ZONING TO PROTECT YOUR WATER SUPPLY

Laberge Group
ENGINEERING
ARCHITECTURE
SURVEYING
PLANNING

NYPF ANNUAL MEETING
APRIL 2024

Dedicated to Better Planning Since 1937
New York Planning Federation

LOCAL ZONING EXPERTS

Laberge Group
ENGINEERING ARCHITECTURE SURVEYING PLANNING

NICOLE ALLEN, AICP
DIRECTOR OF PLANNING AND COMMUNITY DEVELOPMENT

nallen@labergegroup.com

SUSAN ROTH, AICP
SENIOR PLANNER

sroth@labergegroup.com

AGENDA

- Why are We Doing This?
- Natural Systems that Need Protection to Safeguard Your Water Supply
- City, State, and Federal Protections of those Systems
- Why Local Regulation is Needed to Fill in the Gaps
- Elements of a Effective Regulation
- Case Studies – Code in Action

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

WHY ARE WE DOING THIS?

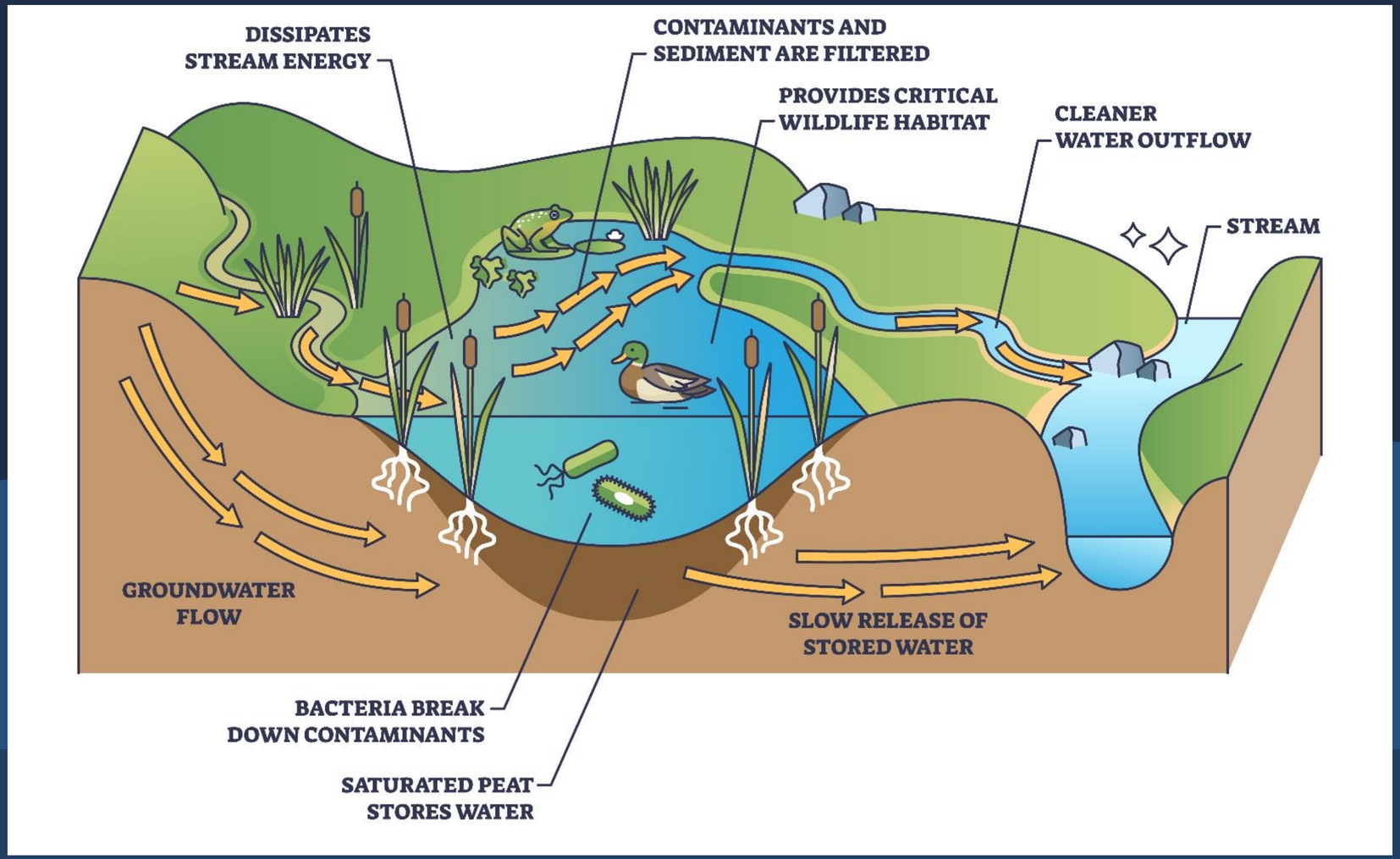
All potable water sources (surface or well) depend on the health of natural water resources (drainage ways, recharge areas, watercourses, ponds, lakes, and wetlands) to remain sustainable.

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

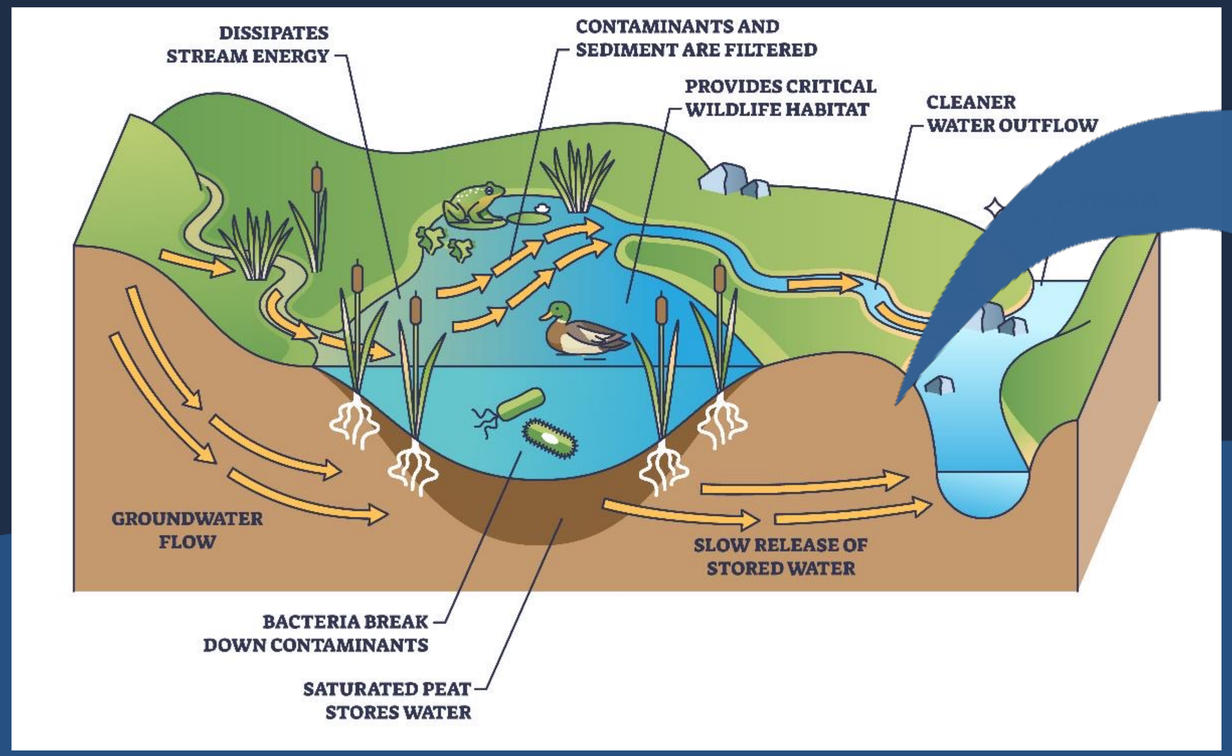
WHY ARE WE DOING THIS?

Think of your natural water sources as a holistic system.



WHY ARE WE DOING THIS?

Protected natural water resources = cleaner water.



Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

WHY ARE WE DOING THIS?

Unprotected natural water resources =

- Contaminants and bacteria into water supply.
- More treatment required to avoid the adverse health effects associated with contaminants and bacteria.
- Potential loss of homeowners' private wells.
- Unprotected waterways can be less conducive to recreational uses and impedes economic development.

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

NATURAL RESOURCES TO PROTECT TO SAFEGUARD YOUR WATER SUPPLY

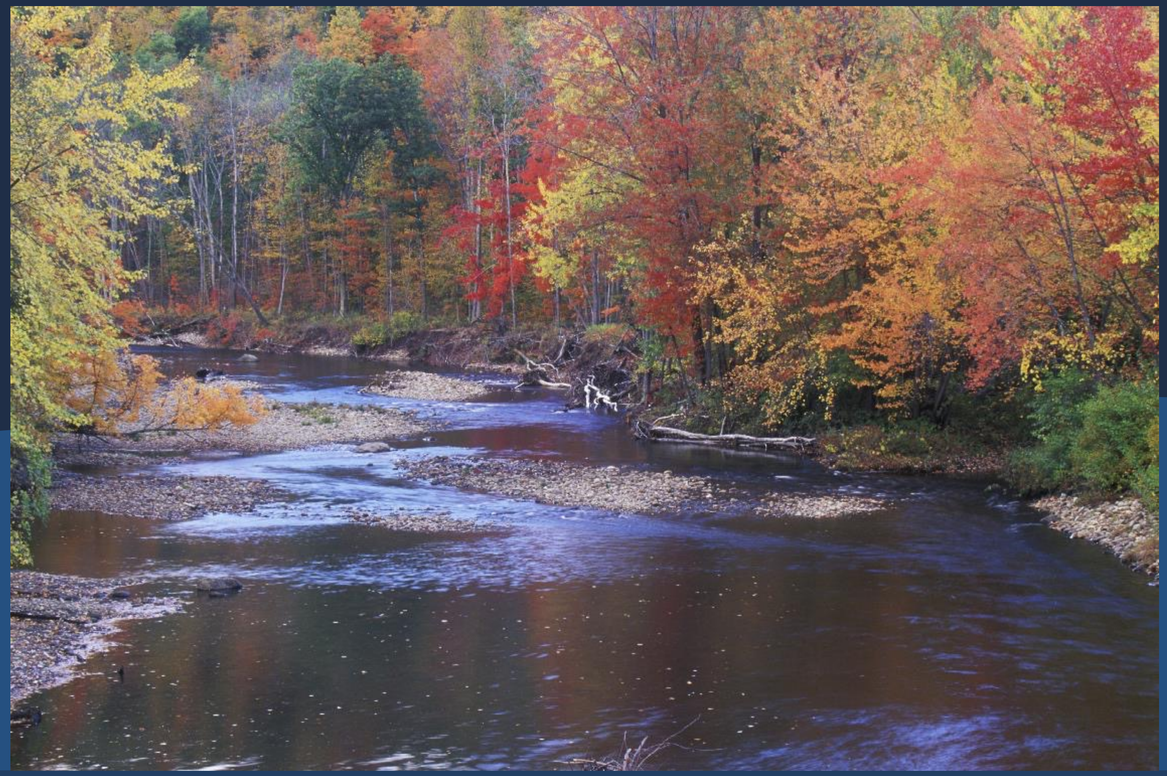
PONDS & LAKES

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

NATURAL RESOURCES TO PROTECT TO SAFEGUARD YOUR WATER SUPPLY

DRAINAGE COURSES, FRESHWATER TRIBUTARIES, AND RIVERS



NYPF ANNUAL MEETING – APRIL, 2024

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

NATURAL RESOURCES TO PROTECT TO SAFEGUARD YOUR WATER SUPPLY

DRAINAGEWAY

- Intermittent.
- Usually dry until rain event.

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

NATURAL RESOURCES TO PROTECT TO SAFEGUARD YOUR WATER SUPPLY

PALUSTRINE AND EMERGENT WETLAND SWAMPS, WOODED WETLANDS

- Sometimes seasonally dry, determined by soils and plants.

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

NATURAL RESOURCES TO PROTECT TO SAFEGUARD YOUR WATER SUPPLY

VERNAL POOLS

- Small depressions in woodland forests.
- Effective water filtration.
- Often look like a muddy depression when dry.
- Difficult to protect as land-owners often fill in “muddy areas.”

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

NATURAL RESOURCES TO PROTECT TO SAFEGUARD YOUR WATER SUPPLY

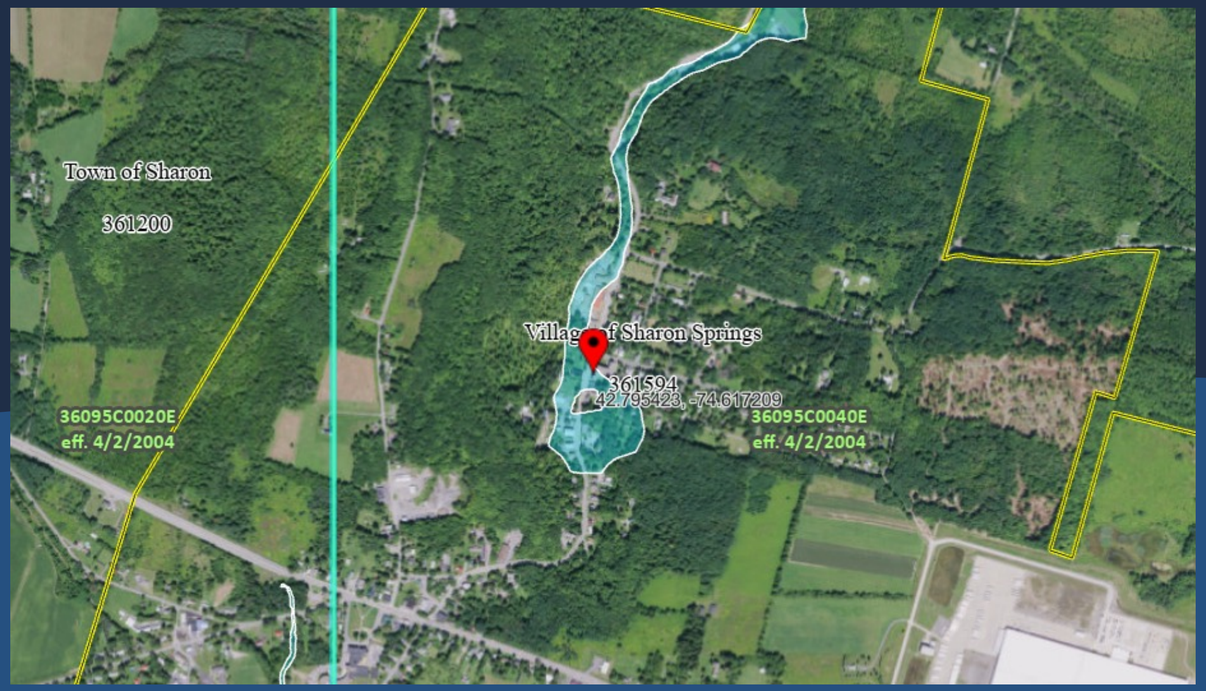
TIDAL WETLANDS

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

NATURAL RESOURCES TO PROTECT TO SAFEGUARD YOUR WATER SUPPLY

FLOODWAYS AND FLOODPLAINS



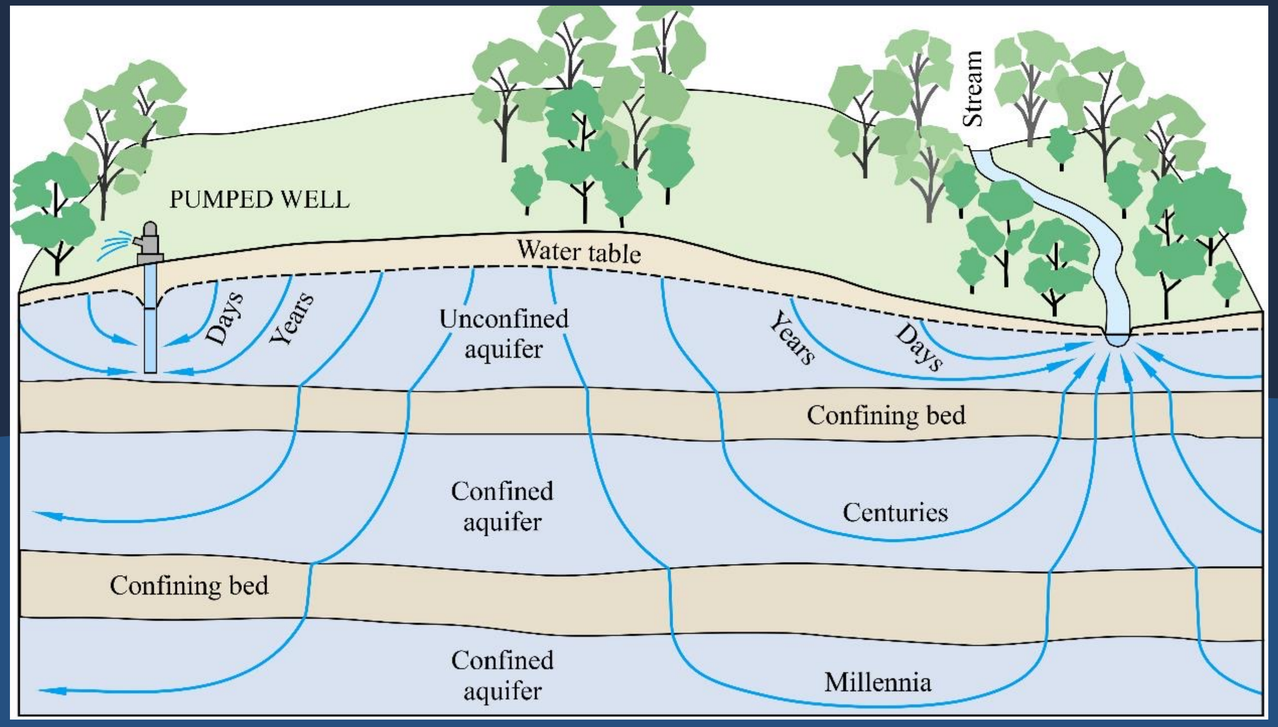
- FEMA Flood Map Service Center.

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

NATURAL RESOURCES TO PROTECT TO SAFEGUARD YOUR WATER SUPPLY

WATERSHEDS / RECHARGE AREAS



Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

NATURAL RESOURCES TO PROTECT TO SAFEGUARD YOUR WATER SUPPLY

DIFFERENT PROTECTION REQUIRED FOR DIFFERENT RESOURCES

PONDS & LAKES

DRAINAGE COURSES, TRIBUTARIES, RIVERS

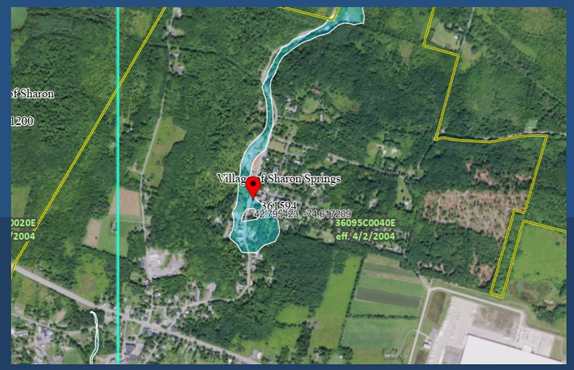
DRAINAGEWAYS

PALUSTRINE / EMERGENT WETLAND SWAMPS, WOODED WETLANDS

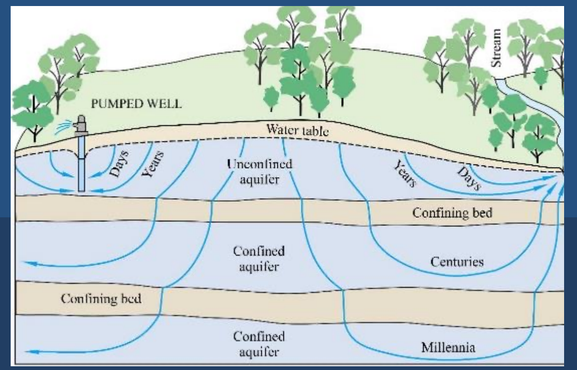
VERNAL POOLS

TIDAL WETLANDS

FLOODWAYS AND FLOODPLAINS



WATERSHEDS / RECHARGE AREAS



WHAT ARE WE PROTECTING THE WATER SUPPLY FROM?

- Unmitigated development coverage
- Inappropriate vegetation clearing or plantings that change wildlife behavior
- Septic systems
- Agriculture – pesticides, fertilizers, animal waste
- Industrial and business uses
- Unmitigated stormwater run-off from lawns and paved areas

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

Aren’t we protected with current regulations?

FEDERAL

Army Corps of Engineers

NY STATE

New York State Department of Environmental Conservation (NYSDEC)

NY CITY

New York City Department of Environmental Protection (NYCDEP)

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

THE ANSWER IF *SOMETIMES* "NO"

NYCDEP, NYSDEC, and Federal regulations ***often*** differ from what is needed to protect ***local*** surface and groundwater supplies in:

- Purpose
- Requirements
- Impact

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

FEDERAL REGULATIONS AND LOCAL WATER

FEDERAL

Army Corps of Engineers

- Focus generally on water quality.
- Regulations only apply if there is actual disturbance.

Protection offered if a retail establishment wants to build a parking lot within 20 feet of the edge of a stream that feeds into the town water supply?

NONE

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

STATE REGULATIONS AND LOCAL WATER

NY STATE

New York State Department of Environmental Conservation (NYSDEC)

- Lean more toward protecting habitat.
- Does not protect wetlands under 12.4 acres.
- Categorizes other water resources like streams, ponds, rivers, by habitat and use potential.

Local stream that is not high-enough quality of water for DEC will not be protected – but your community will want to improve it because it feeds into your water supply.

NONE

NYC REGULATIONS AND LOCAL WATER

NY CITY

New York City Department of Environmental Protection (NYCDEP)

- Focuses on natural water resources within watersheds that are important to the New York City Watersheds.
- Provides excellent protection for the watershed area covered.

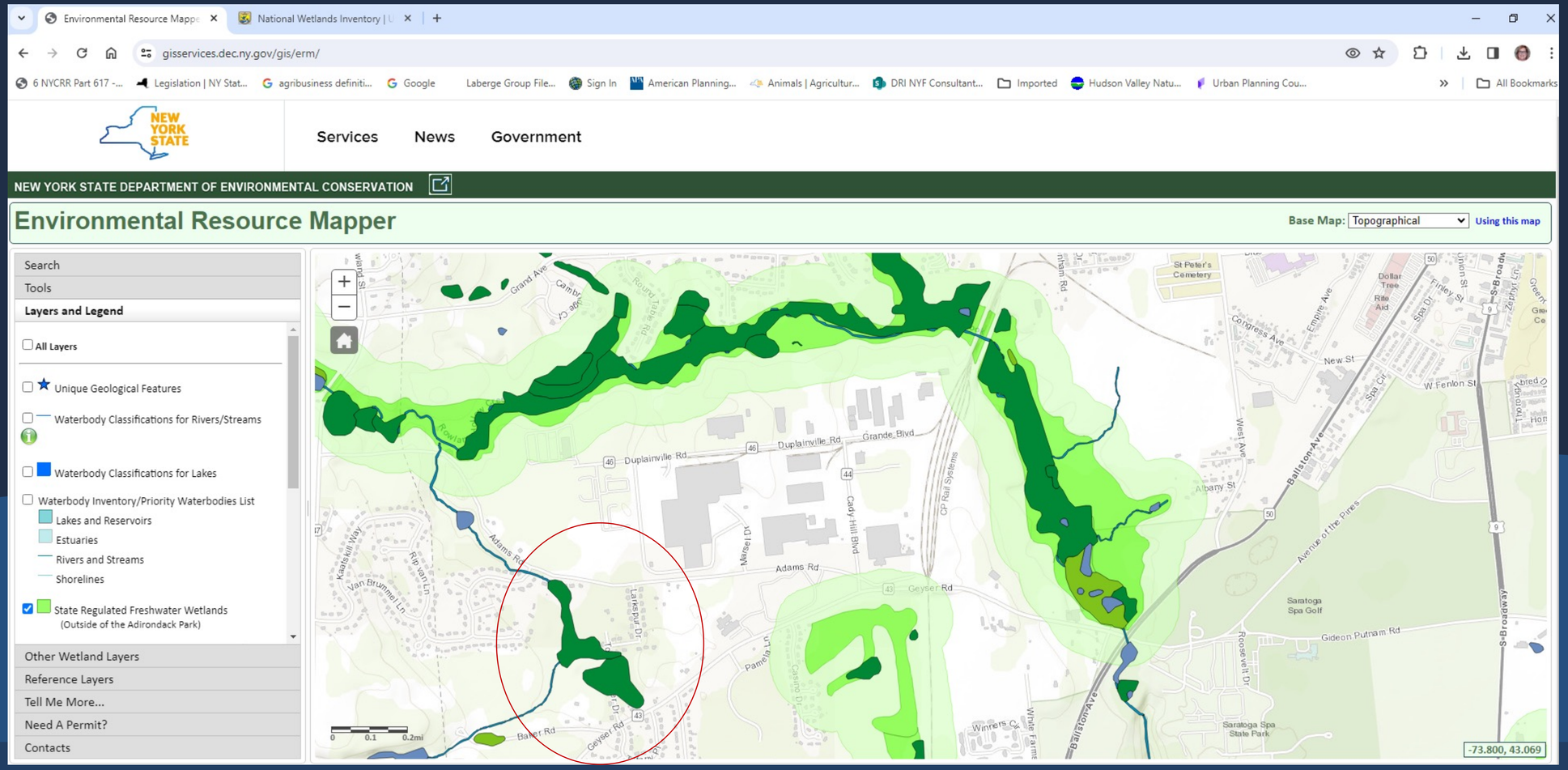
What protection does this offer communities outside of the NYC watersheds from multiple or large-scale septic systems being established within close proximity to the recharge area for their municipal water source?

NONE

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

Regulations can also result in different mitigation requirements for the same natural water resource.



SEQRA FOR WATER RESOURCE PROTECTION?

- Big fans of SEQRA
- Effective for what it is designed for
- Has its limitations
- Not the most effective tool to protect water resources as a whole.

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

SEQRA FOR WATER RESOURCE PROTECTION?

In the ***absence*** of an effective water resource protection law, your community can protect certain water resources through the SEQRA process

Drawback of using SEQRA as a community's **only** form of protection:

- All of these require that there is sufficient justification of the protected resource as a narrative in the document or in the SEQRA findings beyond what is currently regulated.
- Exposes your community to litigation

NYS DEC Mapper

NYS DEC Natural Heritage Areas Program

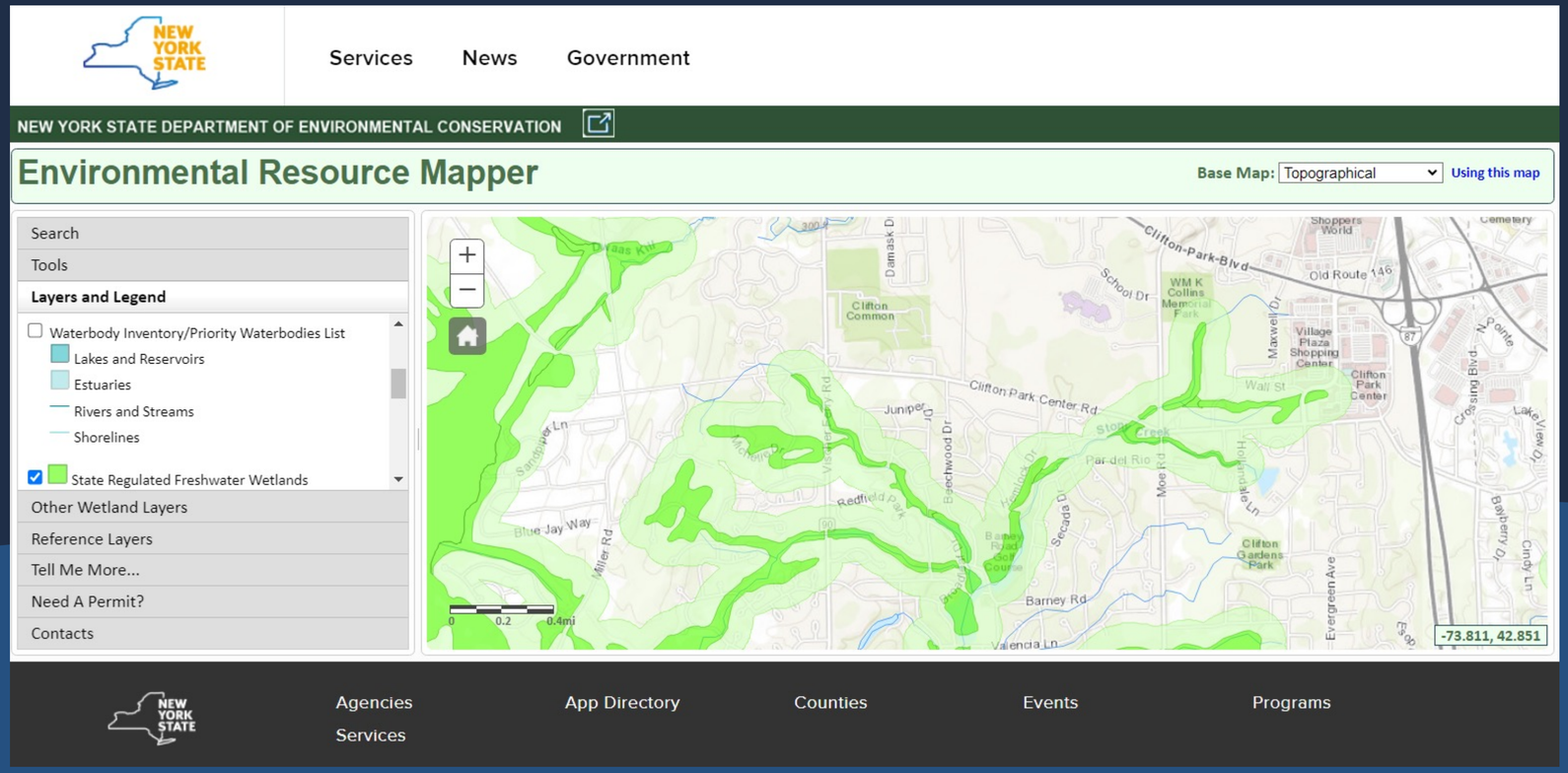
NYS DEC Hudson Valley Natural Resource Mapper

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937 New York Planning Federation

SEQRA TOOLS FOR WATER RESOURCE PROTECTION

NYS DEC Mapper



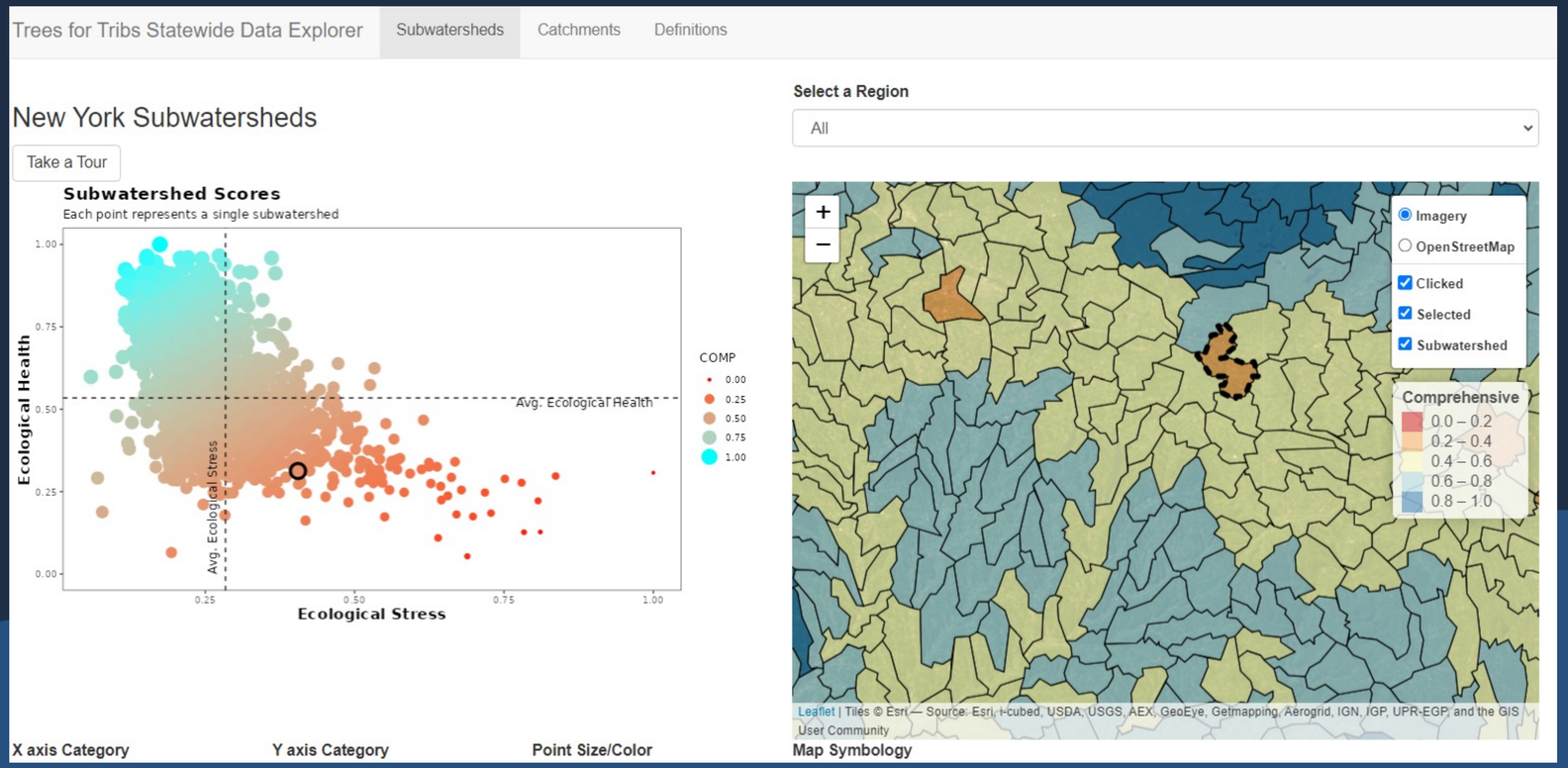
https://gisservices.dec.ny.gov/gis/erm/

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937 — New York Planning Federation

SEQRA TOOLS FOR WATER RESOURCE PROTECTION

NYS DEC Natural Heritage Areas Program



Statewide Riparian Opportunity Assessment

- Primary goal: to identify target locations where enhancement of riparian buffers will produce tangible benefits by improving water quality (reduction of nutrient and sediment loading, erosion control, etc.) and habitat quality (riparian cover, habitat connectivity, etc.).
- Secondary goal: identification of opportunities for riparian protection, including conservation easements and land acquisition.

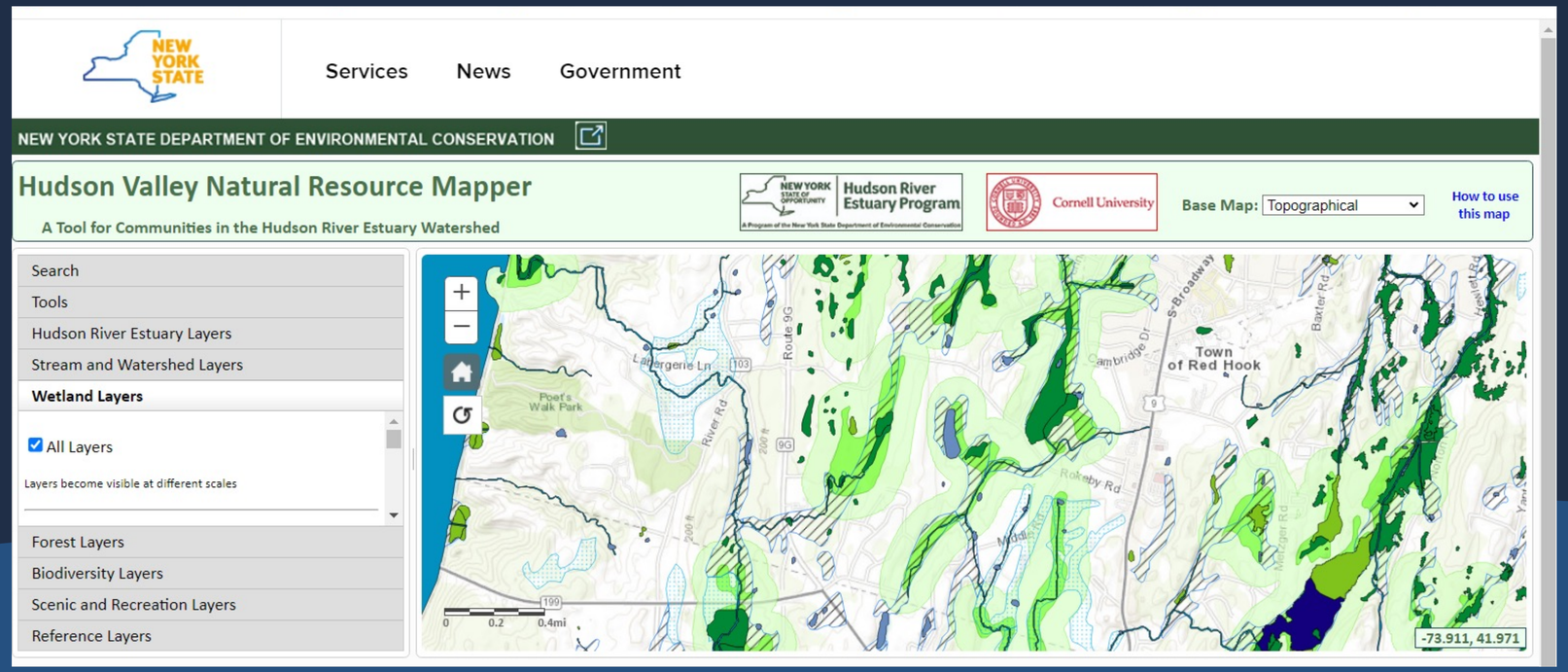
https://www.nynhp.org/

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

SEQRA TOOLS FOR WATER RESOURCE PROTECTION

NYS DEC Hudson Valley Natural Resource Mapper



https://dec.ny.gov/nature/waterbodies/lakes-rivers/hudson-river/hudson-valley-natural-resource-mapper

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

WETLAND CHECKZONE / BUFFER DECISION

CHECKZONE

New York State Department of Environmental Conservation (NYSDEC)

- Areas that are flagged for the potential of having wetlands beyond the delineated areas on the NYS DEC Mapper.
- They act as “flags” to require applications for potential disturbance to wetlands or buffers, but actual mitigation for disturbance is flexible.
- Meant to compel a field delineation to determine where the wetland is.

BUFFER

New York City Department of Environmental Protection (NYCDEP)

- An area that is subject to mitigation, and in some cases, avoidance.
- Better control over mitigation strategies.
- Provides protection for your community water sources.

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

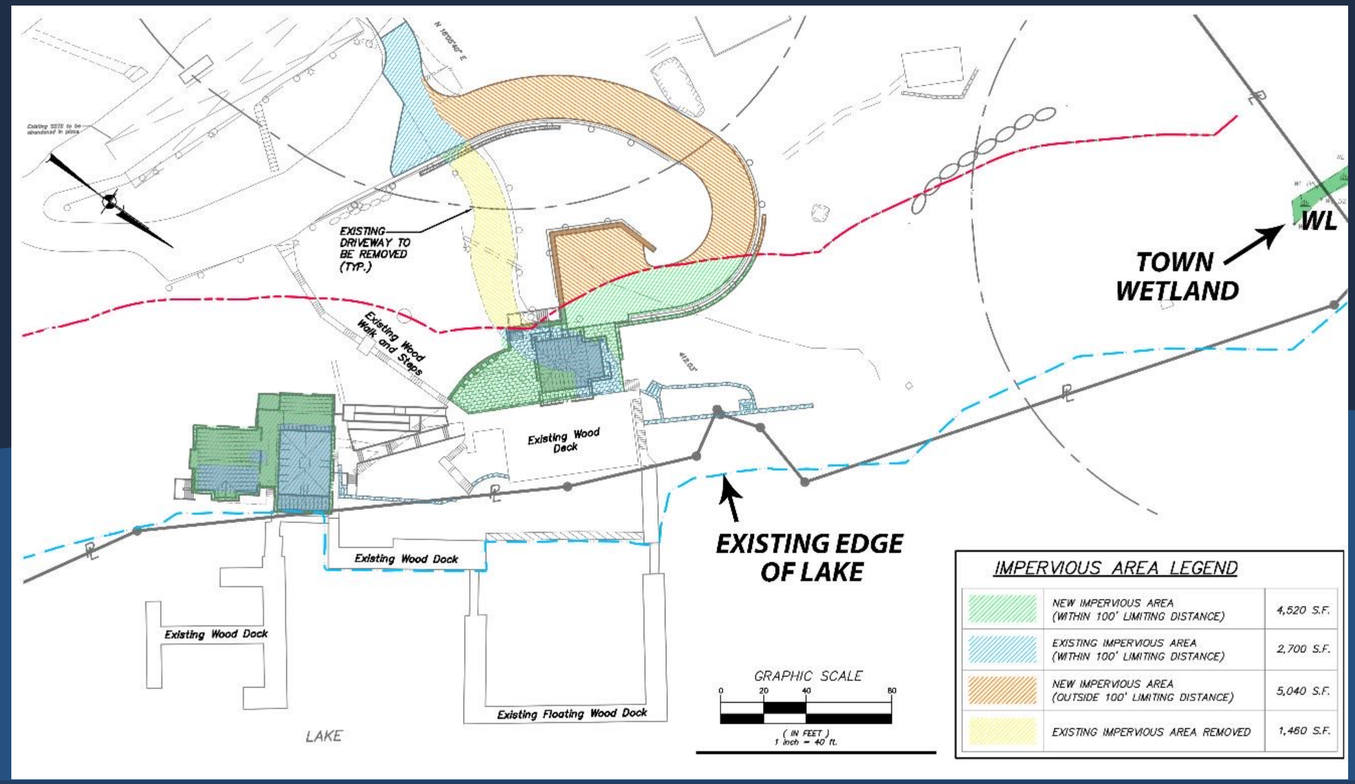
NYPF ANNUAL MEETING – APRIL, 2024

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

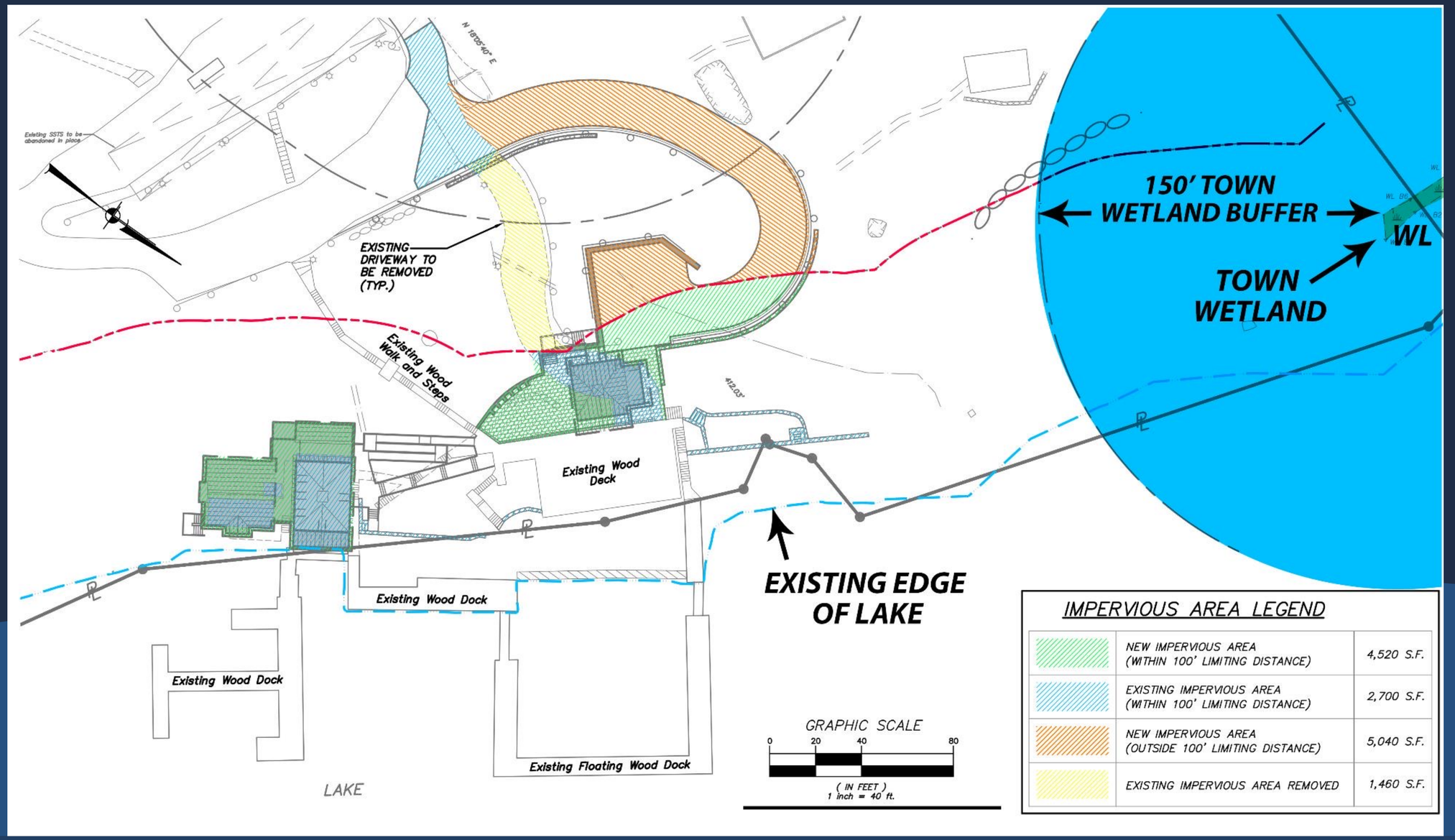
ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

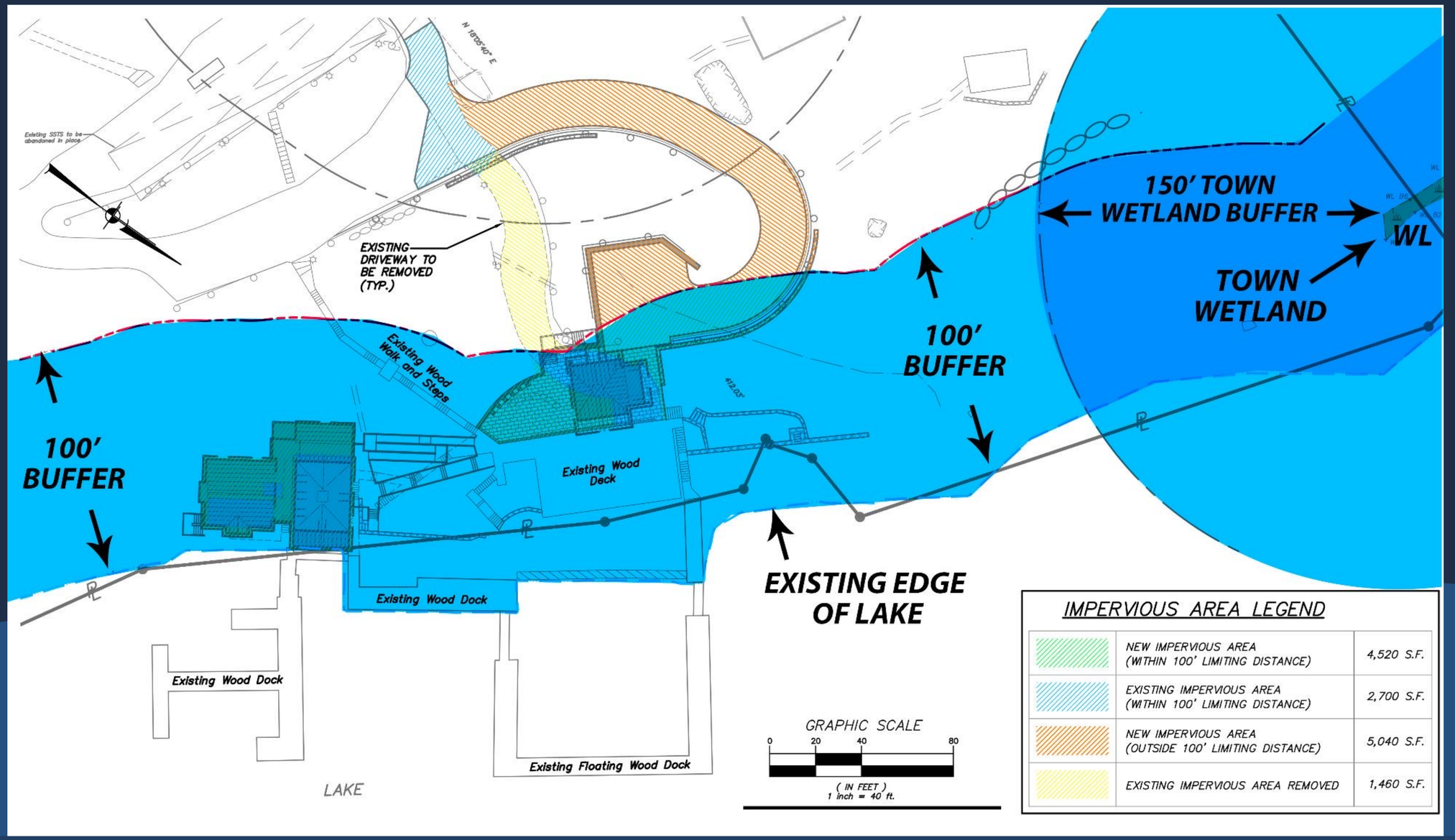
Require regulated buffers for all wetlands, streams, rivers, ponds, lakes.



Laberge Group
ENGINEERING ARCHITECTURE SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation


N 19°05'40" E
Existing SSTS to be abandoned in place
EXISTING DRIVEWAY TO BE REMOVED (TYP.)
Existing Wood Walk and Steps
412.03'
Existing Wood Deck
Existing Wood Dock
Existing Wood Dock
Existing Floating Wood Dock
LAKE
150' TOWN WETLAND BUFFER
WL
TOWN WETLAND
EXISTING EDGE OF LAKE
GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 inch = 40 ft.
IMPERVIOUS AREA LEGEND
NEW IMPERVIOUS AREA (WITHIN 100' LIMITING DISTANCE) 4,520 S.F.
EXISTING IMPERVIOUS AREA (WITHIN 100' LIMITING DISTANCE) 2,700 S.F.
NEW IMPERVIOUS AREA (OUTSIDE 100' LIMITING DISTANCE) 5,040 S.F.
EXISTING IMPERVIOUS AREA REMOVED 1,460 S.F.


N 18°05'40" E
Existing SSTS to be abandoned in place
EXISTING DRIVEWAY TO BE REMOVED (TYP.)
Existing Wood Walk and Steps
412.03'
150' TOWN WETLAND BUFFER
WL
TOWN WETLAND
100' BUFFER
100' BUFFER
Existing Wood Deck
Existing Wood Dock
Existing Wood Dock
Existing Floating Wood Dock
LAKE
EXISTING EDGE OF LAKE
GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 inch = 40 ft.
IMPERVIOUS AREA LEGEND
NEW IMPERVIOUS AREA (WITHIN 100' LIMITING DISTANCE) 4,520 S.F.
EXISTING IMPERVIOUS AREA (WITHIN 100' LIMITING DISTANCE) 2,700 S.F.
NEW IMPERVIOUS AREA (OUTSIDE 100' LIMITING DISTANCE) 5,040 S.F.
EXISTING IMPERVIOUS AREA REMOVED 1,460 S.F.

ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

MUNICIPAL DEFINITION OF WHAT YOU PLAN TO PROTECT

- Using an established definition is okay.
- Preferable: your code should also address special types of water resources that are vulnerable to modification as well, such as vernal pools and drainage ways.
- At a minimum, it should include ponds, streams, rivers, wetlands, and drainage ways.

ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

DEFINE DISTURBANCE

Whether or not you regulate it should depend on:

- Size
- Location
- Actual impervious materials
- Whether or not it is permanent

ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

DEFINE DISTURBANCE

DEFINITELY INCLUDE

- Anything with an impervious surface
- Buildings
- Driveways
- Pools
- Brick or concrete patios
- Walkways

DO YOU INCLUDE?

- Gravel Drive
- Shed without foundation
- Children’s play area

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

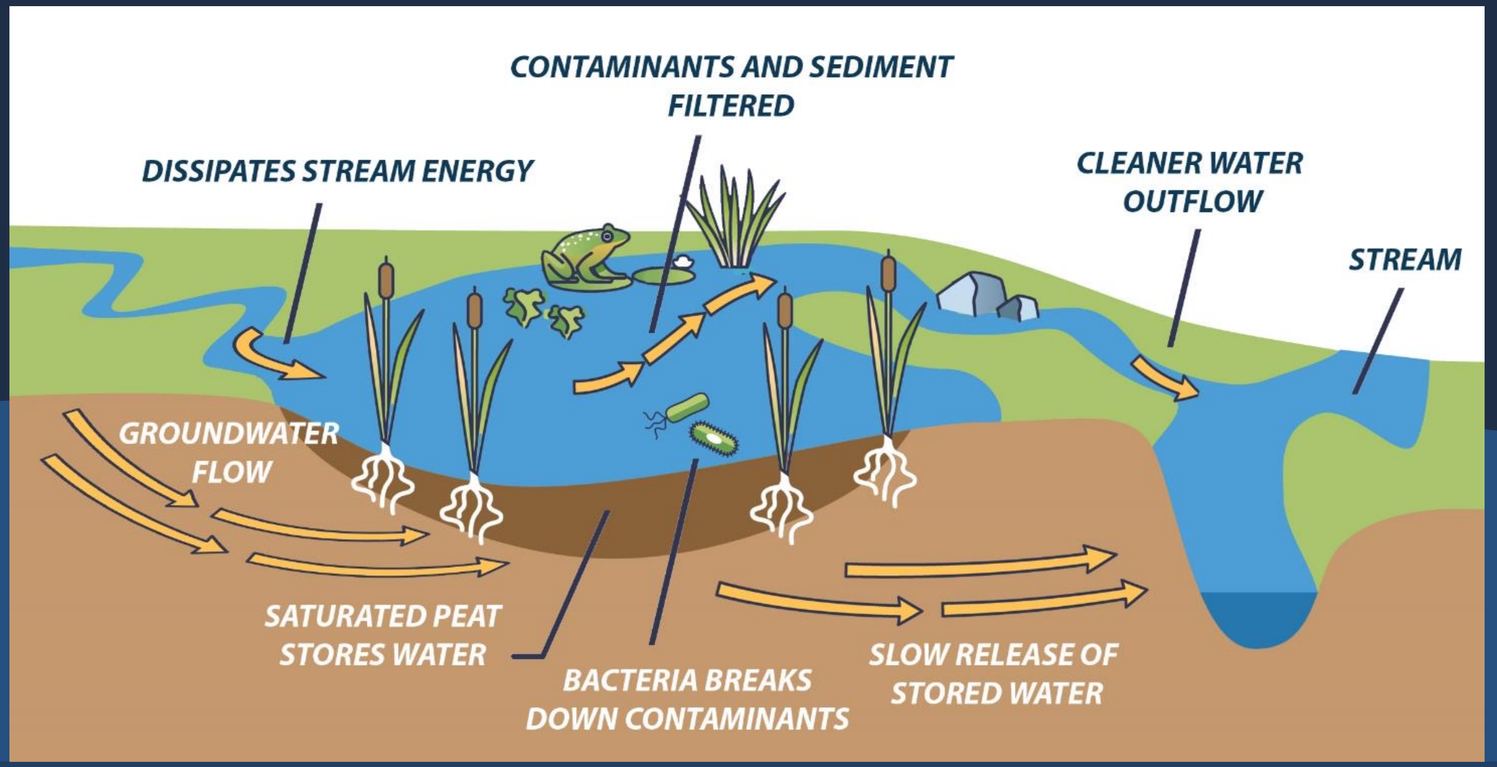
SPECIAL EXCEPTIONS

- Avoid permitting in a buffer: septic systems or any system or structure that requires use, delivery, or storage of chemicals or fuel.
- However, if avoidance is not possible, add extra protection to the code.

ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

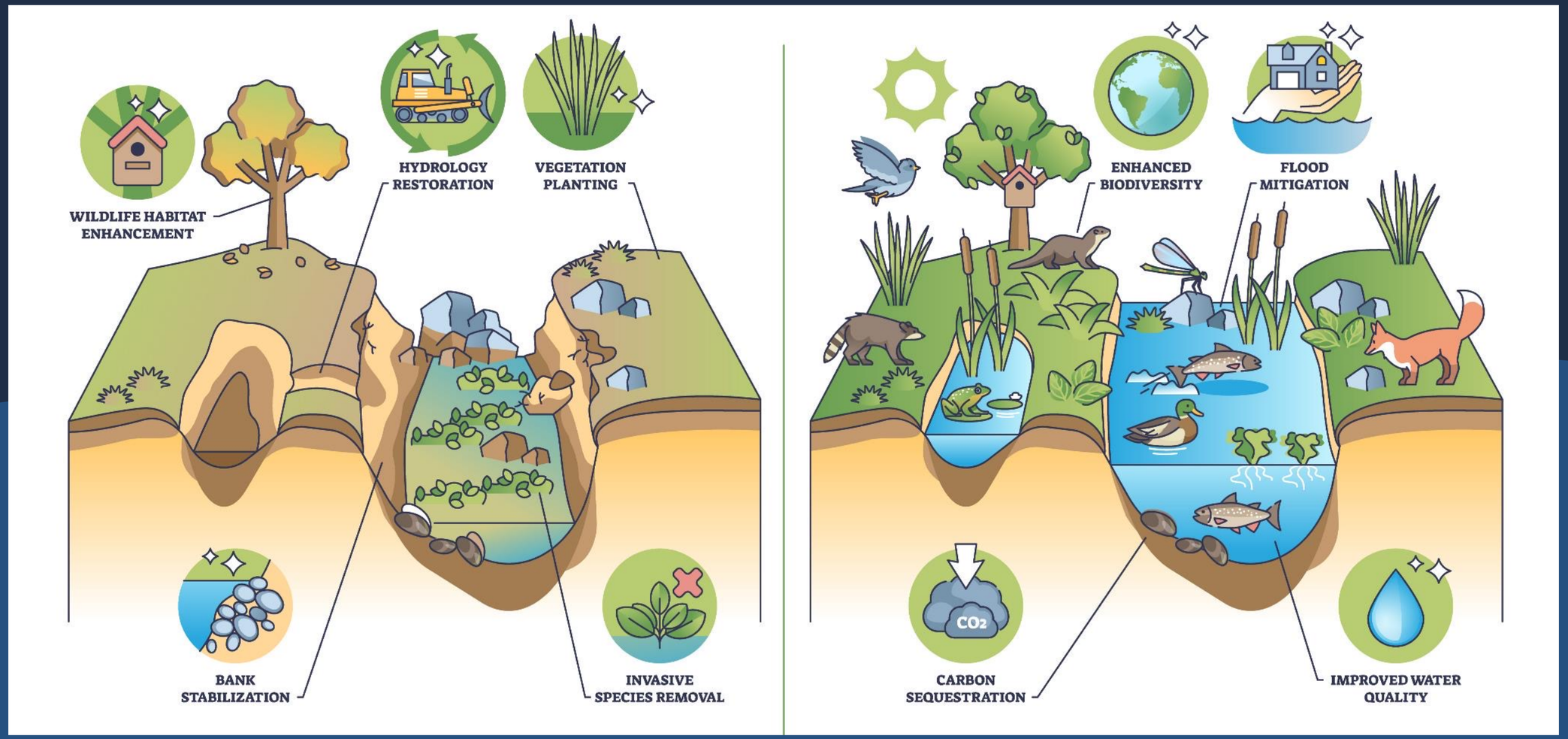
AVOID DISTURBANCE WHEN POSSIBLE

- Avoiding disturbance is particularly relevant for ***wetlands***.
- Recreating wetlands for filtration in a different location than where it naturally occurred is not as effective, especially when they are first created.



ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

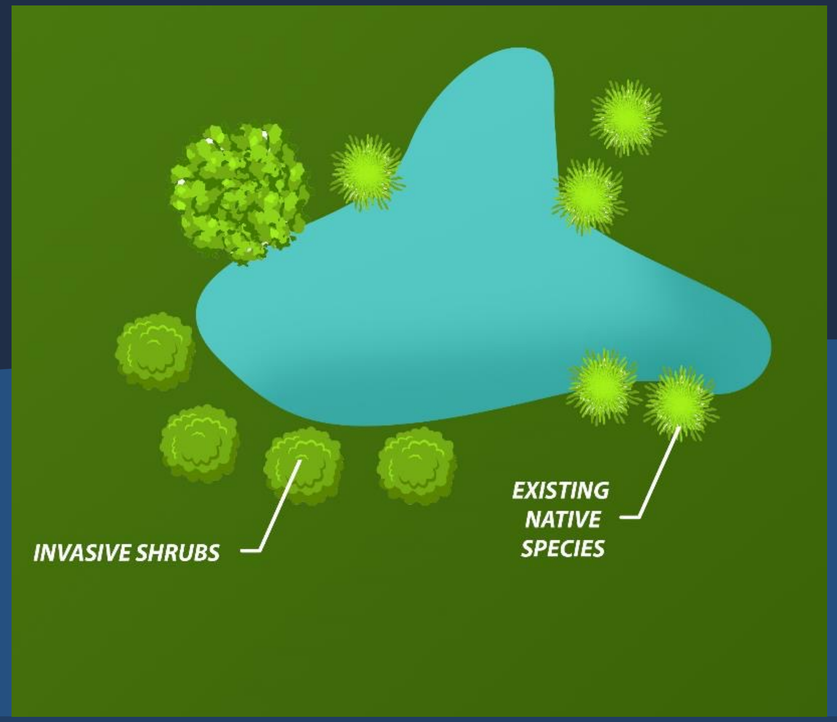
RESTORATION MITIGATIONS - OPTIMAL IMPLEMENTATION

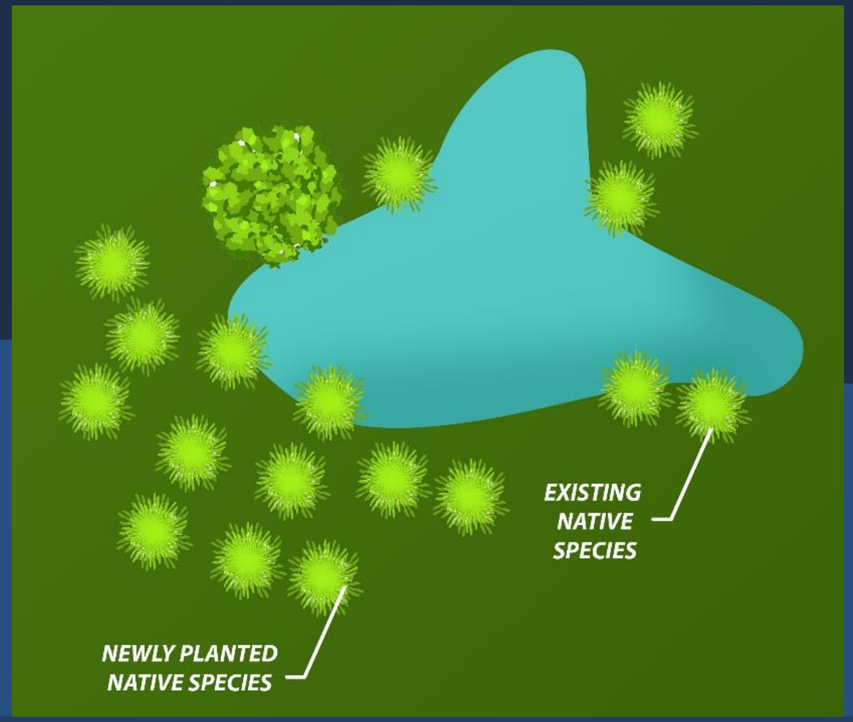


ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

PLANTING MITIGATIONS 2-to-1

- 2-to-1 is preferable. (can include a combination of new planting, removal and replacement).
- 1-to-1 can be acceptable.

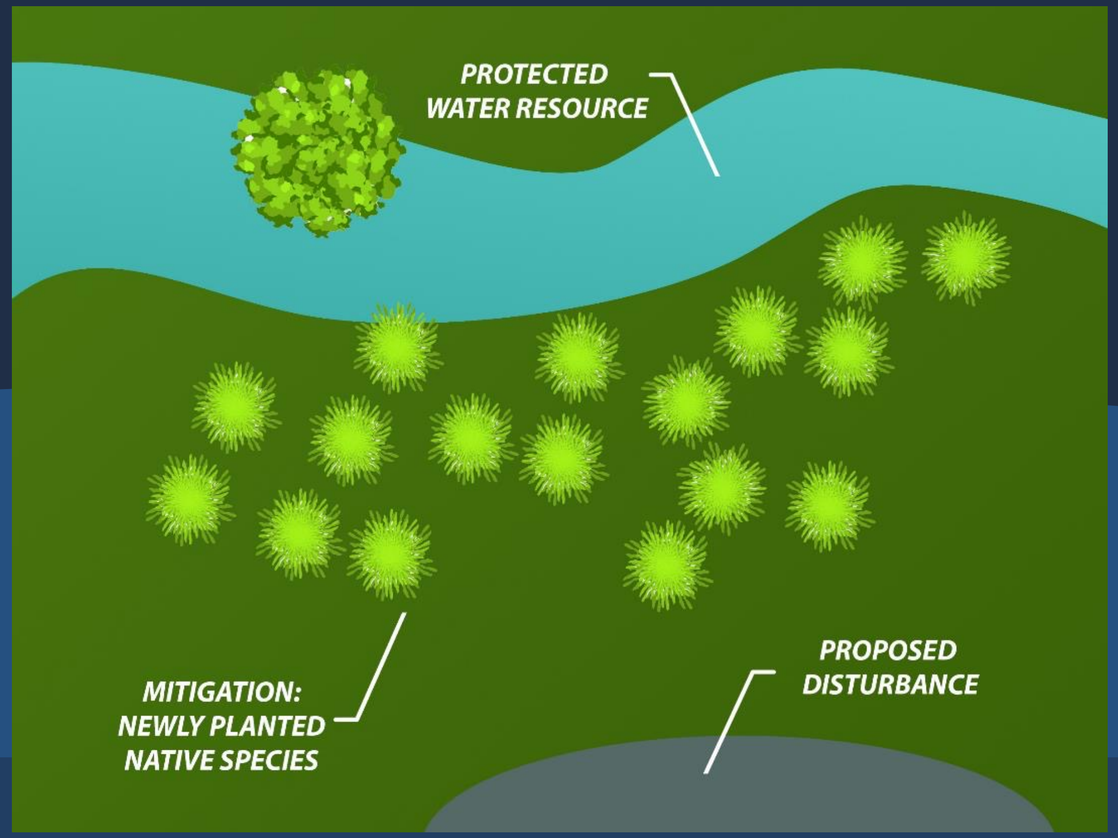




ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

PLANTING MITIGATIONS - LOCATIONS

- Locate planting to create a buffer between the disturbance and the wetland or water body that prevents pollution from entering water system.



ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

PLANTING MITIGATIONS – SPECIES SELECTION

- Adopt policy of only allowing native plantings in buffers and check to make sure that plantings reflect the type of plants that are in your local environment.
- Many non-natives plantings can damage your water sources and fauna. Include removal and replanting as a mitigation strategy.

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

PLANTING MITIGATIONS – SPECIES SELECTION

NON-NATIVE

- Hydrangeas
- Multiflora Rose
- Japanese Bayberry

NEAR WETLANDS AND WATERCOURSE CHOOSE

- Rhododendrons
- Native Blueberries
- Winterberries

- Swamp Azaleas
- Native Tupelos

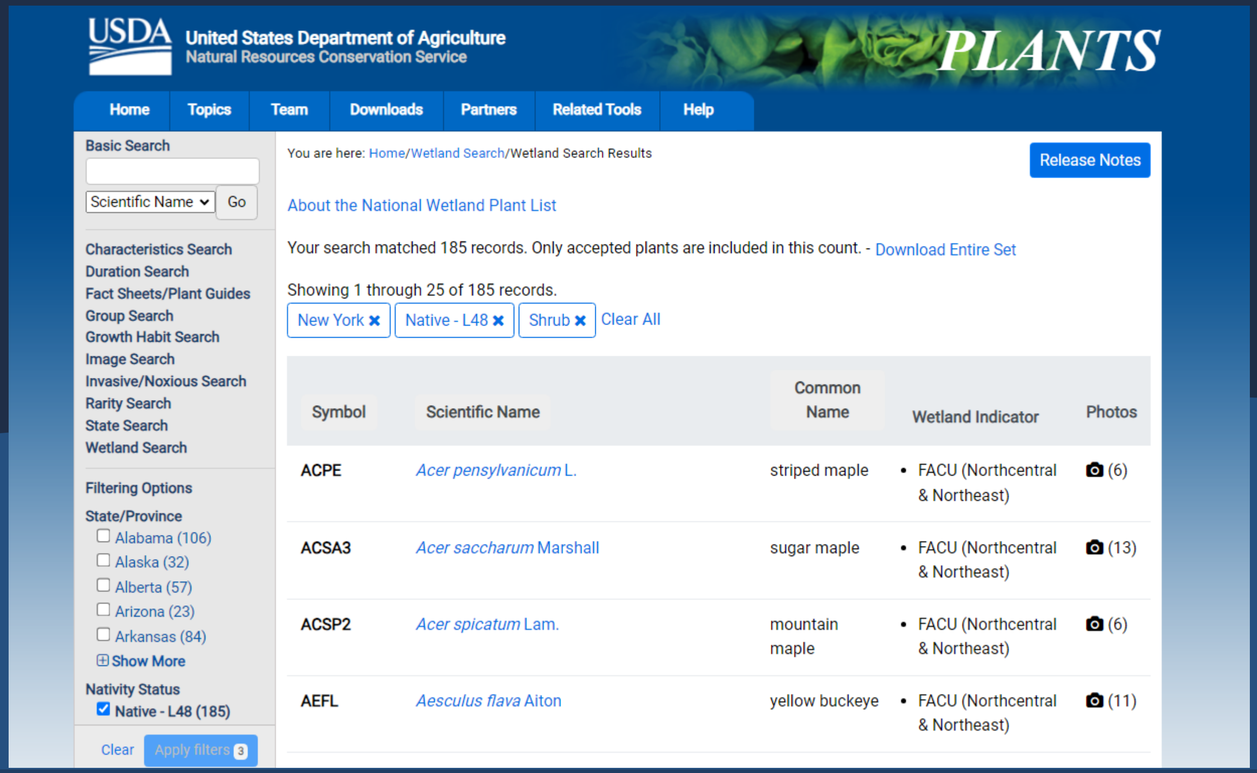
Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

ELEMENTS OF AN EFFECTIVE WATER RESOURCES PROTECTION LOCAL LAW

IDENTIFYING PLANT TYPES

- Understand how plants will work in your specific environment.



https://plants.usda.gov/home

National Wetland Plant List – Filter According to Need

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

WETLAND PLANT TYPES

Facilitative Upland (FACU)

Normally found outside wetlands.

- Quercus palustris Münchh (Pin Oak)
- Juniperus horizontalis Moench (Creeping Juniper)
- Actaea rubra (Wild Red Baneberry)

Facilitative (FAC)

Often found in Wetlands, but can be in uplands as well.

- Maple Tree
- Shag Bark Hickory

Facilitative Wetland (FACW)

Typically found in wetlands, occasionally outside of wetlands.

- Acer Saccharinum L. (Silver Maple)
- Amsonia Tabernaemontana (Eastern Bluestar Aster)

Obligate (OBL)

Always in wetlands.

- Skunk cabbage

ELEMENTS OF AN EFFECTIVE WATER RESOURCE PROTECTION LOCAL LAW

BOND AND GUARANTEE THAT WETLAND PLANTINGS WILL SURVIVE

- For example, establish a bond equal to the replacement cost of plantings for 3 or 5 years.
- Funds returned if plantings survive the length of the specified guarantee.

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

ELEMENTS OF AN EFFECTIVE WATER RESOURCE PROTECTION LOCAL LAW

PROTECTING DRAINAGEWAYS

- Piping drainageways can lead to health and safety issues related to flooding as well as potable water quality issues.
- Drainage courses that had been piped are now being opened back up because of flooding and water quality issues.
- Keep them where they're supposed to be, open, and functional to avoid picking up additional sediment and contaminants that would be transmitted to your potable source.
- Consider regulation consistency with new FEMA policies for protecting floodways.

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

ELEMENTS OF AN EFFECTIVE WATER RESOURCE PROTECTION LOCAL LAW

MITIGATION EXCEPTIONS

- Consider providing reasonable exceptions (waiver) to this rule for:
  - Handicap access: ex. need for impervious surface path, not enough room for specified mitigation, or disturbance is require for full use of the property.
  - Previously approved construction (regulations were more permissive in older development).
  - Undersized lot, especially lots that are on record and completely within a buffer area, and have significant amount of wetland.
  - Other health and safety reasons, such as the need to protect property from erosion and threat of flooding.
- Consider making waiver decisions before an advisory board with environmental knowledge (or a consultant).

ELEMENTS OF AN EFFECTIVE WATER RESOURCE PROTECTION LOCAL LAW

WATERSHED / RECHARGE AREA REGULATION TO CONSIDER

- Laws that protect watershed / recharge areas are a refinement of the water resource protection laws.
- Requires a hydrology report to identify locations of aquifers and areas where significant water resources can be tapped (potential for a high-yielding wells).
- Establish protocols to protect those resources so that they can be utilized in the future.
  - Consider whether or not your community should permit development over those areas.
  - If so, how much?
- Law will codify the hydrology map.

Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

CASE STUDIES

CODE IN ACTION

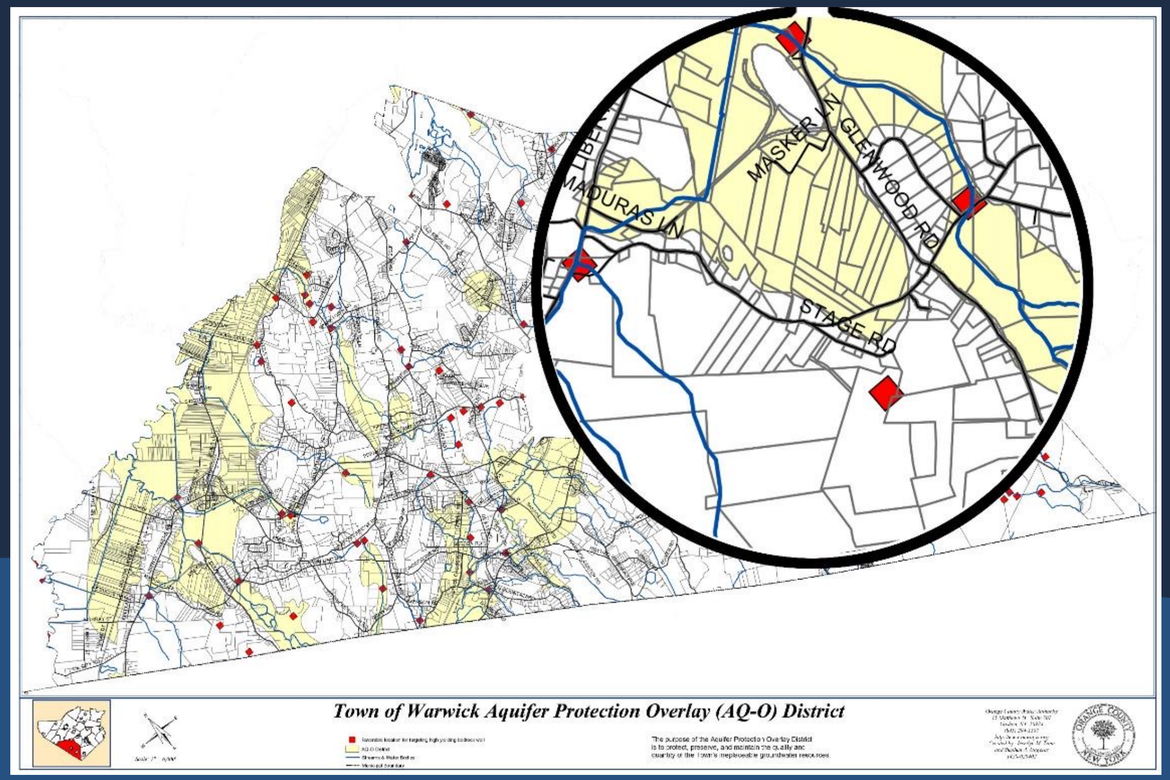
NYPF ANNUAL MEETING – APRIL, 2024

Laberge Group
ENGINEERING ARCHITECTURE SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

TOWN OF WARWICK, NY

- Established an overlay protection zone after identifying areas that had significant potential for being developed into a well.
- When an applicant goes before the Board, they now have a process that helps them protect potential water resources.
- Mechanisms in place to keep the watershed and potential well sites as open as possible - balance that objective with the development needs of the community to determine when it is appropriate to make exceptions to the rule.

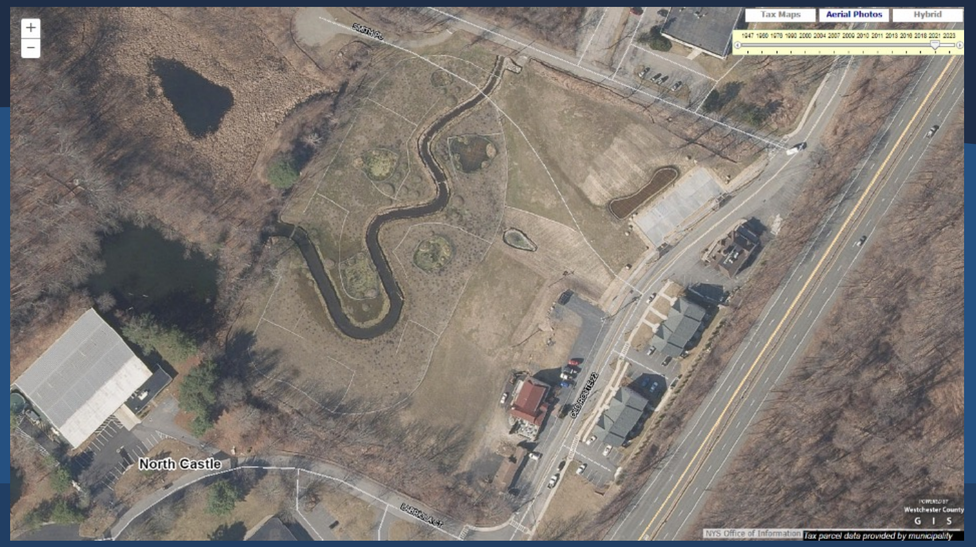


Laberge ENGINEERING ARCHITECTURE Group SURVEYING PLANNING

Dedicated to Better Planning Since 1937
New York Planning Federation

ARMONK, NY BOWLING ALLEY

- DEP project to rebuild a stream and wetlands on the site of a former bowling alley.
- The building and parking lot were built when it was allowable to redirect streams and fill wetlands. The stream was piped.
- Water quality was impacted and flooding problems were exacerbated (pinchpoint) as climate change made water more forceful.
- Restoring the wetland and stream protects a source of drinking water for the NYC metropolitan region by preserving sensitive lands around its reservoir system.



WESTCHESTER, NY CONSTRUCTION YARD

- Construction yard built in the 1920s, when it was permissible to fill in wetlands. More than half of the property was filled-in wetlands.
- Owner wanted to repurpose the building.
- Remediation solution: reestablish a meadow – flat land that was planted with FAW grasses and could be intermittently flooded.
- Improved the buffer by slowing runoff and filtering water entering a stream that feeds a water source.

TOWN OF LEWISBORO, NY

- Effected by NYC DEP regulation.
- 2 Step process
  - Determination of need for permit by local administrator
  - Review by Planning Board
- Require proof that any disturbance is necessary – stringent.
- Regulate not only wetlands, but also watercourses such as streams and river, ponds, and lakes of all sizes.
- Any type of disturbance requires mitigation, including some not covered by many communities:
- Tree removal and clearing, new plantings and reseeding.
- Water resources buffer disturbance mitigation mechanism:
  - 2-to-1 planting mitigation.
  - Separate detailed guidelines adopted, include removal and replacement.

RESOURCES AND SLIDES

www.labergegroup.com/NYPF2024

Laberge Group
ENGINEERING
ARCHITECTURE
SURVEYING
PLANNING

www.labergegroup.com

QUESTIONS

Laberge
ENGINEERING
ARCHITECTURE
Group
SURVEYING
PLANNING

www.labergegroup.com

THANK YOU

NICOLE ALLEN, AICP
DIRECTOR OF PLANNING AND COMMUNITY DEVELOPMENT

nallen@labergegroup.com

SUSAN ROTH, AICP
SENIOR PLANNER

sroth@labergegroup.com

Laberge Group
ENGINEERING ARCHITECTURE SURVEYING PLANNING

www.labergegroup.com