

Foxborough's Request for Monitoring Reductions at Its Witch Pond Wells

WRC Staff Recommendation

October 14, 2021

Presentation Outline

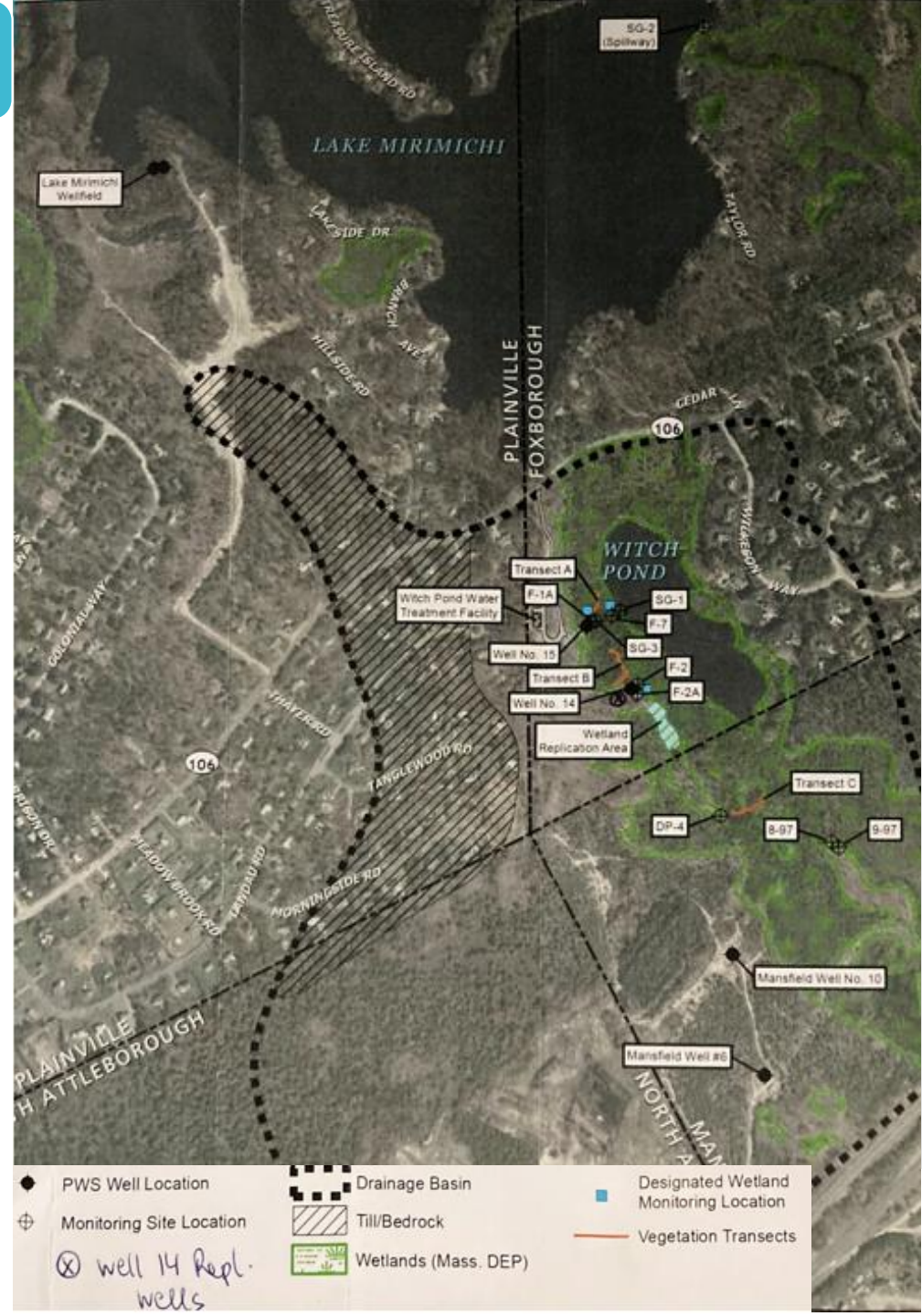
- Background
- ITA Timeline
- Existing Impacts
- Potential New Impacts
- Recommendations

Background

- Headwaters of the Ten Mile Basin – Bungay Brook – 0.4 sq mi
- Habitat for protected species: Hessel's hairstreak butterfly and then state-listed spotted turtle



- Foxborough's water supply wells - Wells 14R & 15 adjacent to Witch Pond in an Atlantic white cedar swamp
- Discharges flow to a WWTP in the Taunton basin



ITA Timeline

2000 Application for 1.44 MGD

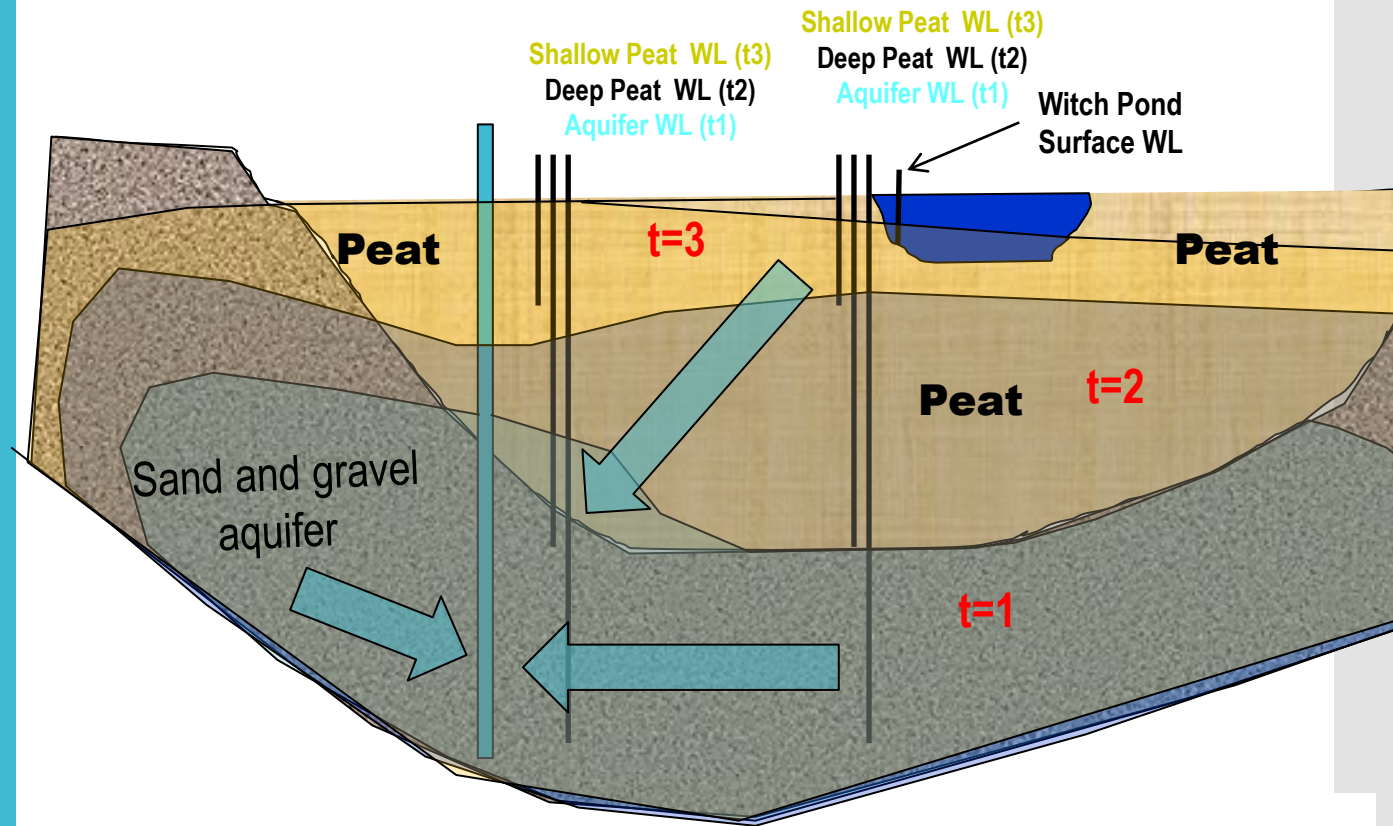
2001 Decision Approved 1.44 MGD with Conditions

2009 Baseline Monitoring Completed & Pumping Initiated

2013 Amendment to the Conditions

- Lowered water elevations
- Rapid changes in species composition to more dry tolerant species
- Added threshold to a deep peat monitoring location to trigger reduced and no pumping earlier and prevent dewatering of surficial peat and compaction of wetland

Site Hydrogeology and 2013 Amendment



- Impacts propagate up from aquifer to surface over summer season
- Long-term **dewatering trend**
- Can lead to permanent **hydrocompaction**

Existing Impacts - Hydrology

- 5 out of 8 threshold sites trigger June through December
- Since 2013 Amendment, significant time spent beyond thresholds most years
- Most significant impact with Emergency Declaration + Drought,
 - 2016 – 1 foot target exceeded at 1.26 feet below peat surface
 - 2020 – 1 foot target exceeded at 2 ft below peat surface
- 2020 ED ended 9/29/2020 → Witch Pond has still not recovered as of 9/3/2021 → Concern that permanent compaction has occurred as feared with impacts seen in 2010
 - Compaction to be determined based on 2021 elevation survey (data not yet received)

Existing Impacts - Wetlands

- Wetlands Monitoring Methods
 - New methods in 2014 damaged vegetation so reduced frequency and extent of monitoring
- Wetlands Reporting
 - Baseline –*no invasive species*
 - 2011 –more dry tolerant species
 - Reporting does not compare each year to baseline – have the 2011 impacts recovered?
 - Never discussed remediation of invasive species

Existing Impacts - Water Conservation

- Residential use *reduced* and meets standard since 2016
- UAW >30%
 - If the losses are 'real' rather than 'paper', reducing UAW by 20% to the 10% standard would roughly equal pumping at Witch Pond

Potential New Impacts - Replacement Well 14R

- 2021
 - Well 14 replaced with Well 14R
 - Yield at Well 14R is significantly greater than Well 14
- Future pumping at the well field can increase by 51%
 - Under current regulatory limits
 - Reduced and no pumping thresholds remain as protection
- Historical pumping already impacting Swamp

Recommendations - Hydrologic



Analyses to adjust the reduced pumping rate or threshold elevations to minimize time spent beyond thresholds



Historical pumping may increase with replacement well →
Continue most hydrologic monitoring for new or additional impacts



For non-threshold wells, remove equipment December 1st - May 31st



Correct deviations from hydrologic monitoring plan

Recommendations - Wetlands



Reporting that compares conditions over time starting with baseline; ties water levels to wetlands conditions over time



Re-evaluate available methods to get necessary data with minimal damage in consultation with state staff



Invasive species removal to correct damage in consultation with state staff



Survey of measuring points immediately after thaw or well replacement; submit adjustments for staff approval

Recommendations - Water Conservation



Create a plan with verifiable, quantitative metrics to track progress in meeting 10% UAW per 2001 Conditions in consultation with state staff



Develop a program aggressively promoting conservation by industrial, commercial and institutional water users per 2001 Conditions

Recommendations – Compliance and Reporting



Streamlined Annual Monitoring Reports with outline to be provided by WRC staff



Written notification of non-compliance to WRC within 48 hours.
Written description of activities and timeline for correction within 1 week and when completed.