



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Waterways Engineering and Wetlands



# Glenside Area Flood Protection

Tookany Creek  
Cheltenham Township  
Montgomery County

January 8, 2020

# State Flood Protection Program

1936: Flood Control Act authorizes DEP to design and construct flood control works within stream channels of the Commonwealth. Structural solutions only. Not authorized to conduct buyouts.

1946 – Present: DEP has designed and constructed approximately 200 projects in 100 communities throughout the Commonwealth. The total construction cost of all these projects in today's dollars would be about \$800 million.

For more information, visit DEP's website at [www.dep.pa.gov](http://www.dep.pa.gov)  
search keywords: Flood Protection

# Project History

- March 1995 – DEP requests topographic survey.
- September 1996 – Flood event, levee overtopped at Brookdale Avenue pump station.
- January 2001 – Sponsorship Agreement executed.
- June 2001 – T.S. Allison flood event, levee overtopped at Brookdale Avenue pump station.
- March 2005 – Glenside Avenue Bridge project completed.

# Project History

- August 2011 – Hurricane Irene flood event, levee was not overtopped at Brookdale Avenue pump station.
- September 2011 – T.S. Lee flood event, levee overtopped at Brookdale Avenue pump station.
- February 2012 – As a result of T.S. Lee flooding, Cheltenham asked DEP to investigate flood protection alternatives that would eliminate obtaining easements from properties situated in Abington Township. Consider removing buildings if needed.
- June 2012 – US Army Corps of Engineers Flood Damage Reduction Feasibility Study begins.



# Project History

- April 2013 – Cheltenham Township approves a conceptual design of the proposed DEP project.
- November 2014 – Corps suggests DEP project be delayed until Corps study is finalized. The DEP project could have a negative effect on the cost/benefit ratio for the Corps project.
- June 2017 – Township asked DEP to restart design of the Glenside Area FPP.
- November 2019 – DEP issues new Rights-of-Way Drawings for the revised project detailing the project features and required property easements.

# Project Partners

- Department of Environmental Protection (DEP)
  - \* Flood Protection Program Administrator
  - \* Design Professional
  - \* Issue Permits
  - \* Project Inspection & Maintenance
  
- Department of General Services (DGS)
  - \* Funding Agency
  - \* Contract Administrator
  
- Cheltenham Township
  - \* Project Sponsor

## Responsibilities (cont.)

### ■ DEP

- \* Design project, develop contract drawings and specifications, and obtain all permits and approvals
- \* Develop and review land acquisition documents for the Township
- \* Issue DEP permits
- \* Assist Township in coordinating utility adjustments
- \* Provide Engineering and Construction Management Services during construction
- \* Transfer Permit to Township after project completion
- \* Issue Operation and Maintenance Manual to Township
- \* Conduct Annual Operation and Maintenance Inspections

# Responsibilities of Project Partners

## ■ DGS

- \* Request Budget Office to release design funds
- \* Conduct legal review and approval of all land acquisition and conveyance documents
- \* Review and approve construction plans and specifications
- \* Request Budget Office to release construction funds
- \* Bid, award, and administer construction contract

# Responsibilities (cont.)

## ■ CHELTENHAM TOWNSHIP

- \* Execute Sponsorship Agreement with DEP
- \* Fund Township's project related costs
- \* Obtain easements for construction and maintenance (Obtain signatures and record deeds)
- \* Perform and/or coordinate Sponsor Adjustments
- \* Provide DEP with \$24,000 Performance Security. Establish a Maintenance Escrow Account and maintain a \$8,000 balance in the account.
- \* Operate and Maintain the completed Project
- \* Participate in annual maintenance inspections

# Project Authorization & Funding

- Flood control projects are authorized and funded by the State of Pennsylvania. No Federal Funding. Project Sponsor also contributes.
- State Authorization/Funding:
  - \* Act 136 of 1994 - \$3,000,000
  - \* Act 83 of 2006 - \$1,000,000
  - \* Act 85 of 2013 - \$3,200,000
- Total Construction Funds Available: \$7,200,000

# Definitions

- 1% Annual Storm: A storm event that has a 1% chance of occurring in any given year.
- Permanent Easement: Permanent easement grants right of ingress, egress, and regress to construct and maintain project (generally 15 feet beyond toe of levee, top of channel banks, or outside edge of channel walls).
- Temporary Easement: Temporary right-of-way used during construction solely for the purpose of constructing project. Reverts back to property owner when construction is complete.
- Sponsor Adjustments: The relocation and/or removal of any utility line, structure, shed, playground, fence, pool, etc., that will interfere with construction of the project (Township cost).

# Design Criteria

- Must meet FEMA criteria (freeboard limits, structural stability, closures, etc.) to ensure project is eligible for the National Flood Insurance Program.
- Must meet DEP design criteria and permitting requirements.
- Floodwater elevations cannot be increased upstream or downstream of the project limits without mitigation.
- Must provide flood protection for the 1% annual (100-yr) storm event plus freeboard (3' additional height). This provides protection for up to the 0.2% annual (500-yr) storm event. Includes T.S. Lee & T.S. Allison.



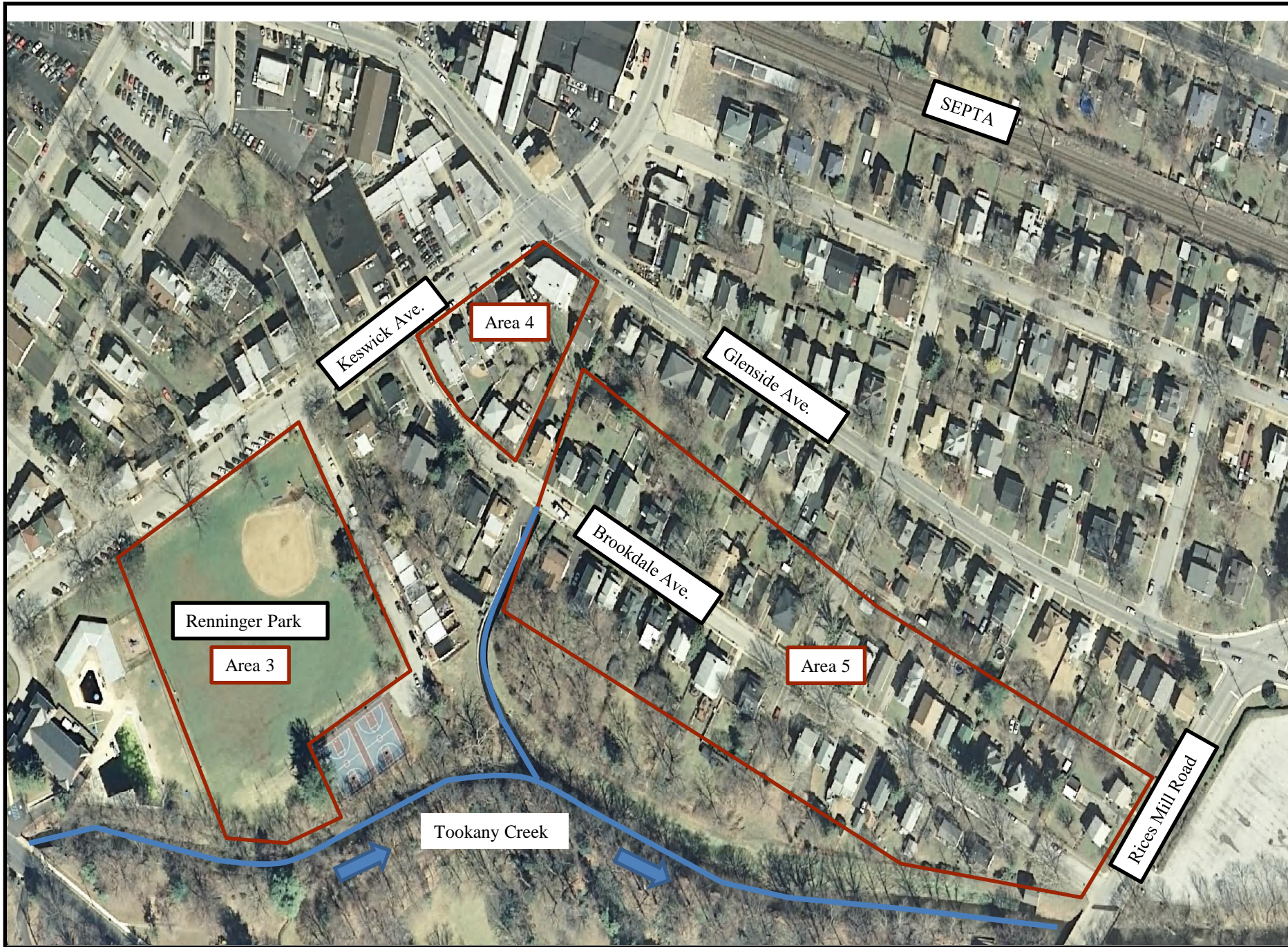
# Glenside Area Flood Protection Alternatives

- Cheltenham Township & DEP considered many alternatives.
- Alternatives generally involved constructing ponding areas to store floodwater and reduce the downstream peak flood flow rates. The goal was to reduce flood flow rates to levels that would pass through the existing SEPTA RR bridge. No work would be required outside of Cheltenham Township.
- Acquiring land and demolishing buildings would be required in some areas.









SEPTA

Keswick Ave.

Area 4

Glenside Ave.

Brookdale Ave.

Renninger Park

Area 3

Area 5

Tookany Creek

Rice Mill Road



# Glenside Area Flood Protection Alternatives

- Preferred Alternative: Construct Ponding Areas 1 & 2. This increases floodwater elevations upstream of Rices Mill Road, so one home must be removed. Mack Electric building and adjacent auto repair building also must be demolished.

## 2001 vs 2020 Project Comparisons



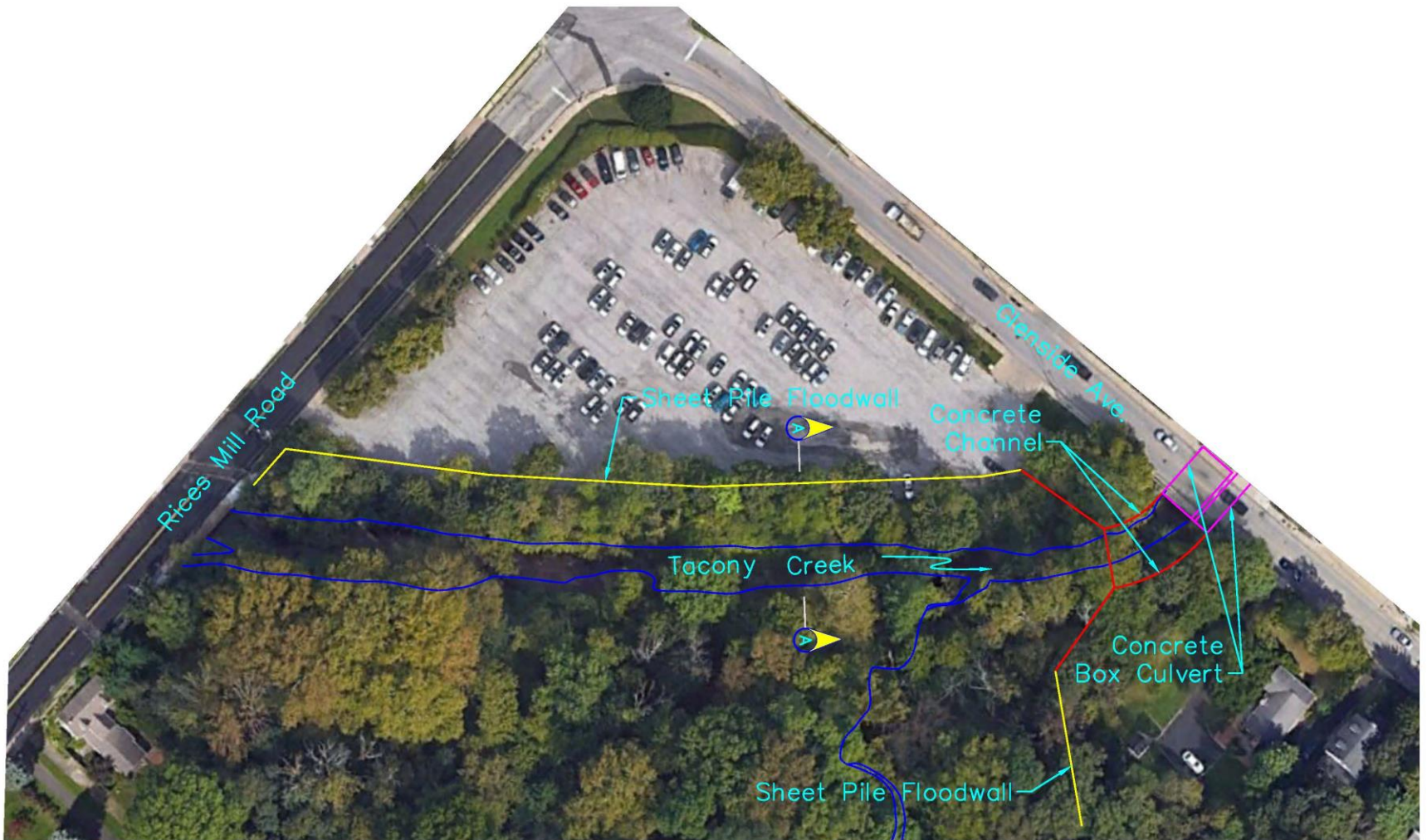
2001 Plan





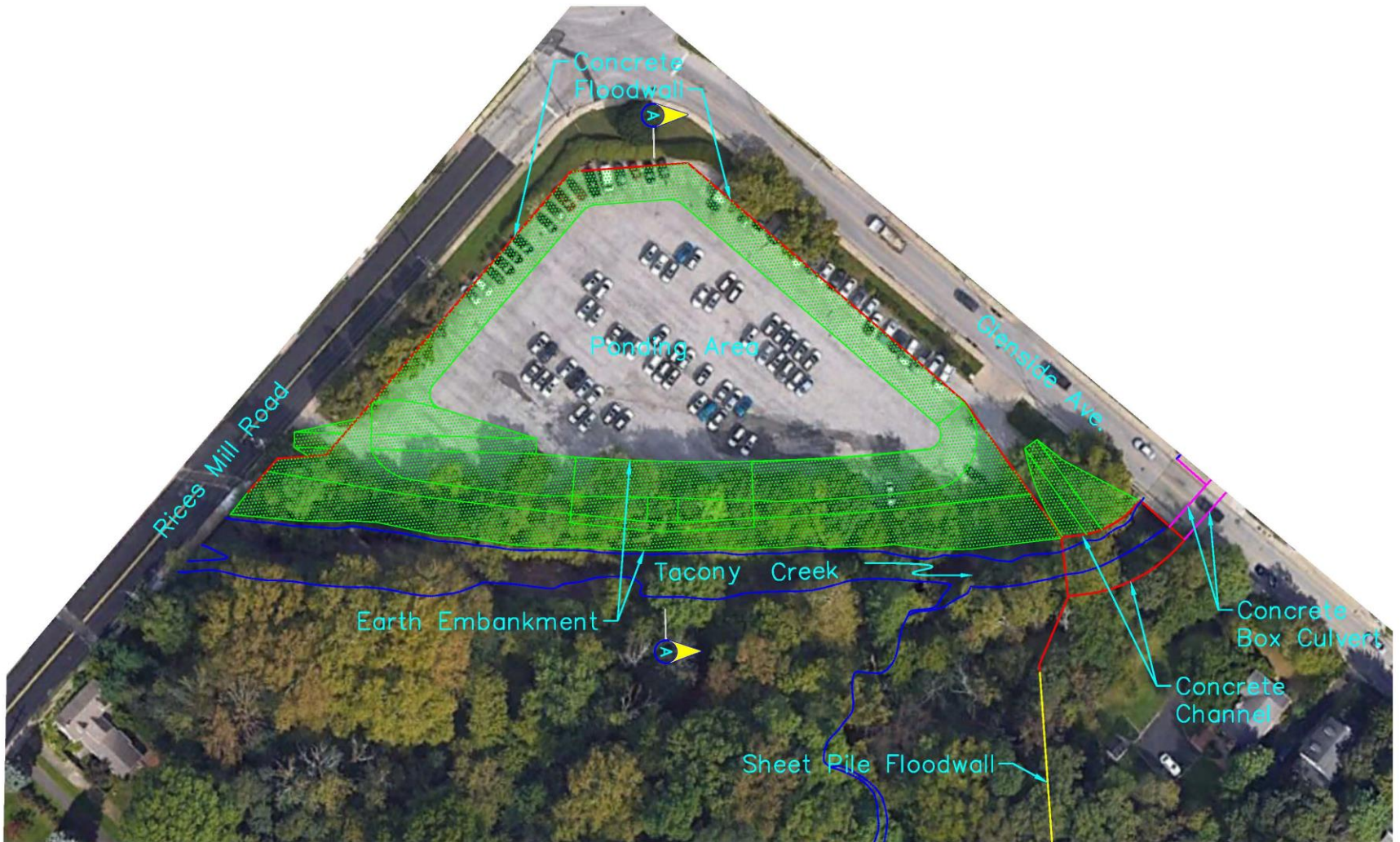
2020 Plan





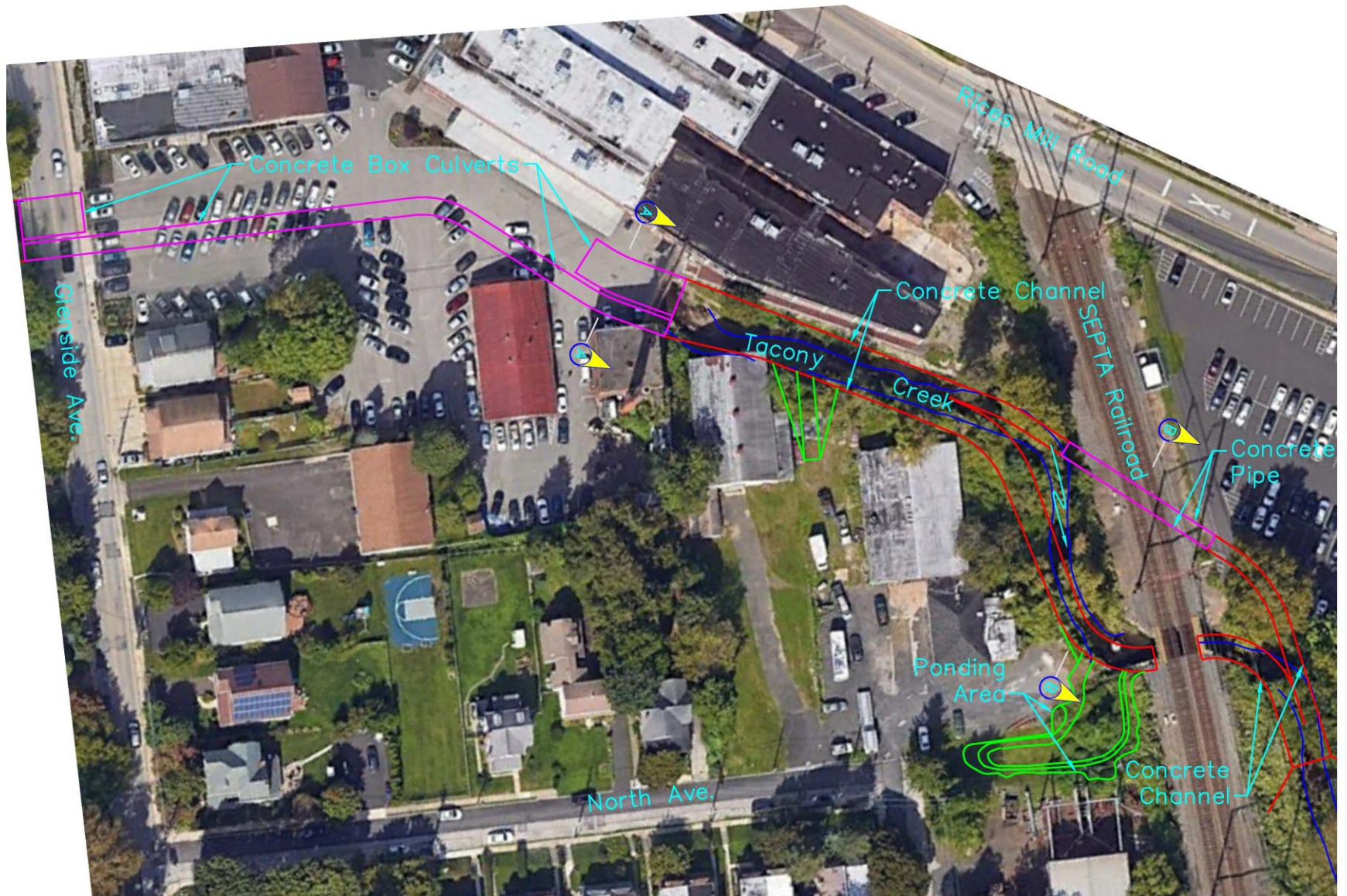
2001 Plan





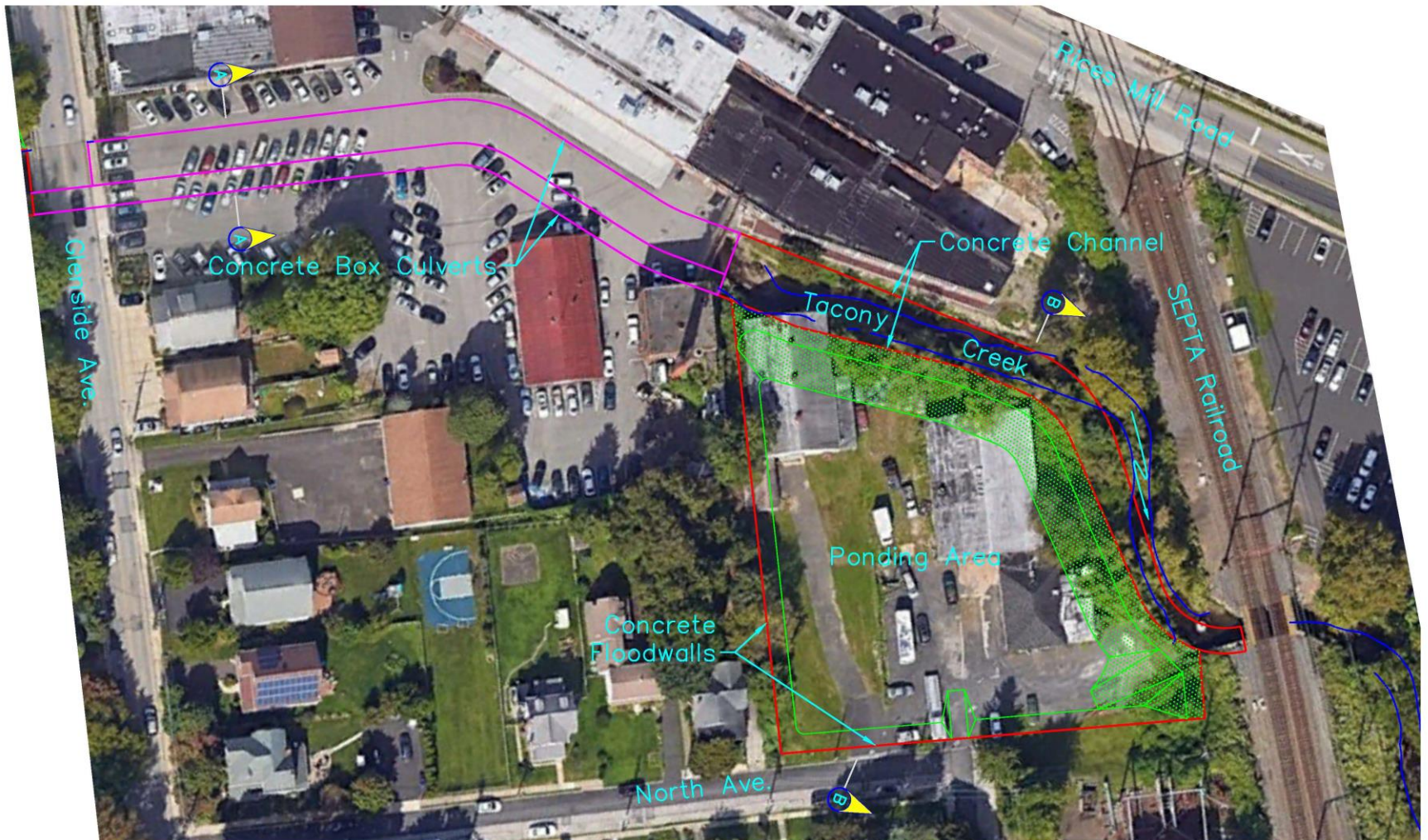
2020 Plan



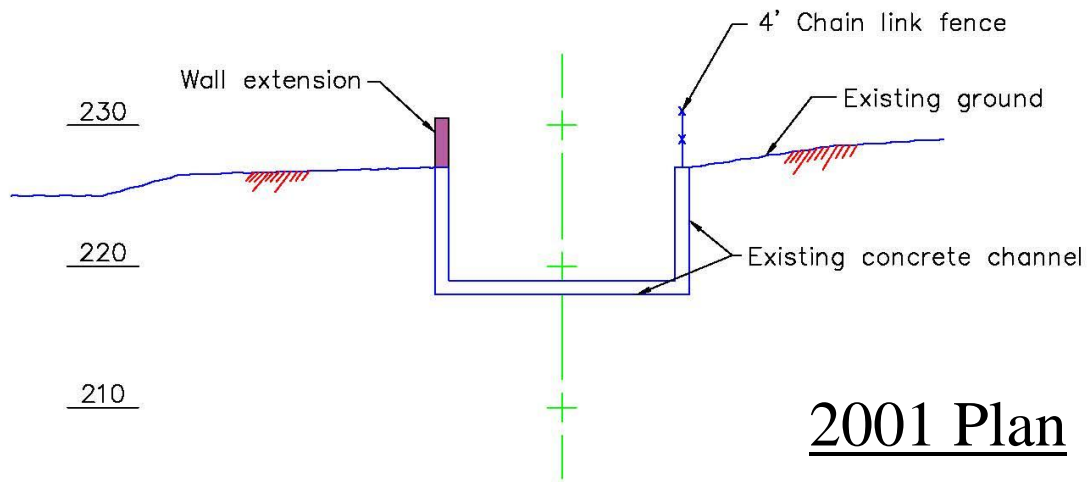


2001 Plan

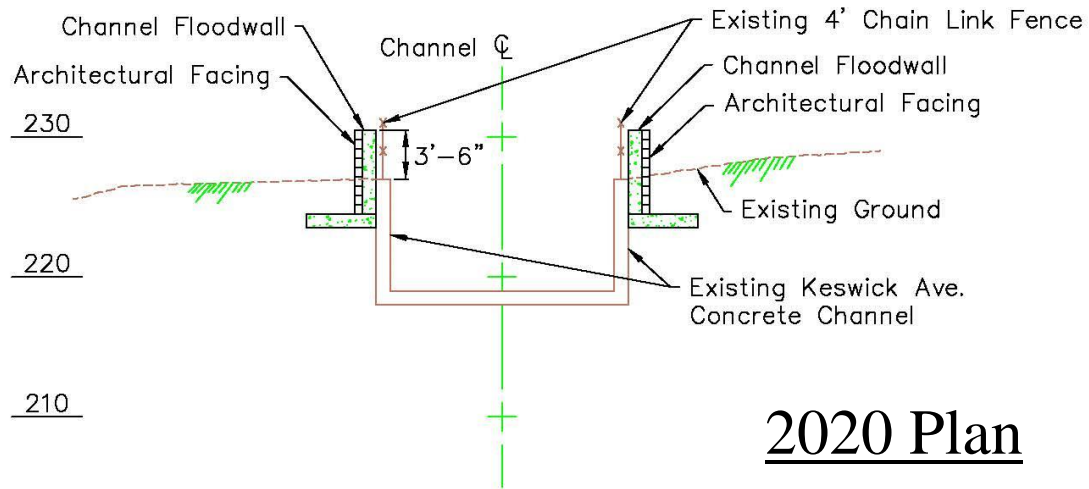




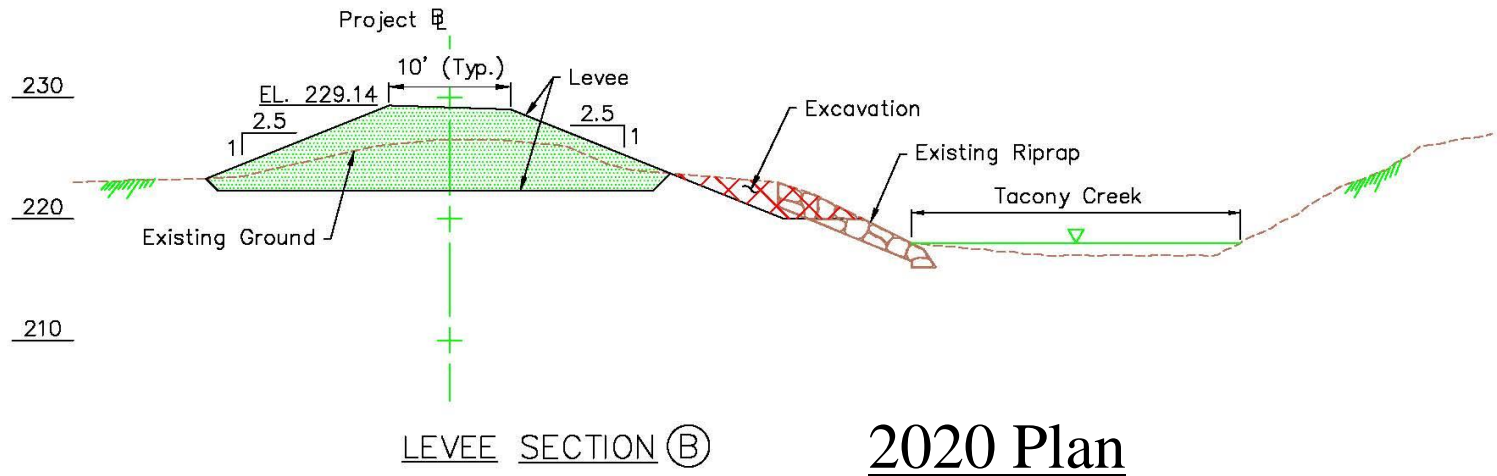
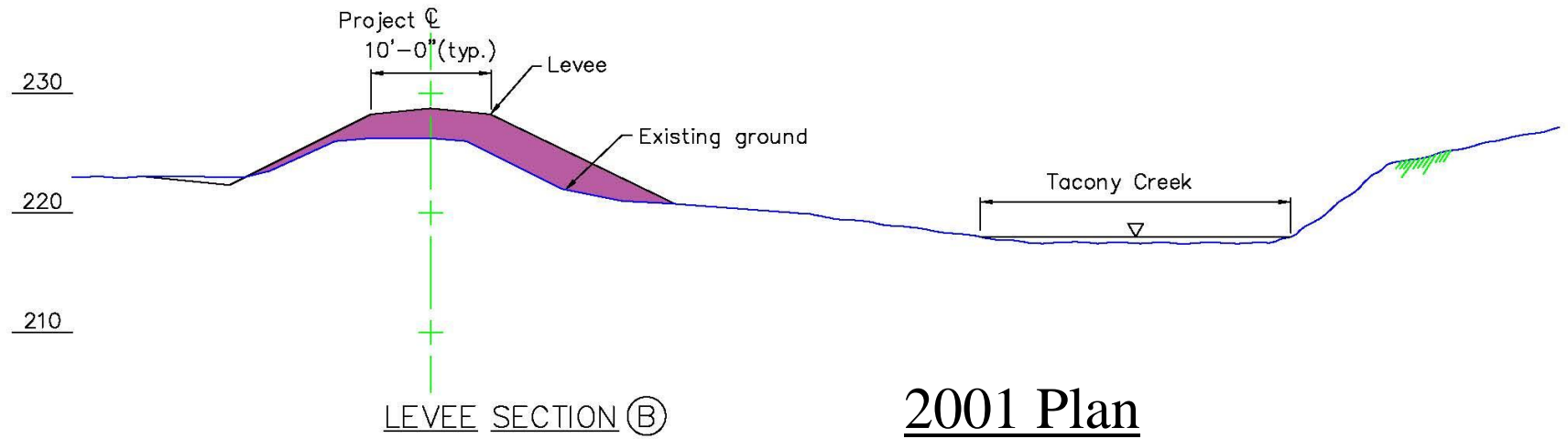
2020 Plan

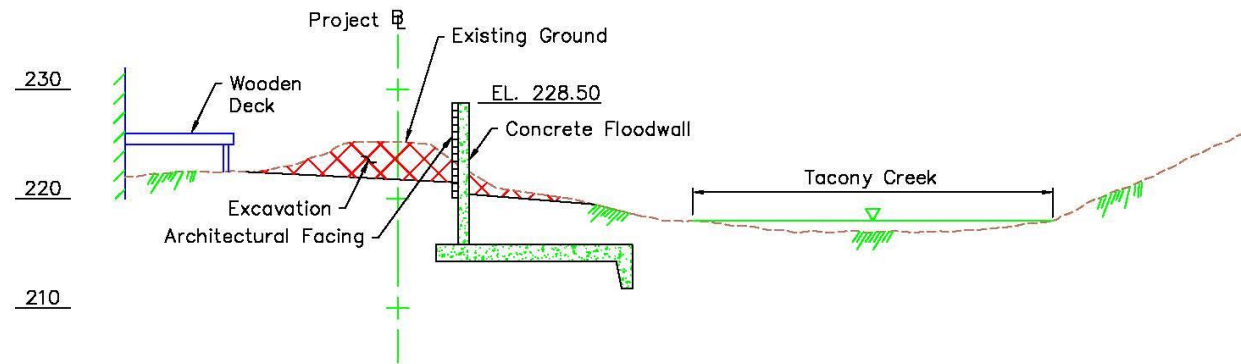


WALL EXTENSION SECTION (A)



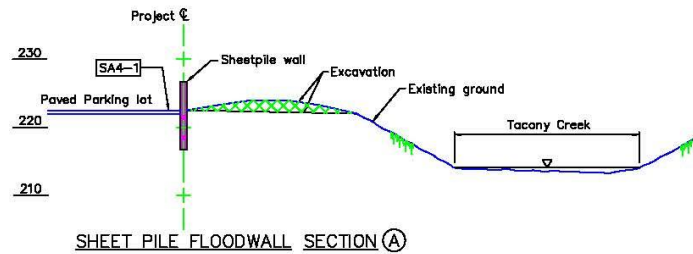
WALL EXTENSION SECTION (A)



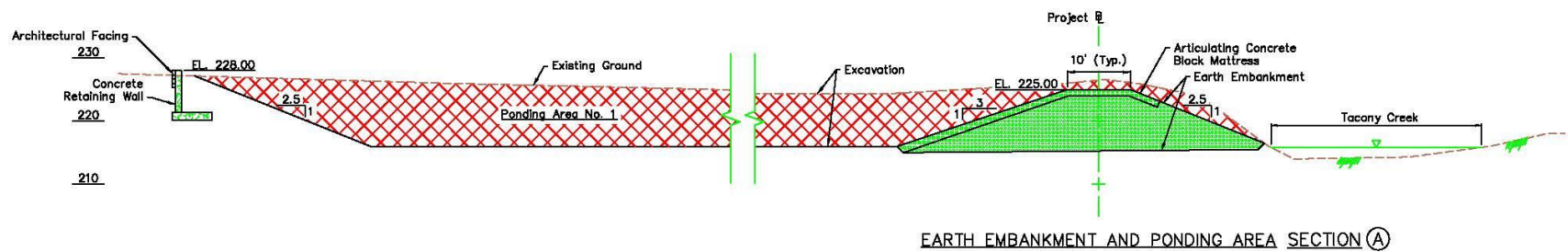


CONCRETE FLOOD WALL SECTION ©

2001 / 2020 Plan

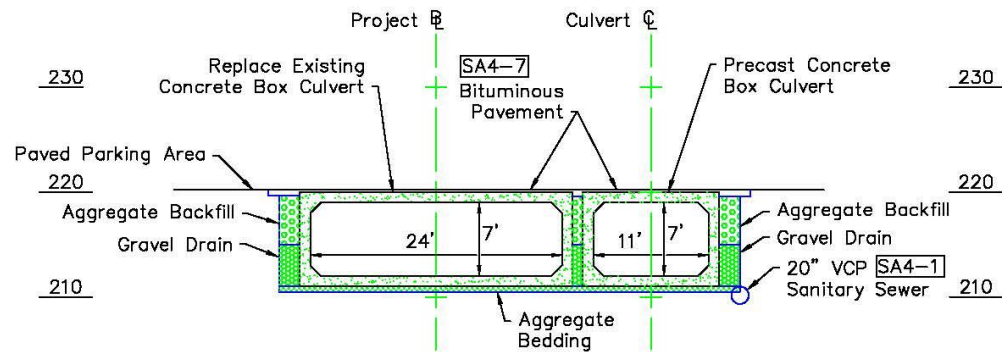


## 2001 Plan



## 2020 Plan

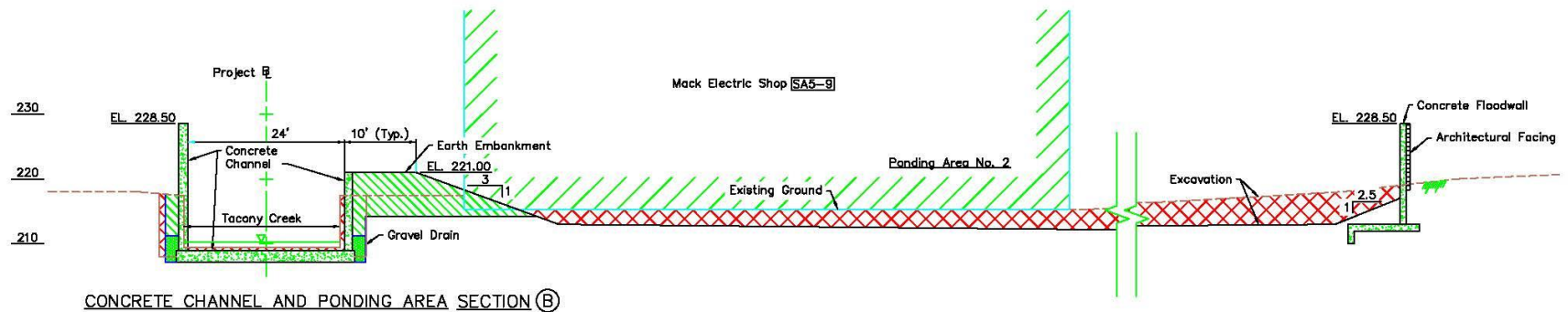
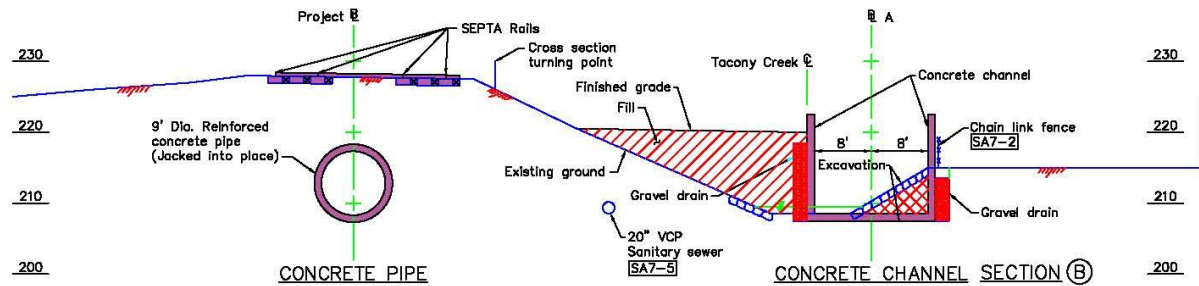




CONCRETE BOX CULVERTS SECTION (A)

2001 / 2020 Plan





## Proposed Project Feature Photos



Keswick Avenue Concrete Channel



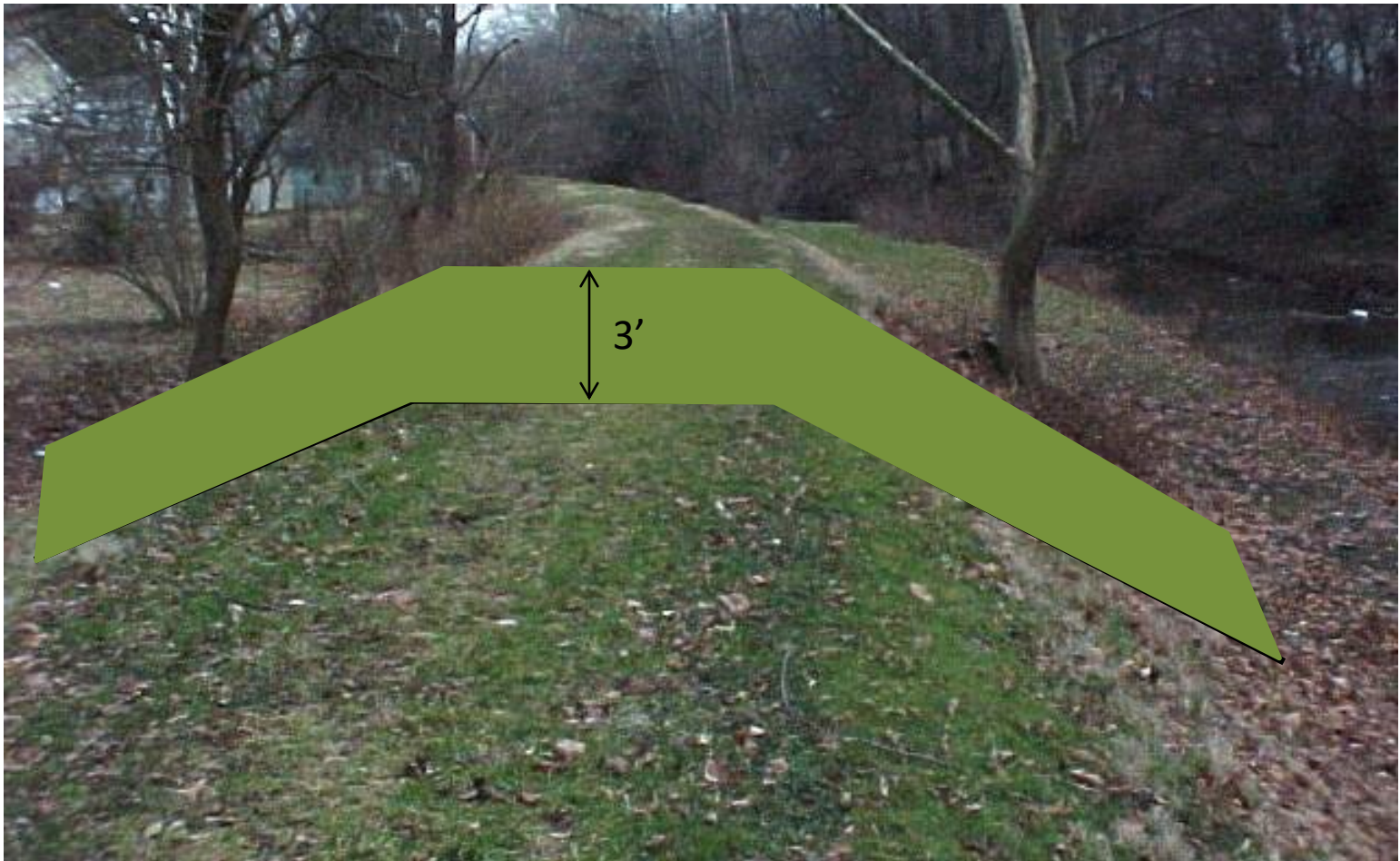


Keswick Avenue Concrete Channel



Brookdale Avenue Levee



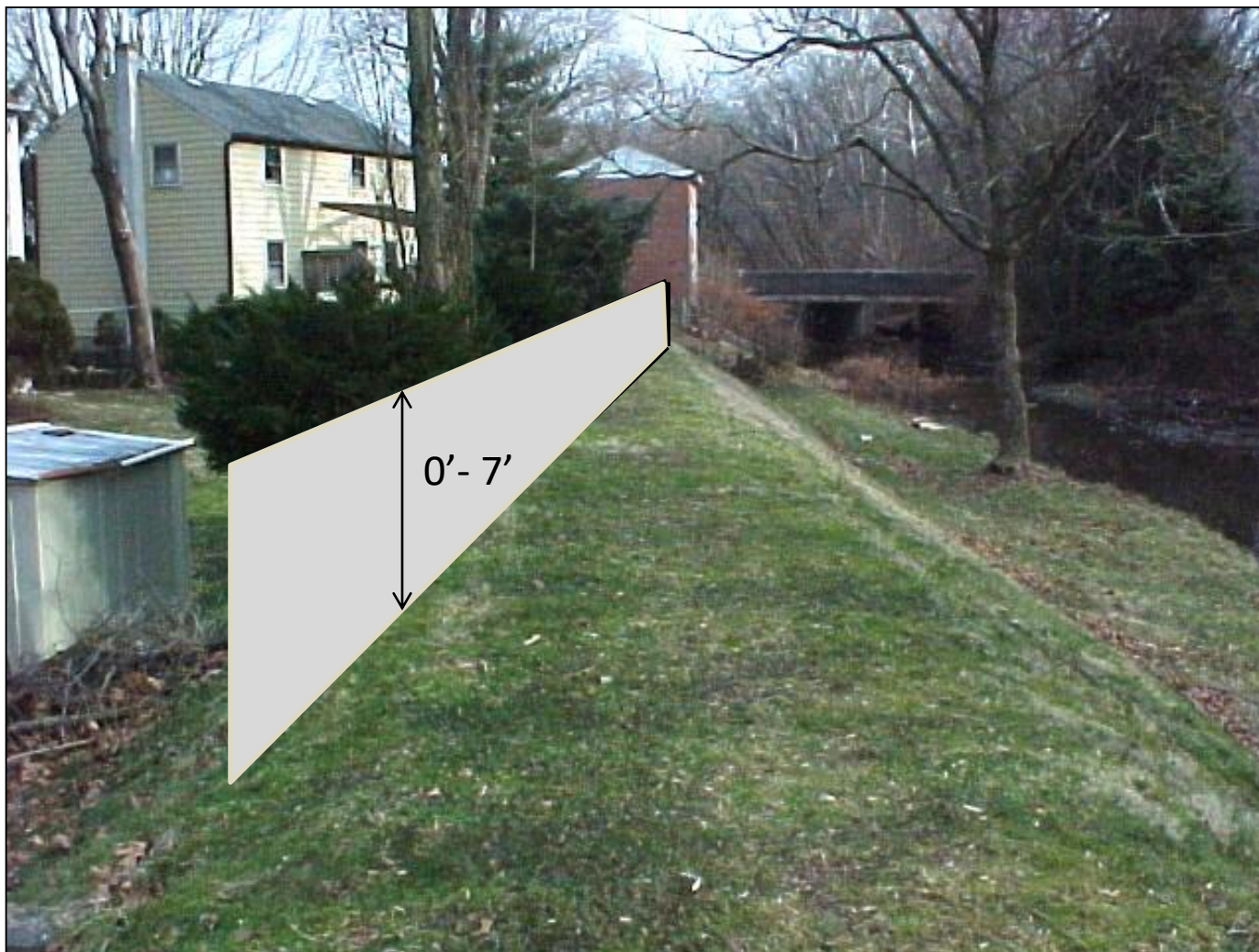


Brookdale Avenue Levee



Brookdale Avenue Levee





Brookdale Avenue Levee / Floodwall





Pipe Inlet Thru Levee @ Stanley Avenue



Typical Drainage Structure Inlet





Pipe Outlets Thru Levee @ Stanley Avenue





Typical Drainage Structure Outlet





Parking Area @ Rices Mill Road / Glenside Avenue



Box Culvert @ Glenside Avenue





Precast Concrete Box Culvert  
(Upper Dublin, PA)





Tookany Creek @ Box Culvert Outlet





Concrete Channel  
(Shamokin Creek Flood Protection Project)

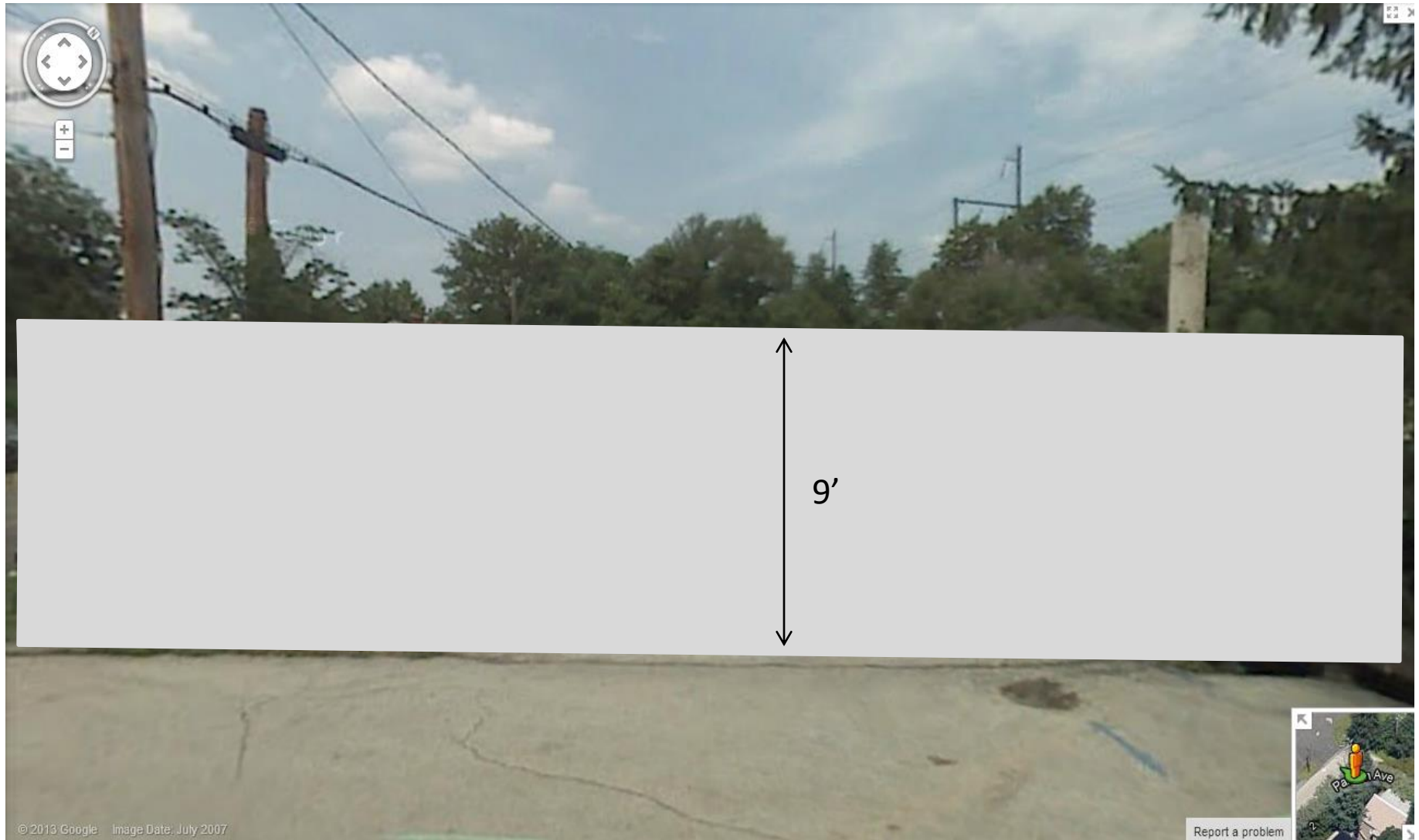


SEPTA RR Bridge @ End of Project





North Avenue / Paxson Avenue Ponding Area



North Avenue Ponding Area Floodwall



## Project Features

- 1,500 feet of Earth Levee/Embankment (6' to 9' High)
- 2,750 feet of Concrete Floodwall (1' to 9' H)
- 555 feet of Rectangular Concrete Channel (14' to 38' Wide)
- 405 feet of Concrete Box Culvert (24'W x 7'H)
- 425 feet of Concrete Box Culvert (11'W x 7'H)
- 925 feet of 20" Sanitary Sewer Relocation

## Past Project Photos



Channel Slab Construction  
(Shamokin Creek Flood Protection Project)





Channel Slab Construction  
(Shamokin Creek Flood Protection Project)





Channel Wall Construction  
(Shamokin Creek Flood Protection Project)





Channel Wall Construction  
(Shamokin Creek Flood Protection Project)





Channel Construction Progression  
(Shamokin Creek Flood Protection Project)





Concrete Channel  
(Shamokin Creek Flood Protection Project)





Precast Concrete Box Culvert  
(Upper Dublin, PA)





Crane to Set Precast Concrete Box Culvert  
(Upper Dublin, PA)





Precast Concrete Box Culvert  
(Upper Dublin, PA)





Concrete Floodwall  
(Danville, PA)





Concrete Floodwall  
(Danville, PA)





Zacharias Creek Dam  
Evansburg State Park





Zacharias Creek Dam  
Evansburg State Park





Wall Along Church Road  
Cheltenham Township



# Project Coordination

- DEP has been collaborating with the US Army Corps of Engineers since their Flood Damage Reduction Study began in 2012.
- The DEP project has been designed as though the Corps project will not be constructed. If completed, the Corps project would further reduce flood elevations and thereby increase the level of protection in the area.

# What Happens Next ?

- Township accepts the proposed project as shown on the revised Rights-of-Way Drawings. (March 2020)
- DEP hires surveyor to prepare new easement documents and the Township works toward obtaining all easements needed for the project. DGS Legal will review and approve all required easements. (September 2021)
- DEP completes design, prepares construction contract documents (drawings and specifications), and obtains all necessary permits for construction of the project. (September 2021)
- DGS reviews and approves the construction contract documents and bids the project. (January 2022)
- Project construction. (March 2022 thru September 2023)





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## Questions and Comments

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