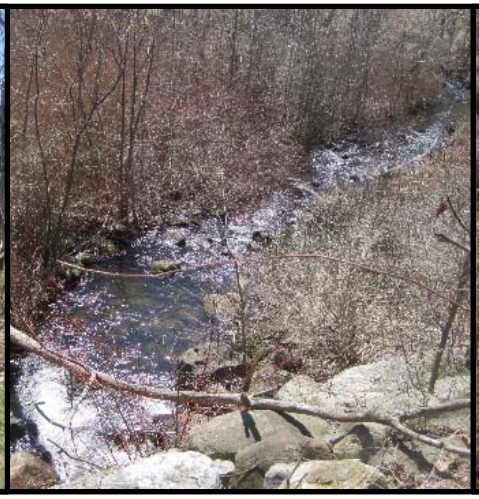
Public Meeting #5

Moon Brook Pond Modification Project



City of Rutland I May 29, 2019

Agenda

7:00 – 7:15	Piedmont Pond – Welcome, introductions, and review of past information
7:15 – 7:45	Piedmont Pond – Planting plan, wetlands, dam safety, funding, schedule
7:45 – 8:00	Piedmont Pond – Public comment

8:00 – 8:15	Combination Pond – Welcome, introductions, and review of past information
8:15 – 8:45	Combination Pond – Planting plan, wetlands, dam safety, funding, schedule
8:45 – 9:00	Combination Pond – Public comment

Summary of Process

Public Meetings

- ~~Meeting #1. Introductions, values, and initial information exchange.~~
- ~~Meeting #2. Review values and objectives. Discuss alternatives and preferences. Select options for ANR to model.~~
- ~~Meeting #3. Alternatives analysis model results. Select a preferred alternative to develop visualizations and concept design.~~
- ~~Meeting #4. Present photo-simulations. Seek consensus on the preferred alternative to advance design.~~
- Meeting #5. Design review.

Thank You for Staying Involved

1. Request individual meetings.
2. Follow information on website.

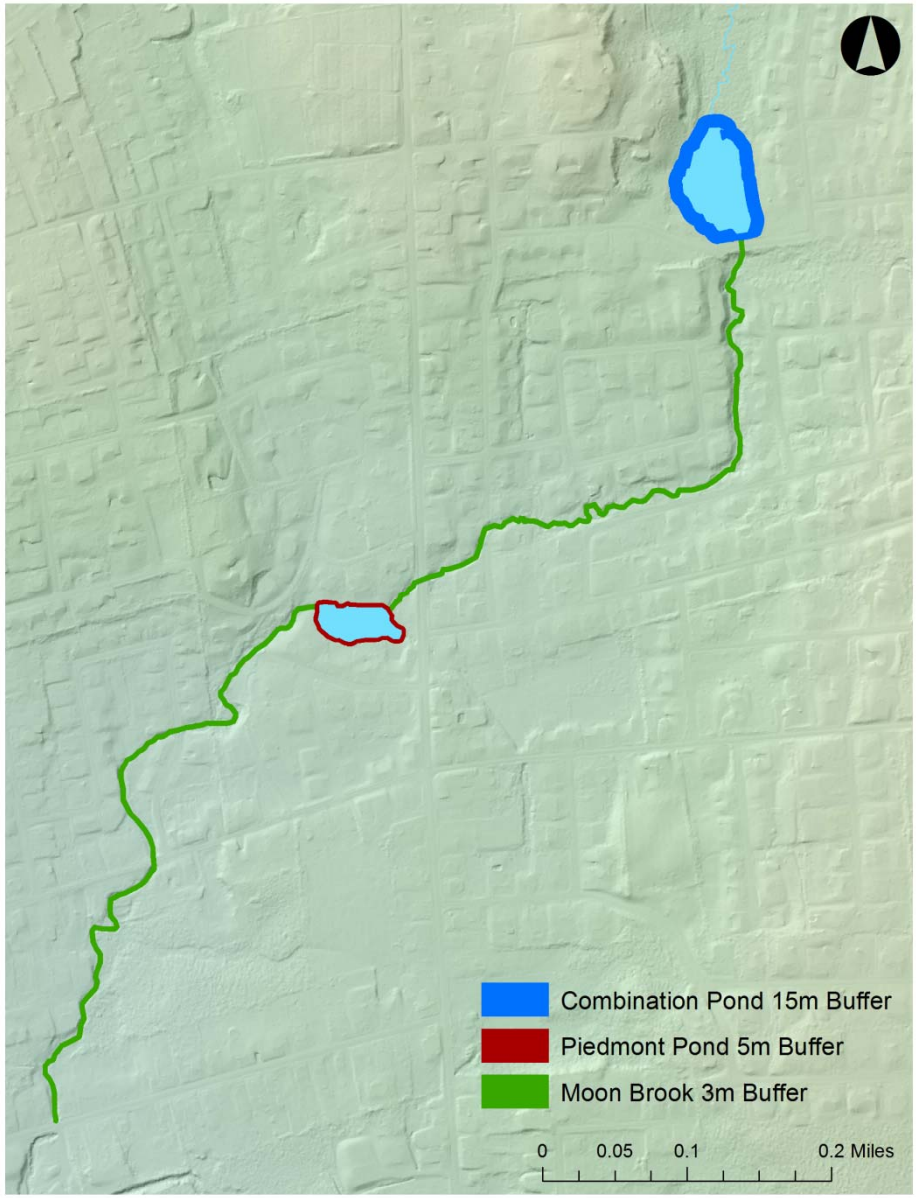
www.rutlandcity.org/ponds

Review Key Project Requirements

1. Improve Moon Brook water quality.
2. Improve dam safety.
3. Treat stormwater runoff.
4. Start planting in 2020.
5. Create an insurable setting.
6. Reduce financial exposure of City and taxpayers.
7. Inform the state TMDL process.

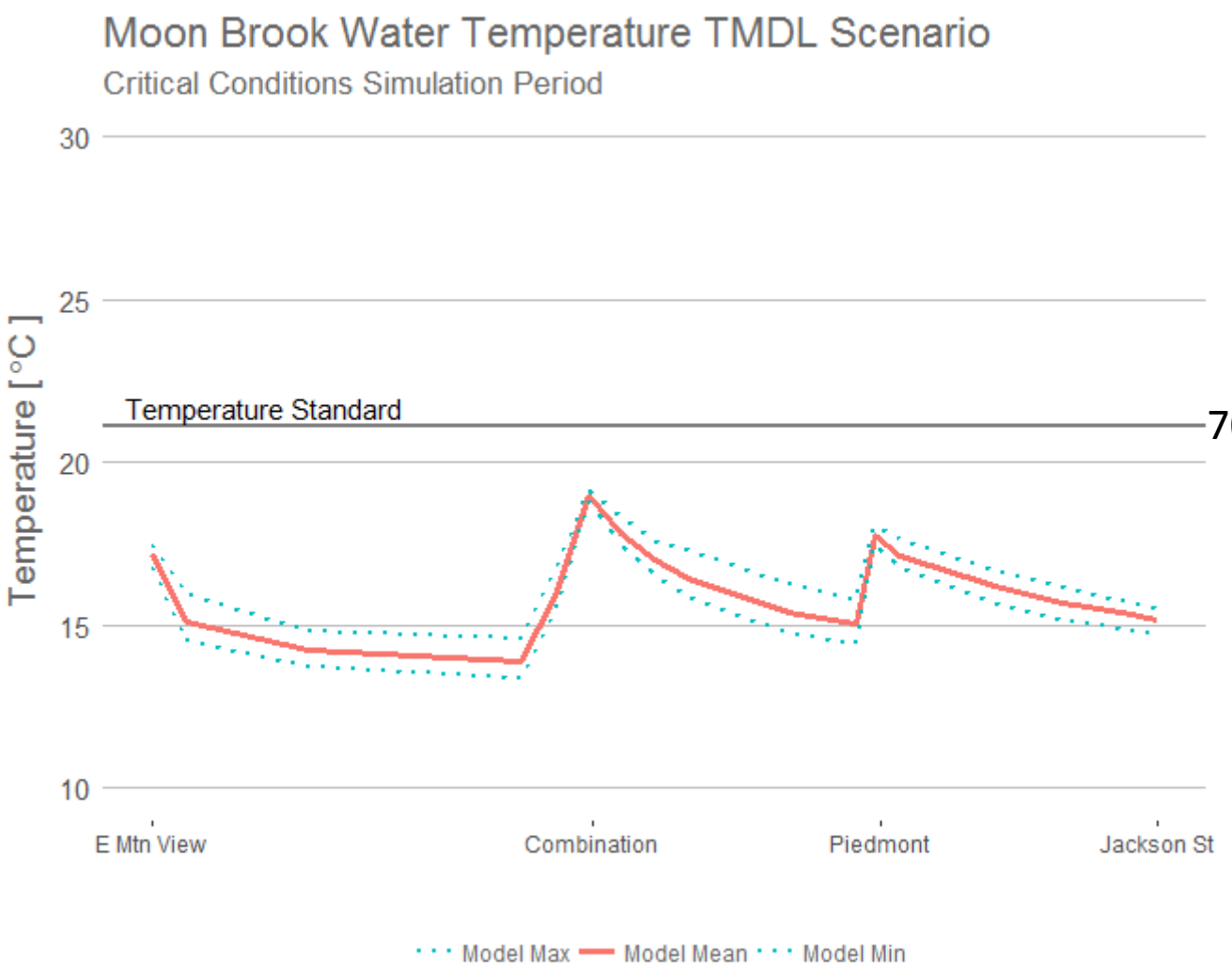
Preferred Alternative

- Lower Piedmont Pond 2 feet, dredge fine sediment, and create a 5-meter vegetated buffer.
- Lower Combination Pond 2 feet, dredge fine sediment, and create 15-meter vegetated buffer.
- Create 3-meter vegetated buffer along the Moon Brook channel.



(ANR, 2017)

Model Results of Preferred Alternative



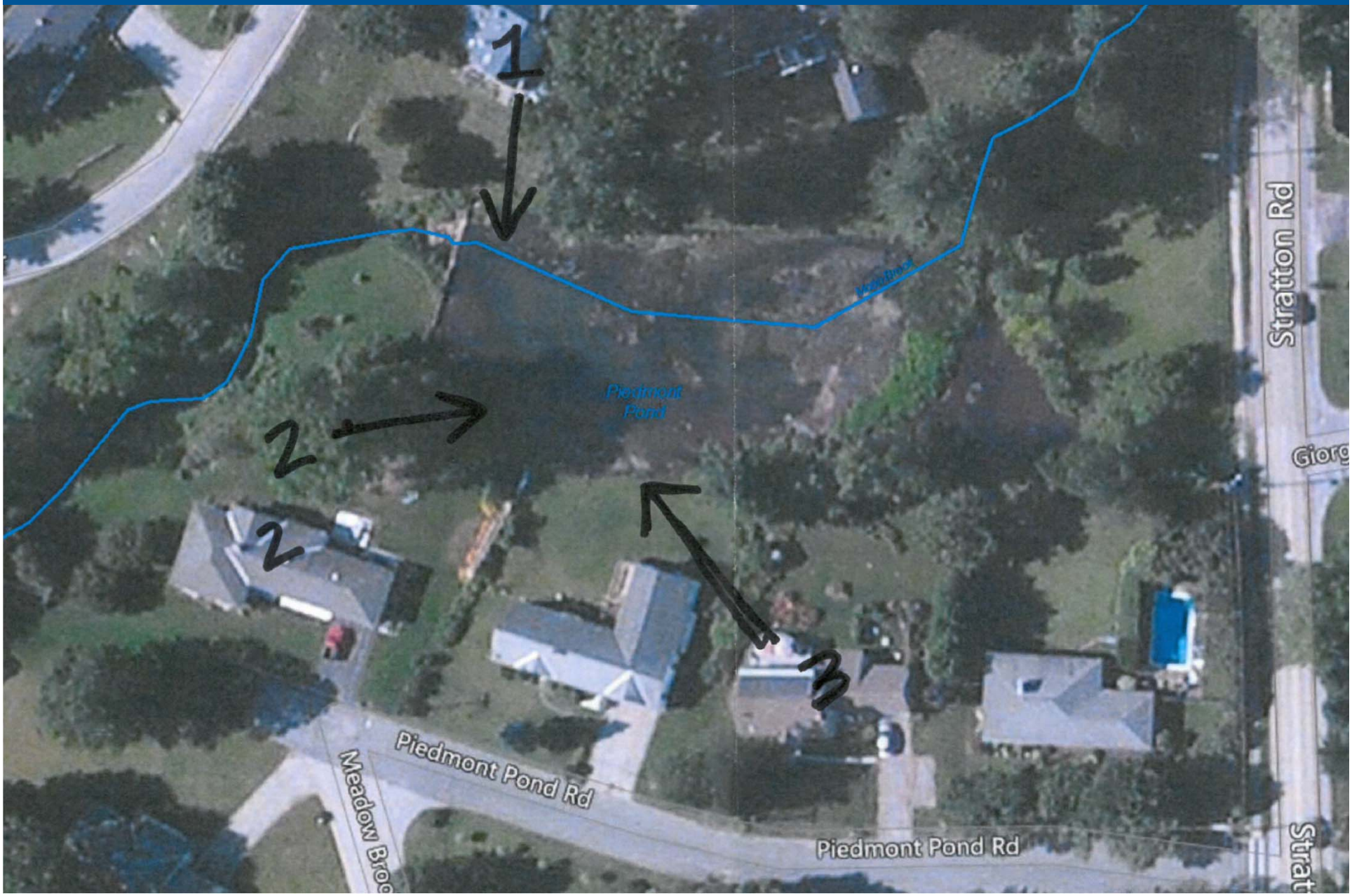
70 degrees F

(ANR, 2017)

Dam Safety Assessment

- Dam in poor condition. Vegetation near dam. Concrete deteriorated. Seepage is taking place.
- Need hydraulic study to see if spillway properly sized.
- Loss of material on upstream face of dam.
- Undercut concrete spillway.
- Stop logs need replacement.

Photo-Simulations



View 1 - Existing

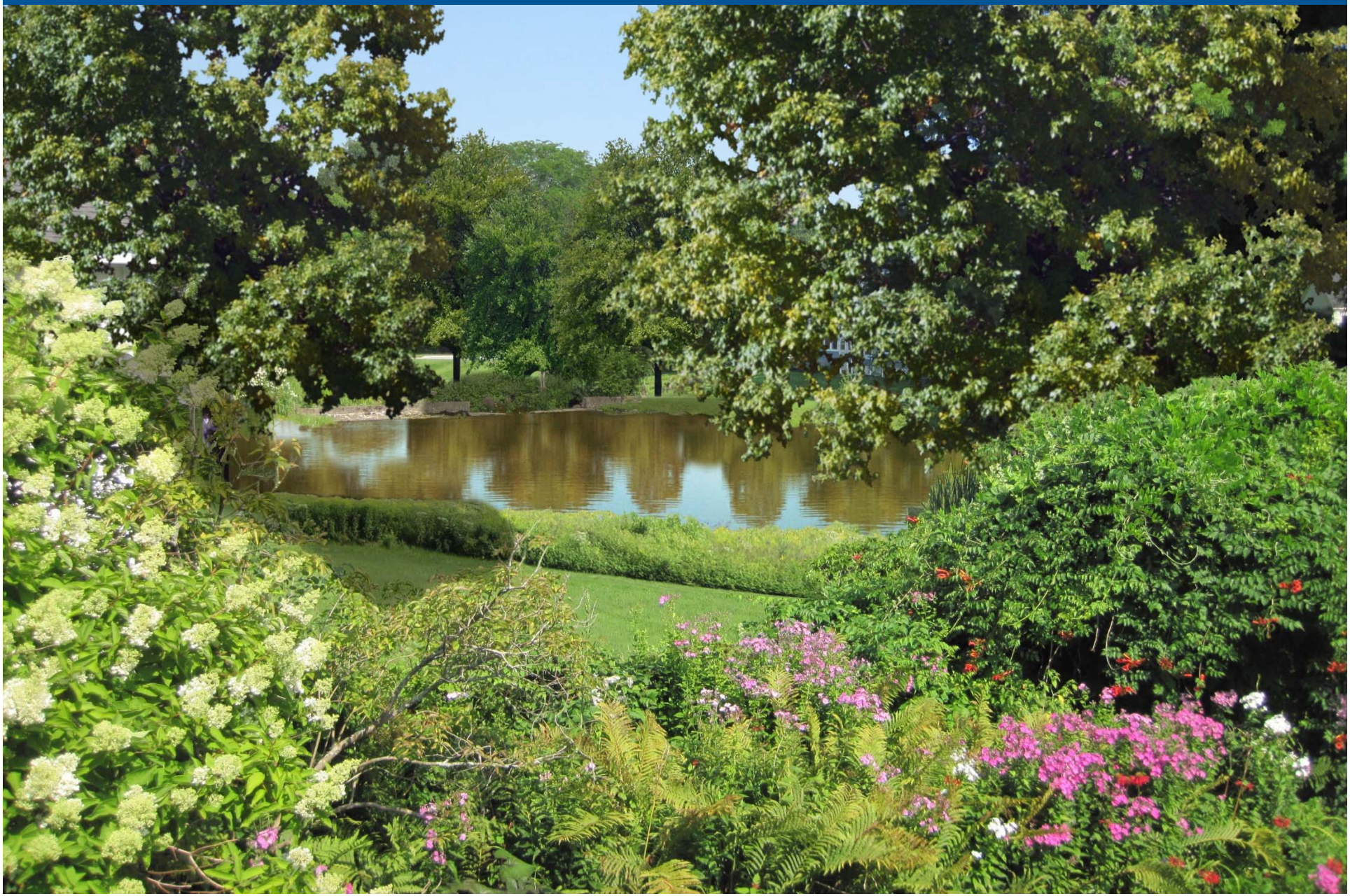
View 1 – Proposed

View 2 - Existing

View 2 – Proposed

View 3 - Existing

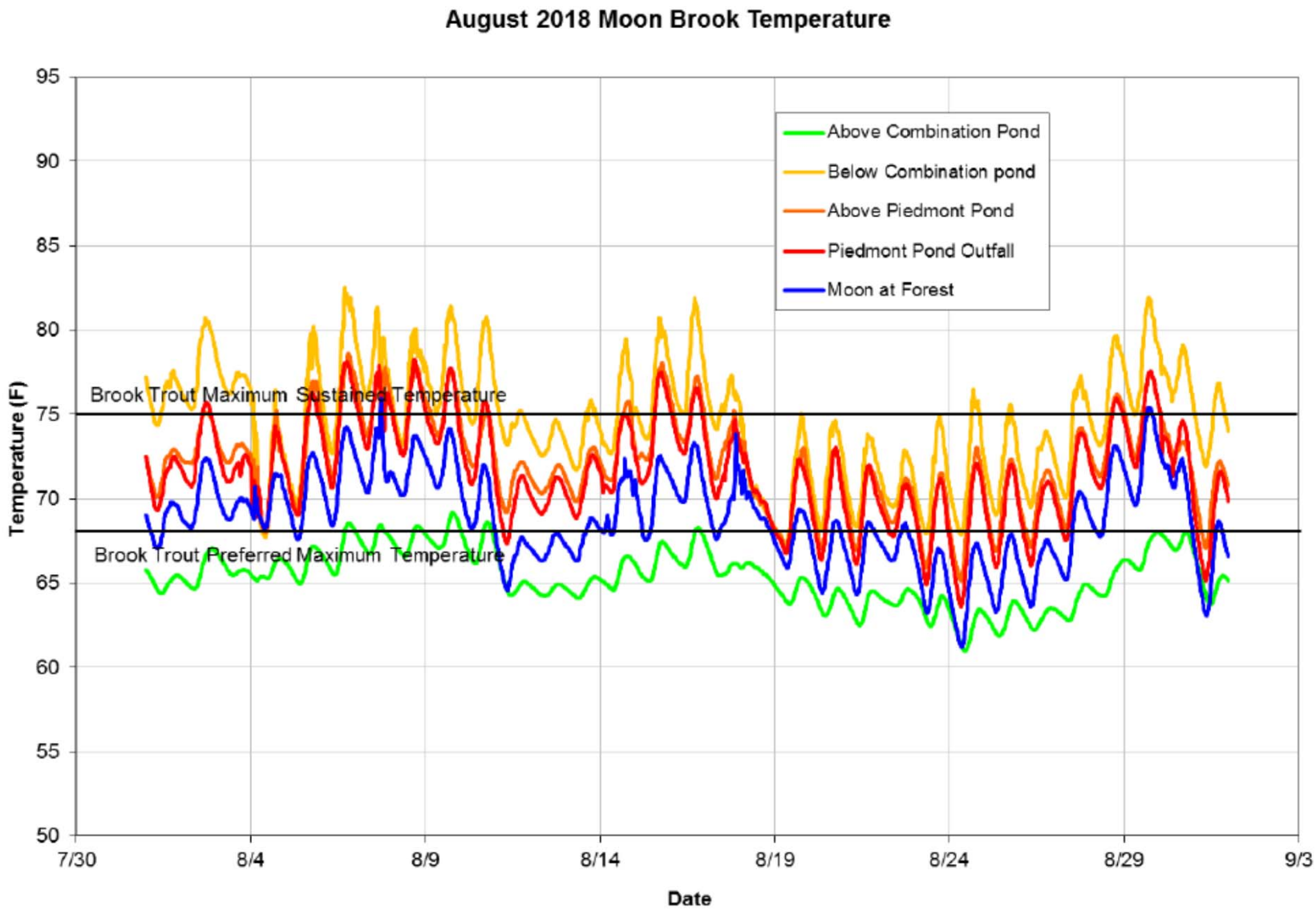
View 3 – Proposed



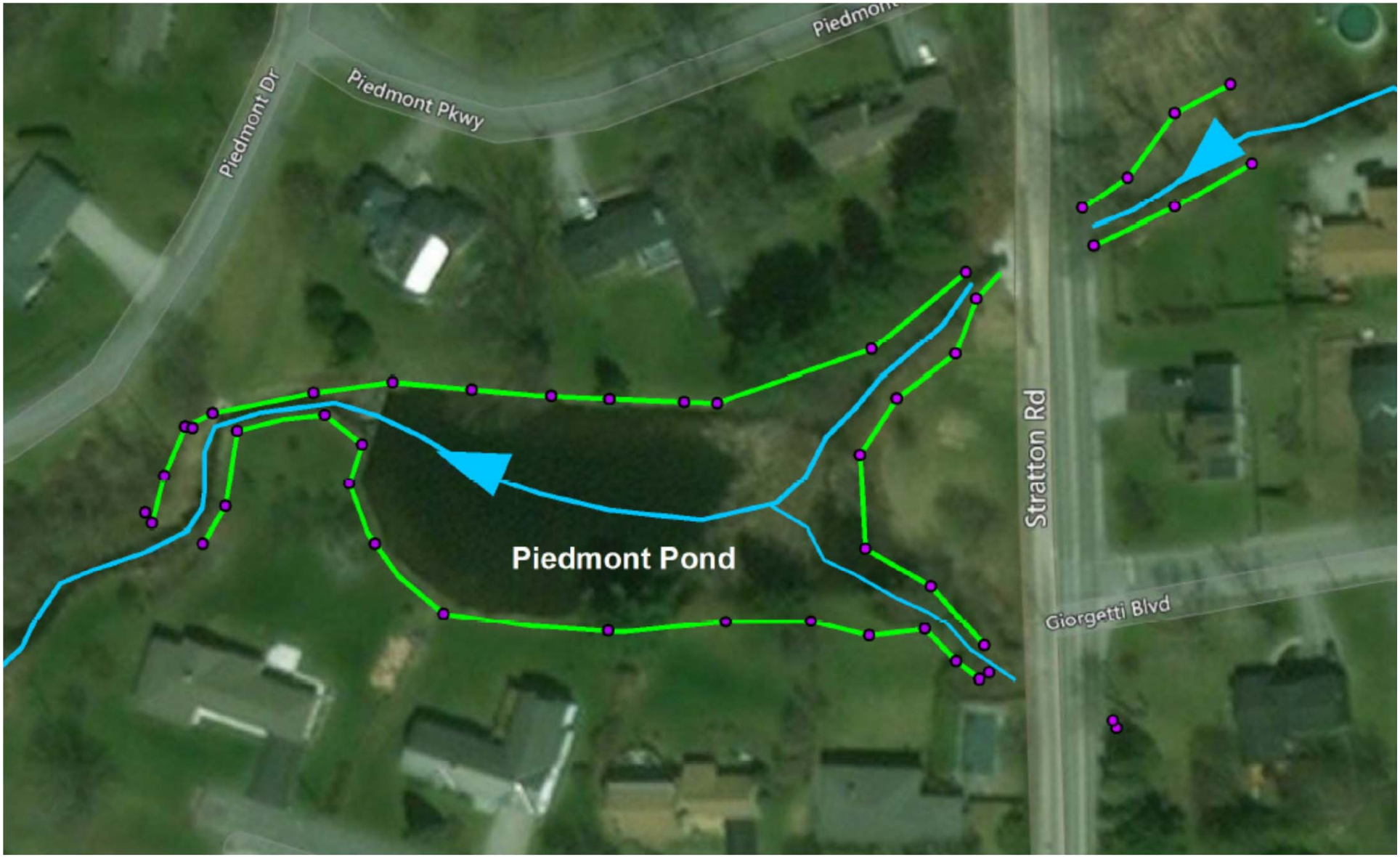
What Has Taken Place Since Nov. 30, 2017…

- Another year of temperature data.
- Wetland delineation around both ponds.
- Dam hazard class assessment at Combination Pond.
- Geotechnical analysis at Combination Pond.
- Planting plan design.
- Revised schedule with the state.
- Exploration of funding options.

Water Temperature



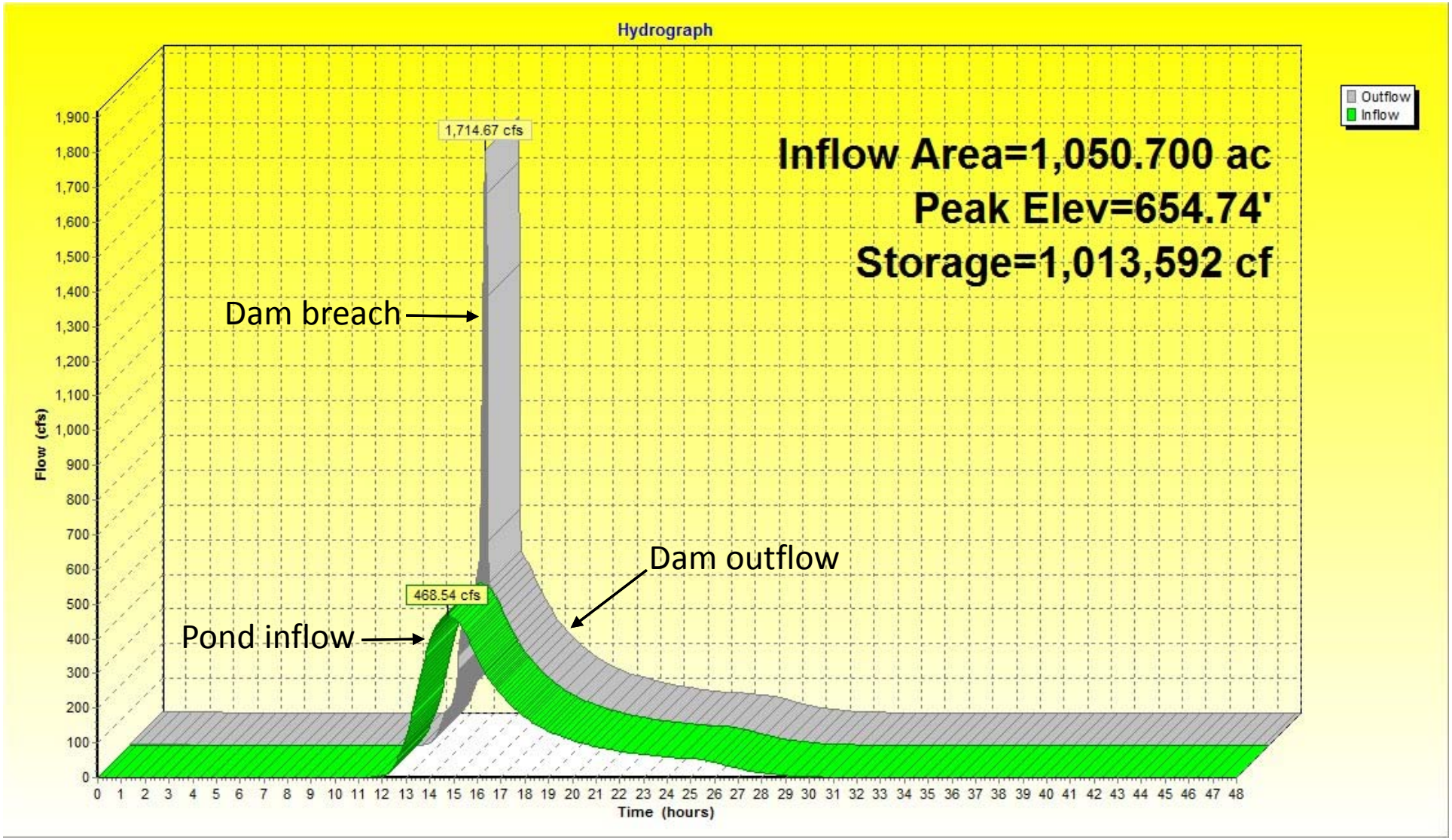
Wetlands


Piedmont Dr
Piedmont Pkwy
Piedmont
Piedmont Pond
Stratton Rd
Giorgetti Blvd

Dam Breach Analysis

- 100-Year Flood = 469 cubic feet per second.
- 100-Year Breach Flood = 1,715 cfs due to the release of over 12-acre feet of water.
- Road overtops between the 10- and 25-year floods.
- Failure of the Combination Pond Dam is likely to cause economic loss, environmental damage, and disruption of lifeline facilities; however, loss of human life is not probable.
- It is recommended that Combination Pond Dam be reclassified as a Significant Hazard Dam.

Dam Breach Analysis



Dam Breach Analysis

Dam Breach Analysis

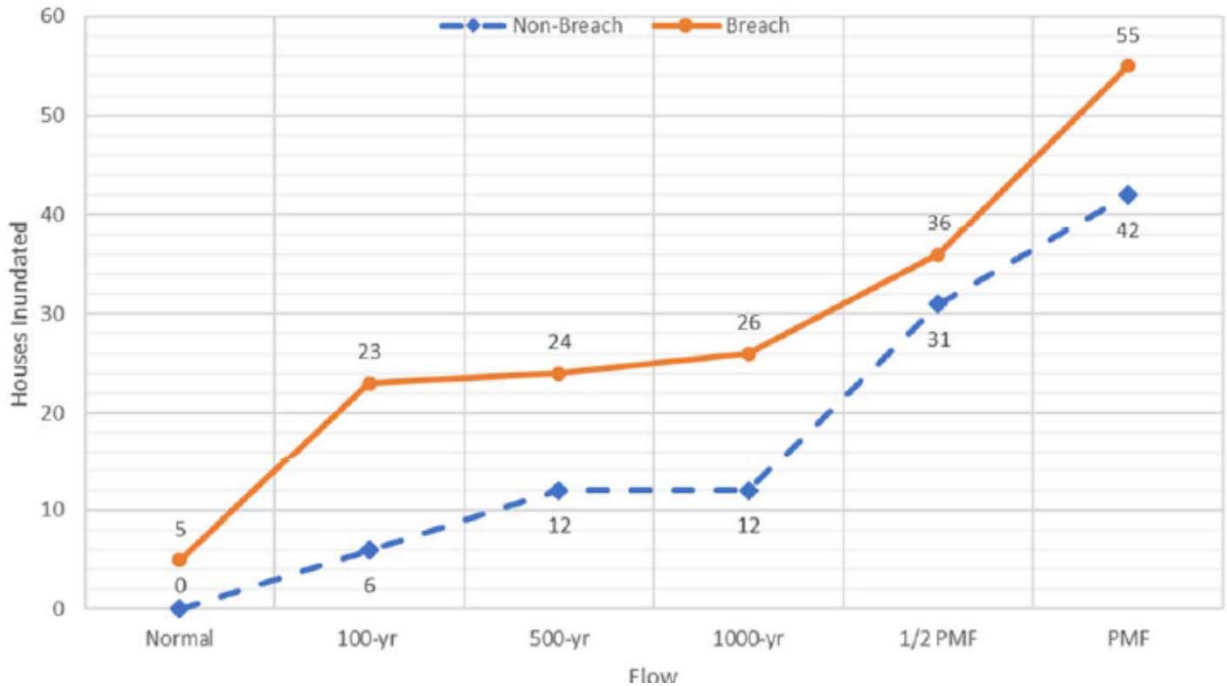
Dam Breach Analysis

Dam Breach Analysis

Dam Breach Analysis

Dam Breach Analysis

Dam Breach Analysis



Flow	Buildings	
	Total Impacted	Increase
Normal	0	5
Sunny Day Breach	5	
100-yr Flood	6	17
100-yr Breach	23	
500-yr Flood	12	12
500-yr Breach	24	
1000-yr Flood	12	14
1000-yr Breach	26	
1/2 PMF	31	5
1/2 PMF Breach	36	
PMF	42	13
PMF Breach	55	

Dam Breach Analysis

VERMONT

Act 161 DRAFT

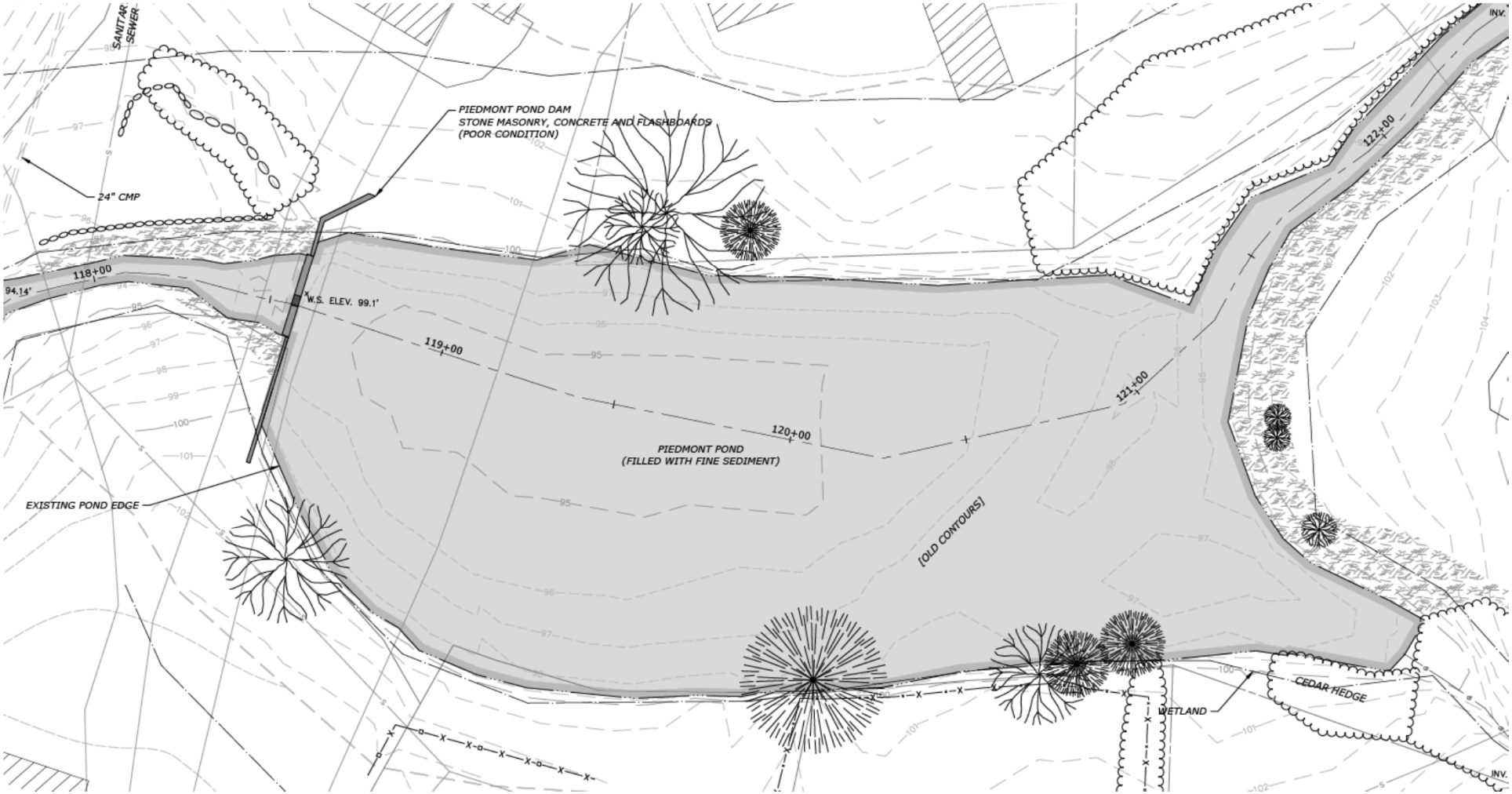
Hazard Classification of Dams Continued

The following additional guidance is provided and largely based on USACE ER 1110-2-1156 and shall apply to dams subject to this Rule:

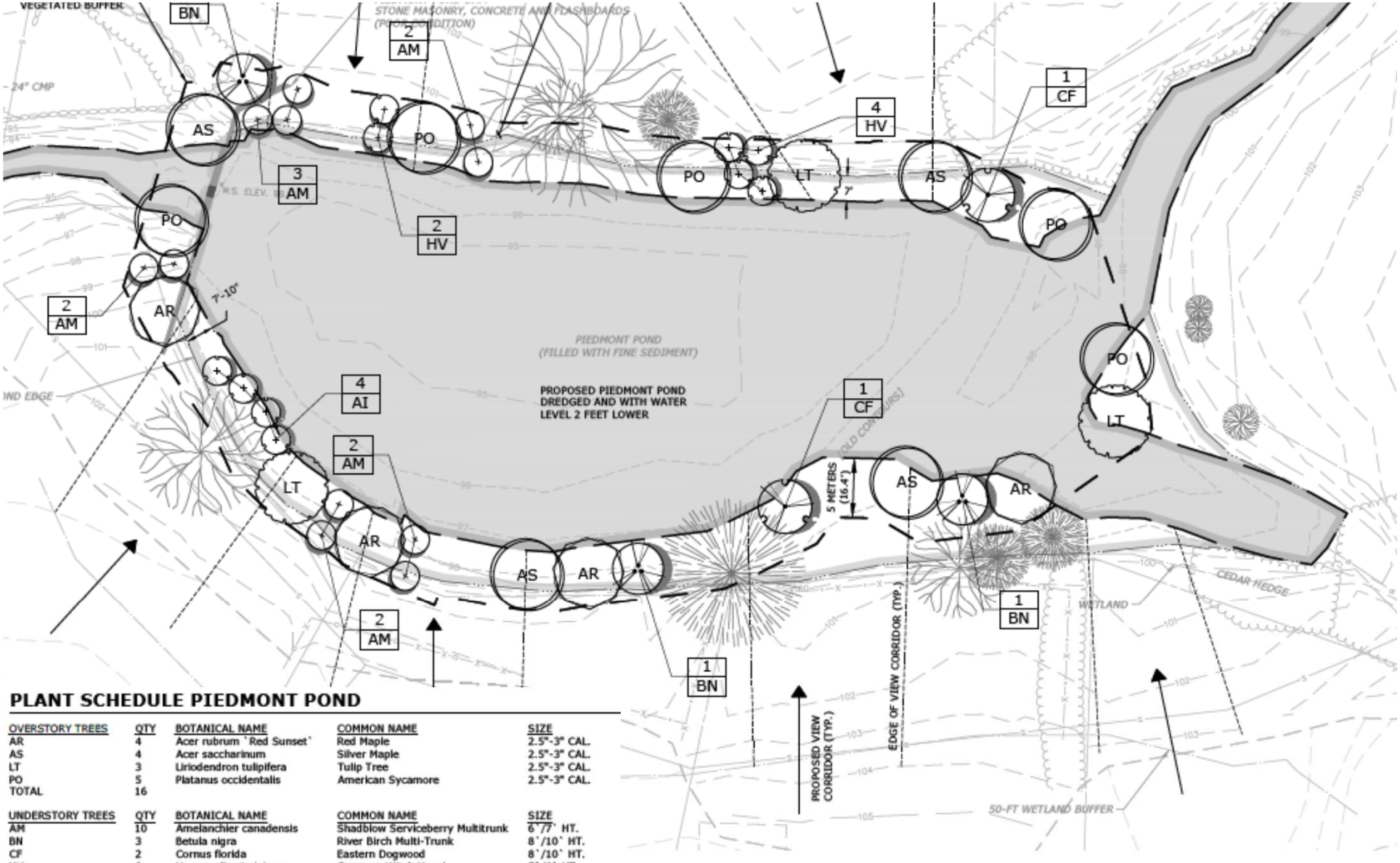
Classification	Direct Loss of Life	Lifeline Losses	Property Losses	Environmental Losses
HIGH	Certain (one or more) (extensive downstream residential, commercial, or industrial development)	Not considered for this classification	Not considered for this classification	Not considered for this classification
SIGNIFICANT	None expected	Disruption of essential or critical facilities and access	Major or extensive public and private facilities	Major or extensive mitigation required or impossible to mitigate
LOW	None expected	No disruption of services – repairs are cosmetic or rapidly repairable damage	Private agricultural lands, equipment and isolated buildings, non-major roads.	Minimal incremental damage
MINIMAL	Same as LOW hazard, above			

(VTDEC, 2019)

Planting Plan - Existing



Planting Plan - Proposed



PLANT SCHEDULE PIEDMONT POND

OVERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE
AR	4	Acer rubrum `Red Sunset`	Red Maple	2.5"-3" CAL.
AS	4	Acer saccharinum	Silver Maple	2.5"-3" CAL.
LT	3	Liriodendron tulipifera	Tulip Tree	2.5"-3" CAL.
PO	5	Platanus occidentalis	American Sycamore	2.5"-3" CAL.
TOTAL	16			

UNDERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE
AM	10	Amelanchier canadensis	Shadblow Serviceberry Multitrunk	6'/7' HT.
BN	3	Betula nigra	River Birch Multi-Trunk	8'/10' HT.
CF	2	Cornus florida	Eastern Dogwood	8'/10' HT.
HV	6	Hamamelis virginiana	Common Witch Hazel	5'/6' HT.
AI	4	Alnus incana	Speckled Alder	6'/8' HT.
TOTAL	25			

Planting Plan - Proposed

PLANT SCHEDULE PIEDMONT POND

OVERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE
AR	4	Acer rubrum `Red Sunset`	Red Maple	2.5"-3" CAL.
AS	4	Acer saccharinum	Silver Maple	2.5"-3" CAL.
LT	3	Liriodendron tulipifera	Tulip Tree	2.5"-3" CAL.
PO	5	Platanus occidentalis	American Sycamore	2.5"-3" CAL.
TOTAL	16			

UNDERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE
AM	10	Amelanchier canadensis	Shadblow Serviceberry Multitrunk	6`/7` HT.
BN	3	Betula nigra	River Birch Multi-Trunk	8`/10` HT.
CF	2	Cornus florida	Eastern Dogwood	8`/10` HT.
HV	6	Hamamelis virginiana	Common Witch Hazel	5`/6` HT.
AI	4	Alnus incana	Speckled Alder	6`/8` HT.
TOTAL	25			

Ballpark Cost Opinion for Planting

BALLPARK OPINION OF PROBABLE CONSTRUCTION COST

Piedmont Pond Modification

Rutland, Vermont

May 29, 2019

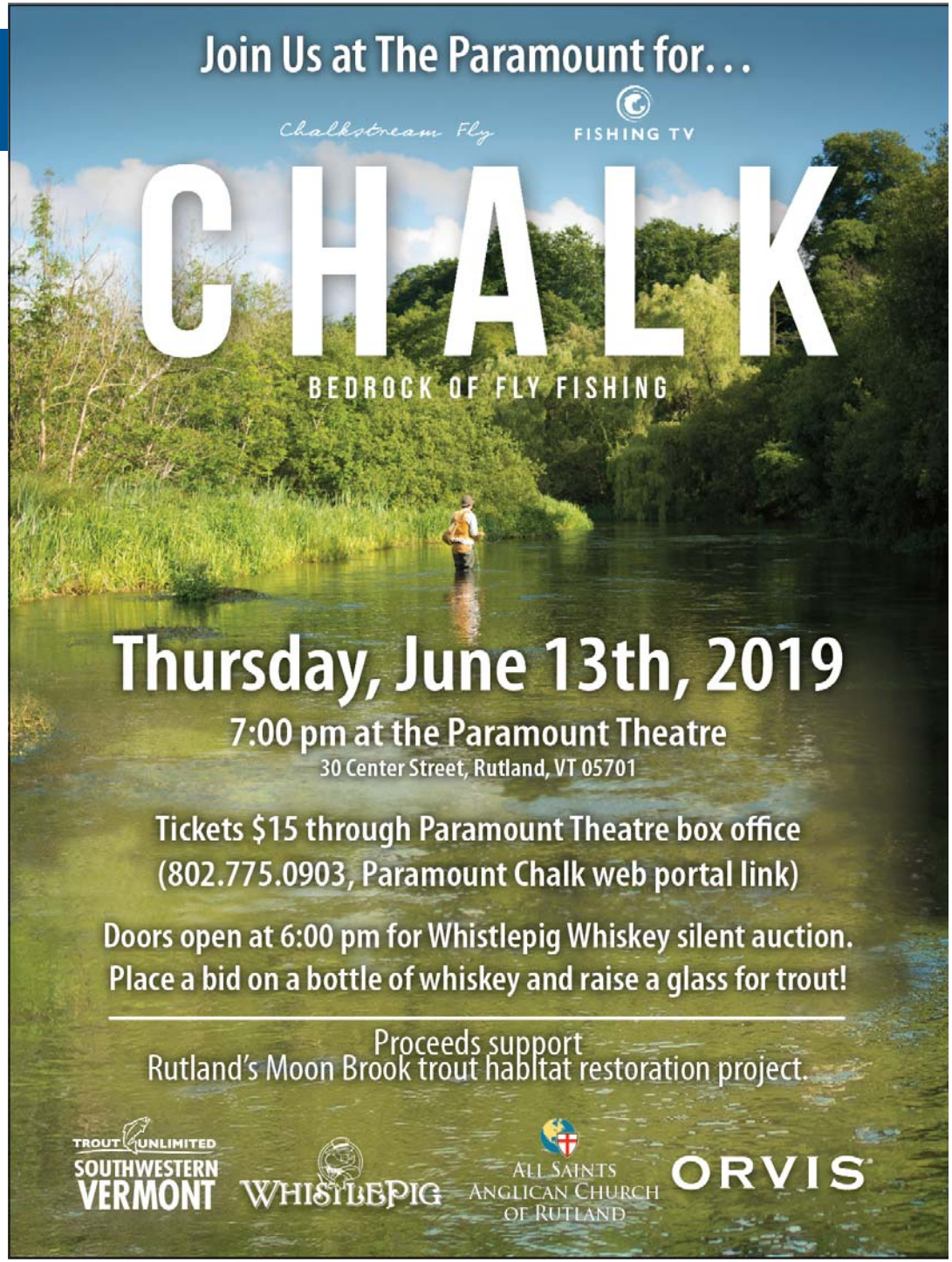
MMI # 4430-02

Description	Unit	Quantity	Unit Price ($)	Amount ($)
MISCELLANEOUS				
MOBILIZATION	LS	1	25,000	25,000
PIEDMONT POND BUFFER PLANTINGS				
OVERSTORY TREES	EA	16	1,000	16,000
UNDERSTORY TREES	EA	25	500	12,500
GROUND COVER	EA	400	30	12,000
MULCH/SOIL/ETC	LS	1	10,000	10,000
PIEDMONT POND DAM REPAIR				
CONCRETE REPAIR	LS	1	50,000	50,000
PIEDMONT POND DREDGING				
DREDGE SEDIMENT	CY	4,500	40	180,000
SUBTOTAL (ROUNDED)				**$ 306,000**
BID AND CONSTRUCTION PHASE SERVICES (10%)				**$ 31,000**
CONSTRUCTION CONTINGENCY (10%)				**$ 31,000**
TOTAL (ROUNDED)				**$ 368,000**

Potential Funding Opportunities

- Water Infrastructure Sponsorship Program (WISPr) $500,000
- VTDEC Ecosystem Restoration Program - Buffer Planting Grant
- Conservation District Buffer Planting Grant
- Others

Fundraising Event



Schedule

Piedmont Pond

Action	Start Date	End Date
Lower water level, dredging, and dam repairs	Summer/Fall 2020	Summer/Fall 2020
Plantings	Spring 2021	Spring 2021

Moon Brook

Action	Start Date	End Date
Riparian plantings	Spring 2020	On-going

THANK YOU

jeffw@rutlandcity.org
rschiff@mminc.com
jlouisos@mminc.com