Table 1: Isolated Land Subject to Flooding (ILSF) Qualification Calculations Montague Road Project Updated June 9, 2022

Wetland ID	Wetland Area (Square Feet)	Observed Maximum Depth (Inches)	Volume Based on Maximum Depth (Acre-Feet)	
W-GR-16	4,764	18	0.16	
W-GR-17	12,086	12	0.28	
W-MBF-15	2,023	24	0.09	

Notes:

- TRC observed wetlands during multiple field visits. W-MBF-15 was observed between mid-March through mid June of 2020, the period when maximum flooding is typically observed. W-GR-16 and W-GR-17 were observed in April and May 2022 during maximum seasonal flooding is typically observed.
- 2. Leaf staining was observed within a portion of W-GR-16, indicating that at least a portion of this wetland floods seasonally. A depth of 18 inches was conservatively assumed for this calculation in the December 2021 ANRAD filing. More recent site observations in April and May 2022 indicate that flooding is actually between 10 and 12 inches in depth. The original, more conservative assumption has been retained.
- 3. Volumes were conservatively calculated based on the maximum observed depth for each wetland rather than the average observed depth.
- 4. While the isolated wetlands at the site meet the minimum water depth requirement, based on the above calculations only W-GR-17 holds a large enough volume of water to qualify as ILSF under 310 CMR 10.57(2)(b)1: a minimum average water depth of 6 inches and a minimum water volume of 1/4 acre-feet. Therefore, W-GR-16 and W-MBF-15 do not qualify as ILSF.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Montague	City/County:_S	Shutesbury, Franklin County	Sampling Date: 2022-Mar-31
Applicant/Owner: W.D. Cowls		State: MA	Sampling Point: W-MBF-10_PFO-3
Investigator(s): Greg Russo, Mo	olly Lennon	Section, Township, Rar	nge:
Landform (hillslope, terrace, etc.)	: Hillslope	Local relief (concave, convex,	none): Concave Slope (%): 1 to
Subregion (LRR or MLRA): L	RR R	Lat: 42.4772820902	Long: -72.4294742849 Datum: WGS8
Soil Map Unit Name: 75B: Pills	bury fine sandy loam, 0 to 8 perce	nt slopes, very stony	NWI classification: None
Are climatic/hydrologic condition	s on the site typical for this time of	f year? Yes 🟒 No	(If no, explain in Remarks.)
Are Vegetation, Soil,	or Hydrology significantly		rcumstances" present? Yes 🟒 No
Are Vegetation, Soil,	or Hydrology naturally pr	roblematic? (If needed, exp	lain any answers in Remarks.)
SUMMARY OF FINDINGS – A	Attach site map showing sam	pling point locations, transe	cts, important features, etc.
Hydrophytic Vegetation Present	? Yes 🗸 No		
Hydric Soil Present?	Yes _ 🗸 No	Is the Sampled Area within a	Wetland? Yes <u></u> ✓ No
		·	
Wetland Hydrology Present?	Yes _ ✓ _ No	If yes, optional Wetland Site I	D: W-MBF-10
Remarks: (Explain alternative pro	ocedures here or in a separate rep	oort)	
Covertype is PFO. Area is wetlan	d, all three wetland parameters are	e present.	
	-,	-	
HYDROLOGY			
Watland Lludrology Indicators			
Wetland Hydrology Indicators:			
Primary Indicators (minimum of	one is required; check all that app	<u>sly)</u> <u>Sec</u>	<u>condary Indicators (minimum of two required)</u>
Surface Water (A1)	Water-Stained	Leaves (R9)	Surface Soil Cracks (B6)
Surface Water (A1) High Water Table (A2)	Water-Stained Aquatic Fauna		Drainage Patterns (B10)
	· ·	<i>-</i>	Moss Trim Lines (B16)
Saturation (A3)	Marl Deposits		Dry-Season Water Table (C2)
Water Marks (B1)	Hydrogen Sulfi		Crayfish Burrows (C8)
Sediment Deposits (B2)		ospheres on Living Roots (C3)	Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)		educed Iron (C4)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)		duction in Tilled Soils (C6)	Geomorphic Position (D2)
Iron Deposits (B5)	Thin Muck Sur	face (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial I	magery (B7) Other (Explain	in Remarks)	•
Sparsely Vegetated Concave			Microtopographic Relief (D4)
			FAC-Neutral Test (D5)
Field Observations:			
Surface Water Present?	Yes No Dep	pth (inches):	
Water Table Present?	Yes 🟒 No Dep	pth (inches): 6 We	etland Hydrology Present? Yes No _
Saturation Present?	Yes <u></u> ✓ No Dep	pth (inches):	
	163 <u>v</u> 110 <u> </u>		
(includes capillary fringe)			
Describe Recorded Data (stream	n gauge, monitoring well, aerial pho	otos, previous inspections), if avai	lable:
Remarks:			
The criterion for wetland hydrole	ngy is met		
The effection for Wedana flyaron	38y 13 met.		

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft</u>)		Dominant Species?	Indicator Status	Dominance Test works Number of Dominant		1	(A)
1. Tsuga canadensis	40	Yes	FACU	Are OBL, FACW, or FAC	:		(A)
				Total Number of Dom	inant Species	3	(B)
3.				Across All Strata:			
4.				Percent of Dominant S		33.3	(A/B)
5.				Are OBL, FACW, or FAC		-	
5.				Prevalence Index worl			
7.				Total % Cove		<u>Multiply I</u>	-
	40	= Total Cove	r	OBL species	0	x 1 = _	0
Sapling/Shrub Stratum (Plot size:15 ft)				FACW species	5	x 2 =	10
. Kalmia latifolia	50	Yes	FACU	FAC species	0	x 3 =	0
2.			TACO	FACU species	90	x 4 =	360
-				- UPL species	0	x 5 =	0
3.				- Column Totals	95	(A)	370 (B)
ł				Prevalence I	ndex = B/A =	3.9	
				Hydrophytic Vegetatio	n Indicators:		<u> </u>
5				1- Rapid Test for		egetation	
7				2 - Dominance Te			
	50	= Total Cove	r	3 - Prevalence In			
<u>-lerb Stratum</u> (Plot size: <u>5 ft</u>)				4 - Morphologica		(Provide	supporting
. Osmundastrum cinnamomeum	5	Yes	FACW	daţa in Remarks or on			
2				Problematic Hyd			plain)
3				Indicators of hydric s			
4				present, unless distur		-	,,
5.				Definitions of Vegetati			
5.				Tree – Woody plants 3		more in c	liameter at
7.				breast height (DBH), r			
3.	· · · · · · · · · · · · · · · · · · ·			Sapling/shrub - Wood			BH and
9.				greater than or equal	to 3.28 ft (1 m) tall.	
0.				Herb – All herbaceous	(non-woody)	plants, reg	ardless of
				size, and woody plants	s less than 3.2	8 ft tall.	
11 12.				Woody vines – All woo	dy vines great	er than 3.	28 ft in
		= Total Cove	r	height.			
Woody Vine Stratum (Plot size: 30 ft)		_ Total Cove	ı	Hydrophytic Vegetation	on Present?	∕es 🗸 N	0
roody virie stratum (Flot Sizeso it)							
				=			
<u> </u>				.			
3.				.			
4				.			
4.		= Total Cove					

	•	to the c	•			ndicator	or confirm the a	absence of indicators.)		
Depth	Matrix		Redox		ures					
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	T	exture	Remarks	
0 - 8	10YR 2/1	100					Mucky Silt Loam			
8 - 14	10YR 4/1	90	2.5YR 4/3	10	C	M	Mucky Sandy Loam			
14 - 20	10YR 4/1	90	2.5YR 4/3	10	C	M	Loa	my Sand		
								-		
	-			_						
				—						
				_						
1T C		Danlati	- DM Deduce			N 4	Const Constant 2	La cathaire Di Danie Lini	- NA NASSIS	
	Concentration, D =	Depleti	on, RM = Reduced	Mati	ix, MS =	Masked	Sand Grains. 4	Location: PL = Pore Lini	· ·	
-	Indicators:							Indicators for Proble	ematic Hydric Soils³:	
Histoso			Polyvalue Be					2 cm Muck (A10)	(LRR K, L, MLRA 149B)	
	pipedon (A2)		Thin Dark Su					Coast Prairie Red	dox (A16) (LRR K, L, R)	
	listic (A3)		Loamy Muck			(LRR K, I	_)	5 cm Mucky Pea	t or Peat (S3) (LRR K, L, R)	
_ , .	gen Sulfide (A4)		Loamy Gleye					Dark Surface (S7	') (LRR K, L)	
	ed Layers (A5) ed Below Dark Surf	Faco (A11	Depleted Ma					Polyvalue Below	Surface (S8) (LRR K, L)	
	ea Below Dark 3uii eark Surface (A12)	ace (A)	Depleted Da			ı		Thin Dark Surfac	ce (S9) (LRR K, L)	
	Mucky Mineral (S1)		Redox Depre			'		Iron-Manganese	Masses (F12) (LRR K, L, R)	
	Gleyed Matrix (S4)		Redox Depre	233101	15 (1-0)			Piedmont Flood	plain Soils (F19) (MLRA 149B)	
_								Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
	Redox (S5)							Red Parent Mate	erial (F21)	
	ed Matrix (S6)		IOD)					Very Shallow Dark Surface (TF12)		
Dark St	urface (S7) (LRR R, I	MLRA 14	19B)					Other (Explain in	n Remarks)	
3Indicators	of hydrophytic veg	getation	and wetland hyd	rology	/ must be	e presen	t, unless disturb	ed or problematic.		
Restrictive	Layer (if observed)):								
	Type:		None			Hydric	Soil Present?	,	Yes No	
	Depth (inches):									
Remarks:						•				
	indication of hydric	soil wa	s observed.							
	,									
]										
]										
]										

Hydrology Photos



Photo of Sample Plot North



Photo of Sample Plot East



Photo of Sample Plot South



Photo of Sample Plot West



WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Montague		_City/County: Shu	tesbury, Franklin County	Sampling Date	2: 2022-Mar-31
Applicant/Owner: W.D. Cowls			State: MA	Sampling Point:	W-MBF-10_UPL-3
Investigator(s): Greg Russo, Mo	olly Lennon		Section, Township,	Range:	
Landform (hillslope, terrace, etc.)	: Hillslope		Local relief (concave, conv	ex, none): Convex	Slope (%): 1 to 3
Subregion (LRR or MLRA): $_$ L	RR R		Lat: 42.477380158	4 Long: -72.4291390926	Datum: WGS84
Soil Map Unit Name: 75B: Pills	bury fine sandy lo	am, 0 to 8 percent s	slopes, very stony	NWI classif	ication: None
Are climatic/hydrologic condition	s on the site typica	al for this time of ye	ear? Yes 🟒 No	(If no, explain in Rem	arks.)
Are Vegetation, Soil,		significantly di		al Circumstances" present?	Yes No
Are Vegetation, Soil,	or Hydrology ₋	naturally prob	lematic? (If needed,	explain any answers in Rer	narks.)
SUMMARY OF FINDINGS – A	ttach site map	showing sampli	ng point locations, trar	nsects, important featu	res, etc.
Hydrophytic Vegetation Present	? Yes	No _ _ _			
Hydric Soil Present?		No	Is the Sampled Area withi	n a Wetland?	Yes No
•			ł ·		163110
Wetland Hydrology Present?	•	No	If yes, optional Wetland Si	ite ib:	
Remarks: (Explain alternative pro					
Covertype is UPL. Area is upland	, not all three wet	land parameters ar	e present.		
N/DDOLOGY					
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (minimum of	one is required; c	heck all that apply)		Secondary Indicators (min	imum of two required)
-				Surface Soil Cracks (B6	·
Surface Water (A1)	_	_ Water-Stained Lea		Drainage Patterns (B10	
High Water Table (A2)	_	_ Aquatic Fauna (B1		Moss Trim Lines (B16)	•
Saturation (A3)		_ Marl Deposits (B1		Dry-Season Water Tabl	e (C2)
Water Marks (B1)		_ Hydrogen Sulfide		Crayfish Burrows (C8)	
Sediment Deposits (B2)			heres on Living Roots (C3)	Saturation Visible on A	erial Imagery (C9)
Drift Deposits (B3)		_ Presence of Redu		Stunted or Stressed Pla	ants (D1)
Algal Mat or Crust (B4)		_	ction in Tilled Soils (C6)	Geomorphic Position (D2)
Iron Deposits (B5)		_ Thin Muck Surface		Shallow Aquitard (D3)	
Inundation Visible on Aerial I		_ Other (Explain in	Remarks)	Microtopographic Relie	ef (D4)
Sparsely Vegetated Concave	Surface (B8)			FAC-Neutral Test (D5)	
Field Observations:					
Surface Water Present?	Yes No _	✓ Depth	(inches):		
Water Table Present?	Yes No _	./ Depth	(inches):	 Wetland Hydrology Preser	nt? Yes No
	Yes No _		-		···
Saturation Present?	res No _	_ ∠ Deptn	(inches):		
(includes capillary fringe)					
Describe Recorded Data (stream	ı gauge, monitorin	g well, aerial photo	s, previous inspections), if a	available:	
Danie andrei					
Remarks:					
The criterion for wetland hydrol	ogy is not met.				

VEGETATION -- Use scientific names of plants.

				Danning and a Treat was which a str		
<u>Tree Stratum</u> (Plot size: <u>30 ft</u>)		Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That		
A. Tours and density		·		Are OBL, FACW, or FAC:	0	(A)
1. Tsuga canadensis	40	Yes	FACU	Total Number of Dominant Species		
2.				Across All Strata:	4	(B)
3				Percent of Dominant Species That		
4				- Are OBL, FACW, or FAC:	0	(A/B)
5				Prevalence Index worksheet:		
6				Total % Cover of:	Multiply	Bv:
7				- OBL species 0	x 1 =	0
	40	= Total Cov	er	FACW species 0	x 2 =	0
Sapling/Shrub Stratum (Plot size:15 ft)				FAC species 0	x 3 =	0
1. Pinus strobus	25	Yes	FACU	- FACU species 90	x 4 =	360
2. <i>Kalmia latifolia</i>	15	Yes	FACU	- UPL species 0	x 5 =	0
3. Tsuga canadensis	10	Yes	FACU	- Column Totals 90	-	
4.					(A) -	360 (B)
5.				Prevalence Index = B/A =	4	
6.				Hydrophytic Vegetation Indicators:		
7.				1- Rapid Test for Hydrophytic \	egetation/	1
	50	= Total Cov	er	2 - Dominance Test is > 50%		
Herb Stratum (Plot size:5 ft)		-		3 - Prevalence Index is \leq 3.0 ¹		
1				4 - Morphological Adaptations		supporting
2.				data in Remarks or on a separate sh	•	
3.				Problematic Hydrophytic Vege		
4.				Indicators of hydric soil and wetlan	-	gy must be
5.				present, unless disturbed or proble	matic	
				Definitions of Vegetation Strata:		
6				Tree – Woody plants 3 in. (7.6 cm) or		diameter at
7				breast height (DBH), regardless of h		
8.				Sapling/shrub - Woody plants less t		DBH and
9				greater than or equal to 3.28 ft (1 m Herb – All herbaceous (non-woody)		
10				size, and woody plants less than 3.2		gardiess of
11				Woody vines – All woody vines grea		28 ft in
12				height.	ter triair 5	.2011111
	0	= Total Cov	er			
Woody Vine Stratum (Plot size: 30 ft)				Hydrophytic Vegetation Present?	res r	NO <u>~</u>
1				_		
2				_		
3				<u>_</u>		
4.						
	0	= Total Cov	er			
Remarks: (Include photo numbers here or on a separ	rata sheet \	-				
		FOOK of dom	sinant cnaci	inclindayed as FAC or drier)		
No positive indication of hydrophytic vegetation was	observed (≥	50% OI GOII	iiriarit speci	es indexed as FAC- or drier).		

Profile Des	cription: (Describe	to the de				indicato	or confirm the	absence of indicators.)		
Depth	Matrix		Redox	Fea	tures					
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0 - 2	10YR 2/2	100					Org m	atter Loam		
2 - 4	10YR 4/1	100					Sandy	Clay Loam		
4 - 6	2.5YR 3/4	100					Silty	Clay Loam		
6 - 16	2.5Y 6/4	100		_				Clay Loam		
				_						
				_						
				_						
	•			_			-	.		
				_						
				_						
				_						
	-			_						
				_						
¹Type: C = 0	Concentration, D =	Depletio	n, RM = Reduced	Mat	rix, MS =	Masked	Sand Grains. ²	Location: PL = Pore Lin	ing, M = Matrix.	
Hydric Soil	Indicators:							Indicators for Probl	ematic Hydric Soils³:	
Histoso	l (A1)		Polyvalue Bel	ow S	Surface (S	8) (LRR	R. MLRA 149B)	2 cm Muck (A10) (LRR K, L, MLRA 149B)	
	pipedon (A2)		Thin Dark Sur							
Black H	istic (A3)		 Loamy Mucky	Mir	neral (F1)	(LRR K, I	_)		dox (A16) (LRR K, L, R) at or Peat (S3) (LRR K, L, R)	
Hydrog	en Sulfide (A4)		Loamy Gleyed	d Ma	trix (F2)			· · · · · · · · · · · · · · · · · · ·		
Stratifie	d Layers (A5)		Depleted Mat					Dark Surface (S		
Deplete	ed Below Dark Surfa								v Surface (S8) (LRR K, L)	
Thick D	ark Surface (A12)		Depleted Dar	k Su	rface (F7))		Thin Dark Surfa		
Sandy N	Mucky Mineral (S1)		Redox Depre	ssior	ns (F8)			Iron-Manganese Masses (F12) (LRR K, L, R)		
Sandy (Gleyed Matrix (S4)							Piedmont Floodplain Soils (F19) (MLRA 149B)		
-	Redox (S5)							·	A6) (MLRA 144A, 145, 149B)	
	d Matrix (S6)							Red Parent Mat		
	urface (S7) (LRR R, N	/II RA 149)B)					Very Shallow Dark Surface (TF12)		
			-,					Other (Explain i	n Remarks)	
3Indicators	of hydrophytic veg	etation a	and wetland hydr	olog	y must be	e preser	t, unless disturb	ed or problematic.		
Restrictive	Layer (if observed):	:								
	Type:		Rock			Hydric	Soil Present?		Yes No⁄_	
	Depth (inches):		16							
Remarks:	•									
No positive	indication of hydri	ic soils w	as observed.							
Tro positive	. marcación or ny an	50.15 11	as observed.							
										

Photo of Sample Plot North



Photo of Sample Plot East



Photo of Sample Plot South



Photo of Sample Plot West

