Impacts of Open-Loop Pumped Storage Hydro From Table B.1. of 2020 U.S. Department of Energy Study[1]

Open-Loop PSH Impacts on Surface Water

Open-loop project operations may increase shoreline erosion and sedimentation with adverse effects on reservoir water quality.

Evaporative losses from reservoirs may increase concentrations of dissolved solids, nutrients, and heavy metals in reservoir water, which may be transferred to connected surface water bodies.

Pumping and generating operations affect water temperature and dissolved oxygen concentrations by mixing water from the two reservoirs.

Pumping and generating operations increase the intensity and change the pattern of water circulation in the two reservoirs.

Reservoir level fluctuations caused by pumping and generating weaken the ice cover around the edges of reservoirs.

Light penetration in reservoirs decreases during project operations due to erosion from wave action and fluctuating water levels and resuspension of fine bottom sediments.

Open-Loop PSH Impacts on Groundwater

Open-loop projects are connected to surface water bodies, so potential impacts to groundwater are generally limited to the effects of construction and reservoir seepage on groundwater quality.

Seepage from reservoirs may cause the movement of reservoir water into the surrounding groundwater and possibly nearby surface water bodies.

Seepage from reservoirs may raise the surrounding groundwater levels, potentially affecting nearby structures or facilities.

[1] *A Comparison of the Environmental Effects of Open-Loop and Closed Loop Pumped Storage Hydropower*, U.S. Department of Energy, April 2020 (PNNL-29157).

Open-Loop PSH Impacts on Aquatic Ecology

Open-loop projects are continuously connected to a naturally flowing water feature, so they typically would have more widespread and longer-lasting impacts on aquatic ecological resources than closed-loop projects.

Impacts of reservoir fluctuations due to open-loop project operations may include:

- altered biological production due to short-term reductions in the wetted littoral zone during power generation and short-term expansions of the wetted littoral zone during pumping;
- effects on reservoir temperature stratification;
- entrainment of fish and other organisms in the intake and turbine facilities;
- impingement of fish and other organisms on trash racks;
- the transfer of fish and other organisms (including exotic species) from one project reservoir to the other; and migration delays or losses in river connectivity due to changes in hydraulic conditions and entrainment.

Open-Loop PSH Impacts on Geology and Soils

Excavation for above-ground reservoirs and other project facilities may create runoff, erosion, and spoil material.

Excavation for underground project facilities (e.g., tunnels, powerhouses) may create additional runoff, erosion, and spoil material.

Project operations increase reservoir water-level fluctuations and cause increased reservoir shoreline erosion and sedimentation

Open-Loop PSH Impacts on Terrestrial Ecology

Constructing and operating project reservoirs and other facilities clears vast areas of terrestrial habitat and may affect sensitive animal and plant species.

Impacts to terrestrial ecology often cannot be avoided due to siting constraints (i.e., limited by topographical conditions and proximity to water source).

Open-Loop PSH Impacts on Land Use

Constructing project reservoirs and other facilities clears vast areas of land, affecting existing and planned land uses.

Impacts to important land uses often cannot be avoided due to siting constraints (i.e., limited by topographical conditions and proximity to water source).

Open-Loop PSH Impacts on Visual Resources

The initial construction and continued presence of above-ground project reservoirs and other facilities (including lengthy transmission lines) may affect viewsheds from sensitive areas such as parks, recreation areas, wilderness areas, etc.

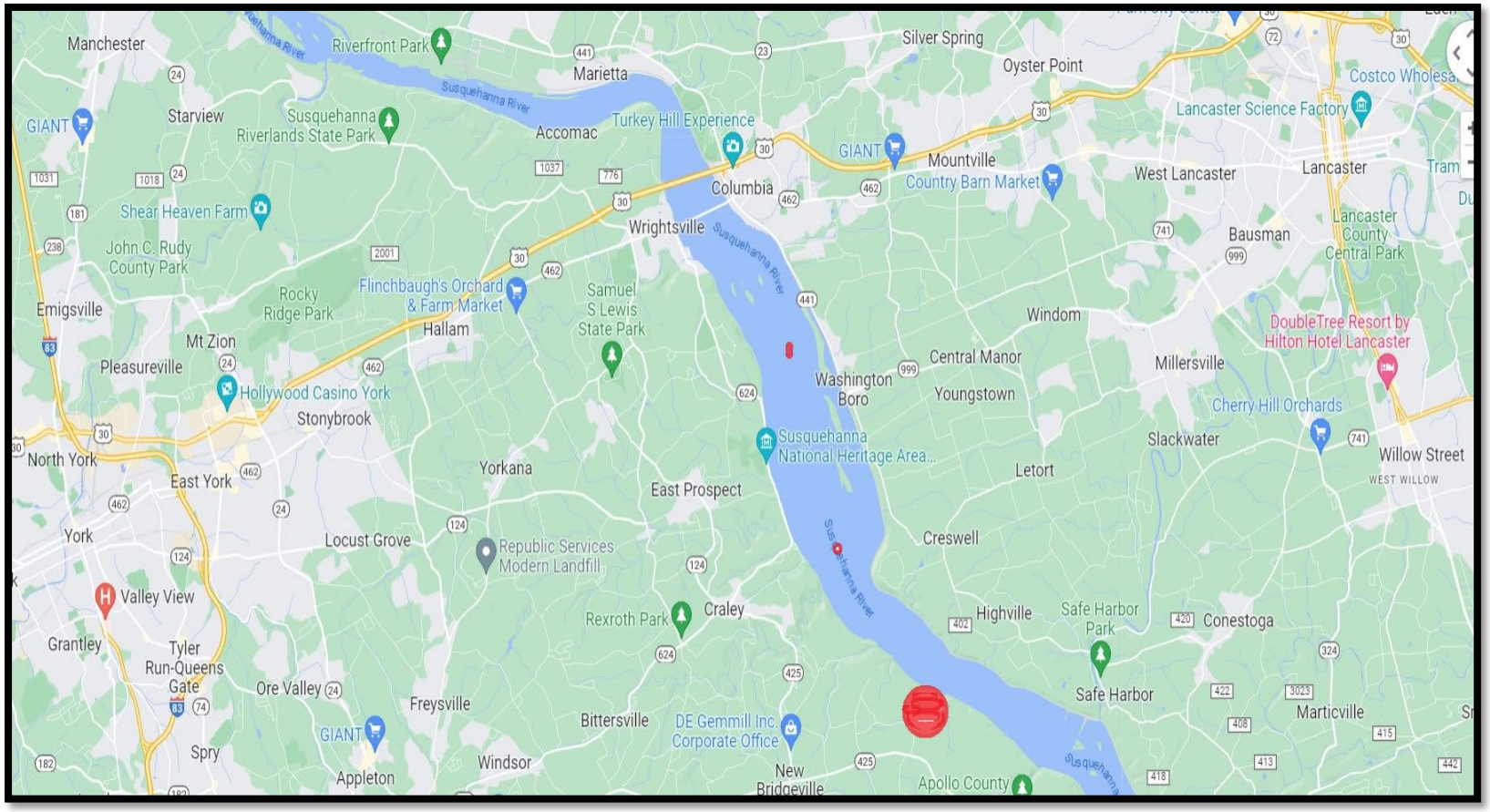
Impacts to sensitive viewsheds often cannot be avoided due to siting constraints (i.e., limited by topographical conditions and proximity to water source).

Open-Loop PSH Impacts on Cultural Resources

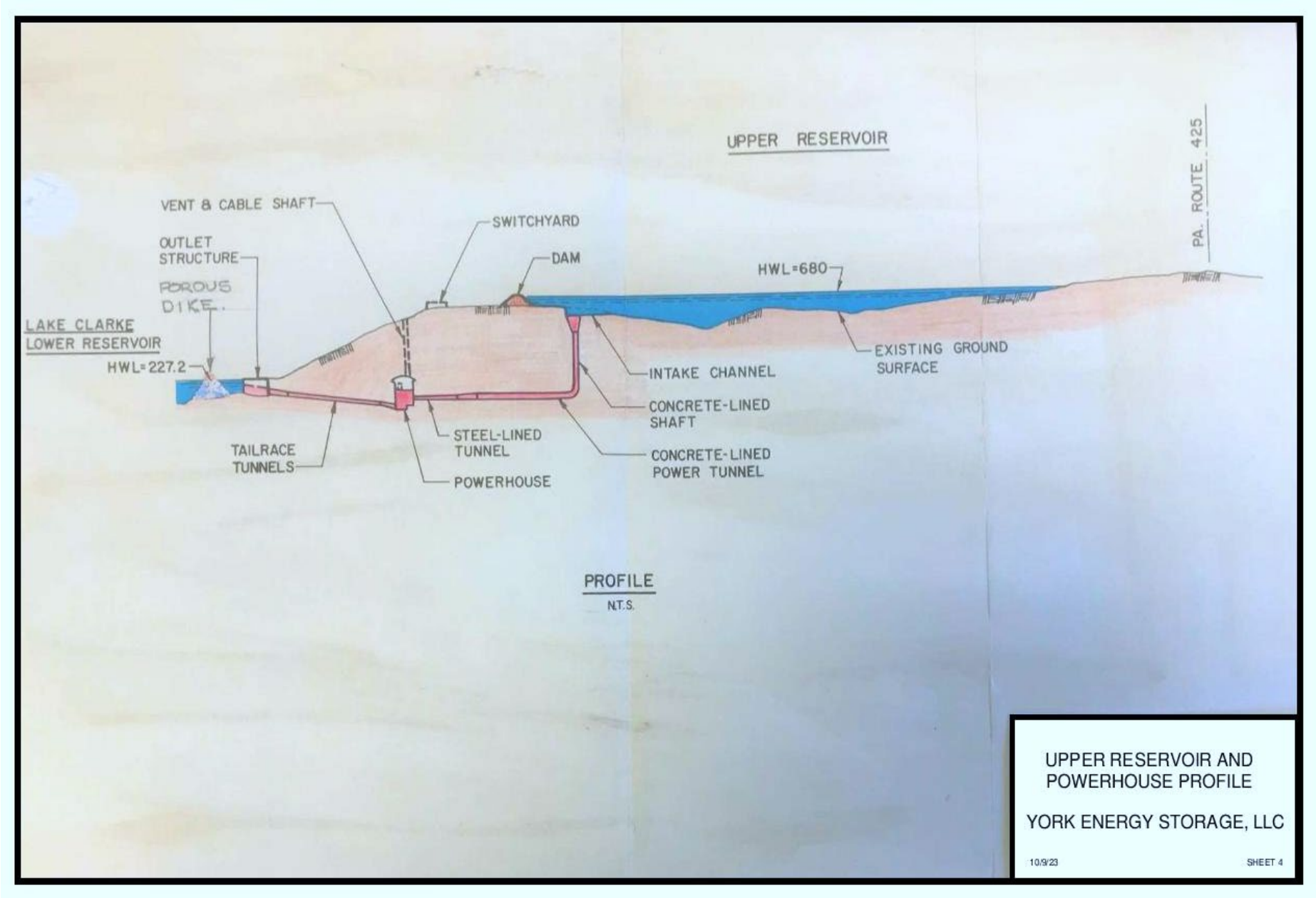
Constructing and operating project reservoirs and other facilities clears vast areas of land and may affect known and undiscovered cultural resources.

Impacts to cultural resources often cannot be avoided due to siting constraints (i.e., limited by topographical conditions and proximity to water source).

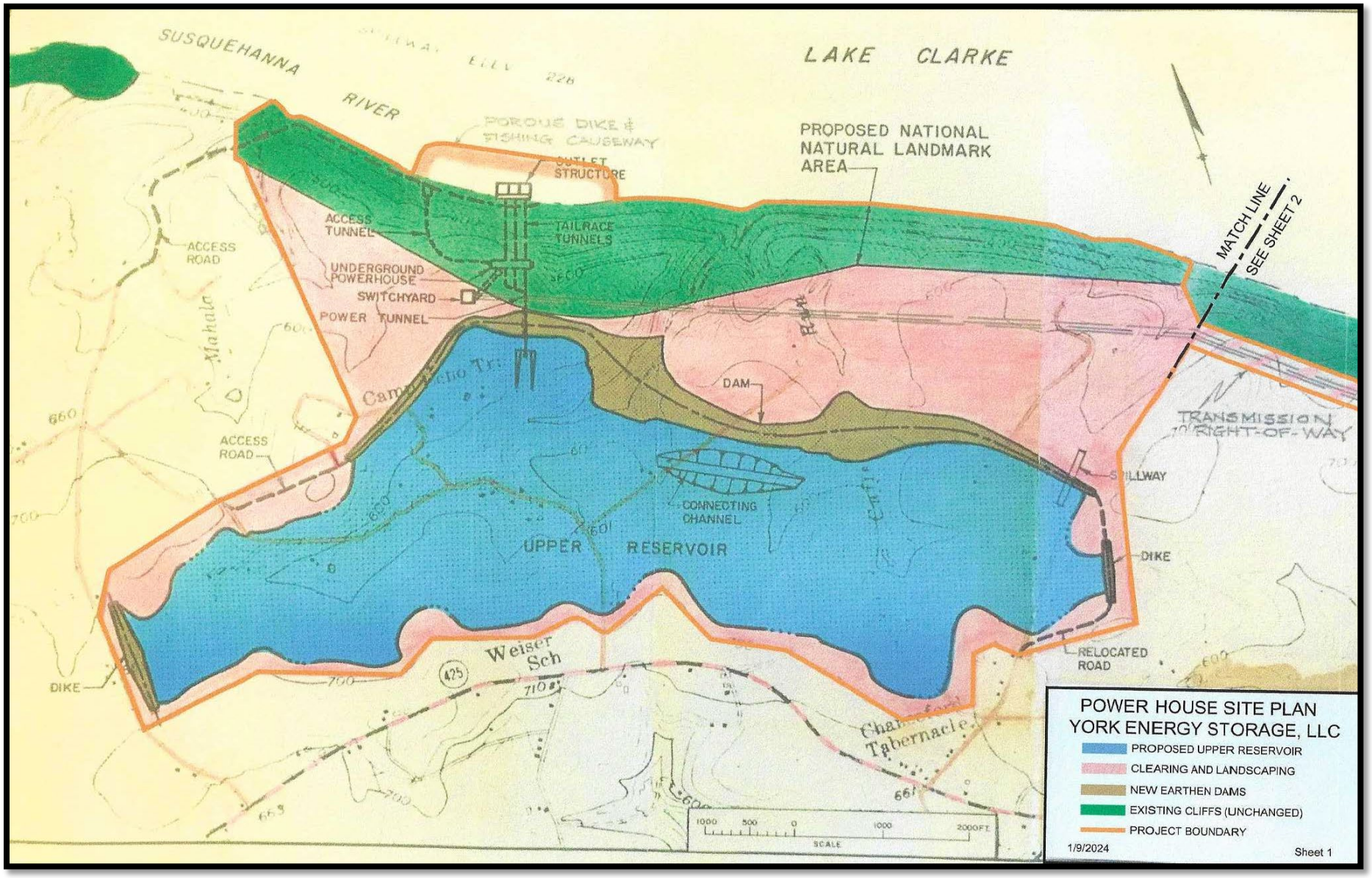
Attachment A - Location of Project. **Relative to York, Pennsylvania; Columbia, Pennsylvania; and Safe Harbor Dam: SEE RED DOT**



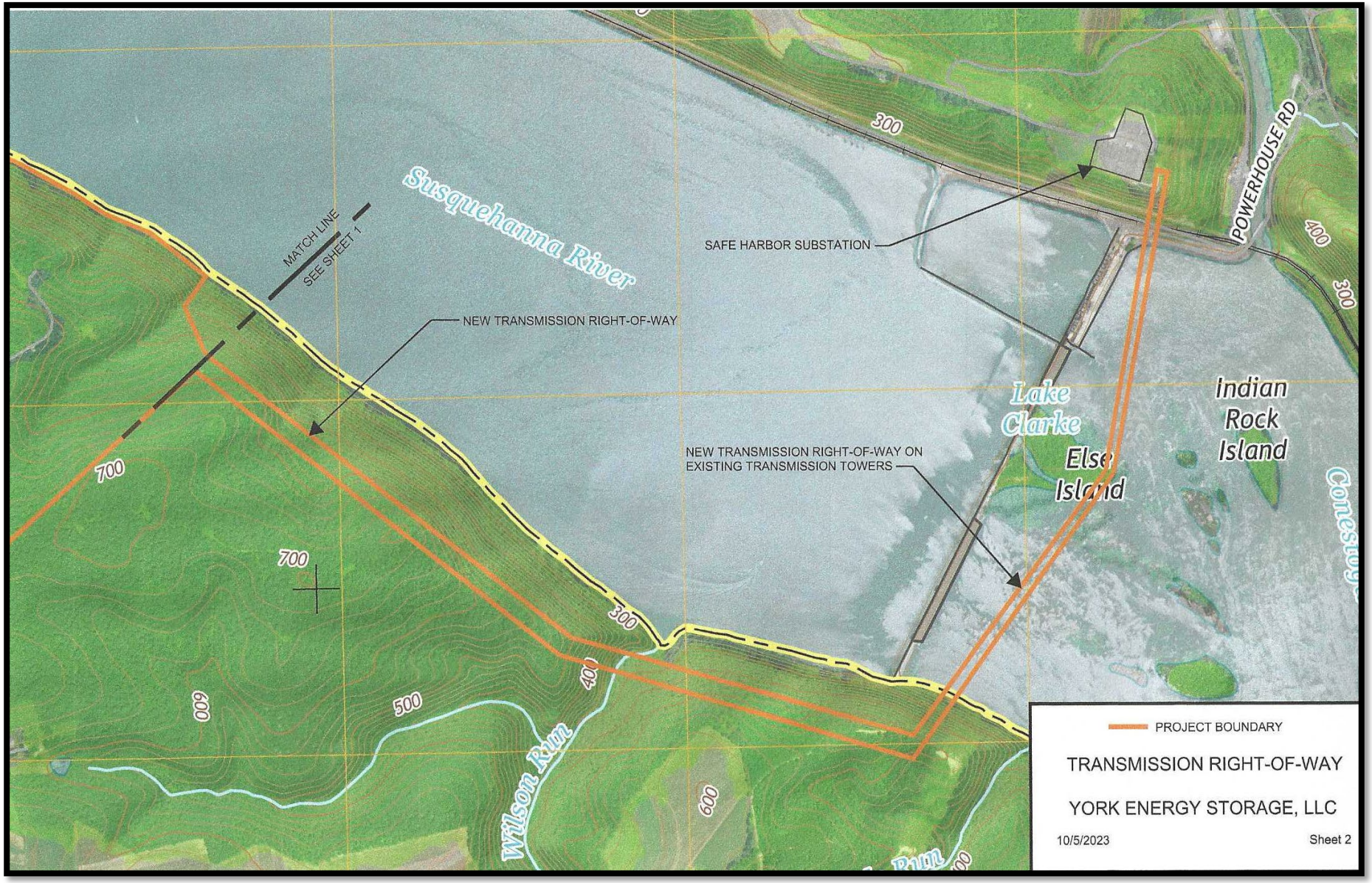
Attachment B - Principal Project Features- Profile.



Attachment C - Proposed Project Boundaries – Main Plant.



Attachment D - Proposed Project Boundaries – Transmission Lines.



pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

April 19, 2024

Mr. William M. McMahon
York Energy Storage, LLC
4824 Briarwood Circle
Reading, PA 19606
Email: William.mcmahon.econ@earthlink.net

SUBJ: CUFFS RUN HYDROELECTRIC STORAGE DAM

Dear Mr. McMahon:

The Pennsylvania Department of Conservation and Natural Resources (DCNR) strongly supports the advancement of clean-energy solutions that increase Pennsylvania's renewable energy production and creates economic growth through job creation while reducing emissions and working towards achieving our sustainability and climate goals. In fact, DCNR, in an effort to reduce the agency's carbon footprint, has been transitioning to renewable energy over the past several years and has committed to using 100 percent renewable sources by 2030.

However, we are concerned by the potential impact of your proposed dam project. We know that pumped storage can play an important role in helping to achieve carbon reductions and in delivering reliable baseload power and applaud those attributes of your proposed project. However, we are concerned about the unique impacts this development would have on such a pristine landscape that has benefitted for decades from concerted conservation work.

DCNR has long-lasting connections to the Cuffs Run area. The proposed location of the Cuffs Run Hydroelectric Storage Dam is situated within the DCNR-designated Susquehanna Riverlands Conservation Landscape and is considered a high priority area within the Chesapeake Bay Watershed. Over decades, the Department has worked with partners to protect and enhance this landscape for the public good. DCNR and its partners have conserved thousands of acres of forested and natural lands for conservation benefits and public recreation. DCNR investments (see Figure 1) have created trail networks, conserved the area's spectacular river gorges, and protected the region's rich biodiversity. Additionally, DCNR investments have helped businesses and communities prosper.

The proposed project would adversely impact Cuffs Run, a warm water tributary of the lower Susquehanna River, supporting natural trout reproduction. Several species of concern also exist within the proposed project area, including federally-listed species. The project would also displace a two-mile segment of the Mason-Dixon trail, thus severing the 199-mile multi-state trail system.

In addition to 195 acres currently eased within the projected project area, the Farm and Natural Lands Trust of York County is in the process of completing two additional conservation easements totaling nearly 600 acres. The first encompasses 540 acres of mostly forested lands and for which the Trust is seeking DCNR funds to cover costs associated with the easement; the second is for 55 acres and will be completed in the summer of 2024.

In total, 790 acres of conservation and agricultural easements would be within the footprint of the proposed project and would be adversely impacted. In other words, the project footprint is comprised of over seventy-five percent of existing and soon to be protected lands.

The Department supports viable hydroelectricity generation and storage projects as a part of the Commonwealth's clean energy portfolio to combat a warming climate. The location of this project, however, could significantly undermine decades of conservation work within the Chesapeake Bay and Susquehanna River watersheds by DCNR, state and federal agencies, and regional partners.

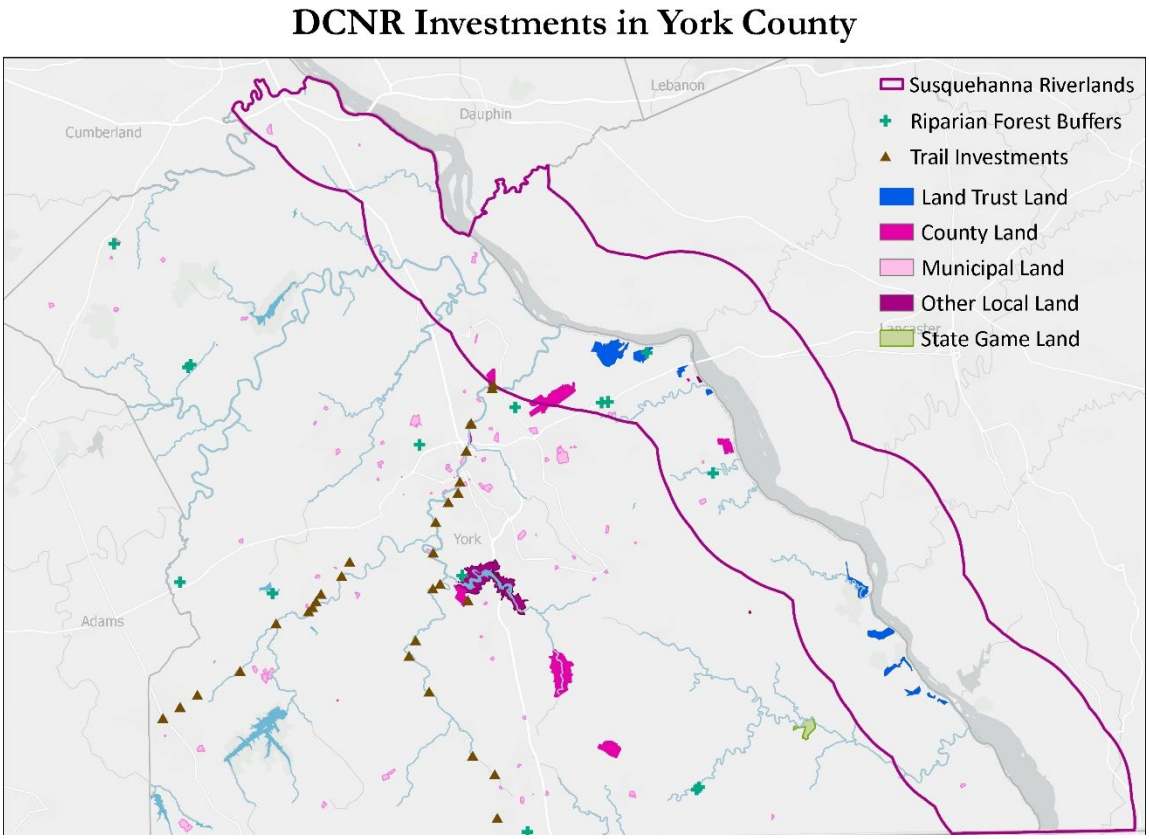
DCNR recommends analyses and modeling be conducted to comprehensively study potential impacts of this project particularly in regards to the loss of forested, recreational, and natural lands and identify mitigation strategies and conservation best practices that lessen adverse effects on the region as well as the ongoing water quality and restoration objectives of the Chesapeake Bay Program.

For additional information, please contact Nicole Faraguna, DCNR Policy Director by phone (717.303.6977) or email (nfaraguna@pa.gov).

Sincerely,

Cindy Adams Dunn
Secretary

Figure 1



ORIGINAL

P-15332

Document Accession #: 20240304-0008 Filed Date: 03/04/2024

YORK COUNTY AGRICULTURAL LAND PRESERVATION BOARD

2401 Pleasant Valley Road, Suite 101
York, Pennsylvania 17402
(717) 840-7400
www.YorkCountyPA.gov

DATE: February 26th, 2024

TO: Chairman Phillips, Commissioners Danly, Clements, and Christie

FROM: York County Agricultural Land Preservation Board

RE: York Energy Storage LLC – Pump Storage Project at Cuffs Run

To Whom It Concerns,

Recently, an application was submitted to FERC by York Energy Storage LLC for the approval of a pump storage project located at Cuffs Run on the Lower Susquehanna River in York County, Pennsylvania. Based on our estimates, this project has the potential to severely and permanently impact over 1,200 acres of farmland and woodland along the Susquehanna River. It will impact every citizen that owns property in this community. We ask that you take our concerns into consideration during the FERC approval process of this grossly negligent project.

Our estimates, based on maps created during the FERC application process, show that over 1,200 acres of land will be encompassed by this project. Those maps show approximately 588 acres to be flooded, however, a substantial amount of additional land will also be taken, likely via eminent domain. This project will directly affect over 40 landowners as well as anyone living in this community. Of the total project area, over 195 acres are permanently preserved from development through the recording of conservation easements. Both the York County Agricultural Land Preservation Board and the Farm and Natural Lands Trust of York County have perpetual conservation easements in place on lands that will be affected permanently. We estimate over 340 acres to be in current agricultural production, and over 623 acres are enrolled in the Chanceford Township Agricultural Security Area. The soils within the project location are a majority of Prime (453 acres) and Statewide Important Soils (789 acres) for agriculture. These soils are highly productive for agricultural production. Prime and Statewide Important Soils are a finite resource that should be protected for the production of food and fiber, not for energy production.

This project has been introduced and reintroduced over the past 30+ years, each time being met with public concern and opposition. The opposition of this project goes much further than just those that may lose their land and homes. The entire community stands to lose if this project moves forward. A community that already is home to several energy storage projects and that should not be forced to suffer through another.

Document Accession #: 20240304-0008 Filed Date: 03/04/2024

YORK COUNTY AGRICULTURAL LAND PRESERVATION BOARD

2401 Pleasant Valley Road, Suite 101
York, Pennsylvania 17402
(717) 840-7400
www.YorkCountyPA.gov

The trust, and rights, of local citizens stands to be taken away by a Commercial LLC that will make millions of dollars on this project by taking land away from citizens and taxpayers. More specifically, the lands enrolled in perpetual conservation easements will also be taken away. These are lands that have been preserved permanently for agricultural production through the York County, and State, Agricultural Land Preservation Boards. These landowners have entrusted their local and state governments with the perpetual preservation of their properties for agricultural production. If this project is allowed to proceed, that trust will certainly be lost.

It is the determination of the York County Agricultural Land Preservation Board, that the proposed project not only harms those landowners directly affected by this project but is also destructive to agricultural land preservation programs in this county and moreover, across the entire state of Pennsylvania. If this project is approved, it will certainly erode the trust of the most successful state Agricultural Land Preservation Program in the nation (Pennsylvania) and a top 10 county program in the nation (York County). Farm families across York County and Pennsylvania have entrusted the perpetual agricultural use and preservation of their farms with local and state programs. We believe this unnecessary project directly erodes that trust and permanently removes valuable agricultural lands from production.

The York County Agricultural Land Preservation Board respectfully asks that you take our concerns into consideration regarding this proposed project and that it does not move forward any further.

Regards,

Andrew Baumgardner, Chairman

York County Agricultural Land Preservation Board

Document Content(s)

DocBatch240304-0001.pdf 1