SHEET FLOW 4
L = 100'
S = 0.014

2064.75

2063.33

MATCH LINE A

MATCH LINE A

PRE-AREA 4
AREA = 46.672 AC
CN = 71
Tc = 41.1 MINS.

SHALLOW CONC. FLOW 4
L = 3,300'
S = 0.097
(UNPAVED)

SEE DRAWING NPTT4-WSHED-PRE-B FOR SUBAREAS 1, 2A-2D & 3 DETAILS

BEAR ROCK ROAD

OUTLET 2

PRE-AREA 2A
AREA = 1.462 AC
CN = 70
Tc = 9.78 MINS.

PRE-AREA 2B
AREA = 1.186 AC
CN = 62
Tc = 10.20 MINS.

PRE-AREA 1
AREA = 2.892 AC
CN = 63
Tc = 14.46 MINS.

PRE-AREA 2D
AREA = 0.182 AC
CN = 87
Tc = 6 MINS.

OUTLET 1

CHANNEL FLOW 4
L = 159'
S = 0.093

1742.00

OUTLET 4

1727.10

OUTLET 3

BEAR ROCK ROAD

HEATH ROAD

HOLDEN HILL ROAD

PRE-AREA 3
AREA = 0.453 AC
CN = 73
Tc = 17.46 MINS.

PRE-AREA 2C
AREA = 0.297 AC
CN = 71
Tc = 8.52 MINS.

HSG TOTAL AREA IN ACRES								
HSG	AREA 1	AREA 2A	AREA 2B	AREA 2C	AREA 2D	AREA 3	AREA 4	TOTAL
A	-	-	-	-	-	-	-	-
B	1.499	0.065	0.655	-	-	0.049	21.942	24.210
C	1.145	1.397	0.481	0.272	0.182	0.393	19.830	23.700
D	0.242	-	0.05	0.025	-	-	4.743	5.060
WATER	-	-	-	-	-	-	0.050	0.050
IMPERVIOUS	0.006	-	-	-	-	0.011	0.107	0.124
TOTAL	2.892	1.462	1.186	0.297	0.182	0.453	46.672	53.144

SOIL TYPE LEGEND

Map Legend	Soil Type	Hydrologic Soil Group
61B/RK	Tunbridge-Lyman-Rock outcrop complex, 3 to 8 percent slopes	C/A/D
61D	Tunbridge-Lyman-Rock outcrop complex, 15 to 25 percent slopes	C
61E	Tunbridge-Lyman-Rock outcrop complex, 25 to 50 percent slopes	C
61E/RK	Tunbridge-Lyman-Rock outcrop complex, 25 to 50 percent slopes	C/A/D
99B/RK	Tunbridge, very stony, 3 to 8 percent slopes	C
99C/RK	Tunbridge, very stony, 8 to 15 percent slopes	C
99D/RK	Tunbridge, very stony, 15 to 25 percent slopes	C
299B/ccsac	Udorthents, smoothed, 1 to 8 percent slopes	C
400C/cbaab	Udorthents, sandy or gravelly, 8 to 15 percent slopes	B
52D	Stetson fine sandy loam, 15 to 25 percent slopes	B
523E	Stetson fine sandy loam, 25 to 50 percent slopes	B
549A	Peacham muck, 0 to 5 percent slopes, very stony	D
560C	Tunbridge-Plaisted-Lyman complex, 8 to 15 percent slopes	B
561C	Tunbridge-Plaisted-Lyman complex, 8 to 15 percent slopes, very stony	B
590B	Cabot silt loam, 0 to 8 percent slopes, very stony	D
727B/RK	Rubble Land, 3 to 8 percent slopes	Unknown (C)
727D/RK	Rubble Land, 25 to 50 percent slopes	Unknown (D)

LEGEND

- PRE-DEVELOPMENT SUB-AREA BOUNDARY
- NRCS WEB SOIL APPROX. SURVEY SOIL BOUNDARY
- TIME OF CONCENTRATION
- 140B — NRCS SOIL DESIGNATION
- 380.50 — SPOT ELEVATION

NORTH

0 100' 200'
SCALE IN FEET

FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION

NO.	REVISED PER PERMIT REVIEW COMMENTS	DATE	DRWN	CHKD	APPRV
2	REVISED PER PERMIT REVIEW COMMENTS	8/10/16	KAM	RLR	RLR
1	ISSUED FOR PERMITTING	10/1/15	RLR	RLR	RLR

THE NORTHERN PASS
Transmission Business

TRANSITION STATION #4
PRE-DEVELOPMENT WATERSHED MAP

DATE: 10/1/2015
SCALE: 1" = 100'

DES: LRM | CHK: RLR
DRW: FP | APR: BSS

TOWN: STEWARTSTOWN, NH

TRANSMISSION LINE:

MILE NO:

SHEET 1 OF 2

NPTT4-WSHED-PRE-A

REVISION: XXX

Z:\CLIENTS\TND\NUSC\58466_NPT\DESIGN\SUBSTATION\400-TRANSITION_STATION-4\CADD\CIVIL-SITE\NPTT4-WSHED-PRE.DWG 8/10/2016 10:50 AM RLREED

SHEET FLOW 2B
L = 100'
S = 0.247

SHEET FLOW 2A
L = 100'
S = 0.285

SHALLOW CONC.
FLOW 2A
L = 444'
S = 0.246
(UNPAVED)

SHALLOW CONC.
FLOW 2B
L = 341'
S = 0.200
(UNPAVED)

SHEET FLOW 1
L = 100'
S = 0.132

SHALLOW
CONC. FLOW 1
L = 570.9'
S = 0.129
(UNPAVED)

CHANNEL FLOW 1
L = 223.7'
S = 0.037

SHALLOW
CONC. FLOW 3
L = 55.4'
S = 0.182
(UNPAVED)

SHEET FLOW 2C
L = 100'
S = 0.115

SHALLOW CONC.
FLOW 2C
L = 26'
S = 0.396
(UNPAVED)

SHALLOW
CONC. FLOW 2D
L = 325'
S = 0.086
(PAVED)

SHEET FLOW 2D
L = 68'
S = 0.010

SHEET FLOW 3
L = 100'
S = 0.0592

CHANNEL FLOW 3
L = 198.3'
S = 0.034

PRE-AREA 1
AREA = 2.892 AC
CN = 63
Tc = 14.46 MINS.

PRE-AREA 2A
AREA = 1.462 AC
CN = 70
Tc = 9.78 MINS.

PRE-AREA 2B
AREA = 1.186 AC
CN = 62
Tc = 10.20 MINS.

PRE-AREA 2C
AREA = 0.297 AC
CN = 71
Tc = 8.52 MINS.

PRE-AREA 2D
AREA = 0.182 AC
CN = 87
Tc = 6 MINS.

PRE-AREA 3
AREA = 0.453 AC
CN = 73
Tc = 17.46 MINS.

PRE-AREA 4
AREA = 46.672 AC
CN = 71
Tc = 41.10 MINS.

EXISTING DEPRESSION 2B

OUTLET 1
OUTLET 2
OUTLET 3
OUTLET 4

1683.00
1683.91
1793.30
1821.76
1822.00
1812.00
1798.79
1797.34
1729.00
1732.71
1721.22
1710.92
1733.02
1711.63
1727.10
1710.27
1716.70
1717.00
1725.00
1727.10

BEAR ROCK ROAD
HEATH ROAD
DIRT ROAD

15" CMP
INV.=1716.7
15" CMP
INV.=1714.9
36" CMP

BENCHMARK:
MAG-NAIL SET IN
POLE 98-2
ELEV=1739.7
NAVD 88

FOR CONTINUATION OF TIME OF CONCENTRATION LINE, SEE SHEET NPTT4-WSHED-PRE A.

LEGEND

- PRE-DEVELOPMENT SUB-AREA BOUNDARY
- NRCS WEB SOIL APPROX. SURVEY SOIL BOUNDARY
- TIME OF CONCENTRATION
- 140B — NRCS SOIL DESIGNATION
- 380.50 — SPOT ELEVATION

NORTH

0 30' 60'
SCALE IN FEET

FOR PERMITTING PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISION	DATE	DRWN	CHKD	APPRV
2	REVISED PER PERMIT REVIEW COMMENTS	8/10/16	KAM	RLR	RLR
1	ISSUED FOR PERMITTING	10/1/15	FP	RLR	BSS

THE NORTHERN PASS
Transmission Business

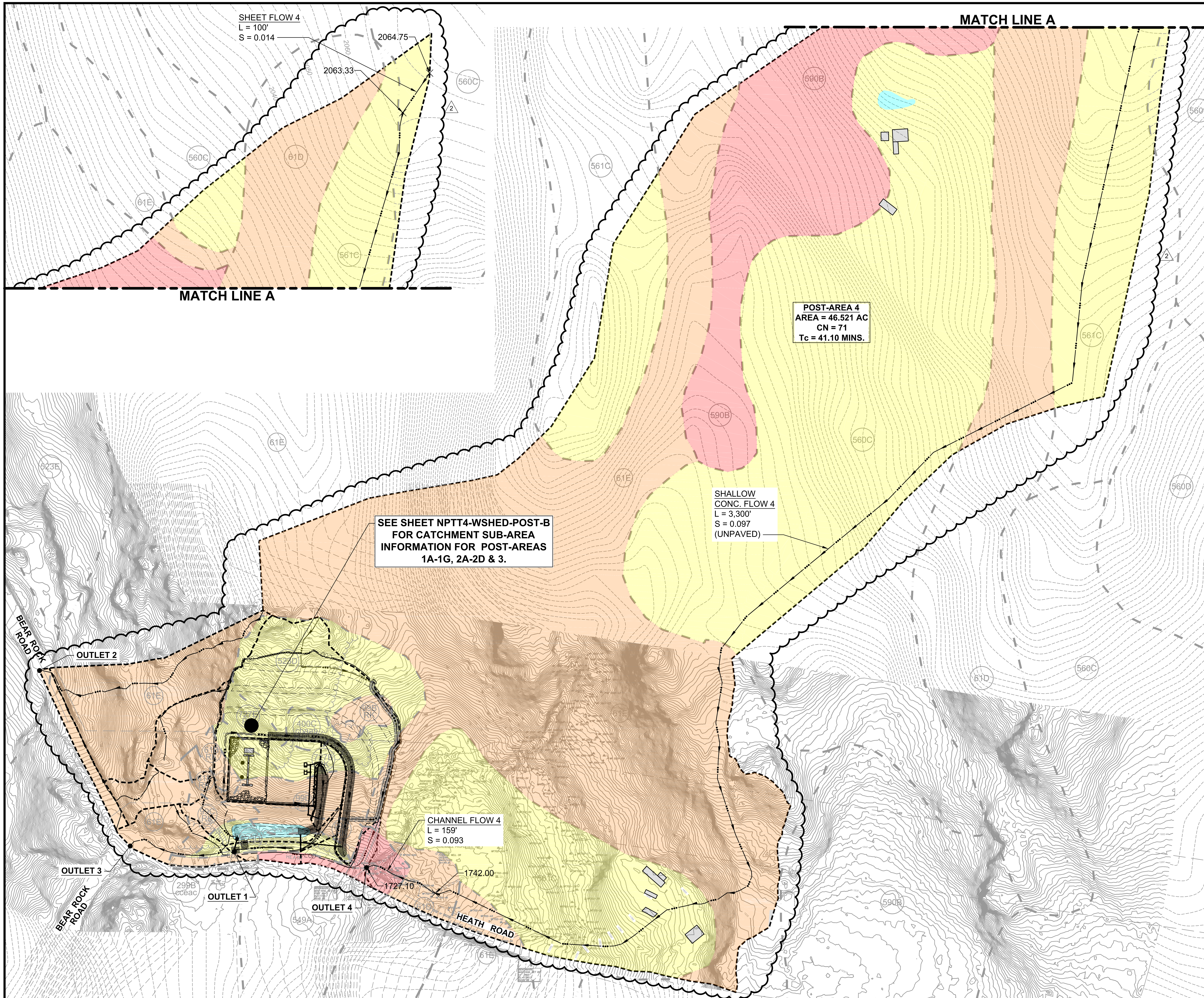
TRANSITION STATION #4
PRE-DEVELOPMENT
WATERSHED MAP B

DATE: 10/1/2015
SCALE: 1" = 30'

DES: LRM | CHK: RLR
DRW: FP | APR: BSS

TOWN: SWANZEY, NH
TRANSMISSION LINE:
MILE NO:
SHEET 2 OF 2
NPTT4-WSHED-PRE-B
REVISION: XXX

Z:\CLIENTS\TND\NUSC\58466_NPT\DESIGN\SUBSTATION\400-TRANSITION_STATION-4\CADD\CIVIL-SITE\NPTT4-WSHED-PRE.DWG 8/10/2016 8:58 AM RLREED



NOTE:
SEE SHEET NPTT4-WSHED-POST-B FOR TIME OF CONCENTRATION LINE TABLE FOR POST-AREAS 1A-1G, 2A-2D & 3.

HSG Total Area In Acres

HSG	AREA 1A	AREA 1B	AREA 1C	AREA 1D	AREA 1E	AREA 1F	AREA 1G	TOTAL
A	-	-	-	-	-	-	-	-
B	1.556	0.336	0.060	0.077	0.020	0.052	0.071	2.172
C	0.541	0.233	0.134	0.308	0.036	-	0.015	1.267
D	0.006	-	-	-	-	0.143	0.046	0.195
WATER	-	-	-	0.105	-	-	-	0.105
IMPERVIOUS	-	0.011	-	-	-	-	-	0.011
TOTAL	2.103	0.580	0.194	0.490	0.056	0.195	0.132	3.750

HSG Total Area In Acres

HSG	AREA 2A	AREA 2B	AREA 2C	AREA 2D	AREA 3	AREA 4	TOTAL
A	-	-	-	-	-	-	-
B	0.057	0.004	-	-	0.050	22.091	22.202
C	1.397	0.484	0.296	0.182	0.403	19.478	22.240
D	-	-	-	-	-	4.795	4.795
WATER	-	-	-	-	-	0.050	0.050
IMPERVIOUS	-	-	-	-	-	0.107	0.107
TOTAL	1.454	0.488	0.296	0.182	0.453	46.521	49.394
					OVERALL TOTAL		53.144

SOIL TYPE LEGEND

Map Legend	Soil Type	Hydrologic Soil Group
61B/RK	Tunbridge-Lyman-Rock outcrop complex, 3 to 8 percent slopes	C/A/D
61D	Tunbridge-Lyman-Rock outcrop complex, 15 to25 percent slopes	C
61E	Tunbridge-Lyman-Rock outcrop complex, 25 to 60 percent slopes	C
61E/RK	Tunbridge-Lyman-Rock outcrop complex, 25 to 50 percent slopes	C/A/D
99B/RK	Tunbridge, very stony, 3 to 8 percent slopes	C
99C/RK	Tunbridge, very stony, 8 to 15 percent slopes	C
99D/RK	Tunbridge, very stony, 15 to 25 percent slopes	C
299B/cceac	Udorthents, smoothed, 1 to 8 percent slopes	C
400C/cbaab	Udorthents, sandy or gravelly, 8 to 15 percent slopes	B
523D	Stetson fine sandy loam, 15 to 25 percent slopes	B
523E	Stetson fine sandy loam, 25 to 50 percent slopes	B
549A	Peacham muck, 0 to 5 percent slopes, very stony	D
560C	Tunbridge-Plaisted-Lyman complex, 8 to 15 percent slopes	B
561C	Tunbridge-Plaisted-Lyman complex, 8 to 15 percent slopes, very stony	B
590B	Cabot silt loam, 0 to 8 percent slopes, very stony	D
727B/RK	Rubble Land, 3 to 8 percent slopes	Unknown (C)
727E/RK	Rubble Land, 25 to 50 percent slopes	Unknown (B)

LEGEND

POST-DEVELOPMENT SUB-AREA BOUNDARY
NRCS WEB SOIL APPROX. SURVEY SOIL BOUNDARY
TIME OF CONCENTRATION
140B NRCS SOIL DESIGNATION
380.50 SPOT ELEVATION

NORTH
0 100' 200'
SCALE IN FEET

FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION

NO.	REVISION	DATE	DRWN	CHKD	APPRV.
2	REVISE PER PERMIT REVIEW COMMENTS	8/10/16	KAM	RLR	RLR
1	ISSUED FOR PERMITTING	10/1/15	FP	RLR	BSS

SEAL
A/E INFO
THE NORTHERN PASS
Transmission Business
#

TRANSITION STATION #4
POST-DEVELOPMENT
WATERSHED MAP A

DATE: 10/1/2015
SCALE: 1" = 100'
DES: LRM CHK: RLR
DRW: FP APR: BSS
TOWN: STEWARTSTOWN, NH
TRANSMISSION LINE:
MILE NO:
SHEET 1 OF 2
NPTT4-WSHED-POST-A
REVISION: XXX

Z:\CLIENTS\TND\NUSC\58466_NPT\DESIGN\SUBSTATION\400-TRANSITION_STATION-4\CADD\CIVIL-SITE\NPTT4-WSHED-POST.DWG 8/10/2016 11:31 AM RLREED

TIME OF CONCENTRATION LINE TABLE					
SUBAREA	SEGMENT	TYPE	LENGTH (FT)	SLOPE (%)	PAVED
1A	1A-1	SF	88	0.136	-
	1A-2	SC	26	0.500	NO
	1A-3	CF	162	0.031	-
	1A-4	CF	138	0.134	-
	1A-5	CF	12	0.042	-
	1A-6	CF	157	0.124	-
	1A-7	CF	11	0.045	-
	1A-8	CF	45	0.450	-
	1A-9	CF	63	0.049	-
1B	1B-1	SF	100	0.016	-
	1B-2	SC	175	0.033	YES
1C	1C-1	SF	95	0.057	-
	1C-2	SC	8	0.235	YES
	1C-3	CF	95	0.053	-
1D	1D-1	SF	100	0.175	-
	1D-2	SC	74	0.162	NO
1E	1E-1	SF	100	0.053	-
	1E-2	SC	19	0.104	NO
1F	1F-1	SF	100	0.170	-
	1F-2	SC	138	0.069	NO
1G	1G-1	CF	122	0.026	-
2A	2A-1	SF	100	0.285	-
	2A-2	SC	444	0.246	NO
2B	2B-1	SF	100	0.355	-
	2B-2	SC	152	0.078	NO
2C	2C-1	SF	100	0.115	-
	2C-2	SC	26	0.396	NO
2D	2D-1	SF	68	0.010	-
	2D-2	SC	325	0.086	NO
3	3-1	SF	100	0.059	-
	3-2	SC	55	0.182	NO
	3-3	CF	198	0.034	-

SF = SHEET FLOW
SC = SHALLOW CONCENTRATED FLOW
CF = CHANNEL FLOW

NOTE:
SEE SHEET NPTT4-WSHED-POST-A FOR TIME OF CONCENTRATION LINE FOR POST-AREA 4.

POST-AREA 4
AREA = 46.521 AC
CN = 71
Tc = 41.10 MINS.

POST-AREA 1A
AREA = 2.103 AC
CN = 62
Tc = 13.74 MINS.

POST-AREA 2A
AREA = 1.454 AC
CN = 70
Tc = 9.78 MINS.

POST-AREA 2B
AREA = 0.488 AC
CN = 70
Tc = 8.70 MINS.

POST-AREA 2C
AREA = 0.296 AC
CN = 71
Tc = 8.52 MINS.

POST-AREA 2D
AREA = 0.182 AC
CN = 87
Tc = 6 MINS.

POST-AREA 3
AREA = 0.453 AC
CN = 73
Tc = 17.46 MINS.

POST-AREA 1B
AREA = 0.580 AC
CN = 86
Tc = 10.02 MINS.

POST-AREA 1C
AREA = 0.194 AC
CN = 86
Tc = 6 MINS

POST-AREA 1D
AREA = 0.490 AC
CN = 70
Tc = 10.98 MINS.

POST-AREA 1E
AREA = 0.056 AC
CN = 86
Tc = 6 MINS.

POST-AREA 1F
AREA = 0.195 AC
CN = 78
Tc = 6 MINS.

POST-AREA 1G
AREA = 0.132 AC
CN = 72
Tc = 6 MINS.

FOR CONTINUATION OF TIME OF CONCENTRATION LINE, SEE SHEET NPTT4-WSHED-POST A.

LEGEND

- POST-DEVELOPMENT SUB-AREA BOUNDARY
- NRCS WEB SOIL APPROX. SURVEY SOIL BOUNDARY
- TIME OF CONCENTRATION
- 140B — NRCS SOIL DESIGNATION
- 380.50 — SPOT ELEVATION

NORTH

0 30' 60'
SCALE IN FEET

FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION

BEAR ROCK ROAD
HEATH ROAD
SWALE - 1A1
SWALE - 1A2
SWALE - 1A3
SWALE - 1C
SWALE - 1G
SAND FILTER SF-1
DETENTION BASIN DT-1
POST DEPRESSION 2B
OUTLET 1
OUTLET 2
OUTLET 3
OUTLET 4
15" CMP INV.=1714.9
BENCHMARK: MAG-NAIL SET IN POLE 98-2 EL.=1729.7 NAVD 88

NO.	REVISED PER PERMIT REVIEW COMMENTS	DRW	CHKD	APPRV
1	ISSUED FOR PERMITTING	FP	RLR	BSS
2	REVISION	DRWN	CHKD	APPRV

THE NORTHERN PASS
Transmission Business

TRANSITION STATION #4
POST-DEVELOPMENT
WATERSHED MAP B

DATE: 10/1/2015
SCALE: 1" = 30'

DES: LRM CHK: RLR
DRW: FP APR: BSS
TOWN: STEWARTSTOWN, NH
TRANSMISSION LINE:
MILE NO:
SHEET 2 OF 2
NPTT4-WSHED-POST-B
REVISION: XXX

Z:\CLIENTS\TND\NUSC\58466_NPT\DESIGN\SUBSTATION\400-TRANSITION_STATION-4\CADD\CIVIL-SITE\NPTT4-WSHED-POST.DWG 8/10/2016 11:31 AM RLREED