunnel: Haystack Baselodge/ Fannie Hill Road STREAM RIPARIAN MANAGEMENT PLAN

Source notes and disclaimers:

Data sources: Wetland delineations and stream top-of-bank by Arrowwood Environmental, 2012-2014. Wetland boundaries and top-of-bank surveyed by Arrowwood Environmental. Site features by Harrington Engineering from Hermitage Master Plan. Other data from VCGI and ESRI.

Plan review & approval: This plan provided for application for a construction extension for a previously approved skier bridge project. This is a riparian managemenat plan only, not for infrastructure construction or permitting.

This is NOT a land survey or legal boundary description.

Arrowwood Environmental is not responsible for and shall NOT be held liable for site discrepancies, construction errors, misinterpretations or any misrepresentations arising from data utilized in this map but not specifically collected, field checked, confirmed and authorized by Arrowwood Environmental. Map user is responsible for understanding data sources and actual site constraints, displayed herein or not, including property lines, natural resource boundaries and other site features.

For additional erosion control information see Vt. Low Risk Site Handbook for Erosion Prevention and Sediment Control (http://www.vtwaterquality.org/stormwater/docs/construction/sw_low_risk_site_handbook.pdf).

This project may be subject to other permit requirements including a Vt. Stormwater Construction General Permit. Applicant is responsible for compliance with all regulatory requirements.

Monday, July 20, 2015
File: B:\GIS\Projects\Haystack\SkiTunnel_RiparianMgmtPlan2.mxd
Prepared By: Aaron Worthley, Arrowwood Environmental
Coordinate System:
NAD 1983 StatePlane Vermont FIPS 4400

ARROWWOOD ENVIRONMENTAL
950 BERT WHITE ROAD
HUNTINGTON,VT 05462
(802 434-7276 FAX: (802) 329-2259

APPLICATION FOR INDIVIDUAL SECTION 401 WATER QUALITY CERTIFICATION

1. Applicant	Applicant Information			
1.1 Contact Person	Bob Harrington			
1.2 Company Name	Harrington Engineering, Inc.			
1.3 Mailing Address	**Street / PO Box:** PO Box 210	**City / Town:** N. Pomfret	**State:** VT	**Zip Code:** 05053
1.4 Email Address	HEInet@aol.com			
1.5 Phone Number	802-457-3151			
2. Representative	Consultant, engineer, or other representative that is responsible for filling out this application, if other than the applicant.			
2.1 Representative Name	Bob Harrington			
2.2 Representative Company Name	Harrington Engineering, Inc.			
2.3 Representative Address	**Street / PO Box:** PO Box 210	**City / Town:** N. Pomfret	**State:** VT	**Zip Code:** 05053
2.4 Representative Phone Number	802-457-3151			
2.5 Representative Email Address	HEInet@aol.com			
3. Landowner	If the applicant is not the landowner, please provide a list of all landowners owning property that is part of the project site.			
3.1 Landowner Name	James Barnes			
3.2 Landowner Company Name	Hermitage Inn Real Estate Holding Company, LLC			
3.3 Landowner Address	**Street / PO Box:** PO Box 2210	**City / Town:** W. Dover	**State:** VT	**Zip Code:** 05356
3.4 Landowner Phone Number/Email Address	860-521-3838 / jbarnes@hermitageclub.com			
4. Pre-Application Meeting	Have you had your meeting yet? The Department of Environmental Conservation strongly encourages applicants to schedule and attend a pre-application meeting with affected programs prior to submitting an application.			
	☒ Yes, the meeting was held on 5/7/2015. If you need to schedule a meeting, please call or email Megan McIntyre at 802-490-6110 or megan.mcintyre@state.vt.us.			

5.a Resource Proposed for Alteration:	5.b Type(s) of Proposed Alteration(s):
☒ Wetlands ☒ Stream / Rivers ☒ Lake / Pond / Reservoir Name of Resource(s) (Please use consistent ID#s throughout the application for identification of unnamed resources.	☒ Stream / River Crossing ☒ Utility Line or Linear Transportation Project ☒ Intake / Outfall Structure ☐ Stream or Wetland Restoration ☒ Wetland Fill / Excavation ☐ Dredging ☐ Launch Ramp ☐ Bank Stabilization ☐ Impoundment ☐ Other:

6. Additional Permits and Supporting Documents

6.1 Supporting Documents (Appendix I). Please list any additional Supporting Documents and attach to application labeled Appendix I. This should include, but not be limited to Memorandum of Understanding (MOU)'s with the Vermont Agency of Natural Resources (if applicable), applicable state and federal permits and permit applications, federal 404 permit application including alternatives analysis and mitigation package, site maps and plans, vegetation management plans, easement information, etc. Complete on an attached sheet if more room is needed. In the brief description column include page numbers for each appendix for quick reference. **Note, this section needs to be updated as supporting documents are updated.

Appendix	Document Title	Preparing Agent	Date of Last Revision	Brief Description
Appendix IA	Please See attached List			
Appendix IB				
Appendix IC				
Appendix ID				
Appendix IE				
Appendix IF				
Appendix IG				
Appendix IH				

7. Project Details

7.1 Project / Site Name	Hermitage Resortt
7.2 County or Counties	County or counties in which the project site is located. Windham
7.3 Town(s)	Town(s) in which the project site is located. Dover / Wilmington
7.4 Physical Address	911 street address, if available. 10 Gate House Road
7.5 Compass Directions & Road(s)	Compass direction of the project in relation to the road(s) or nearest intersection. Name the road(s) that the project is located on. West of Cold Brook Road - MTN
7.6 Geographic Features	Identify any distinguishing geographic features near project location site. Haystack Mountain

7.7 Geographical Location Points

Identify the meridian points of all project components. Attach a USGS topographic Site Location Map.

Project Components:	Latitude (decimal degrees, NAD83):	Longitude (decimal degrees, NAD83):
Mirro Lake	42.920049	-72.884994
Maintenance Building	42.924552	-72.895493

7.8 Project Description Summary

Give a short narrative summary describing what the project is.

This is a 10-year master plan to improve and expand Haystack Ski Area with associated residential and resort development. Construction will include snowmaking piping, snowmaking pond enlargement, new maintenance building, 450 residential units, new ski lift.The outdoor recreational activities include ski, snowmobiling, snowshoeing, skating, sleigh rides, and tubing, as well as summer activities: hiking, biking, boating, and ATV and UTV riding. All facilities are open to the public with limitations, since this is a private resort with 1500 memberships. Hermitage Club is a family orientated all-year recreational resort which will include multiple facilities. For more information please refer to Appendix 5 Exhibit 4.

7.9 Project Description Details

Give a more detailed narrative description of the project, including phasing and a list of specific project components.

The project include several residential components: Stag's leap, Rushing Creek Homes, Chamonix Village, and 3 hotels. For more information please refer to Appendix 5 Exhibit 4.

7.10 Project Purpose

Describe the project purpose.

The purpose of this project is to rehabilitate the existing ski area at Haystack Mountain and Hermitage Inn lands into a year-round resort, which will include ski lifts, adequate snow-making facilities, recreational trails, approximately 550 residential homes, new Club House and amenities. The project will bring vitality to the town and surrounding areas and create economic growth; thus, serving the region as a job-creator, local business booster and revenue creator for the local municipalities. Approximately 550 ski-in/ski-out residential units are proposed to offer residence to the members of the Hermitage Club, and allowing for an open recreational area supporting green lifestyle and minimizing motor vehicle commuting. For more information please refer to Appendix 5 Exhibit 4.

7.11 Total Project Acres

167 acres

7.12 Total Disturbed Area Associated with Project

167 acres

7.13 Site Slope Percent

Please provide the maximum slope percent. For linear projects, please provide the maximum and minimum slope percentage across the project.

Varies 0 to 25%

7.14 Physical Description of

Give a narrative description of the physical attributes of the project site.

Project Area	Mountainous terrain, headwaters, ski trails, forested, open.
7.15 Soil K-Factor(s)	0.10 to 0.49
7.16 Hydrologic Soil Group(s)	HSG A - 0.8% HSG B - 50.4% HSG C - 28.4% HSG D - 19.9%
7.17 Receiving Waters	Identify all surface waters within the major basins (including streams/rivers, wetlands, and lakes) that drain from the project, beginning with waters within the proposed project area and progressing downstream. If the waterbody does not have a formal name, a descriptive name should be provided (e.g. unnamed tributary of the Mad River). (There are 17 major watershed basins defined by VTDEC in: http://www.vtwaterquality.org/mapp/htm/mp_assessment.htm) Cod Brook tributary to North Branch of Deerfield River Mountain. Oak Brook an Haystack Brook tributaries to Cold Brook.

7.18 Table 1: Watershed Area Summary from Project Area to Receiving Waters

Watershed(s)	Watershed Area (acres)	Disturbed Area (acres)	% Area Disturbed
Cold Brook(after confluence with Haystack Brook)	3040	202	6.6%

8. Cumulative Impacts: For help identifying environmental features regarding your property use the VTANR Natural Resources Atlas: http://www.anr.state.vt.us/dec/maps.htm.

8.1 Impervious Surface	Impervious surface % of property	Impervious surface square footage
	23%	39 acres
8.2 Land Use	Describe current and prior uses of the project property, including activities such as logging and agriculture or other uses that may have impacted water quality. Ski area and resort community since 1960's.	
8.3 Land Cover	Percent and type of change in land cover associated with the project relative to natural cover.	

	From the total 167 acres approximately 15 acres are currently used for residential commercial purposes and roads. Another 24 acres are proposed to be deforested for more residential development and other similar recreational uses.
If the Agency finds that additional information on the current condition of the receiving water(s) beyond what is available is needed to adequately assess potential impacts from the proposed activity, the applicant will be required to supply that information.	

Resource Descriptions	
9. Wetland Resources	
9.1 Type of Wetland(s)	Describe the wetland(s) in the project area including the total number of wetlands in the area, the square footage of each wetland, the number of Class II and III wetlands (according to the Vermont Wetland Rules). If more than two wetlands will be affected by the project, fill out Wetland Resource Table 2, Appendix II by clicking (here) (xlsx, 12kb). See attached Appendix Table 2
9.2 Wetland Pre-Project Cumulative Impacts	Describe any known pre-project cumulative impacts to wetlands from land use, agriculture, forestry, development, etc. See attached ACOE Wetland Summary Table #3
9.3 Wetlands Impacted	Describe the proposed impacts to the wetlands and buffer area (include impacts from fill, clearing, temporary trenching, etc.) See attached ACOE Wetland Summary Table #5 and attached engineering plan set for details.
9.4 Table 3: Wetland Impact Table	Fill out the Wetland Impact Table, Appendix III by clicking (here) (xlsx, 11kb)
9.5 Converted Wetlands	List the square footage of wetlands converted from one type of wetland to another. Example would be conversion of forested wetland to shrub wetland for power line right of way clearing. Submit table if needed as an appendix. The proposed project involves 0.86 acres of tree clearing in wetland resources. See attached ACOE Wetland Summary Table 5 for details.

10. Stream/River Resources

10.1 Streams/Rivers Impacted	Describe the perennial streams impacted by the project. SC#1 New Concrete Bridge w/ Open Bottom for roadway SC#2 Replace Ex. Culvert with Open Bottom Arch Culvert for Roadway, Trails SC#3 Replace Ex. Culvert with Open Bottom Arch Culvert for Hotel fill & Trail SC#4 Replace Ex. Culvert with Open Bottom Arch Culvert for Roadway SC#7 New Bridge Crossing for Hermitage Inn Lots SC#8 New Open Bottom Arch Culvert for Roadway SC#10 New Open Bottom Arch Culvert for Proposed Ski Trail SC#11 New Bridge Crossing for the Ratheau Lot SC#12 Cold Brook Withdrawal upgrades SC#13 Mirror Lake Expansion SC#15 Proposed Haystack Brook Withdrawa
10.2 Table 4: Stream/Rivers Impacted	Fill out the following table with perennial streams impacted by the project, Appendix IV by clicking (here) (xlsx, 12kb).

10.3 Table 5: Summary of Physical Impacts to Streams/Rivers

Proposed Stream Area Impacts

Project Component	Permanent (s.f.)	Permanent (acres)	Temporary (s.f.)	Temporary (acres)	Total (s.f.)	Total (acres)
SC#1	1,800	0.04	0	0	1,800	0.04
SC#2	2,702	0.06	0	0	2,702	0.06
SC#3	901	0.02	0	0	901	0.02
SC#4	1,279	0.03	0	0	1,279	0.03
SC#5	180	0.00	0	0	180	0.004
SC#6	100	0.00	0	0	100	0.002
SC#7	0	0.00	0	0	0	0.00
SC#8	700	0.02	0	0	700	0.02
SC#9	300	0.01	0	0	300	0.01
SC#10	810	0.02	0	0	810	0.02
SC#11	0	0.00	0	0	0	0.00
SC#12	1,050	0.02	0	0	1,050	0.02
SC#13	420	0.01	0	0	420	0.01
SC#14	2,190	0.05	0	0	2,190	0.05
SC#15	600	0.01	0	0	600	0.01
Lower MTN Lift	0	0.00	0	0	0	0.00
MTN Coaster	0	0.00	0	0	0	0.00

Siegel Pond	281	0.00	0	0	140	0.006

10.4 Stream / Rivers Pre-Project Cumulative Impacts	Describe any known pre-project cumulative impacts to streams and rivers from land use and development, etc. Streams and rivers in the area have been impacted by general development in the Deerfield Valley.
10.5 Impacts to the Geomorphic Condition and Geomorphic Sensitivity of the Stream	Describe using phase I & phase II stream geomorphic stream assessment protocols: Geomorphic condition means the degree of departure, if any, from the dimensions, pattern, and profile associated with the naturally stable channel that results from the unique set of natural stream processes or dynamic equilibrium conditions of a stream or river segment. Geomorphic sensitivity means the potential of a river, given its inherent characteristics and present geomorphic conditions, to be subject to a high rate of fluvial erosion and other river channel adjustments, including erosion, deposit of sediment, and flooding. hase 1 and Phase 2 stream geomorphic assessments have not been conducted on the streams in the project area.
11. Physical, Chemical, & Biological Conditions. Include & attach all analysis in appendix I.	
11.1 Physical Water Conditions	Summarize the physical conditions of the waters the project impacts or discharges into, including, temperature regime, conductivity, pH, turbidity, suspended sediment, and substrate type. Document source of data, geo-referenced to sampling location. If data are from the Bio-monitoring Sites Layer or the DEC Watershed Data Portal on the VTANR Atlas http://www.anr.state.vt.us/dec/maps.htm, please reference specific station identification numbers. Data are also available at www.vtwaterquality.org/wqd_mgtplan/waterq_data.htm. Site specific data is not available. The State of Vermont has a biomonitoring site (BiMo502476) at the mouth of the Cold Brook.
11.2 Chemical Water Conditions	Summarize the chemical conditions of the waters the project impacts or discharges into, including, as available, total phosphorus and nitrogen, biochemical & chemical oxygen demand, hardness, metals, *E. coli*, and other data relevant to evaluation of the chemical condition of waters. If data are from the Bio-monitoring Sites Layer or the DEC Watershed Data Portal on the VTANR Atlas http://www.anr.state.vt.us/dec/maps.htm, please reference specific station identification numbers. Data are also available at www.vtwaterquality.org/wqd_mgtplan/waterq_data.htm. Site specific data is not available. The State of Vermont has a biomonitoring site (BiMo502476) at the mouth of the Cold Brook.

11.3 Biological Water Conditions	Summarize the biological water conditions of the waters the project impacts or discharges into. If data are available, summarize biological condition in relation to DEC biological assessment endpoints as described by http://www.vtwaterquality.org/bass/htm/bs_biomon.htm. Document the occurrence or absence of aquatic rare, threatened, or endangered plant or animal species. If data are from the DEC Watershed Data Portal on the VTANR Atlas http://www.anr.state.vt.us/dec/maps.htm, please reference specific station identification numbers. Follow-up with the Fish & Wildlife Department's Natural Heritage Inventory (802-371-7333) if any such species are present. Site specific data is not available. The State of Vermont has a biomonitoring site (BiMo502476) at the mouth of the Cold Brook. Cold Brook Macroinvertebrate sampling on Cold Brook in Dover occurred at rivermile 0.1 in 1992, 1998, and 2004. The community integrity and health was found to be "good" in 1992 and 1998 and "excellent" in 2004. The State will be initiating water sampling at new locations within the project area in the summer and fall of 2015.
12. Fish & Wildlife Resources	
12.1 Fisheries	
12.1.1 Fisheries Resource(s)	Provide a description of the existing fish resources within the waters that the project impacts or discharges into. The State of Vermont has a biomonitoring site (BiMo502476) at the mouth of the Cold Brook. The State will be initiating new sampling locations within the project area in the summer and fall of 2015.
12.1.2 Habitat	Are the fisheries within and downstream from the proposed project managed as warm water or cold water? Cold Water
12.1.3 Fisheries Affects & Minimization	Provide a description of the anticipated and other possible impacts of the proposed project on aquatic habitat, fish resources, and recreational fisheries and how those will be avoided or minimized. Once you get the sizing worked out, this is where you would indicate that you are designing crossings in adherence with the Aquatic Organism Guidelines.
12.2 Wildlife: For help identifying wildlife habitat, natural communities, and rare, threatened, or endangered species use the VTANR Natural Resources Atlas: http://www.anr.state.vt.us/dec/maps.htm.	

12.2.1 Habitat	Provide an assessment of wildlife habitat within the project area. This must include a description of the methods employed to identify, map, and assess the habitats. Include a map that depicts all the wildlife habitat resources of the area (e.g., deer wintering habitat, riparian habitat, floodplain forest natural communities, wetland types). Tina Scharf, MS, Consulting Wildlife Biologist, conducted a number of site visits on Haystack Mountain and its environs, including all the holdings of the Hermitage Club. Some of the assessments and surveys were made in 2005-6 for a report for the previous owners. All that information has been included in the present maps. Other site visits were conducted in 2012-2014; Tina was accompanied on a couple of site visits by VFWD biologist Forrest Hammond. Besides general wildlife habitat assessments, a survey of bear-scarred beeches (BSB) was conducted on all the sites thought to contain them. No deer wintering habitat was found Hermitage Club/Haystack Mountain Ski Area lands. The two main upland habitats considered to be sensitive and/or critical are the BSB and the upper mountain above 3,000 feet altitude—where Bicknell's thrush are known to breed. The Bicknell's breeding habitat was confirmed by several surveys conducted in the 1990's and early 2000s by Pioneer Environmental and the University of Vermont. Ms. Scharf also observed a fledgling Bicknell's thrush on Haystack Mountain summit in August, 2005. All wetland and riparian habitats were surveyed and mapped by Arrowwood Environmental. These habitats, including individual BSB, are shown on Map XXXX.
12.2.2 Natural Communities	Provide an assessment of significant natural communities within the project area. This must include a description of the methods employed to identify, map and assess the communities. Include a map that depicts the natural communities. Arrowwood Environmental conducted field assessments of the project area and determinted that there are no significant upland natural communities. Wetland communities are detailed in the wetland assessment
12.2.3 Rare, Threatened, and Endangered Species	Provide an assessment of rare, threatened, and endangered species within the project area. This must include a description of the methods employed to identify and map the locations of these rare species of plants and animals. Include a map that depicts the locations of these species. See RTE Plant Species Report dated 6/9/15 included in the ACOE 404 permit application
12.2.4 Wildlife Affects & Minimization	Provide a description of the anticipated and other possible impacts of the proposed project on the foregoing wildlife resources and how those will be avoided or minimized. Terrestrial (e. g. non-aquatic) significant wildlife habitats are a bear-scarred beech (BSB) stand north of the ski area; and Bicknell's thrush breeding habitat, which is above 3,000 feet altitude. The breeding season is generally agreed to be from mid-May to August 1st.To avoid and minimize impacts to the BSB, the Tage lift, which connects the Hermitage Inn with Haystack Ski Area, was moved to avoid direct impact. Also, the Hermitage Club is foregoing development of many housing lots within the BSB that were previously permitted in the 1970s. Most of the alternate housing lots have been sited as far from the edge of the BSB stand as possible (about 200 yards away).Impacts to the Bicknell's thrush breeding habitat will be avoided in several ways: no net loss of habitat to development, limits to construction during the breeding season (e.g., no building of the summit lift during breeding season), and limits to recreational activities such as mountain biking and ATV use above 3,000 feet altitude. Scenic chair lift rides may take place during the breeding season with the permission of the VFWD.

13. Fee	Pursuant to 3 V.S.A. § 2822(j)(30), use the following formula to calculate the certification fee: 1% of project cost with a minimum of $200.00 and a maximum of $ 20,000.00. Project Cost: $79.4M Total Enclosed: $20,000.00 ☐ Exempt Please make check or money order payable to "Treasurer – State of Vermont"

Signature (original signature required)	I certify under penalty of law that this document and all attachments were prepared at my request or under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person who manages the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I recognize that by signing this application, I am giving consent for the Commissioner of the Department, or a duly authorized representative, at reasonable times and upon presentation of credentials, to enter upon and inspect the subject property to verify information in and process the Section 401 application.	
	X James R. Barnes	Date: 9/5/16
Signature details	Please Print Name James Barnes	Signor Contact Phone# and Email: jbarnes@hermitageclub.com

Administrative Information - Official Use Only

Date Received	Project #	Fee Received	Application Administratively Complete:	Application Technically Complete:
		Yes ☐ No ☐ Amount Received: $	Yes ☐ No ☐ Additional Information Requested on:	Yes ☐ No ☐ Additional Information Requested on:

HARRINGTON ENGINEERING, INC.

CIVIL • ENVIRONMENTAL • DEVELOPMENT • PERMITS
P.O. Box 248, North Pomfret, VT 05053
phone: (802) 457-3151 email: HEInet@aol.com

Date: November 29, 2016

VT DEC – Environmental Conservation – Watershed Mgmt. Division
Attn: Mr. Matthew Probasco
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Subject: The Hermitage Club – Haystack Mountain Project Section 401 Water Quality Certification (#2015-006) Application Response to comments (dated: 10/07/2016).

Dear Mr. Probasco:

Thank you for your comments dated 10/07/2016, below is the comments and our responses in **bold red**.

- An updated project narrative, particularly describing how state requirements have been met.
  A new write up has been completed to show the Master Plan projects along with what state applications anticipated to be processed.

- A complete, comprehensive set of up-to-date site plans.
  A set of updated plans have been attached per your request. Exhibit 4 has been revised to address significant changes to plans between 12/15/2015 and 11/14/2016.

- A revised "master plan" project implementation timeline.
  The table in Exhibit 4 has been revised with an updated timeline for project implementation of the Master Plan.

Please advise if you need anything further.

Very truly yours,

Robert S. Harrington, PE
President

RSH/jlb

Cc: Jim Barnes (via email)
Neil Kamman (via email)
Billy Coster (via email)
Dori Barton (via email)
Robert Rubin (via email)