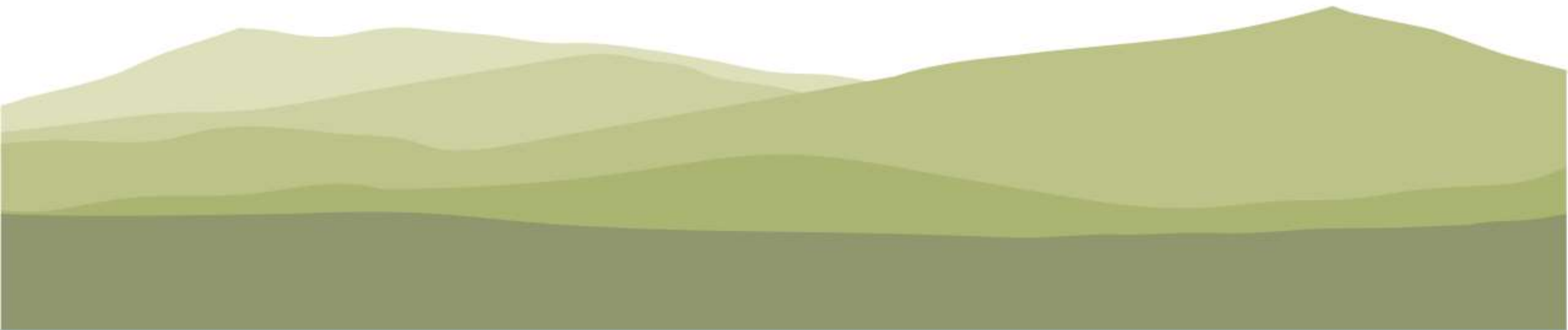


# ADAPTING IN THE FIELD: AN ENGINEER'S TAKE



**JAKE DITTES, PE**

WATER RESOURCES ENGINEER

[jdittes@princetonhydro.com](mailto:jdittes@princetonhydro.com)

908-237-5660

# OVERVIEW

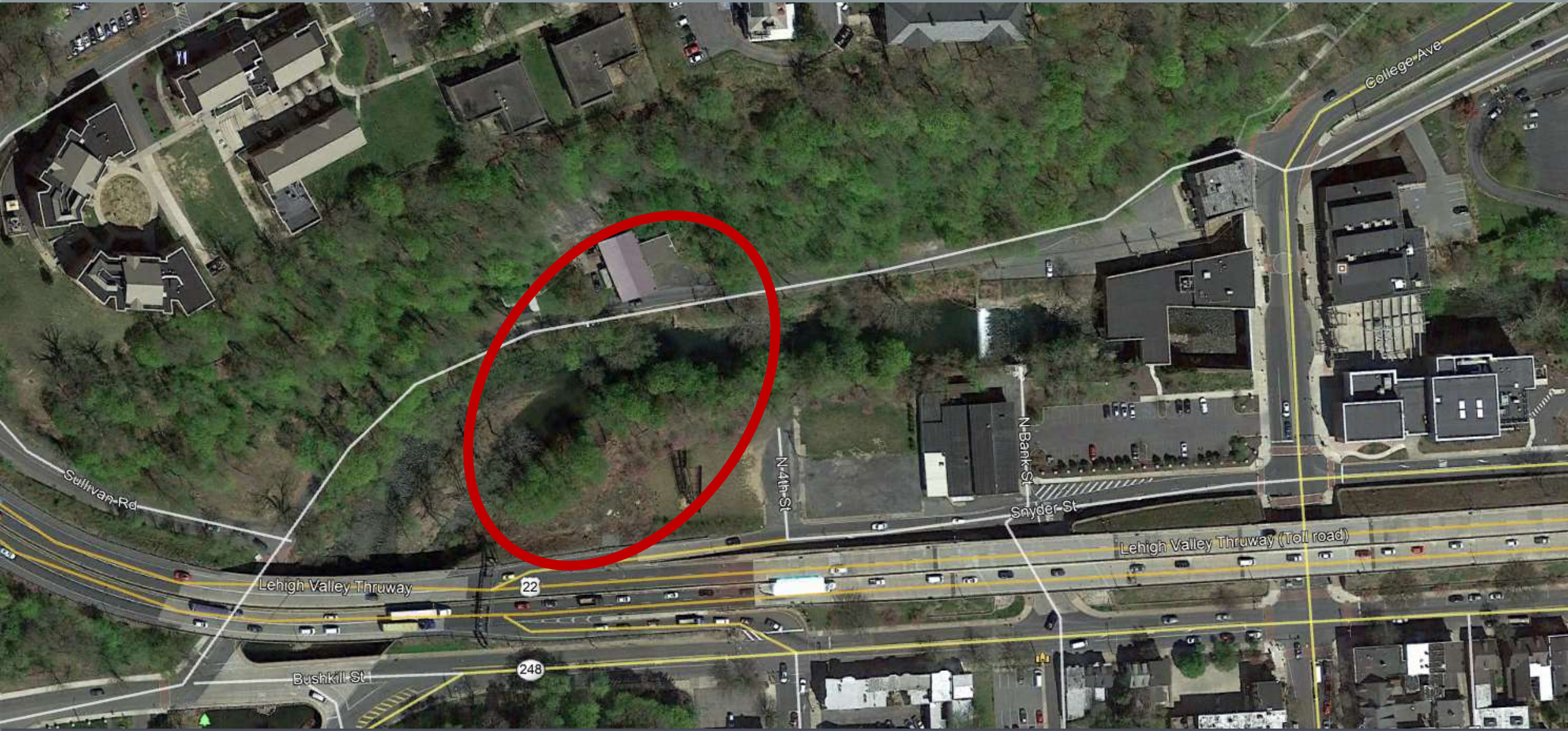
Engineers and scientists put a lot of effort into designs.

All projects have some unforeseen circumstances, either during the design process or during construction itself

Adapting is important for a successful project

# BUSHKILL CREEK DAM REMOVALS

NORTHAMPTON COUNTY, PA



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NORTHAMPTON COUNTY, PA



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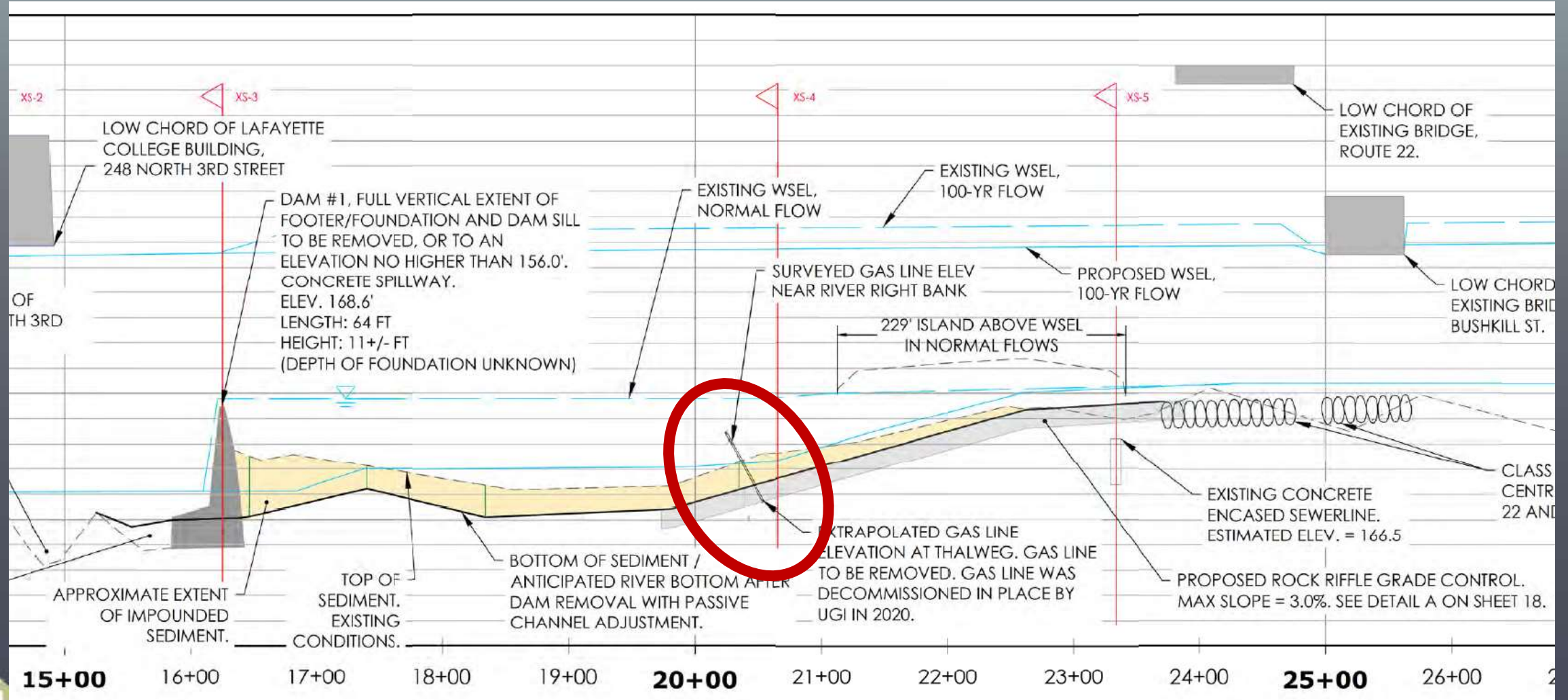
NORTHAMPTON COUNTY, PA



SCIENCE  
ENGINEERING  
DESIGN

# BUSHKILL CREEK DAM REMOVALS

NORTHAMPTON COUNTY, PA





# TAKE AWAYS

- ★ **Bushkill**: Careful of utilities (especially old ones or ones that haven't been surveyed)

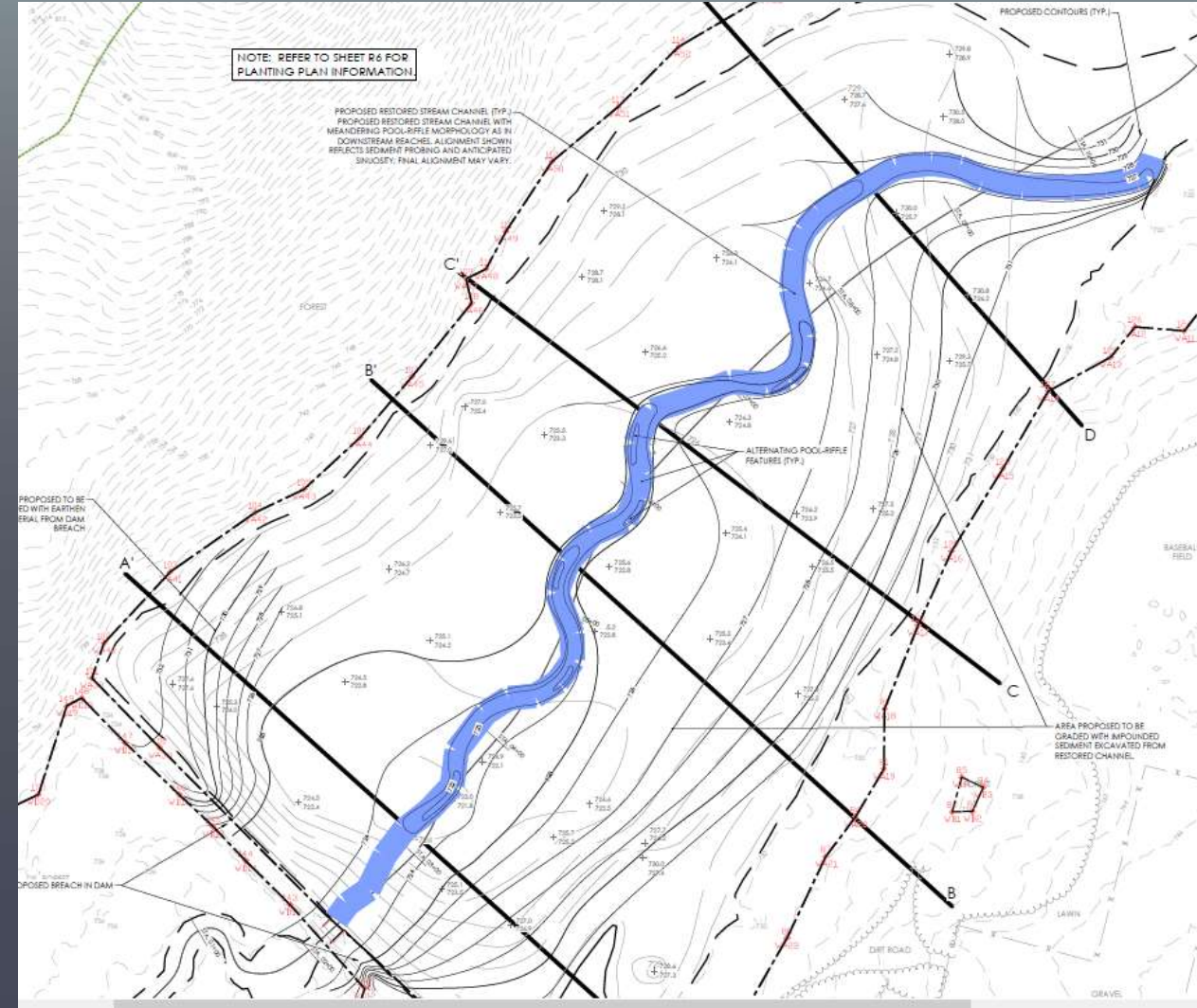
# LAKE HUDSONIA DAM REMOVAL

MORRIS COUNTY, NJ



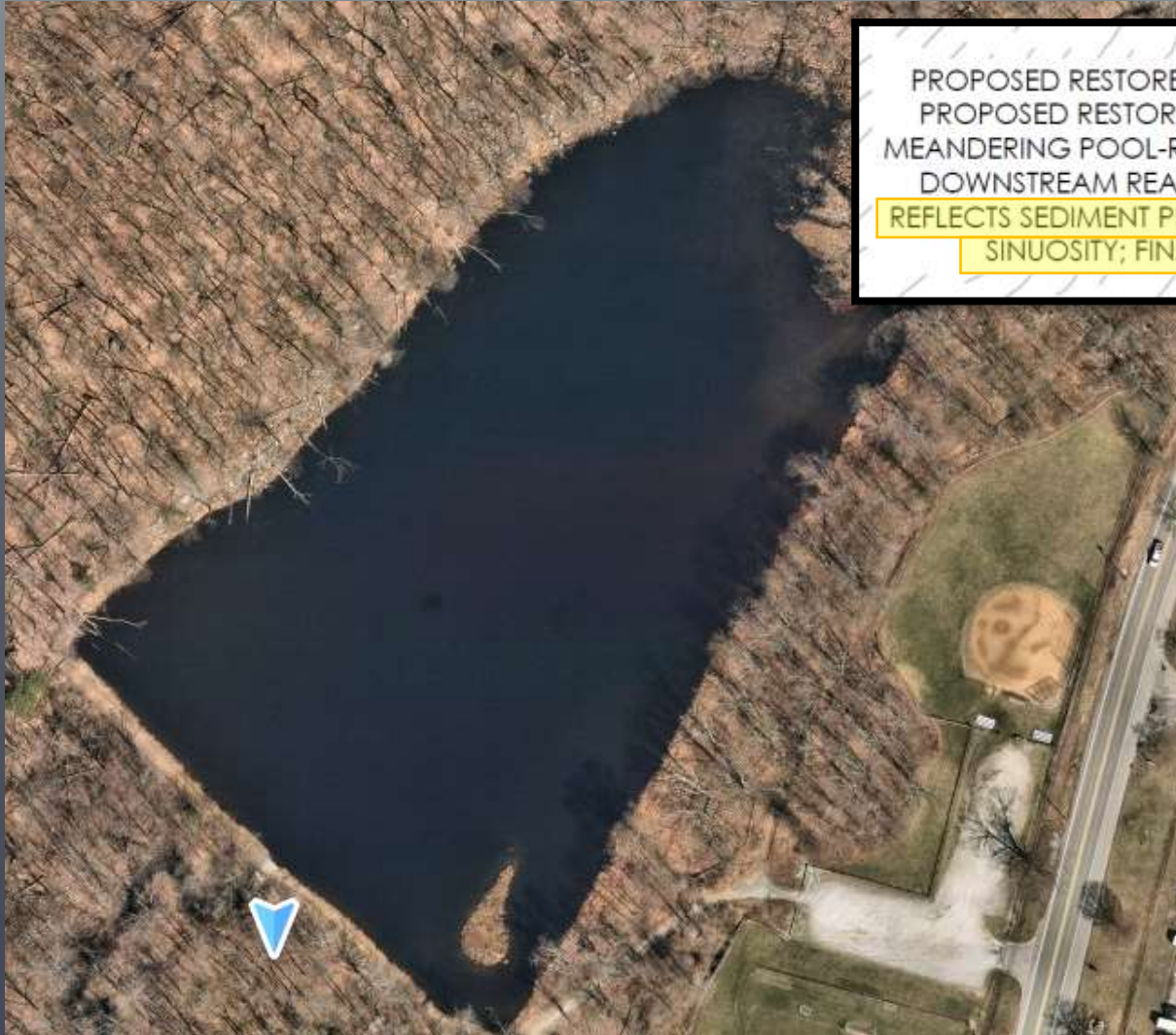
# LAKE HUDSONIA DAM REMOVAL

MORRIS COUNTY, NJ

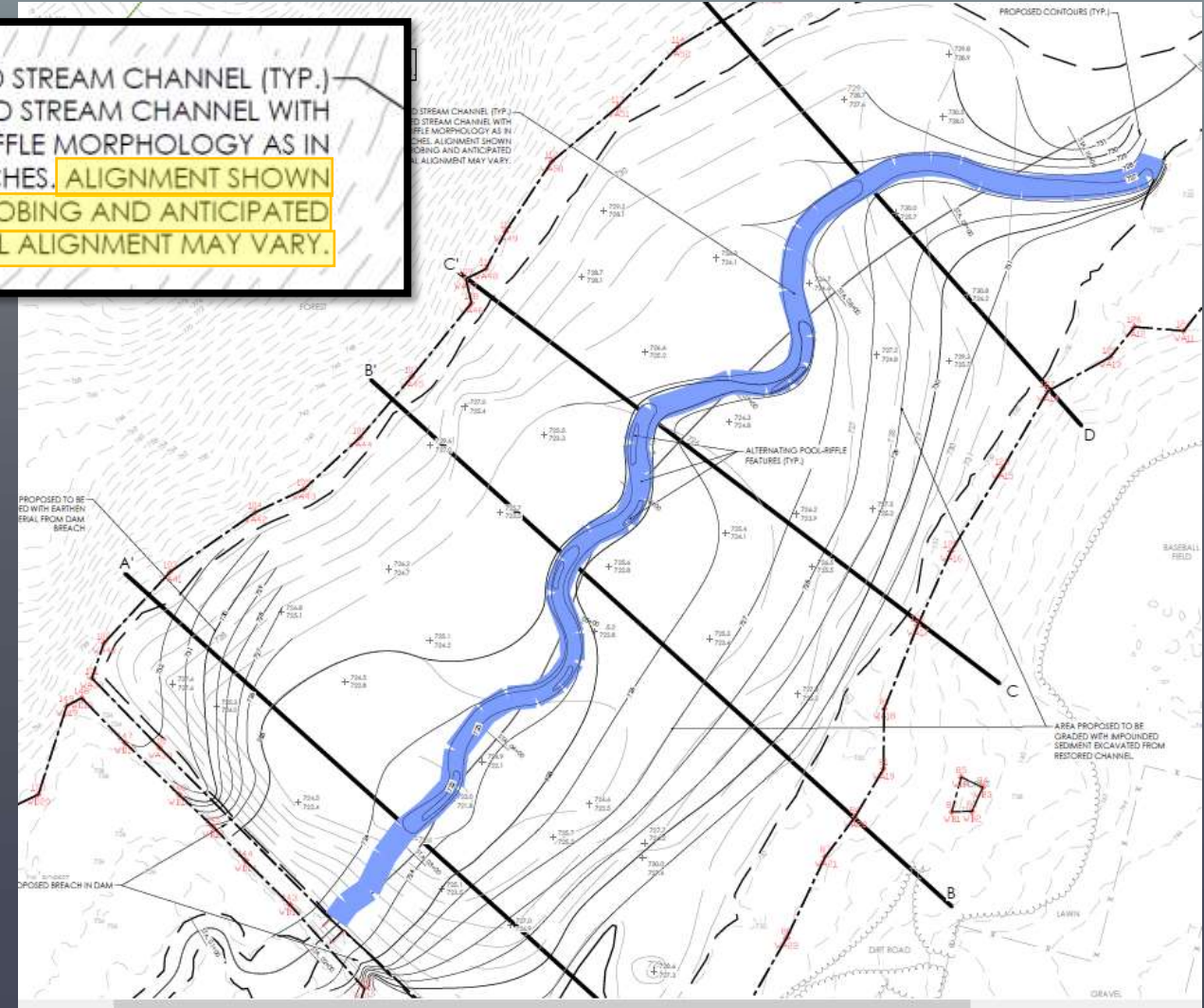


# LAKE HUDSONIA DAM REMOVAL

MORRIS COUNTY, NJ



PROPOSED RESTORED STREAM CHANNEL (TYP.)  
PROPOSED RESTORED STREAM CHANNEL WITH  
MEANDERING POOL-RIFFLE MORPHOLOGY AS IN  
DOWNSTREAM REACHES. ALIGNMENT SHOWN  
REFLECTS SEDIMENT PROBING AND ANTICIPATED  
SINUOSITY; FINAL ALIGNMENT MAY VARY.



# LAKE HUDSONIA DAM REMOVAL

MORRIS COUNTY, NJ



SCIENCE  
ENGINEERING  
DESIGN

[PRINCETONHYDRO.COM](http://PRINCETONHYDRO.COM)

# LAKE HUDSONIA DAM REMOVAL

MORRIS COUNTY, NJ



# LAKE HUDSONIA DAM REMOVAL

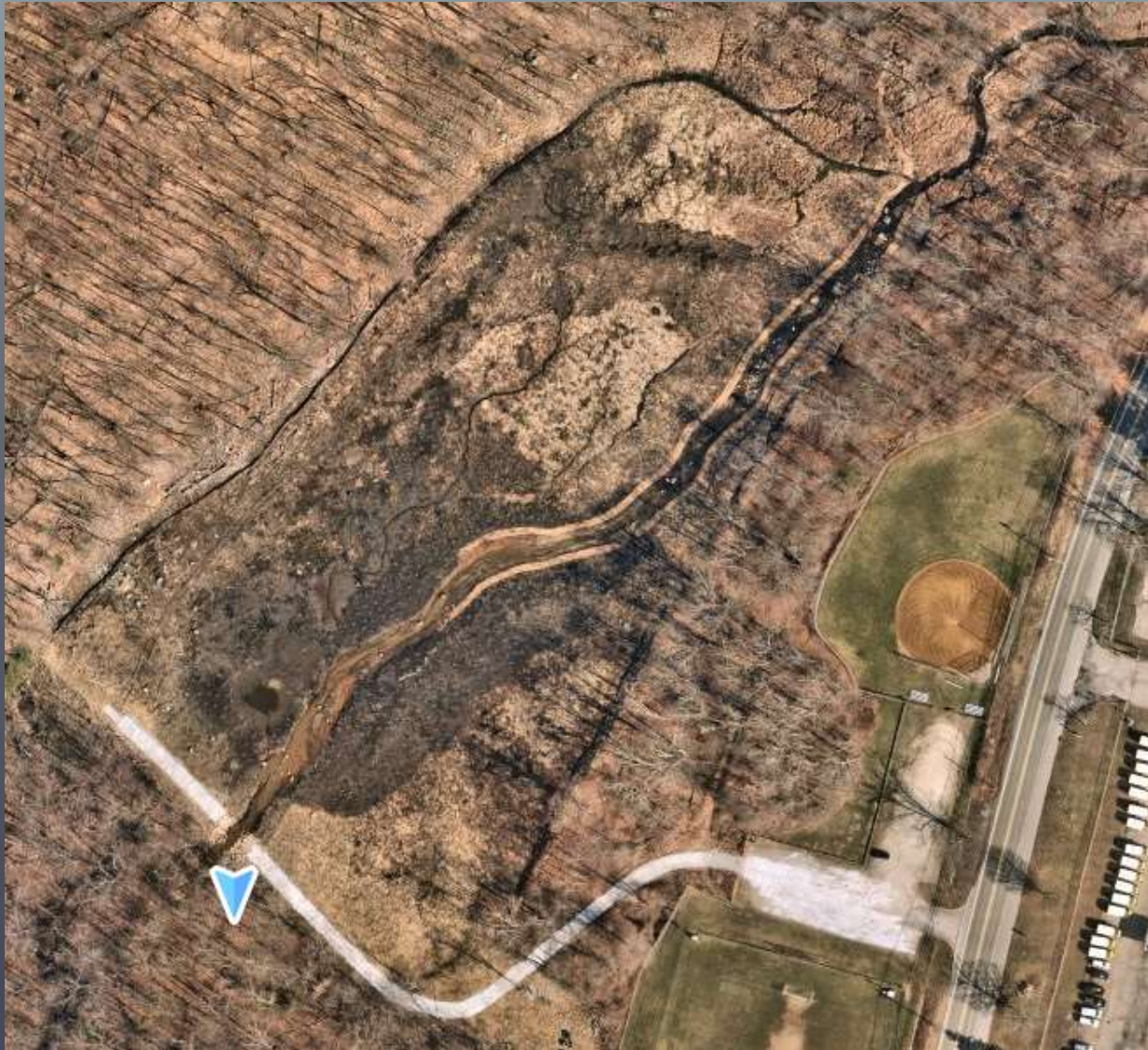
MORRIS COUNTY, NJ



SCIENCE  
ENGINEERING  
DESIGN

# LAKE HUDSONIA DAM REMOVAL

MORRIS COUNTY, NJ



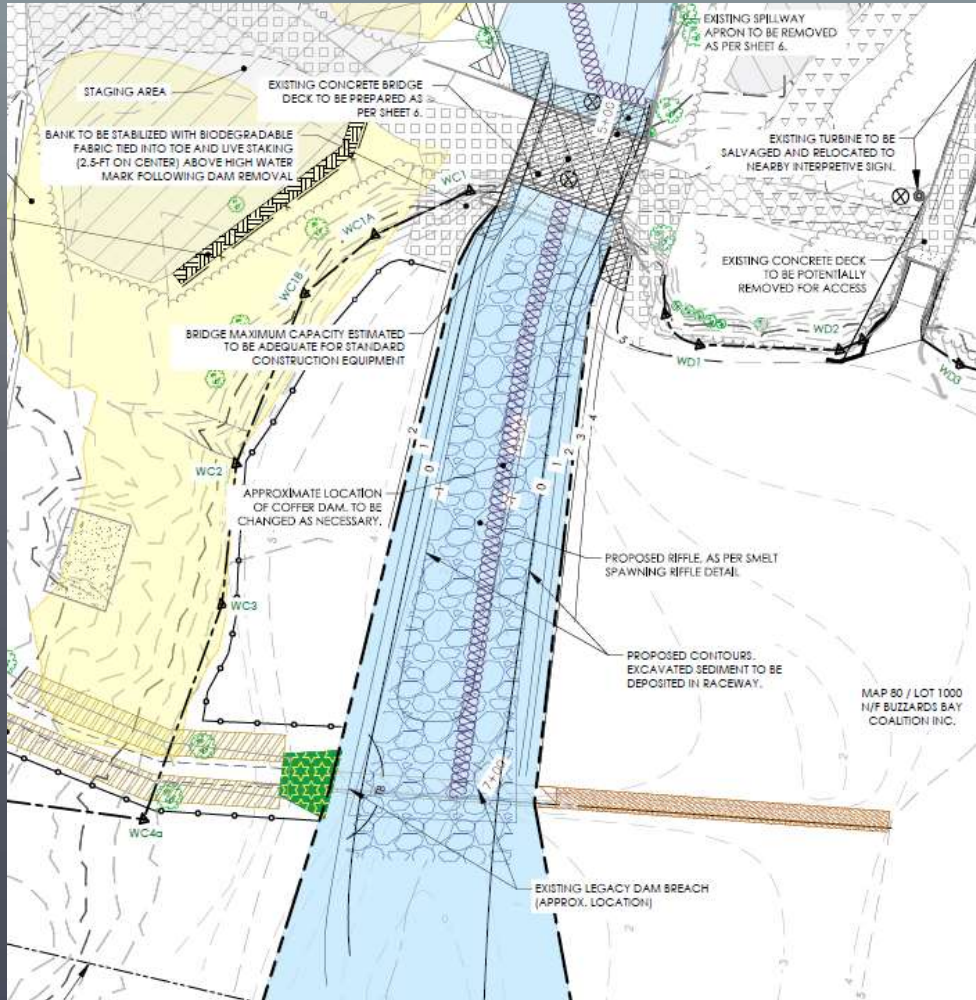


# TAKE AWAYS

- ★ **Bushkill:** Careful of utilities (especially old ones or ones that haven't been surveyed)
- ★ **Lake Hudsonia:** Site conditions may dictate an adaptive design. Better if planned for ahead of time and build flexibility into permits

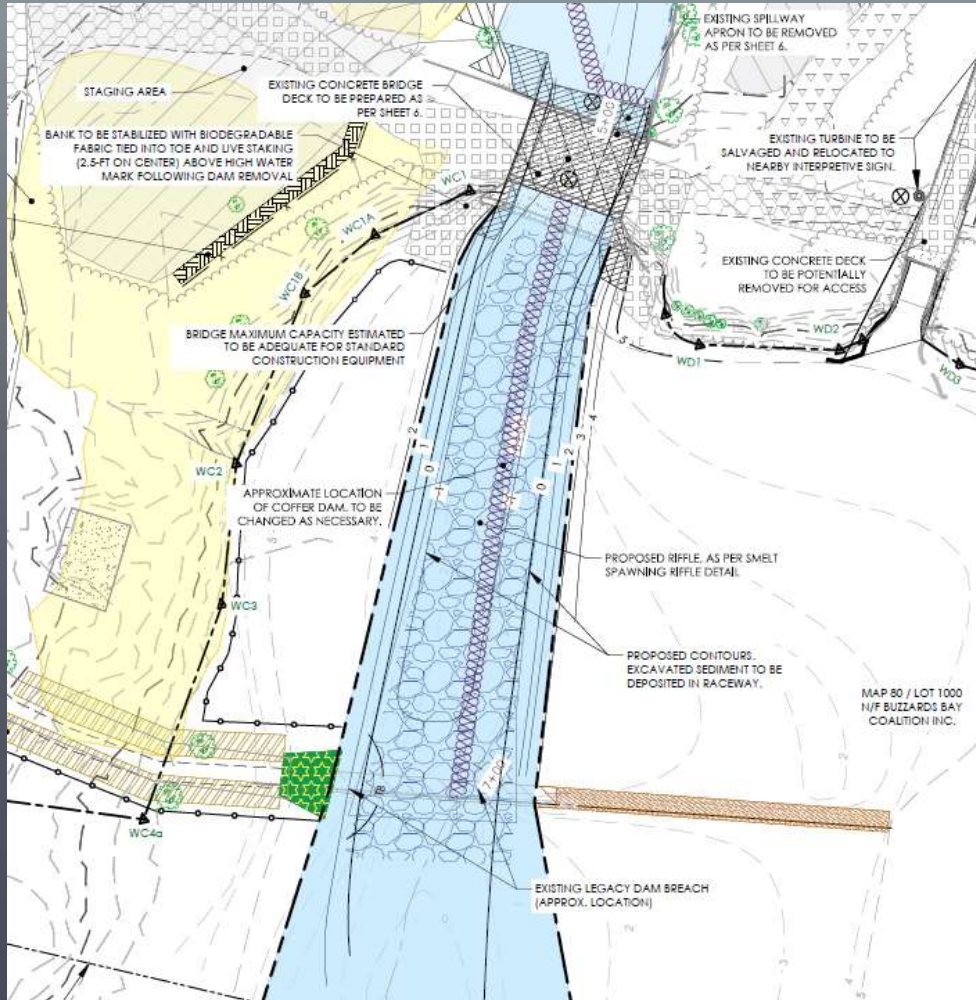
# WEWEANTIC RIVER RESTORATION AND HORSESHOE MILL POND SPILLWAY REMOVAL

## PLYMOUTH COUNTY, MA



# WEWEANTIC RIVER RESTORATION AND HORSESHOE MILL POND SPILLWAY REMOVAL

## PLYMOUTH COUNTY, MA



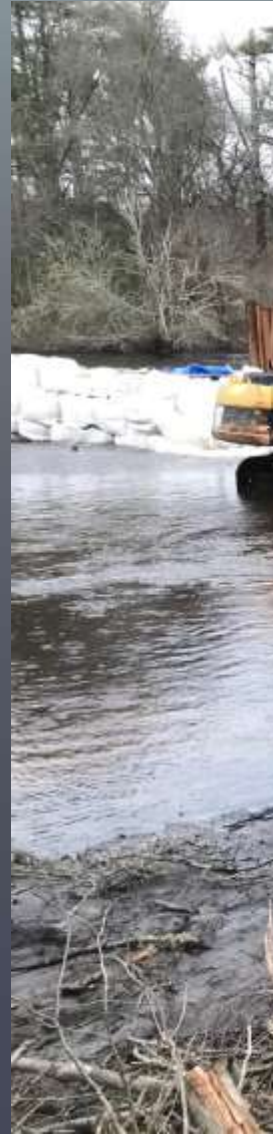
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*PLYMOUTH COUNTY, MA*



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PLYMOUTH COUNTY, MA

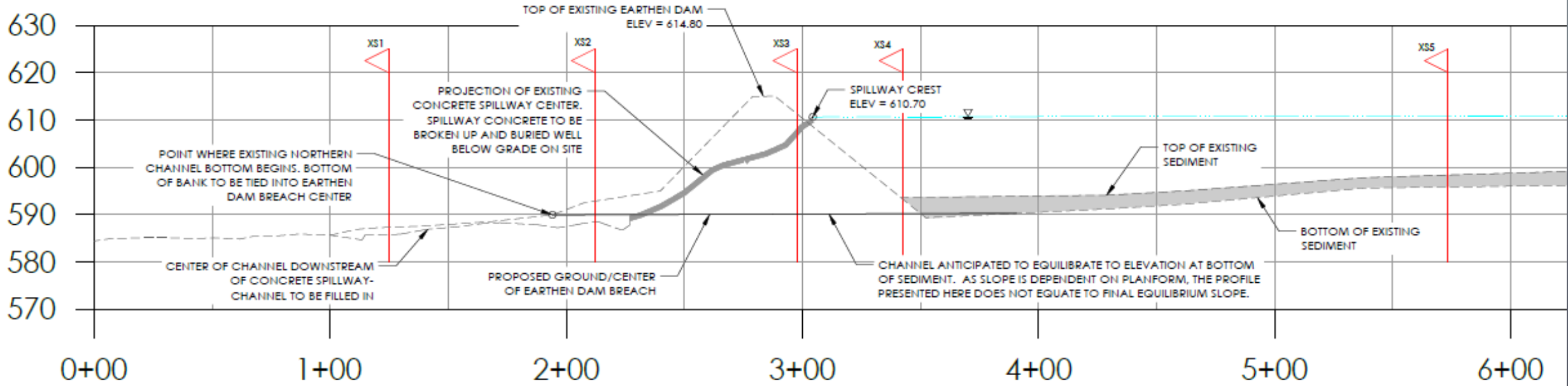


# TAKE AWAYS

- ★ **Bushkill:** Careful of utilities (especially old ones or ones that haven't been surveyed)
- ★ **Lake Hudsonia:** Site conditions may dictate an adaptive design. Better if planned for ahead of time and build flexibility into permits
- ★ **Horseshoe:** Work with weather, not against it; timing of construction is important

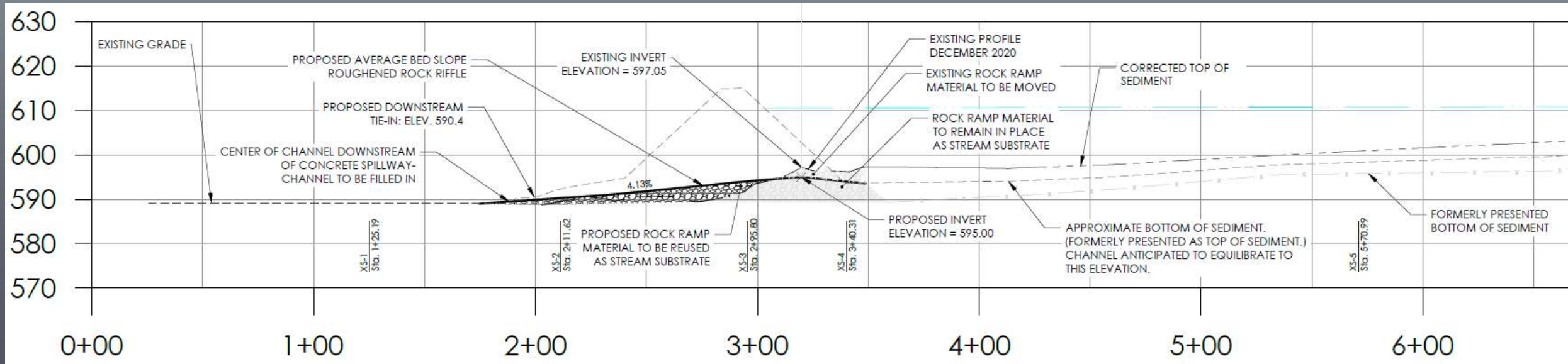
# KEHM RUN DAM REMOVAL

YORK COUNTY, PA



# KEHM RUN DAM REMOVAL

YORK COUNTY, PA





# TAKE AWAYS

- ★ **Bushkill:** Careful of utilities (especially old ones or ones that haven't been surveyed)
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- ★ **Horseshoe:** Work with weather, not against it; timing of construction is important
- ★ **Kehm:** Careful with plusses and minuses! (Engineers are human!)

# TAKE AWAYS

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- ★ **Horseshoe:** Work with weather, not against it; timing of construction is important
- ★ **Kehm:** Careful with plusses and minuses! (Engineers are human!)

***A team that understands engineers and contractors will need to adapt during the design & construction process is important for a successful project!***

# QUESTIONS?



**JAKE DITTES, PE**

WATER RESOURCES ENGINEER

Princeton Hydro, LLC

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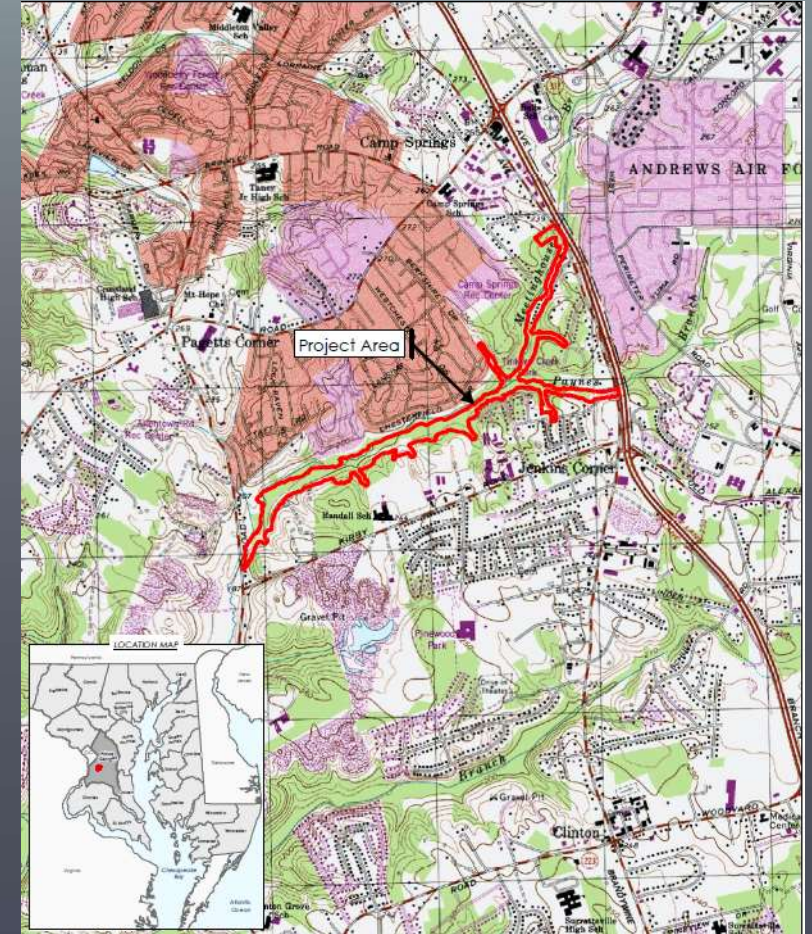
908-237-5660

*THANK  
YOU!*

[PRINCETONHYDRO.COM](http://PRINCETONHYDRO.COM)

# TINKERS CREEK STREAM RESTORATION

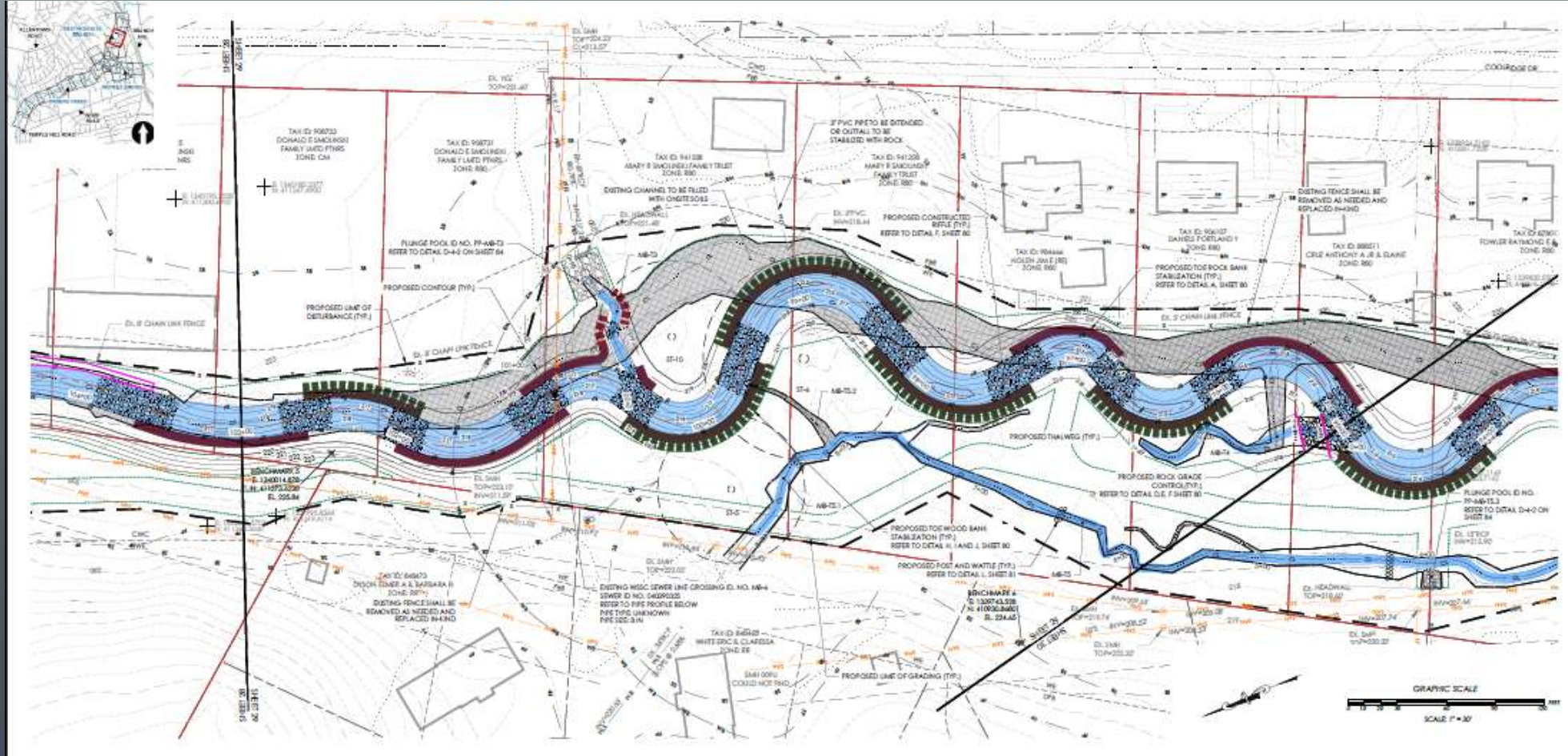
PRINCE GEORGES COUNTY, MD



- ✓ Degraded Existing Stream and Tributaries
- ✓ Failing Infrastructure
- ✓ MS4 Compliance for Prince Georges County

# TINKERS CREEK STREAM RESTORATION

PRINCE GEORGES COUNTY, MD



# TINKERS CREEK STREAM RESTORATION

PRINCE GEORGES COUNTY, MD



SCIENCE  
ENGINEERING  
DESIGN

# TAKE AWAYS

- ✓ Bushkill: Careful of utilities (especially old ones or ones that haven't been surveyed)
- ✓ Tinkers: Infrastructure that is in the way may need to be worked around/stabilities
- ✓ Lake Hudsonia: Site conditions may dictate an adaptive design
- ✓ Horseshoe: Quality initial survey may prevent future complications; timing of construction is important
- ✓ Kehm: Careful with plusses and minuses! (Engineers are human!)
- ✓ A team that understands engineers and contractors will need to adapt during the construction process is important!

# TINKERS DISCUSSION

- ✓ Plunge pools below stormwater outfall – end of pipe broke off
- ✓ Change riffles based on unsurveyed pipe – make sure there was cover over riffle
- ✓ Point Bars – general shape not fully graded, formed point bars better than we can build

Bushkill -

- ✓ Wells going dry



# TINKERS CREEK STREAM RESTORATION

PRINCE GEORGES COUNTY, MD



# TINKERS CREEK STREAM RESTORATION

PRINCE GEORGES COUNTY, MD

