Erosion and Sediment Control Plan

National Fuel Gas Supply Corporation
Tioga Pathway Project

Liberty Township – McKean County
Allegany and Harrison Townships – Potter County
Brookfield, Chatham, Deerfield, Middlebury, and Westfield Townships – Tioga County

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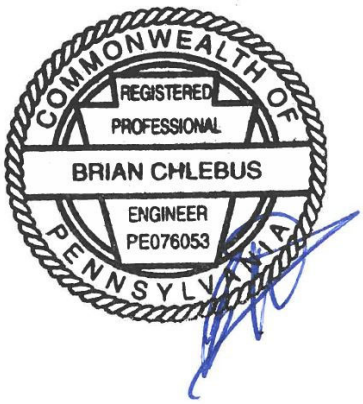

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1.0 PROJECT OVERVIEW

1.1 Introduction

National Fuel Gas Supply Corporation (National Fuel) is proposing construction and operation of the Tioga Pathway Project (Project). The Project is located in Potter, Tioga, and McKean counties, Pennsylvania (PA), and consists of the construction and operation of new pipeline facilities, in addition to the replacement and abandonment of certain existing pipeline facilities. The location of the proposed Project is shown on U.S. Geological Survey (USGS) 7.5-minute quadrangle maps provided in Attachment 1 and a detailed description of the proposed Project is provided in Section 1.2 Project Description.

This Erosion and Sediment Control (E&S) Plan sets forth a work plan to be implemented for the duration of the Project. The E&S Plan identifies best management practices (BMPs) that are intended to minimize and/or avoid potential adverse environmental impacts as a result of earth disturbance and other construction activities associated with the Project. The proposed BMPs are intended to maintain, to the fullest extent practicable, the integrity of sensitive resources such as wetlands, streams, and other protected habitats, if any, located within the work areas. This E&S Plan was prepared in accordance with the following Pennsylvania Department of Environmental Protection (PADEP) *Erosion and Sediment Pollution Control Program Manual* (E&SPC Manual), dated March 2012. The construction procedures and BMPs are also in compliance with the current *Federal Energy Regulatory Commission (FERC) Upland Erosion Control, Revegetation, and Maintenance Plan,* and *FERC Wetland and Waterbody Construction and Mitigation Procedures.*

1.2 Project Description

National Fuel is proposing to construct and operate the proposed Tioga Pathway Project and to abandon certain pipeline facilities. The Project is located in Potter and Tioga counties and consists of the construction and operation of the following facilities described in more detail as follows:

- Z20 Replacement Pipeline: Replace approximately 3.84 miles of 12-inch-diameter 1936-vintage bare steel pipeline with new 20-inch-diameter coated steel pipeline in National Fuel's existing right-of-way (ROW) in Potter County;
- YM59 Mainline Pipeline: Install approximately 19.48 miles of new 20-inch-diameter coated steel pipeline beginning at the east end of the 3.84-mile Z20 Pipeline replacement, traversing Potter and Tioga counties, and ending at the NFG Midstream Covington, LLC Lee Hill Interconnect;
- Auxiliary Facilities:
  - McCutcheon Hill OPP Station: Construct a new over-pressure protection (OPP) station at the interconnection between the eastern terminus of the Z20 Replacement Pipeline and the western terminus of the YM59 Mainline Pipeline in Potter County;
  - Measurement equipment at Midstream's Lee Hill Interconnect: Install gas measurement, gas quality, flow control, OPP devices, a pig launcher, and associated appurtenances (Measurement Facilities) at Midstream's Lee Hill Interconnect to connect the proposed YM59 Mainline Pipeline to Midstream's facilities at the east end of the Project in Chatham Township, Tioga County;

- Perform minor modifications at National Fuel's existing Ellisburg Compressor Station (CS) including replacing/installing measurement, OPP devices, flow control, and other associated appurtenances in Potter County;
- Construct one new remote-control valve (RCV) setting at a location along the YM59 Pipeline in Tioga County;
- Perform modifications to an existing valve setting on the Z20 Replacement Pipeline in Potter County; and
- Install a new cathodic protection ground bed at a location along the YM59 Pipeline in Tioga County.[1]

To support construction activities, National Fuel estimates that approximately 3.96 miles of temporary access roads (TARs) and 1.76 miles of permanent access roads (PARs) will be used to support construction and operation of the Project. In addition, three (3) previously used staging areas (Port Allegany Pipe Yard, Harrison Valley Contractor Yard [HV Contractor Yard], and Middlebury Contractor Yard) will be used to store materials and equipment.

The location of the proposed Project is shown on U.S. Geological Survey (USGS) 7.5-minute quadrangle maps provided in Attachment 1.

Construction will involve pipeline installation via open trench excavation and horizontal directional drilling (HDD) methods and the construction of the new OPP Station and cathodic protection ground bed. The existing Z20 Pipeline will be replaced by removal or may be abandoned in place where conditions preclude effective removal. Tree-clearing will be required for the Project and is proposed to occur entirely in the winter, provided all required permits, approvals, land access, and materials have been obtained.

1.3 Persons Responsible for Construction and Off-Site Disposal Requirements

It will be the responsibility of the Permittee to provide satisfactory soil erosion and sedimentation control and to interface with applicable regulatory agencies, as necessary.

The need for off-site borrow is not anticipated; if required, the Permittee is responsible for having an approved E&S Plan and for confirming that an active E&S Plan and associated permitting exists for any off-site borrow area locations. If off-site disposal is required, disposal must occur at a site approved by the PADEP for this purpose. Proof of these permissions shall be provided to the applicable regulatory agencies prior to use. Use of fill material must be in accordance with the PADEP's policy "Management of Fill" document number 258-2182-773.

Environmental due diligence may be required and is defined as: investigative techniques, including, but not limited to, visual property inspections, electronic database searches, review of property ownership, review of property use history, Sanborn maps, environmental questionnaires, transaction screens, analytical testing, environmental assessments or audits.

1 Two cathodic protection ground bed locations are being considered as potential siting alternatives, but the Project will only require construction of one ground bed.

Any changes to this E&S Plan must be recorded and a mark-up copy of the plan must be kept on-site and made available to regulatory agencies, upon request.

No earth disturbance activities shall occur outside of the Project limit of disturbance (LOD).

A record of maintenance logs and inspection reports for the E&S BMPs will be retained at the site. The Permittee shall comply with the maintenance schedule shown on the plan drawings and shall immediately rectify any non-compliance issues observed or cited by the inspection report(s).

2.0 E&S PLAN DEVELOPMENT

The outline of this E&S Plan is organized based on requirements of *25 Pa. Code Chapter 102 Erosion and Sediment Control* and the *Standard E&S Control Plan Technical Review Checklist* from the E&SPC Manual. There are 15 principles in the checklist, which are the basis of organization for this E&S Plan.

3.0 PRINCIPLE 1: TOPOGRAPHIC FEATURES

Topography in the Project area consists of rounded hills and broad to narrow valleys, all of which have been modified by glacial erosion and deposition. Streams and wetlands are common throughout the Project area, which reflects the interplay between bedrock of various types, mainly sandstones and siltstones, and glacial erosion and deposition. The more erosion-resistant rocks form the hills, whereas the less erosion-resistant rocks occur in the valleys. Glacial deposits, mainly glacial till or sand and gravel, may occur anywhere, but are found mainly in the valley bottoms. The location maps provided in Attachment 1 are referenced to applicable USGS 7.5-Minute Topographic Quadrangle Maps and depict the existing topographic features throughout the Project area.

4.0 PRINCIPLE 2: SOIL TYPES

4.1 Soil Identification

The Natural Resource Conservation Service (NRCS) soil survey geographic database was accessed to review soil types that exist in the vicinity of the Project. A soils map identifying the principal soil types and locations, and descriptions of the principal soil types that occur in the vicinity of the Project are provided in Attachment 2. Additionally, potential soil limitations and associated resolutions are identified on Table 1.

4.2 Construction Techniques or Special Considerations to Address Limitations

See Table 1 for limitations of Pennsylvania soils pertaining to earth moving projects and for resolutions for soil limitation.

In most situations, typical construction equipment and BMPs will be sufficient to manage potential limitations that may be exhibited by the existing site soil types. At a minimum, surface grubbing and the removal of existing vegetative stabilization will be minimized to the extent necessary to achieve the Project objective. Restoration of soil stabilization will be implemented as soon as practicable following completion of the construction activities. Soil stabilization will be achieved by establishing temporary and/or permanent vegetation through the application of seed and mulch. Furthermore – if wetness in the form of ponding water is encountered during construction – pumps, hoses, and pumped water filter bags will be used to dewater the ponding area. The pumped water will be discharged to a well-vegetated area.

5.0 PRINCIPLE 3: EARTH DISTURBANCE AND LAND USES

5.1 Limits of Disturbance

See Section 1.2 for a description of appurtenances proposed for the Project requiring earth disturbance activity. No earth disturbance may commence without having this E&S Plan present and implemented. The Project LOD is depicted on the plan drawings provided in Attachment 4. If field changes are necessary, the changes will be implemented as redlines to the on-site E&S Plan. Any redline changes must be coordinated with the Potter County Conservation District, Tioga County Conservation District, and/or PADEP Regional Permit Coordination Office (RPCO) for approval prior to implementation.

5.2 Proposed Improvements and Land Uses

The Project is located in a rural area a portion of which is located within an existing permanent ROW and a portion location in a proposed permanent ROW. Past and present land use of the Project area includes: maintained ROW for natural gas transmission facilities and existing permanent access roads with adjacent residential parcels, agricultural fields, and woodlands. Future land use of the Project area will be maintained ROW.

6.0 PRINCIPLE 4: RUNOFF FROM PROJECT AND UPSTREAM WATERSHED

Runoff from the Project area and upstream watersheds drain to the surface waters identified in Section 7.0. Where necessary, this E&S Plan implements Antidegradation Best Available Combination of Technologies (“ABACT”) BMPs to maintain the designated use of the downstream receiving waters. Additionally, construction of new permanent impervious surfaces will be minimized to only that of which is necessary to achieve the project objectives – the Post Construction Stormwater Management / Site Restoration (“PCSM/SR”) Plan implements BMPs to achieve no increase in rate or volume of runoff and to preserve water quality. Locations of the receiving waters relative to the Project are depicted on the USGS Topographic Quadrangle Map provided in Attachment 1 and on the plan drawings provided in Attachment 4.

7.0 PRINCIPLE 5: LOCATION AND CLASSIFICATION OF SURFACE WATERS

Surface waters in the vicinity of the Project area are depicted on the USGS Topographic Quadrangle Map provided in Attachment 1 and on the plan drawings provided in Attachment 4. Additional information relating to surface waters is available in the Joint Permit documents prepared for the Project.

7.1 Stream Crossings

Field surveys to identify streams were conducted for the Project in October – November 2023 and April May 2024. The Project streams have fishery or water quality classifications designated as cold water fishes (CWF) and warm water fishes (WWF). HQ waters are those surface waters with water quality that exceeds levels necessary to support propagation of fish, shellfish, and wildlife, and recreation in and on the water. CWF waters include maintenance or propagation, or both, of fish species including the family Salmonidae and additional flora and fauna, which are indigenous to a cold water habitat.

The crossing of streams will be necessary as part of construction activities within the LOD for the excavation and mobilization of equipment for the Project. Surface water runoff from the Project area drains to the following named surface waters and/or their unnamed tributaries ("UNTs"):

Marsh Creek	CWF
UNTs to Marsh Creek	CWF
North Branch Cowanesque River	CWF
UNTs to North Branch Cowanesque River	CWF
North Fork Cowanesque River	CWF
UNTs to North Fork Cowanesque River	CWF
California Brook	WWF
UNTs to California Brook	WWF
Cowanesque River	WWF
UNTs to Cowanesque River	WWF
Jemison Creek	WWF
UNTs to Jemison Creek	WWF
Boatman Brook	WWF
UNTs to Boatman Brook	WWF
UNTs to Crooked Creek	WWF
UNTs to Losey Creek	WWF
Rose Lake Run	HQ-CWF

Where applicable, the E&S Plan contains ABACT BMPs to maintain the designated use of the HQ receiving waters. The locations of the receiving waters relative to the Project area are depicted on the plan drawings provided in Attachment 4. All waterbody crossings shall be in accordance with requirements of the Joint Permit obtained for the Project.

7.2 Wetland Crossings

Field surveys to identify wetlands were conducted for the Project in October – November 2023 and April May 2024. Wetland areas that exist within the Project LOD are depicted on the plan drawings provided in Attachment 4. Construction activities within the LOD for the excavation and mobilization of equipment for the Project will cross palustrine emergent (PEM), palustrine scrub-shrub (PSS), and palustrine forested (PFO) wetlands. All waterbody crossings shall be in accordance with requirements of the Chapter 105 permits obtained for the Project.

8.0 PRINCIPLE 6: BMP DESCRIPTION

The E&S BMPs detailed in this E&S Plan and depicted on the plan drawings are the minimum controls necessary to protect off-site areas from sediment-laden runoff generated within the Project LOD. Additional controls may be necessary and added depending on the progress of construction and varying conditions encountered. The BMPs implemented in this E&S Plan are in accordance with the procedures set forth in E&SPC Manual. The BMPs shall be installed in accordance with the detail provided on the plan drawings; and/or in accordance with product manufacturer recommendations.

8.1 Structural Practices

Compost Filter Socks (and/or Silt Fence alternatives). Compost filter socks are a temporary sedimentation control measure consisting of wood or metal posts driven through a compost filled mesh tube. Compost filter socks will be located as needed on side-slope and down-slope boundaries of disturbed areas. Both ends of each compost filter sock should be extended at least 8 feet upslope. Compost filter socks are sized in accordance with the guidance defined by PADEP E&SPC Manual. Alternatively, silt fence products defined by the PADEP E&SPC Manual (i.e., stand silt fence, reinforced silt fence, and super silt fence), Siltron® silt fence products, and Silt Saver® silt fence products may be installed in lieu of compost filter socks where performance specification is equal to that of the compost filter socks and where installation is in accordance with PADEP and/or manufacturer recommendations.

Rock Filter Outlet. Rock filter outlets will be used, if necessary, to address problems that may be caused by concentrated flows inundating sediment barriers. In the event of unanticipated concentrated flow and/or sediment barrier failure, a rock filter outlet shall be installed unless the concentrated flow can be diverted away from the sediment barrier. Rock filter outlets used in drainage areas with HQ and EV receiving waters must have a 6-inch layer of compost installed on the upslope side of the rock filter.

Waterbars. Waterbars will be installed across the ROW on slopes greater than 5 percent. Waterbars should be constructed at a slope of 2 percent and will discharge to a compost filter sock J-hook end treatment prior to discharging off-site to a well-vegetated area. Waterbars will not discharge into an open trench and will be oriented so that discharge does not flow back onto the ROW. Except for a compost filter sock J-hook installed below the discharge end, obstructions

shall not be placed in the flowline of a waterbar. Spacing of waterbars is in accordance with the guidance defined by PADEP E&SPC Manual.

Trench Plugs. Impervious trench plugs are required for all stream, river, wetland, and other water body crossings. Trench plugs are also used in lengths of open trench on slope runs. Spacing of trench plugs is in accordance with the guidance defined by PADEP E&SPC Manual.

Pumped Water Filter Bag. Pumped water filter bags may be used to filter water pumped from disturbed areas prior to off-site discharge. The pumping rate for a filter bag should not exceed 750 gallons per minute or one-half of the maximum specified by the manufacturer, whichever is less. Filter bags shall be replaced when they become half-full of sediment – spare filter bags shall be kept available for replacement of those that have failed or are filled. Filter bags shall be placed on straps to facilitate removal unless the bag comes with lifting straps already attached. While in use, filter bags shall be inspected daily – if a problem is observed, pumping shall cease immediately and not resume until the problem is corrected. Filter bags shall discharge to a well vegetated area with compost filter sock barrier installed down slope of the filter bag installation.

Tarpaulin Covers. Tarpaulin covers may be used, if necessary, to protect topsoil storage stockpiles from wind and precipitation erosion. Stockpile slopes will be 2:1 or less. A minimal amount of soil will be stockpiled so that the height of the stockpile is less than 35 feet. Compost filter sock is also proposed to prevent sediment runoff from stockpile areas.

Erosion Control Blankets. A manufactured erosion control blanket will be installed on all slopes 3:1 or steeper and within 50 feet of a surface water or 100 feet of a special protection water. Erosion control blanket shall not be installed in streams or wetlands; and, shall not be installed in agricultural fields or pastures. The blanket will be a biodegradable single mat straw fiber matrix and anchored in place using biodegradable stakes using a stake pattern that is in accordance with the manufacturer's recommendations. Erosion control blanket shall be **North American Green RollMax BioNet SC150BN** or an alternative Owner approved equivalent. Alternatively, hydraulically applied blankets with Flexible Growth Medium may be applied, where allowable, in accordance with guidance defined in the PADEP E&SPC Program Manual.

Rock Construction Entrance. Rock construction entrances will be installed to prevent and/or minimize the conveyance of sediment onto public roadways from vehicular construction traffic exiting the site. Alternatively, a composite rumble pad construction entrance of equal dimension may be installed in lieu of a rock construction entrance.

Street Sweeping. Reasonable methods which are sanctioned by the PADEP as alternatives to installation of wash racks on public road access points for pipeline projects in HQ/EV or siltation impaired watersheds include:

1. For paved surface public roads: use a vacuum truck sweeper or sweeper with a catch bin attachment.
2. For dirt or gravel surface public roads: rigorous manual removal of mud/dirt from vehicle/equipment tires prior to exiting construction site, supplemented by immediate recover, by manual or mechanical means, of soil which may become discharged onto public

roadways. Dust control and/or compaction via rolling of the dirt public road surface will be implemented as needed.

A predicate for utilizing alternative 1 and 2 above is that the rock construction entrance must be extended to a minimum total length of 100 feet and will be constantly maintained including structure thickness to ensure its effectiveness remains intact at all times.

Frequency of mechanical and/or manual controls will be dependent upon construction traffic intensity, weather, and soil moisture conditions. At a minimum for paved roads – any day in which construction traffic is exiting the rock construction entrance, the vacuum truck sweeper or sweeper with a catch bin attachment will clean the roadway at the end of the workday and prior to any forecasted rain event. The requirement is to not introduce sediment load from construction traffic onto public road surfaces and into road ditches which will flow into the HQ/EV or siltation impaired water resources which are the subject of the increased protection measure.

Timber Mats. Timber mats shall be installed on the surface at wetland crossings and used as temporary equipment bridges at stream crossings to minimize the impact on streams and wetlands caused by equipment mobilization and construction operations.

8.2 Vegetative Stabilization Practices

Permanent Vegetative Stabilization. Disturbed areas will receive topsoil (if needed) and seeding to establish permanent vegetative stabilization. Permanent vegetative stabilization is defined as a uniform 70 percent perennial vegetative cover with a density capable of resisting accelerated erosion. Cut and fill slopes shall be capable of resisting failure due to slumping, sliding, or other movements. Permanent vegetative stabilization shall be in accordance with specification defined within this E&S Plan.

Temporary Vegetative Stabilization. Upon temporary cessation of an earth disturbance activity or any stage or phase of an activity where a cessation of earth disturbance activities will exceed four (4) days, the site shall be immediately seeded, mulched, or otherwise protected from accelerated erosion pending future earth disturbance activities. For an earth disturbance activity or any stage or phase of an activity to be considered temporarily stabilized, the disturbed areas shall be covered with one of the following: a minimum uniform coverage of mulch and seed, with a density capable of resisting accelerated erosion, or an acceptable alternative BMP which temporarily minimizes accelerated. Temporary stabilization will not occur on active vehicular travel ways, stockpiles, and ditch spoil areas unless these activities are ceased for more than four (4) days. Temporary vegetative stabilization shall be in accordance with specification defined within this E&S Plan.

Mulching. The purpose of mulch is to reduce runoff and erosion, prevent surface compaction or crusting, conserve moisture, aid in establishing plant cover, and control weeds. Mulch shall be applied on any area subject to erosion, or which has unfavorable conditions for plan establishment and growth. The practice may be used alone or in conjunction with other structural and vegetative conservation practices. On sediment producing area where the period of exposure is less than two (2) months, mulch materials shall be applied according to the following guidelines:

1. Straw mulch shall be applied at the rate of three (3) tons per acre. Chemically treated or salted straw is not acceptable as mulch.

2. Straw mulch shall be anchored immediately after application by at least one of the following methods.

   A. "Crimped" into the soil using tractor drawn equipment (straight bladed coulter or similar). This method is limited to slopes no steeper than 3:1. Machinery should be operated on the contour. (Crimping of hay or straw by running it over with tracked machinery is not recommended).
   B. Synthetic binders (chemical binders) may be used as recommended by the manufacturer to anchor mulch provided sufficient documentation is provided to show that it is non-toxic to native plant and animal species.
   C. Lightweight plastic, fiber, or paper nets may be stapled over the mulch according to the manufacturer's recommendations.

Mulched areas shall be checked periodically and after each runoff event (e.g. rain, snowmelt, etc.) for damage until the desired purpose of the mulching is achieved. Damaged portions of the mulch or tie-down material shall be repaired upon discovery.

9.0 PRINCIPLE 7: SEQUENCE OF BMP INSTALLATION

This construction sequence is intended to provide a general course of action to conform to applicable regulatory agency requirements. The Contractor shall comply with the requirements listed in this section. The Contractor may be required to alter controls based on effectiveness or differing site conditions encountered.

9.1 General Construction Sequence Notes

1. A copy of the E&S Plan, PCSM/SR Plan, and related documents must be available at the Project site at all times.

2. A general construction sequence for earth disturbance activities associated with construction of a pipeline has been developed and included on the plan drawings. It should be noted that some construction activities may occur simultaneously; however, deviations from the sequence must be approved by the applicable local county conservation district and/or the PADEP.

3. Additional information for waterbody and wetland crossing methods is described in the "Stream Crossing Construction Sequence and General Notes" and "Wetland Crossing Construction Sequence and General Notes."

4. National Fuel Gas Supply Corporation will assign an Environmental Inspector (EI) to the Project. The role of the EI will be to ensure compliance with the construction plans and with the mitigation and construction procedures identified in the PADEP and FERC permits

issued for the Project. The EI will be required to adhere to plans, details, and notes of the PADEP and FERC permits and has stop-work authority, if needed.

9.2 Construction Sequence

1. At least seven (7) days prior to starting any earth disturbance activities, including clearing and grubbing, the Permittee and/or Contractor shall notify a representative from the local county conservation districts and the PADEP Regional Permit Coordination Office (RPCO).

2. At least three (3) days prior to starting any earth disturbance activities, the Contractor shall notify the PA One Call System, Inc. at 811 for the location of underground utilities.

3. Flag or stake the Project limits of disturbance (LOD) along the pipelines existing/proposed permanent ROW, including the temporary workspaces and additional temporary workspaces, and along the temporary access roads, permanent access roads and at staging areas. Sign and flag the wetland boundaries, streams, and other locations of special concern.

4. Install rock construction entrances or alternative composite rumble mats where depicted on the plan drawings. Street sweeping shall be implemented at rock construction entrances in HQ/EV watersheds and where otherwise necessary as determined by the EI.

5. Proceed with tree clearing, where necessary, within the Project LOD along the existing/proposed permanent ROW. Sequence step 6 may be concurrent with step 5.

6. Prepare permanent access roads and temporary access roads for construction. For existing permanent access roads, preparation includes general maintenance of the road surfaces using aggregate (i.e., filling of potholes or washouts, etc.), where needed, while not increasing the road width. For temporary access roads, preparation includes: (1) for areas where an existing road is present – general maintenance of the road surface using aggregate, where needed, while not increasing the road width; and (2) for areas where no existing road is present – construction of an up to 15-foot wide temporary access road including stripping and stockpiling of topsoil, installation of geotextile underlayment, and placement of stone aggregate. Topsoil stockpiles shall be immediately stabilized with temporary seed and mulch. Note: for areas where no existing road is present, during site restoration, the temporary access road shall be removed, and the surface restored to the pre-construction condition.

7. Install compost filter sock barriers, or other approved sediment barriers, along the down slope perimeter of the pipeline ROW in upland areas prior to land grubbing. Sequence step 8 may be concurrent with step 7.

8. Install BMPs for temporary equipment crossings of wetland and waterbodies. Install timber mats for wetland crossings and temporary equipment bridges for stream crossings to establish a travel lane. The placement of compost filter sock may be temporarily adjusted if necessary. See “Stream Crossing Construction Sequence and General Notes” and “Wetland Crossing Construction Sequence and General Notes.” Sequence step 9 may be concurrent with step 8.

9. For the Line YM59 pipeline portion of the Project, skip to step 11. For the Line Z20 portion of the Project, proceed with activities necessary for removal of existing pipe. For areas of the Z20 portion of the Project within 50-feet of a stream - activities necessary for removal of existing pipe shall be performed concurrent with activities necessary for installation of proposed pipe (see step 11). Step 9 may be concurrent with step 11.
    9.a. Begin land grubbing and, where necessary, minor grading activities.
    9.b. Perform pipe removal concurrent with grubbing and minor grading activities. Pipe removal includes: trench excavation while separately segregating topsoil and subsoil; removal of existing pipe; and, trench backfill by first replacing subsoil and then topsoil. An open trench section shall not exist for more than 30 days unless otherwise approved by the PADEP. By the end of each workday, install temporary/permanent waterbars at locations indicated on the plan drawings. Install a sump and compost filter sock end treatment at the discharge end of each waterbar.
    Note: circumstances may be encountered that prevent removal of existing pipe. For such circumstances, the existing pipe will be cut, capped with steel plates or caps, and abandoned in-situ. Pipe to be abandoned beneath a state road will be filled with grout prior to capping.

10. Upon completion of the trench backfill, perform final grading to restore contour as close to pre-construction contour as practicable and apply temporary stabilization measures (i.e., seeding, mulch). Temporary stabilization measures shall be applied within four (4) days of final grading in non-special protection watersheds – and shall be applied immediately upon completing final grading in special protection watersheds.

11. Proceed with pipeline construction activities for installation of proposed pipe.
    11.a. Begin land grubbing and, where necessary, minor grading activities.
    11.b. For the Line Z20 portion of the Project, where applicable at stream crossing areas, proceed with activities necessary for removal of existing pipeline (see step 9.b).
    11.c. Proceed with pipeline installation. Pipe installation includes: pipe stringing, trench excavation while separately segregating topsoil and subsoil; installation of proposed pipe using traditional pipeline construction techniques; and, trench backfill by first replacing subsoil and then topsoil (see step 11.c.1 and step 11.c.2). Trench plugs shall be installed during trenching at all water resource crossings and at the required spacing as depicted on the plan drawings and standard detail. Pumped water filter bags with down slope compost filter sock shall be used for dewatering activities, as needed, during trenching. An open trench section shall not exist for more than 30 days unless otherwise approved by the PADEP. By the end of each workday, install permanent waterbars at locations indicated on the plan drawings. Install a sump and compost filter sock end treatment at the discharge end of each waterbar.
        11.c.1 When appropriate based on construction scheduling, perform water resource crossings as streams and wetlands are encountered or as otherwise scheduled using a separate stream/wetland tie-in crew dedicated to the resource crossing; see the "Stream Crossing Construction Sequence and General Notes" and "Wetland Crossing Construction Sequence and General Notes."
        11.c.2 When appropriate based on construction scheduling, proceed with construction activities for installation of the proposed OPP station and valve

setting pads; and, the proposed cathodic protection ground bed. **Installation of the GEOWEB cellular confinement systems at the OPP station and valve setting pads is a critical stage of construction which a registered professional engineer, or their designee, must be present for inspection.**

12. Upon completion of pipeline construction activities, perform trench backfill and final grading to restore contour as close to pre-construction contour as practicable and apply permanent stabilization measures (i.e., seed, mulch). Permanent stabilization measures shall be applied within four (4) days of final grading in non-special protection watersheds – and shall be applied immediately upon completing final grading in special protection watersheds. Soil amendments, seed, and mulch may be applied using broadcast-seeding or hydroseeding techniques that are in accordance with guidance defined in Chapter 11 of the E&SPC Program Manual.
    Note: Use wetland meadow seed mix for wetland areas and riparian buffer seed mix for stream bank and riparian buffer areas. Consult EI for appropriate seed selection for all other areas as work progresses along the right-of-way.

13. Where applicable after application of soil amendments and permanent seeding, install erosion control blanket. Erosion control blanket shall be installed within 50 feet of a surface water – 100 feet of a surface water in HQ/EV watersheds – and on slopes which are 3:1 or steeper. Erosion control blanket shall not be installed on livestock pastures or agricultural fields. Alternatively, hydraulically applied blankets may be applied, where allowable, in accordance with guidance defined in Chapter 11 of the PADEP E&SPC Program Manual.

14. Remove temporary crossings of streams and wetlands once equipment access across associated feature is no longer necessary.

15. Remove temporary access roads in areas where no existing road was present prior to construction. Restoration for these areas shall include: removal of stone aggregate and geotextile underlayment, backfill using stockpiled topsoil, and application of permanent stabilization measures; see sequence step 12 and step 13 procedures.

16. Inspection of E&S BMPs shall continue until aquatic resources are restored to pre-existing conditions or better and the Project area has reached permanent stabilization. Permanent stabilization is defined as a minimum uniform 70% perennial vegetative cover or other non-vegetative cover with a density sufficient to resist accelerated erosion. Cut and fill slopes shall be capable of resisting failure due to slumping, sliding, or other movements.

17. Notify the local county conservation district prior to removal of E&S BMPs. Temporary E&S BMPs may be removed after the entire disturbed area tributary to each BMP reaches permanent stabilization and wetlands/streams are restored to pre-existing conditions or better. Remove all remaining temporary crossings of streams and wetlands; and, remove all signs and flagging at wetlands, streams, and other locations of special concern. Immediately stabilize any disturbances associated with the removal of the BMPs.

Stream Crossing Construction Sequence and General Notes:

If crossing a stream, follow the generalized construction sequence below:

- Unless noted otherwise, stream crossings shall be a dry ditch crossing method.
- All work shall be in accordance with the Project Joint Permit requirements.
- Work shall not commence in a stream or other waterbody during inclement weather. All stream crossings shall be performed during low-flow conditions. Storm event weather forecasts shall be monitored prior to and during stream crossings. The timeline of work at a stream crossing shall be altered if a storm will likely present the crossing from conforming to given stream crossing time requirements or cause undue risk for a pollution event.
- Crossing of a stream channel 10 feet in bottom width or less should be completed within 24 hours from start to finish, including the trench backfill, stabilization of stream banks, and stabilization of the area 50 feet back from the top of each stream bank. Stream channels between 10 and 100 feet in width should be completed within 48 hours or as approved in writing from the PADEP.
- Extra workspace areas to be used for assembly areas, temporary equipment, and non-hazardous material storage areas shall be located at least 50 feet back from the top of each stream bank.
- Minor grading, grubbing of tree stumps, and pipe removal within 50 feet of a stream and at a stream crossing shall be performed concurrent with construction activities for installation of proposed pipe.

1. Install a temporary equipment bridge at the stream crossing location. No vehicular traffic is permitted in a stream at any time during construction.

2. Cross streams using a dry ditch crossing method. Install bypass hoses, pumps, flumes, and/or cofferdams, as necessary (stream water pumped through bypass hose is not required to be released through a pumped water filter bag).

3. Dewater work area within stream through a pumped water filter bag or into a constructed dewatering sediment corral.

4. Perform excavation operations at the location of the proposed pipeline construction activities. Topsoil and subsoil shall be stockpiled separately. Provide special care in excavating aggregate along the streambed and stream bank and stockpile separately from other soils.

5. Provide trench dewatering, as necessary, using a pumped water filter bag.

6. Perform construction activities for removal of existing pipe and installation of proposed pipe.

7. Install trench plugs before backfilling pipeline.

8. Restore stream bank and stream bed as close to pre-construction contour as practicable. Backfill the stream bank using native subsoil and then native topsoil. Backfill the stream bed using native subsoil and then the native stream bed material segregated during excavation.

Each stream channel shall be restored by using a minimum of six (6) inches of native stream bed material.

9. Stabilize stream bed and stream banks prior to restoring stream flow.

10. Temporary equipment bridge shall remain installed until final site restoration.

Wetland Crossing Construction Sequence and General Notes:

If working within a wetland area, follow the generalized construction sequence below:

- All work shall be in accordance with the Project Joint Permit requirements.
- Work shall not commence through a wetland or waterbody during inclement weather.
- Soil amendments (i.e., lime, fertilizer, etc.) shall not be applied within a wetland area.
- Minor grading, grubbing of tree stumps, and pipe removal within 50 feet of a wetland and at a wetland crossing shall be performed concurrent with construction activities for installation of proposed pipe.

1. Locate staging areas and access points. Staging areas should be located at least 50 feet from the edge of the wetland. Install sediment barriers down slope of these areas.

2. Install timber mats for crossing of the wetlands. Original grades through wetlands must be restored after trenching and backfilling.

3. Install compost filter sock along the perimeter of the wetland, if necessary.

4. Perform excavation operations at the location of the proposed pipeline construction activities. Topsoil and subsoil shall be stockpiled separately. Provide special care in excavating wetland topsoil to ensure the vegetative roots remain intact and stockpile separately from other soils.

5. Provide trench dewatering, as necessary, using a pumped water filter bag.

6. Perform construction activities for removal of existing pipe and installation of proposed pipe.

7. Install trench plugs before backfilling pipeline.

8. Backfill subsoil and then topsoil. Perform final grading to restore contour as close to pre-construction contour as practicable.

9. Apply wetland specific seed mixture to disturbed wetland areas.

10. Remove E&S BMPs upon establishment of a uniform 70% perennial vegetative cover over previously disturbed areas.

11. Timber mat crossings shall remain installed until final site restoration.

10.0 PRINCIPLE 8: SUPPORTING CALCULATIONS

E&S BMPs proposed for the Project are in accordance with guidance defined by the E&SPC Manual. Specifically, Table 3.1 was referenced for waterbar spacing; Figure 4.2 for compost filter sock sizing; and Table 13.1 for trench plug spacing. E&S BMPs for stabilization are specification-based and proposed for application in accordance with the E&SPC Manual and/or the product manufacturer recommendations.

11.0 PRINCIPLE 9: PLAN DRAWINGS

Installation locations, details and notes for BMPs, specifications for soil stabilization methods, and other information applicable to the E&S Plan are defined on the plan drawings provided in Attachment 4.

12.0 PRINCIPLE 10: MAINTENANCE PROGRAM

BMPs will be implemented to minimize and/or avoid potential adverse environmental impacts caused by erosion or sedimentation as a result of earth disturbance activities associated with the Project. The Contractor shall conduct regular inspections and maintain E&S BMPs in good working order until disturbed areas are stabilized. The Contractor shall keep onsite a record of E&S inspections; inspections shall be logged on PADEP Form 3800-FM-BCW0271d dated 12/2019, or similar form, and kept on site at all times.

12.1 BMP Maintenance

Unless otherwise noted, maintenance shall be completed immediately after an inspection identifies that a BMP is not functioning as required.

Compost Filter Sock (and/or Silt Fence alternatives)

- Accumulated sediment will be removed as required, and in all cases where uniform accumulations are half the above ground height of the filter sock/fence. Accumulated sediment behind the filter sock/ silt fence will be disposed of by the contractor in such a manner that the removed sediment will not be excessively eroded and transported to a waterbody.
- Compost filter sock and/or silt fence installations will be inspected weekly and after each runoff event. Loosened support stakes will be removed, and new stakes driven. Compost filter sock and silt fence will be maintained and repaired as per the manufacturer specifications.

Rock Construction Entrances

- Rock construction entrance thickness will be consistently maintained to the specified dimensions by adding rock. A stockpile will be maintained on site for this purpose.

Access Roads

- Access roads will be inspected weekly and after each runoff event. Additional aggregate will be applied to the road as needed to maintain an adequate thickness and ruts will be smoothed to prevent channelizing of runoff.

Waterbars

- Waterbars will be inspected weekly and after each runoff event.
- Damaged or eroded waterbars will be restored to original dimensions within 24 hours.
- Maintenance shall be provided until the ROW has achieved permanent stabilization.

Pumped Water Filter Bags

- Filter bags will be replaced when they become half full of sediment.
- Filter bags will be inspected daily while in use. If a problem is observed, pumping will cease immediately and not resume until the problem is corrected.

Vegetation

- Seeded and mulched areas will be inspected weekly and after each runoff event. Necessary repairs will be made immediately.

Erosion Control Blanket

- Erosion control blanket shall be inspected weekly and after each runoff event until perennial vegetation is established to a minimum 70% coverage throughout blanked area.
- Damaged or displaced blankets shall be restored or replaced within 4 calendar days.

13.0 PRINCIPLE 11: MATERIAL RECYCLING AND DISPOSAL PROCEDURES

13.1 Material Waste Handling and Recycling

The Contractor shall remove from the site, recycle, or dispose of all building materials and wastes in accordance with the PADEP solid waste management regulations at 25 PA Code 260.1 et seq., 271.1 et seq., and 287.1 et seq. No building materials or wastes shall be buried, dumped, or discharged at the site. Sediment removed from BMPs and excess soil material, if any, shall either be spread on-site and re-vegetated or disposed of off-site. In cases where off-site disposal is necessary, excess soil materials shall be disposed of at a facility with a fully implemented E&S Plan and active permits, if applicable.

14.0 PRINCIPLE 12: GEOLOGIC FORMATIONS AND SOIL CONDITIONS

No geologic formations with the potential to cause pollution to are known to exist at the Project site. The hazard of erosion relating to easily erodible soil types existing at the Project site is a soil condition with potential to cause pollution in the form of sedimentation; however, BMPs proposed within this E&S Plan will mitigate the potential for pollution caused by this soil condition. Therefore, pollution as a result of soil conditions of the existing soil types is not anticipated. Additional information relating to soils within the Project area is provided in Attachment 2.

15.0 PRINCIPLE 13: THERMAL IMPACTS TO SURFACE WATERS

Thermal impacts are most commonly associated with urbanization (i.e., increased impervious surfaces) that results in heated stormwater runoff flowing into receiving waters where it mixes, and potentially increases the base temperature of the surface water in streams. However, another contributing factor for stream temperature is solar exposure (radiant energy input) to the surface water. Among the attributes that determine the contribution of solar energy to thermal impacts are the presence of riparian vegetation, as well as stream width and orientation. The amount of heat transferred, and the degree of thermal pollution is of importance for fisheries management and the ecological integrity of receiving waters. However, a singular linear crossing of minimal width and vegetation clearing is not considered a contributing factor to thermal impacts.

By minimizing the clearing of riparian vegetation at stream crossings along the ROW and minimizing the addition/creation of impervious surfaces, the Project does not have thermal impacts. Specifically, thermal impacts will be avoided by implementing the following:

- Siting parallel to and overlapping with existing ROWs, where applicable, to minimize vegetation clearing at stream crossings;
- Reducing the construction ROW width and additional temporary workspaces at stream crossings, where possible;
- No grubbing, grading, or clearing of trees will occur within 50 feet of the top of stream bank until pipeline construction/installation is ready to proceed through that area;
- Restoring (seeding) disturbed areas/ROW as soon as practicable and/or directing runoff to vegetated areas to reduce the temperature of runoff prior to discharge into the streams; and,
- Restoring the stream banks and seeding/planting as soon as practicable to facilitate vegetative growth along the stream channel.

In addition, a combination of non-discharge alternatives and ABACT BMPs will be implemented during construction, where required, to protect and maintain the existing water quality of the receiving waters; specifically, in areas were receiving resources are classified as HQ and EV. Non-discharge alternatives were evaluated to minimize accelerated erosion and sedimentation, and to achieve zero net change in runoff between the pre- and post- construction conditions.

16.0 PRINCIPLE 14: E&S CONSISTENCY WITH THE PCSM/SR PLAN

This E&S Plan has been prepared for consistency with the PCSM/SR Plan prepared for the Project. Continuity exists for implementation of the E&S BMPs and long term PCSM/SR BMPs proposed within each plan. Furthermore, sequence for installation of E&S BMPs and PCSM BMPs detailed within each plan corresponds for transition from construction activities to site restoration activities.

17.0 PRINCIPLE 15: RIPARIAN BUFFERS

As defined by 25 Pa. Code Chapter 102.14(b), generally, a riparian forest buffer consists of permanent vegetation that is predominantly native trees, shrubs and forbs along a stream that is maintained in a natural state or sustainably managed to protect and enhance water quality, stabilize stream channels and banks, and separate land use activities from surface waters. The riparian width is identified as 100 feet (non-special protection waters) and (special protection waters) 150 feet on both sides of a perennial or intermittent stream.

Chapter 102.14 also states that earth disturbance activities within riparian buffers are subject to specific requirements and criteria (102.14(a) *General requirements for mandatory riparian buffers* and 102.14(b) *Riparian forest buffer criteria*); however, exceptions to subsection (a) and (b) exist for certain conditions and project types (102.14(d) *Exceptions*).

Based on 102.14(d)(2)(ii), an exemption applies for this project since: the Project is a linear pipeline project including maintenance and upgrades to an existing pipeline; and, existing riparian buffers will be undisturbed to the extent practicable.

18.0 PRINCIPLE 16: ANTIDEGRADATION

The Ellisburg Compressor Station (CS) portion of the Project in Potter County is the only location where earth disturbing activities will occur within an HQ watershed; therefore, antidegradation requirements defined in Chapter 102.4(b)(6) and 102.8(h) must be implemented for this portion of the Project. However, although not required, the Project has considered antidegradation alternatives and ABACT BMPs and implemented such practices where practicable throughout the entire Project limit of disturbance in general. As presented below, the Project has been designed such that the requirements of both these sections have been addressed.

Non-discharge alternatives have been evaluated and incorporated into the Project to minimize accelerated erosion and sedimentation, and to achieve zero net change in runoff between the pre- and post- construction conditions. The following provides a summary of the non-discharge alternatives evaluated and/or incorporated into the Project in order to avoid and minimize impacts to the water quality of the HQ waters within designated HQ watersheds.

- The Project has been designed to minimize earth disturbance to the extent practicable; specifically, for the Z20 Replacement Pipeline portion of the Project, the pipeline has been

sited parallel to and overlapping with an existing permanent ROW to minimize earth disturbance and vegetation clearing in undisturbed areas.

- The LOD been minimized to the greatest extent practicable while still achieving the project objective to reduce erosion and sedimentation.
- The duration of construction across stream crossings has been reduced:
  - No grubbing or grading will occur within 50 feet of the top of stream bank until construction activity is ready to proceed through that area.
  - Construction across the waterbody will be completed as quickly and efficiently as site conditions allow.
- Duration of construction activity, in general, will be minimized to the extent possible:
  - The duration of earth disturbance will be minimized by stabilizing disturbed areas as soon as practicable after construction in accordance with the E&S Plan and the PCSM/SR Plan.
- Riparian buffers have been avoided to the extent possible.

A combination of non-discharge alternatives and the use of ABACT BMPs will protect and maintain the existing water quality of the receiving waters. The following ABACT BMPs have been incorporated into the Project and will be used onsite during construction activities:

- Street sweeping, an approved alternative to wash racks, will be implemented at construction entrances in HQ watershed and where otherwise necessary as determined by the EI;
- Compost filter socks at dewatering areas and waterbar outlets to provide additional filtration prior to discharge to surface waters;
- Installation of GEOWEB within proposed permanent gravel to promote infiltration and reduce flow rate;
- Implementation of a PPC Plan as necessary to protect water quality;
- Dewatering areas will include the placement of compost filter socks on the down gradient side of the filter bags;
- Erosion control blanket will be applied within 100 feet of receiving waters in HQ watersheds and on slopes 3:1 (H:V) or steeper (except for in agricultural fields and pastures); and,
- Application of permanent seeding for site restoration.

19.0 REFERENCES

Pennsylvania Department of Conservation and Natural Resources, Bureau of Topographic Geologic Survey. 2006. *PAMAP Program LIDAR Processing/ Contour Enhancement Lines of Pennsylvania*. http://www.pasda.psu.edu/default. asp>.

Pennsylvania Department of Environmental Protection, Office of Water Management. 2012. *Erosion and Sediment Pollution Control Program Manual*. Bureau of Watershed Management, Division of Waterways, Wetlands and Erosion Control. March 2012.

Pennsylvania Department of Environmental Protection. 2000. Avoiding Common Erosion and Sediment Control Plan Deficiencies, Pipeline and Utility Line Projects. July 2000.

Pennsylvania Department of Environmental Protection. 2001. Underground Utility Line Construction, Typical Erosion and Sediment Controls.

Pennsylvania Department of Environmental Protection. eMap PA. Available at http://www.depgis.state.pa.us/emappa/. Accessed June 2024.

TABLES

TABLE 1

LIMITATIONS OF PENNSYLVANIA SOILS PERTAINING TO EARTH MOVING PROJECTS

Note: Absence of an X does not mean "No Potential Limitation." This is not necessarily an all-inclusive list.

Map Symbol	Soil Name	Cutbanks Cave	Corrosive to Concrete/Steel	Droughty	Easily Erodible	Flooding	Seasonal High Water Table	Hydric / Hydric Inclusions	Low Strenght / Landslide Prone	Slow Percolations	Piping	Poor Source of Topsoil	Frost Action	Shrink - Swell	Potential Sinkhole	Ponding	Wetness
Ab	Alluvial land	X	C/S			X	X	X		X	X	X	X		X		X
BeB	Braceville	X	C/S	X	X		X	X	X	X	X	X	X				X
ChB, ChC, ChD	Chenango	X	C	X		X	X	X		X	X	X	X				
CkA, CkB, CksB	Chippewa	X	C/S	X	X		X	X	X	X	X		X	X		X	
LhD, LhE	Lewbeach **(1)**																
LoB, LoC, LoD, LrF, LsD	Lordstown	X		X	X				X	X	X		X				
MaB, MaC, MaD	Mardin	X	S	X	X		X	X	X	X	X		X				X
MpA	Middlebury	X	S			X	X	X		X	X		X	X			
MqB, MqC, MqD, MqF, MqsC	Mongaup **(1)**																
MoC	Morris	X	C/S	X	X		X	X	X	X		X	X				X
NtB, NtsB	Norchip **(1)**																
OeB, OesD	Onteora **(1)**																
OhB, OhC, OhD	Ontusia **(1)**																
OgB, OgC, OgD, OTF	Oquaga	X	C	X	X			X		X			X				
Ow	Orrville	X	C/S			X	X	X	X	X	X		X				X
Ph	Philo	X	C/S		X	X	X	X	X	X	X	X	X				X
Po	Pope	X	C/S		X	X		X	X	X	X	X	X				
RxA, RxB	Rexford	X	C/S	X		X	X	X	X	X	X	X	X				X
RoE	Rockrift **(1)**																
ToA	Tioga	X	C		X	X	X	X		X							
UdA	Udifluvents / Fluvaquents	X	C/S			X	X	X		X	X		X				
VaD	Valois	X	C					X	X	X		X	X				
VlsF	Vly **(1)**																
VoA, VoB, VoC, VoD, VoE3, VvB, VvC	Volusia	X	C/S	X	X		X	X	X	X	X	X	X				
WeB, WeC, WeD, WesE	Wellsboro	X	C/S	X	X		X	X	X	X	X		X				X
WmB, WmC, WmD, WmE, WmsD	Willdin **(1)**																
WyF	Wyoming	X	C	X				X		X		X					

(1) Information not defined by reference document.

Reference: PADEP E&SPC Program Manual, Table E.1; March 2012

Resolutions for potential soil limitations:

Cutbanks Caves - Cut slopes will be stabilized as soon as possible with seed and mulch or erosion control blankets to prevent sliding. Slopes are designed to not exceed 2H:1V.

Corrosive to Concrete/Steel - Pipes to be used on site shall coated steel.

Droughty - This soil limitation is anticipated to have not impact during construction or long-term operation of the project.

Erodible Soils - E&S BMPs will be in place and functional prior to earth disturbance. Prompt stabilization practices will be implemented.

Flooding - Precautions will be taken during construction to avoid construction activity when heavy precipitation is forecasted.

Seasonal High Water Table - If a high groundwater table be encountered during construction, water will be drained away from disturbed areas to a well vegetated area or a placed compost filter sock prior to being discharged off site. Saturated soils will be dried prior to being used on site.

Hydric / Hydric Inclusions - A wetland delineation has been perfomred to determine the presence of wetlands.

Low Strength - Precautions will be taken to prevent slope failures due to improper construction practices. Soils will be evaluated during construction to determine if additional measures are necessary.

Slow Percolations - infiltration testing will be performed at locations of proposed infiltration BMPs.

Piping - Where necessary, trench plugs will be used to prevent piping.

Poor Source of Topsoil - Soil amendments will be added to site soils to promote vegetative growth.

Frost Action - This soil limitation is anticipated to have not impact during construction or long-term operation of the project.

Shrink - Swell - This soil limitation is anticipated to have not impact during construction or long-term operation of the project.

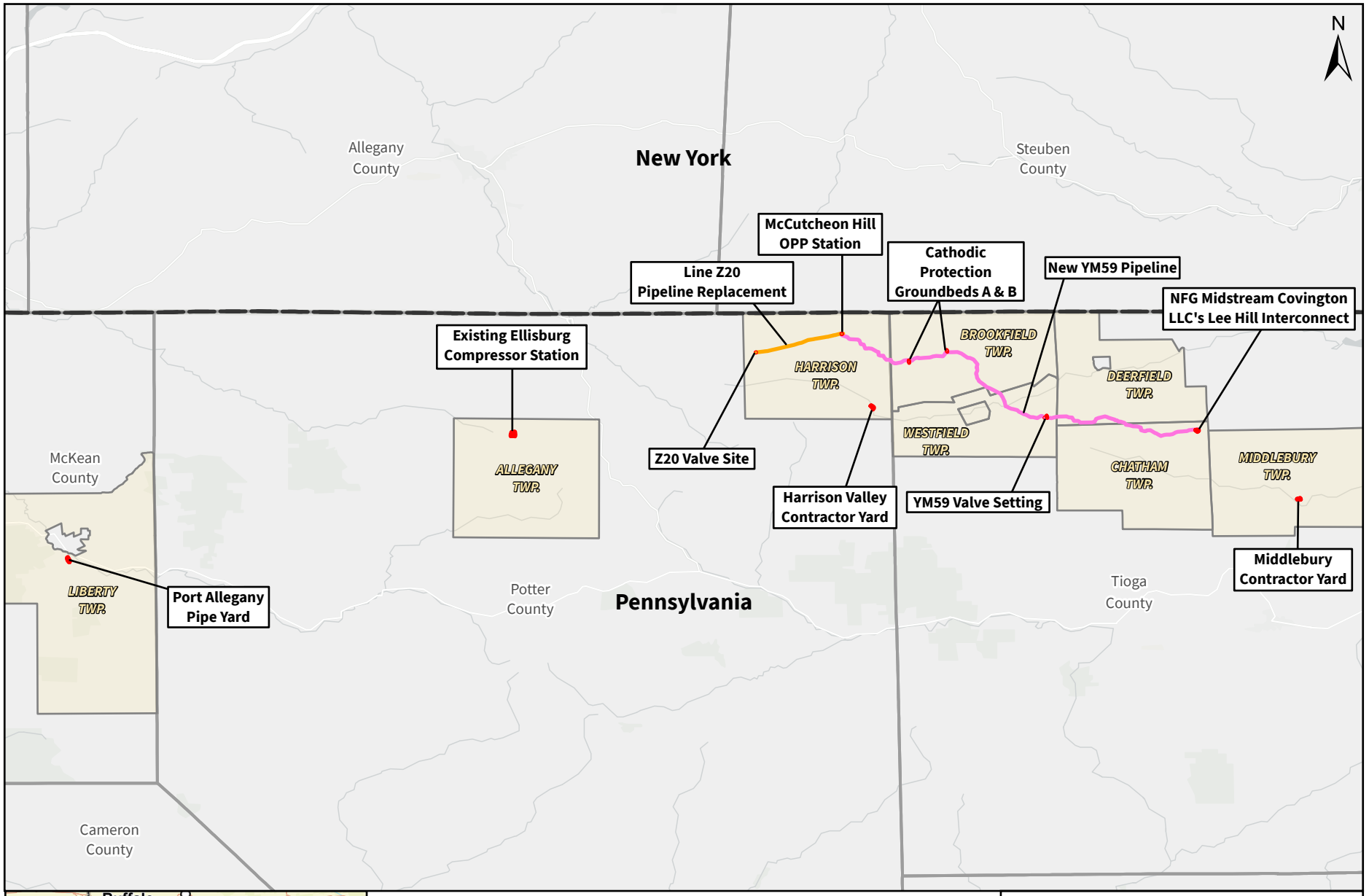
Potential Sinkholes - Should a sinkhole be encountered during construction, repair should be done under the direct observation and supervision of a professional geologis or lincensed geotechnical engineer. Site specific sinkhole repairs should be developed on a case by case basis.

Ponding - If ponding is encountered during construction, water will be drained away from disturbed areas to a well vegetated area or a placed compost filter sock prior to being discharged off site.

Wetness - If wetness is encountered during construction, water will be drained away from disturbed areas to a well vegetated area or a placed compost filter sock prior to being discharged off site. Soils will be evaluated during construction to determine if additional measures are necessary.

ATTACHMENT 1

LOCATION MAP(S)



Tioga Pathway Project

Project Overview Map
McKean, Potter, and Tioga Counties, Pennsylvania

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION. Preliminary Project Plan – Subject to Change

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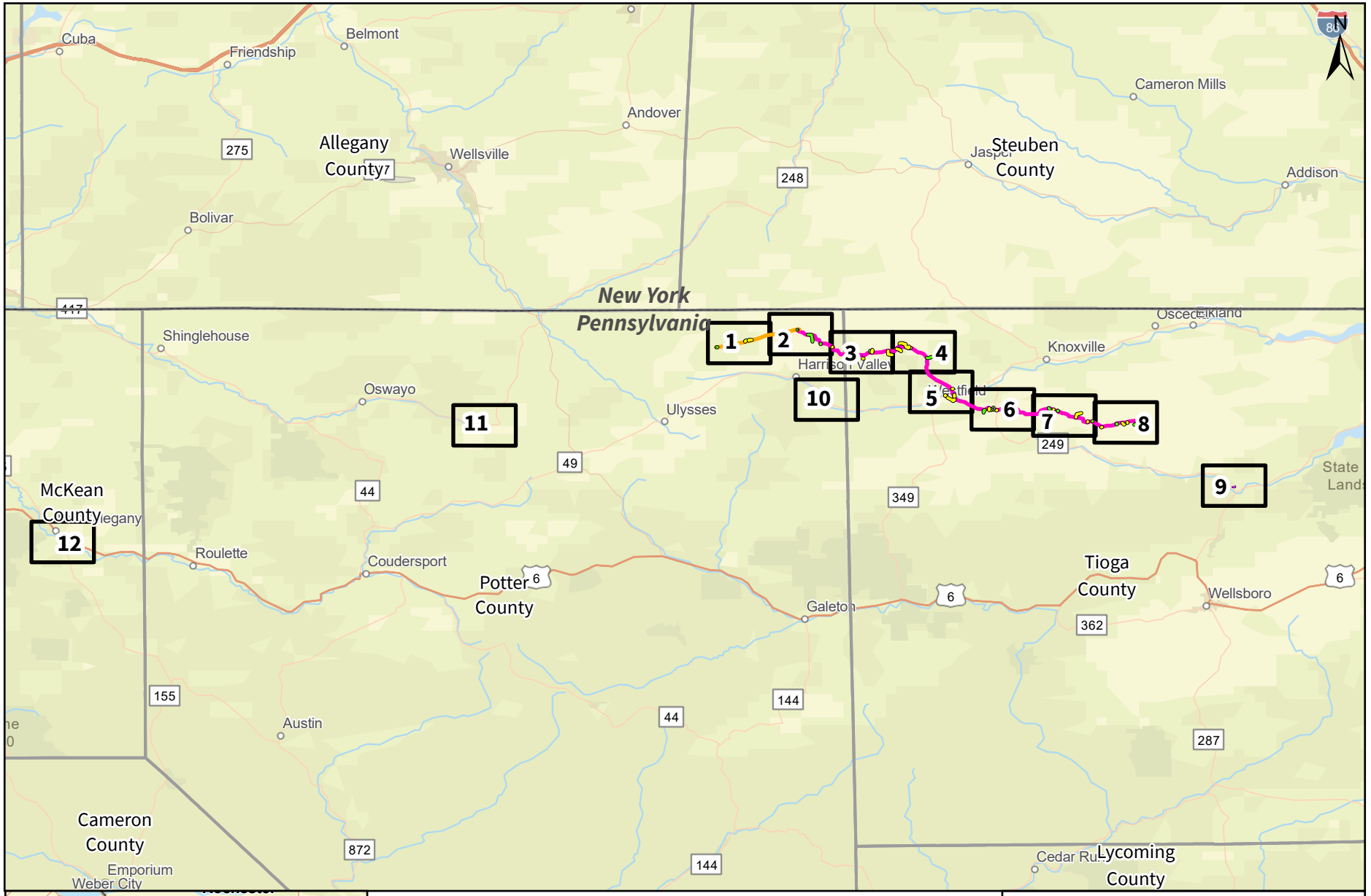

Legend

- Proposed YM59 Pipeline
- Line Z20 Replacement
- Permanent Access Rd (PAR)
- Temporary Access Rd (TAR)
- Project Facility
- Sheet Boundary
- State Boundary
- County Boundary

Tioga Pathway Project
Sheet Key
USGS Project Location Map
McKean, Potter and Tioga Counties, PA

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

Miles: 0 1.5 3 6 9 12

Basemap: ESRI, Street Map

Kilometers: 0 2.5 5 10

Cartographer: jen.laslovich

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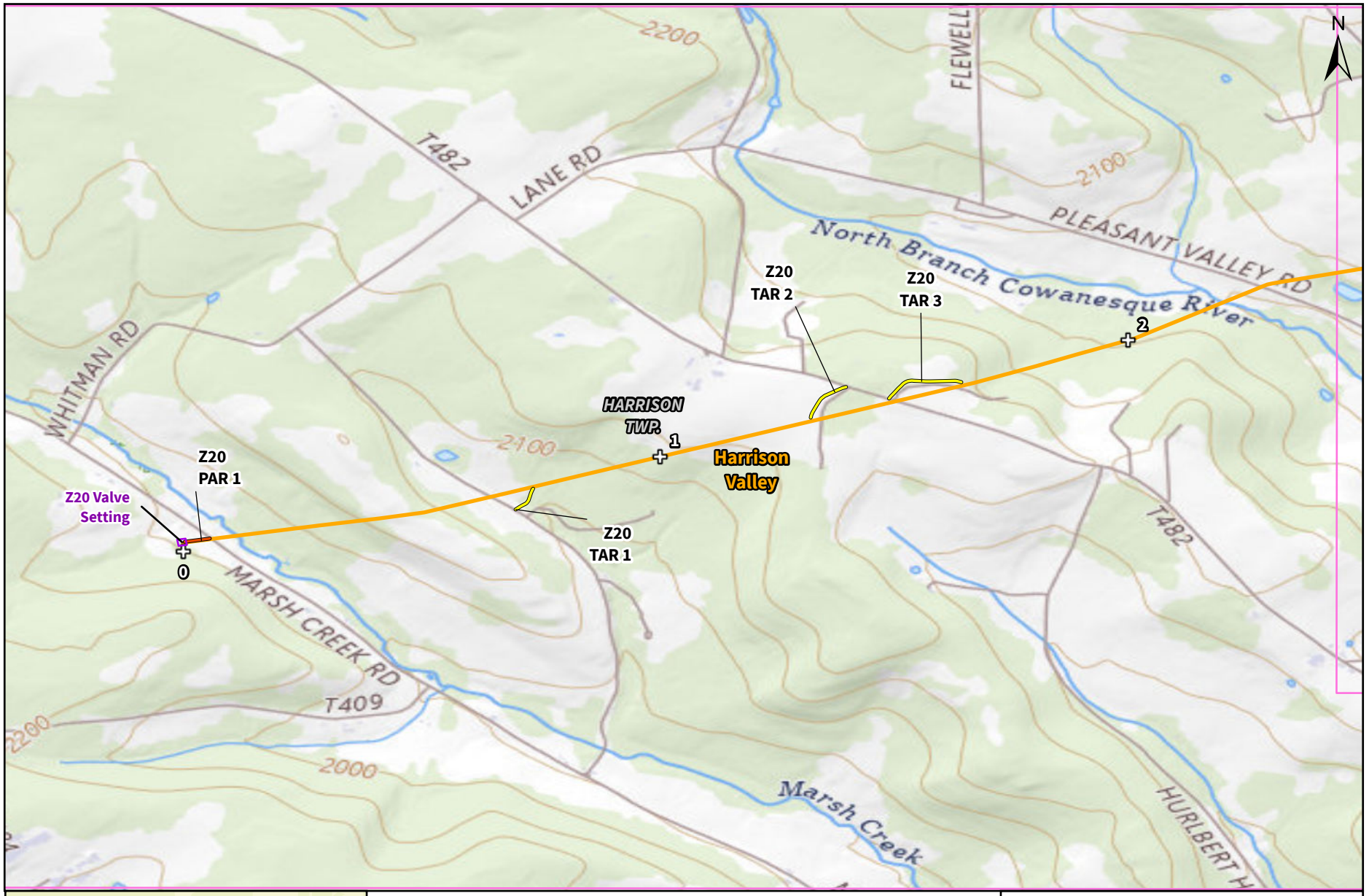

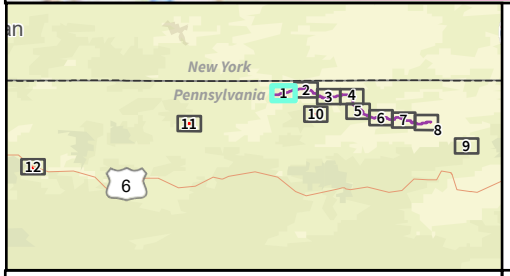

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- Line Z20 Replacement
- Permanent Access Rd (PAR)
- Temporary Access Rd (TAR)
- Milepost (MP)
- Project Facility
- Muncipality Boundary
- USGS Topographic Boundary
- Sheet Boundary

Sheet 1 of 12

Tioga Pathway Project
USGS Project Location Map
Potter County, PA

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

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Basemap: ESRI, USGS Topographic (2023)
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Cartographer: jen.laslovich

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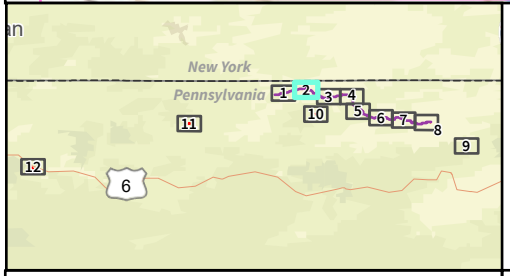

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Sheet 2 of 12

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USGS Project Location Map
Potter County, PA

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

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Cartographer: jen.laslovich

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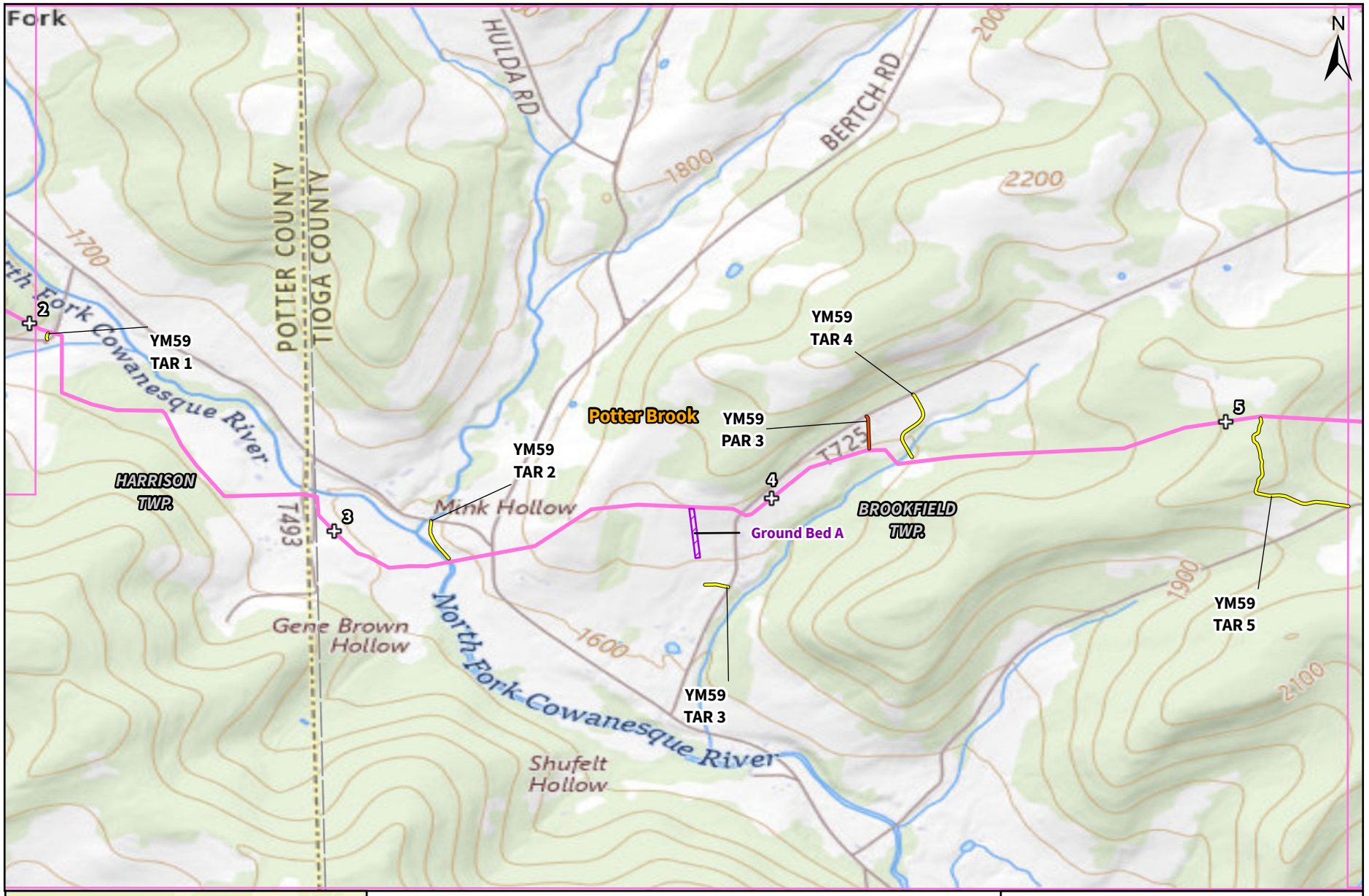

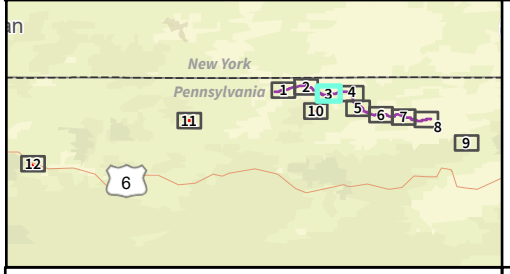

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Sheet 3 of 12

Tioga Pathway Project
USGS Project Location Map
Potter and Tioga County, PA

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

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Cartographer: jen.laslovich

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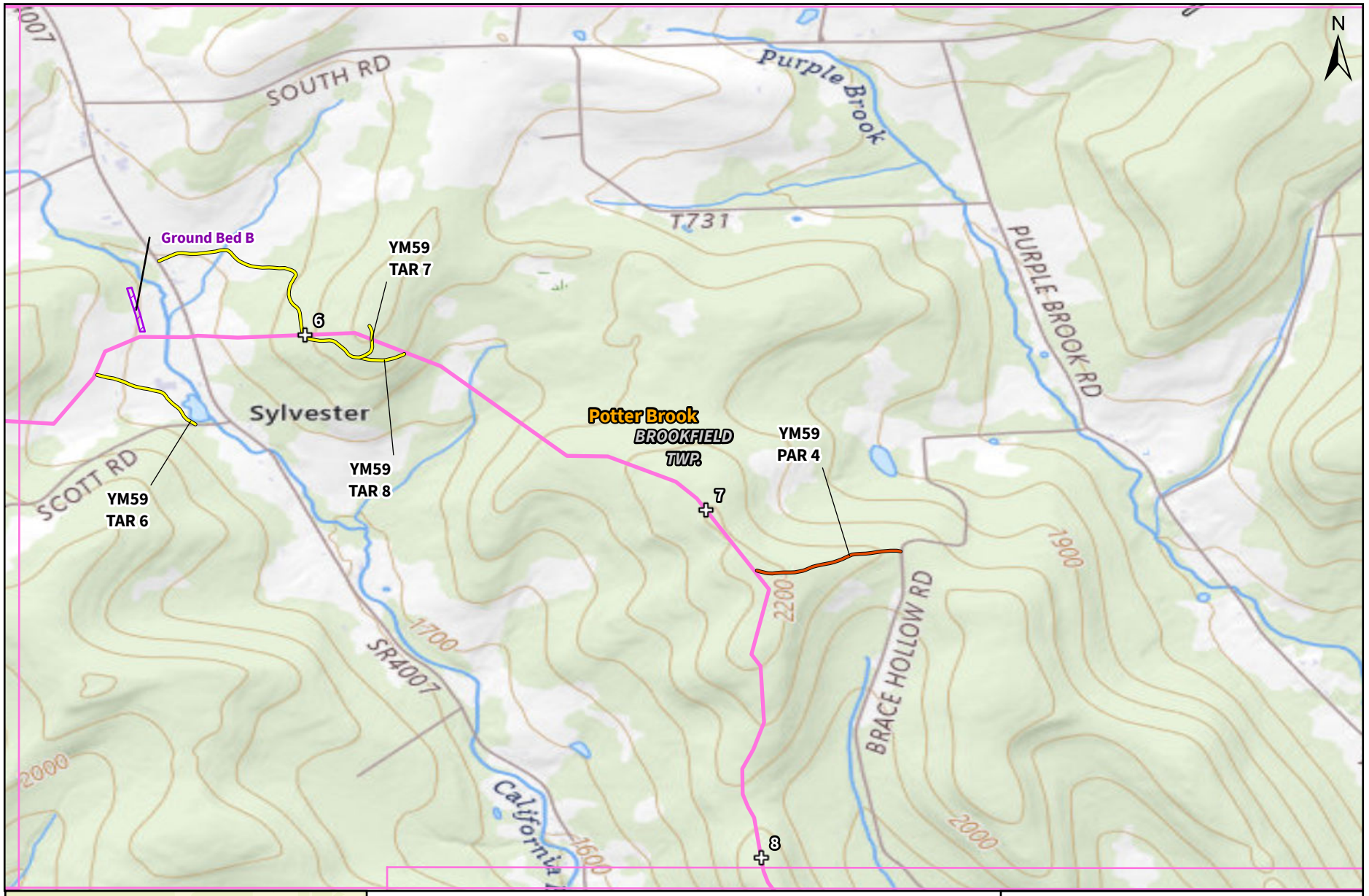

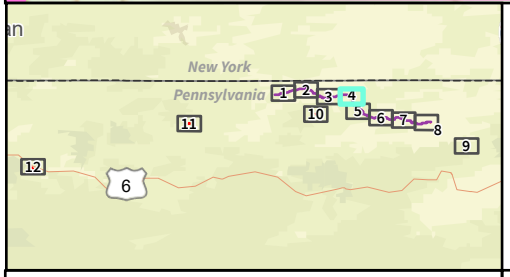

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Sheet 4 of 12

Tioga Pathway Project
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Tioga County, PA

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

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Basemap: ESRI, USGS Topographic (2023)
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Cartographer: jen.laslovich

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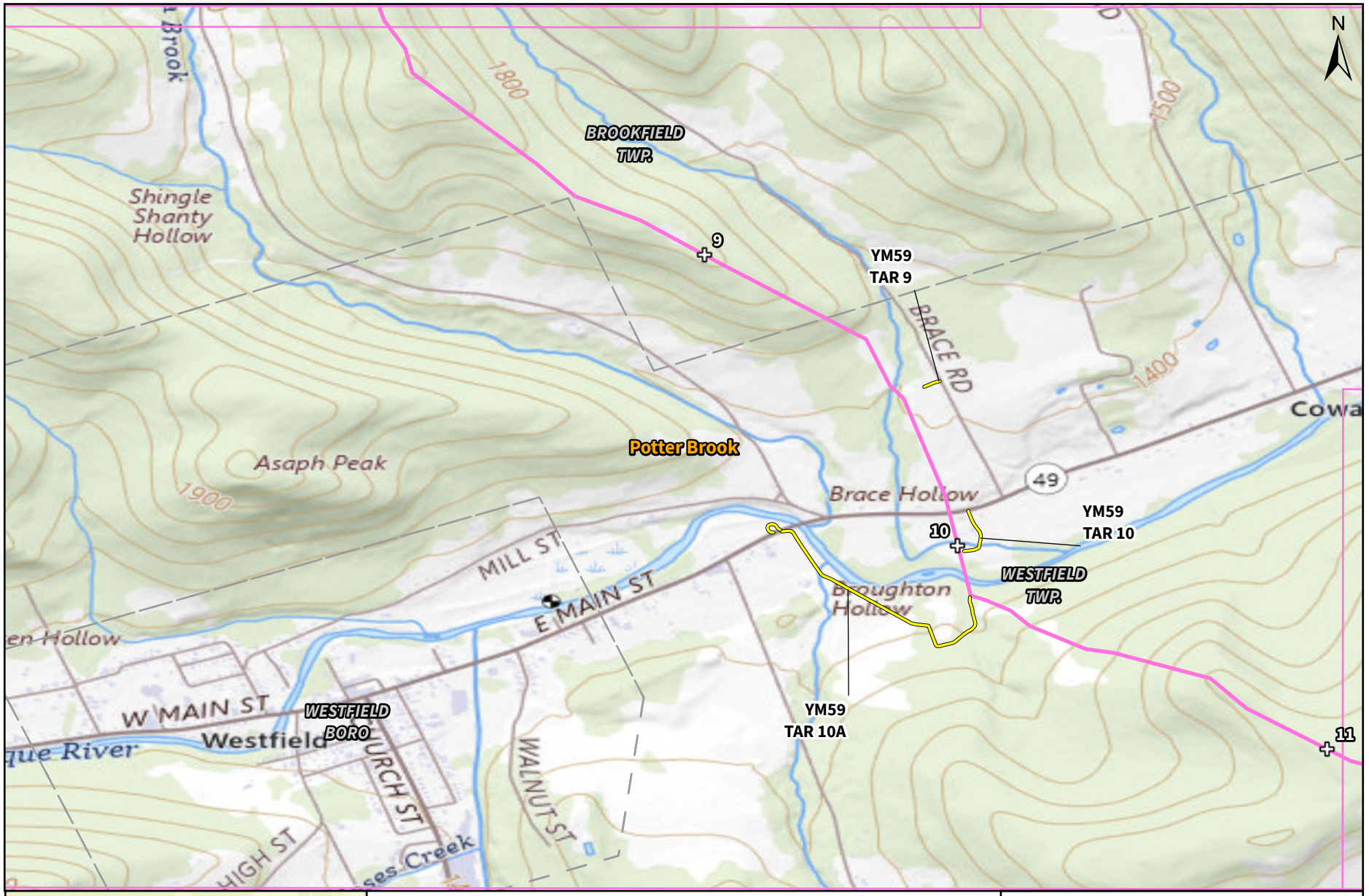

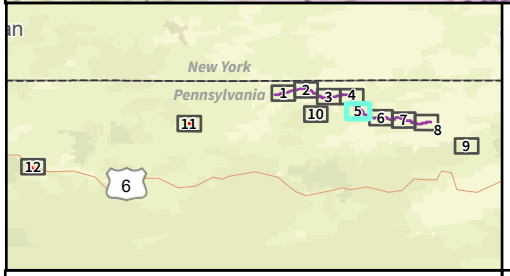

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Sheet 5 of 12

Tioga Pathway Project
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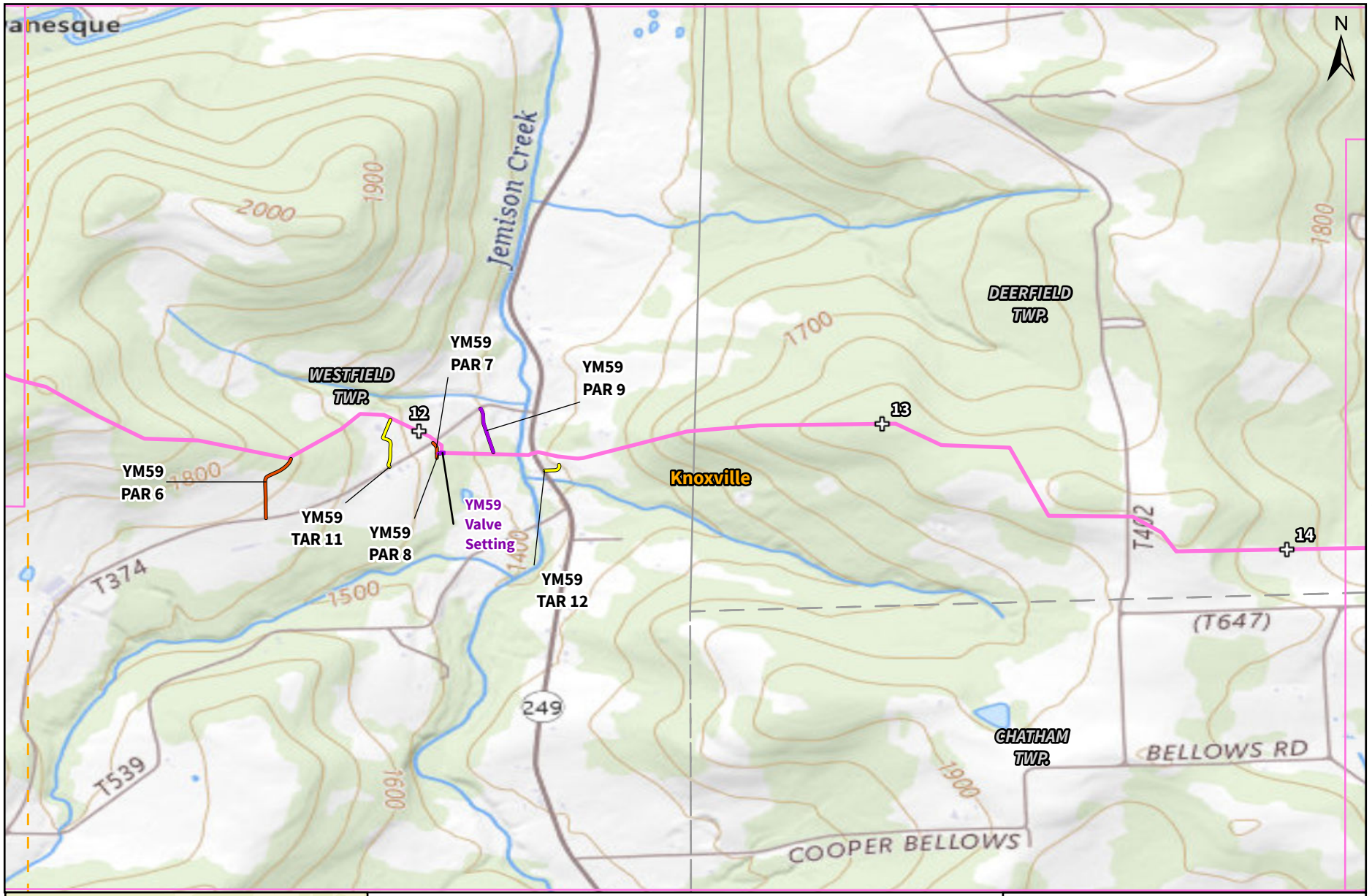

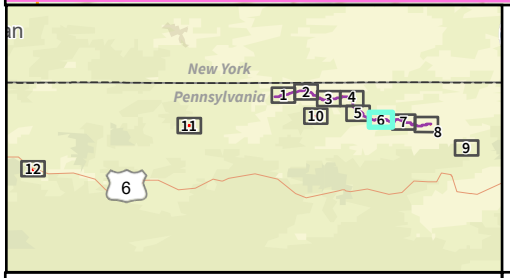

Legend

- Proposed YM59 Pipeline
- Permanent Access Rd (PAR)
- Temporary Access Rd (TAR)
- Milepost (MP)
- Project Facility
- Muncipality Boundary
- USGS Topographic Boundary
- Sheet Boundary

Sheet 6 of 12

Tioga Pathway Project
USGS Project Location Map
Tioga County, PA

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

Feet
0 1,000 2,000 4,000

Basemap: ESRI, USGS Topographic (2023)
USGS Quad Potter Brook Knoxville, PA

Meters
0 500 1,000

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

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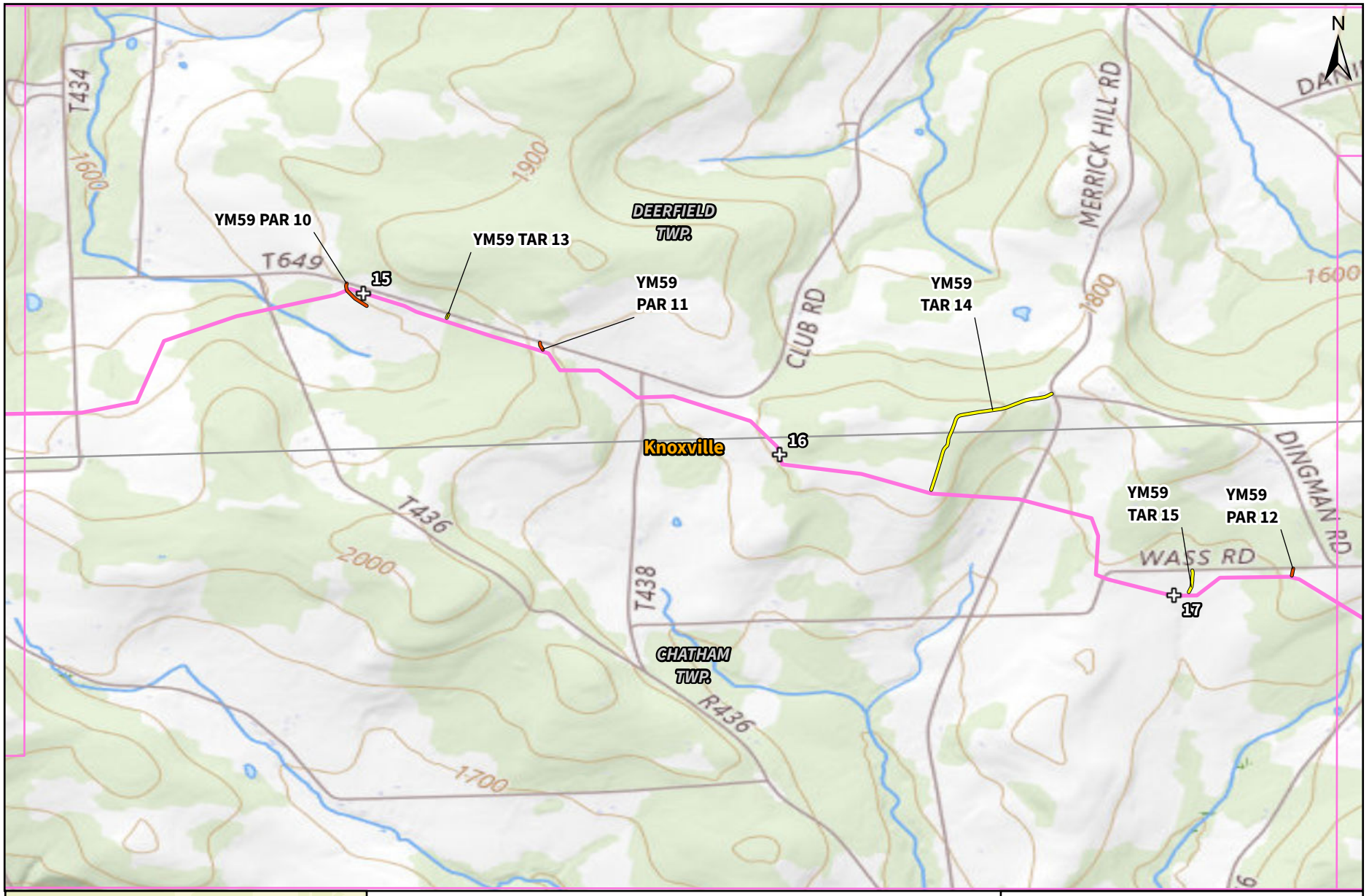

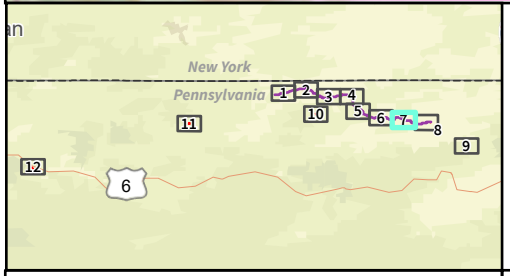

Legend

- Proposed YM59 Pipeline
- Permanent Access Rd (PAR)
- Temporary Access Rd (TAR)
- Milepost (MP)
- Muncipality Boundary
- USGS Topographic Boundary
- Sheet Boundary

Sheet 7 of 12

Tioga Pathway Project
USGS Project Location Map
Tioga County, PA

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

Feet
0 1,000 2,000 4,000

Basemap: ESRI, USGS Topographic (2023)
USGS Quad Knoxville, PA

Meters
0 500 1,000

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

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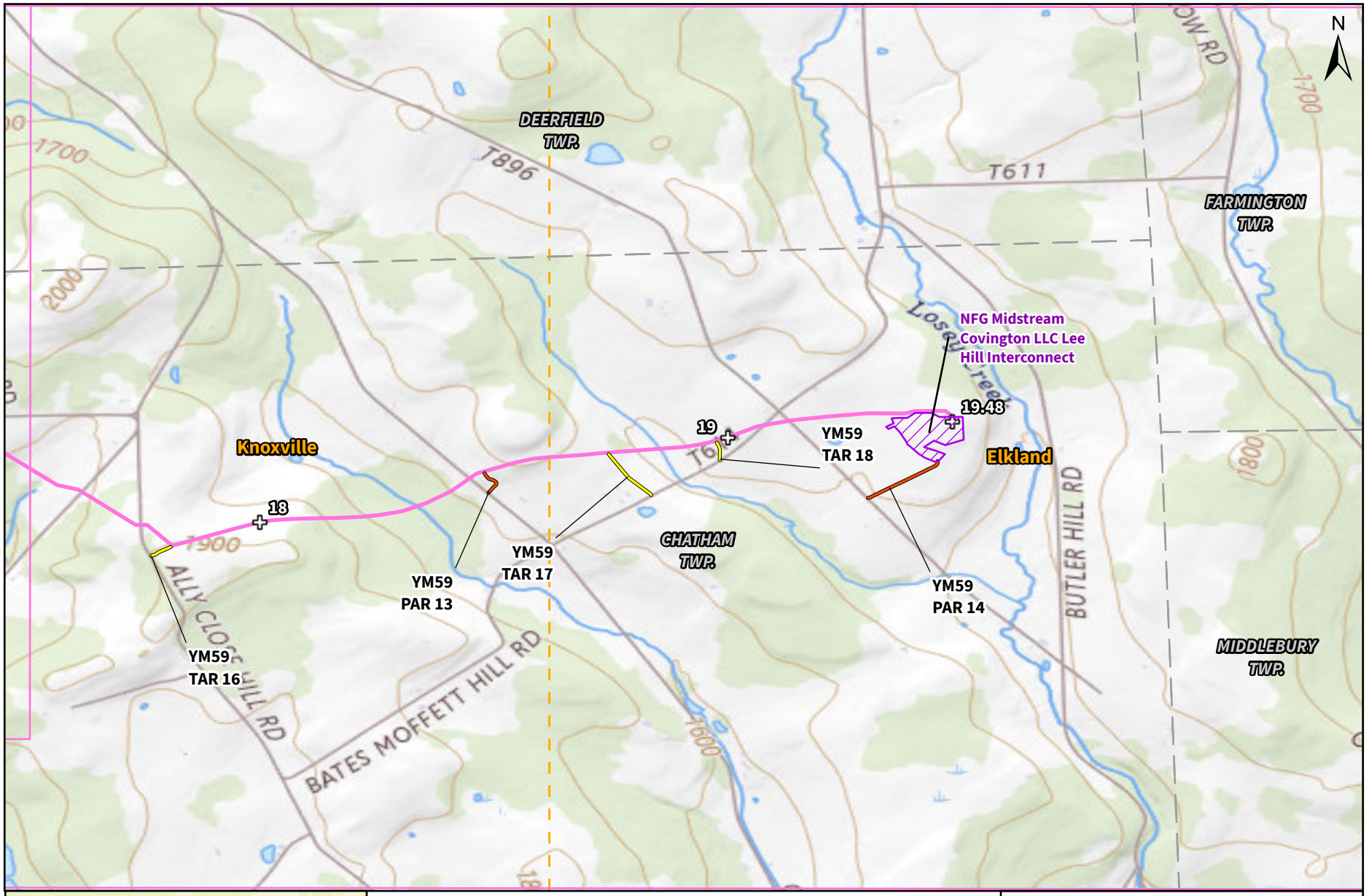

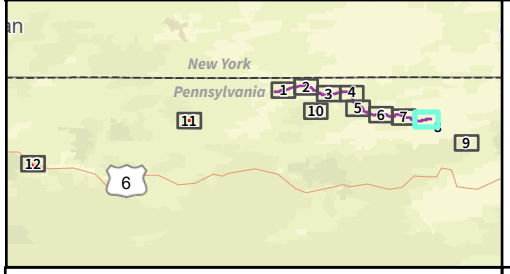

Legend

- Proposed YM59 Pipeline
- Permanent Access Rd (PAR)
- Temporary Access Rd (TAR)
- Milepost (MP)
- Project Facility
- Muncipality Boundary
- USGS Topographic Boundary
- Sheet Boundary

Sheet 8 of 12

Tioga Pathway Project
USGS Project Location Map
Tioga County, PA

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

Feet
0 1,000 2,000 4,000

Basemap: ESRI, USGS Topographic (2023)
USGS Quad Knoxville Elkland, PA

Meters
0 500 1,000

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

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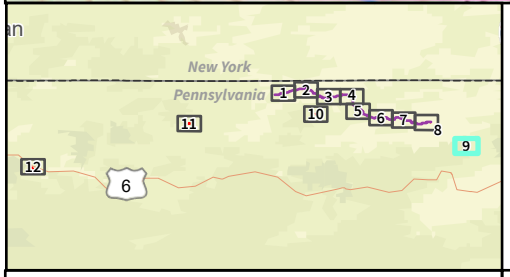

Legend

- Project Facility
- Muncipality Boundary
- USGS Topographic Boundary
- Sheet Boundary

Sheet 9 of 12

Tioga Pathway Project
USGS Project Location Map
Tioga County, PA

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

Feet
0 1,000 2,000 4,000

Basemap: ESRI, USGS Topographic (2023)
USGS Quad Keeneyville, PA

Meters
0 500 1,000

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

Date: 9/23/2024 1:45 PM

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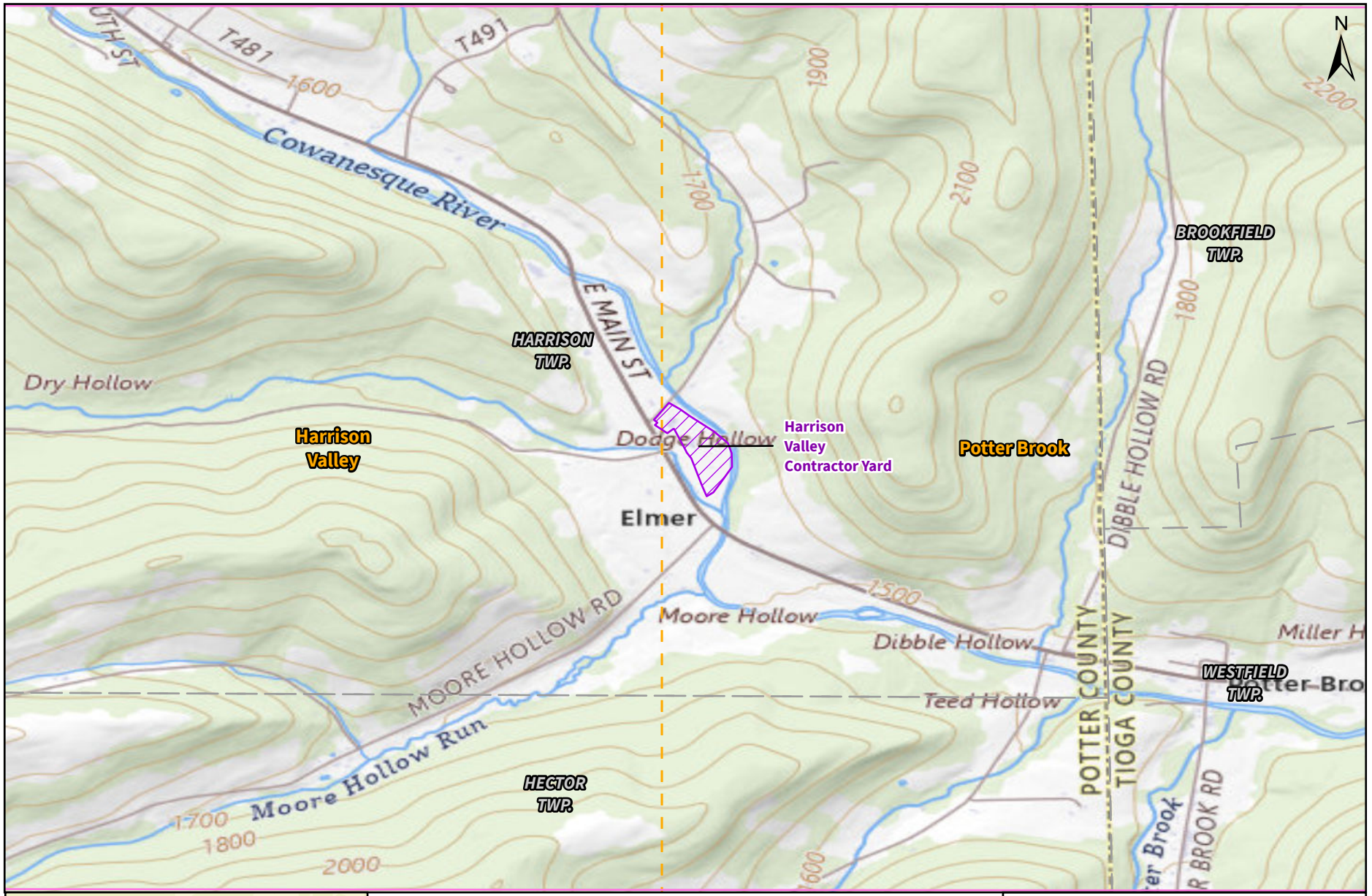

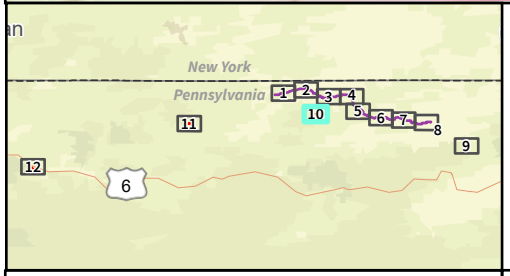

Legend

Sheet 10 of 12

- Project Facility
- Muncipality Boundary
- USGS Topographic Boundary
- Sheet Boundary

Tioga Pathway Project

USGS Project Location Map

Tioga County, PA

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

Feet: 0, 1,000, 2,000, 4,000

Basemap: ESRI, USGS Topographic (2023)
USGS Quad Harrison Valley Potter Brook, PA

Meters: 0, 500, 1,000

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

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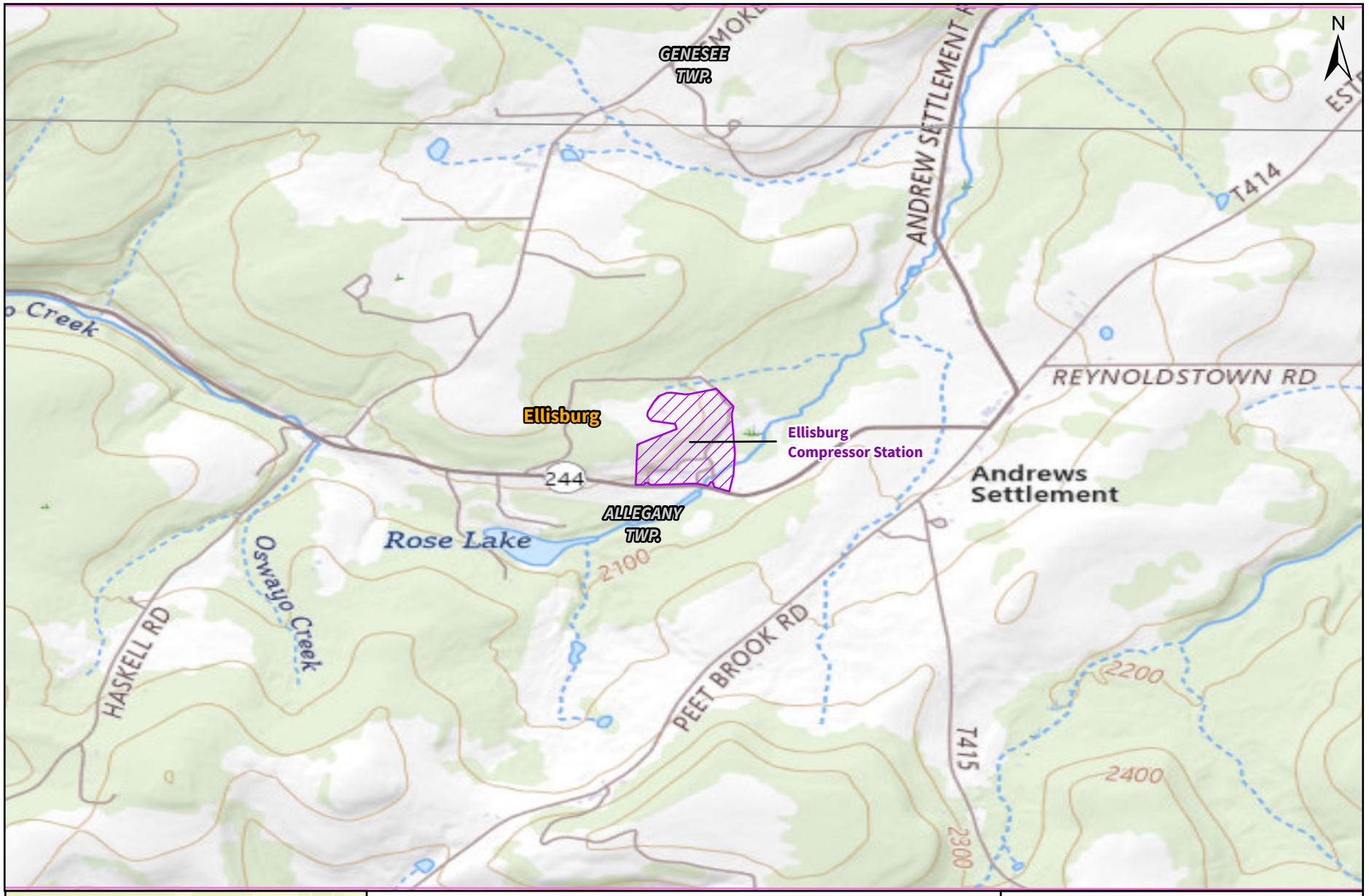

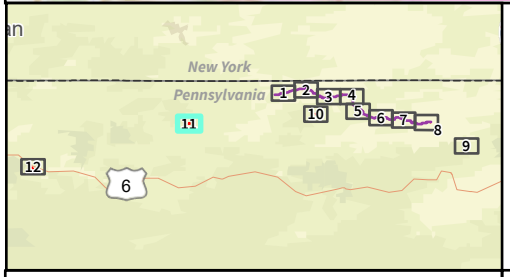

Legend

- Project Facility
- Muncipality Boundary
- USGS Topographic Boundary
- Sheet Boundary

Sheet 11 of 12

Tioga Pathway Project
USGS Project Location Map
Potter County, PA

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

Feet
0 1,000 2,000 4,000

Basemap: ESRI, USGS Topographic (2023)
USGS Quad Ellisburg, PA

Meters
0 500 1,000

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

Date: 9/23/2024 1:45 PM

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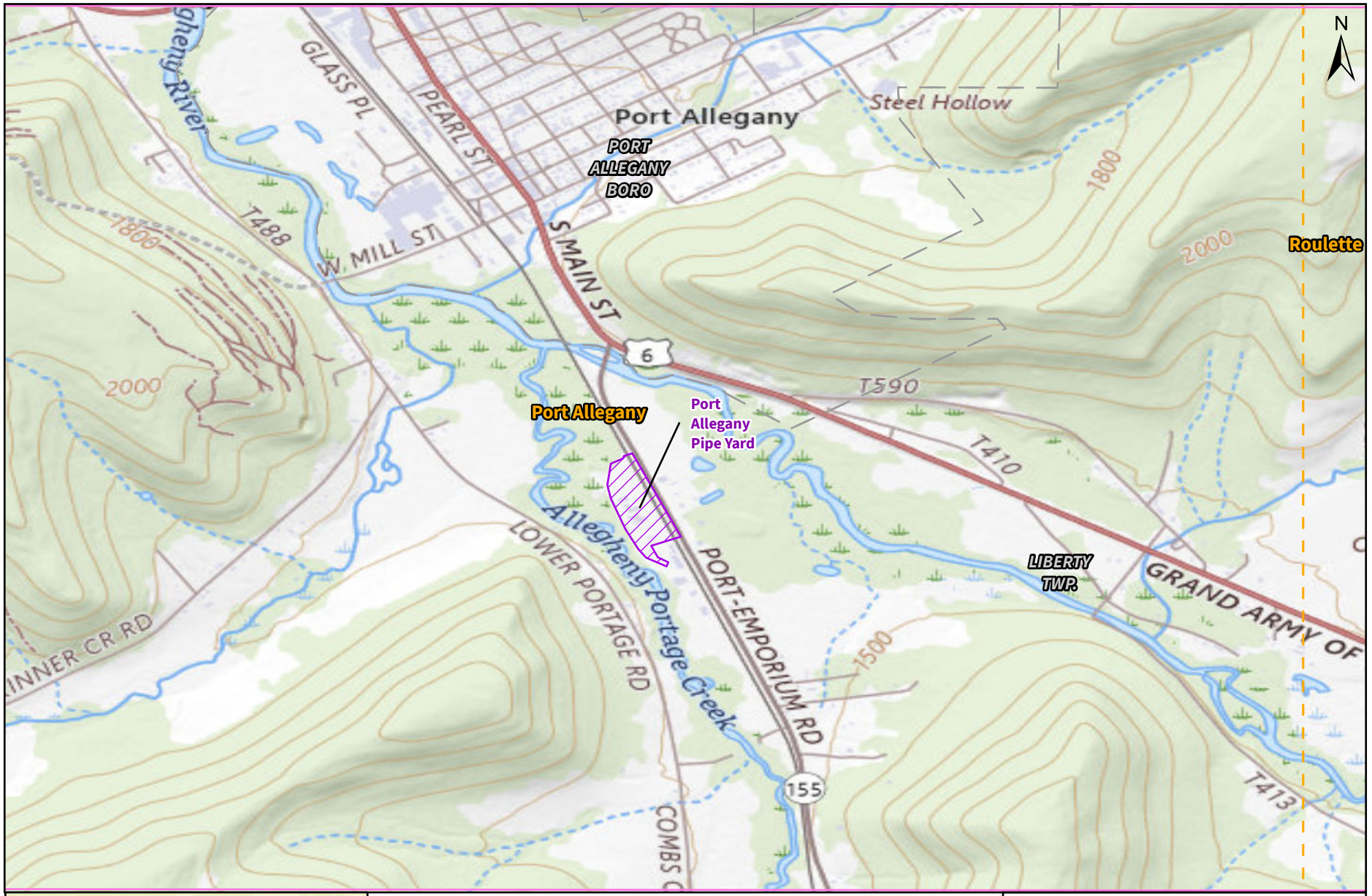
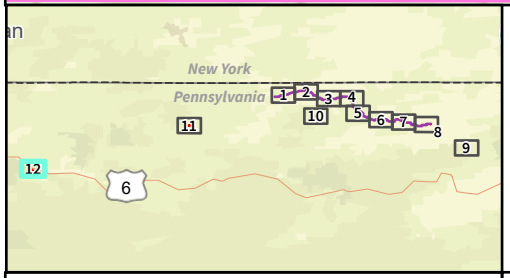




Legend

Sheet 12 of 12

- Project Facility
- Muncipality Boundary
- USGS Topographic Boundary
- Sheet Boundary

Tioga Pathway Project
USGS Project Location Map
McKean County, PA

Prepared For: National Fuel Supply Corporation

Prepared By: TETRA TECH

Feet
0 1,000 2,000 4,000

Basemap: ESRI, USGS Topographic (2023)
USGS Quad Port Allegany Roulette, PA

Meters
0 500 1,000

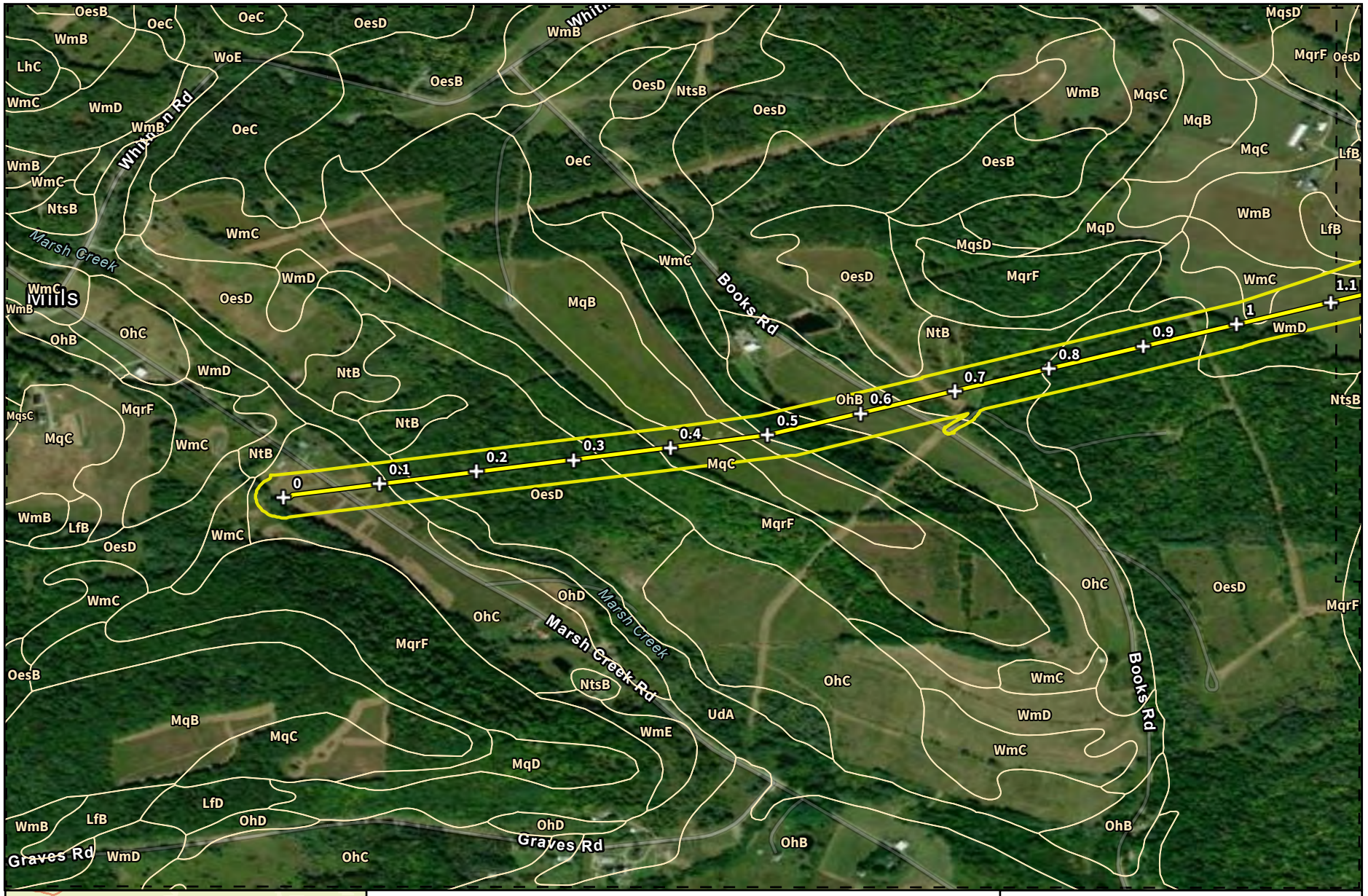
Cartographer: jen.laslovich

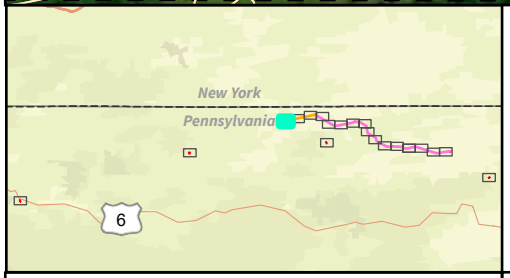
NOT FOR CONSTRUCTION

Date: 9/23/2024 1:45 PM

ATTACHMENT 2

SOILS MAP AND SOILS DESCRIPTIONS





Legend

- Milepost
- Z20 Pipeline Replacement
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 1 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Potter County, PA

Prepared For: NF
Prepared By: TETRA TECH

Feet: 0, 500, 1,000, 2,000

Basemap: ESRI, World Imagery (9/21/2020)

Meters: 0, 150, 300, 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

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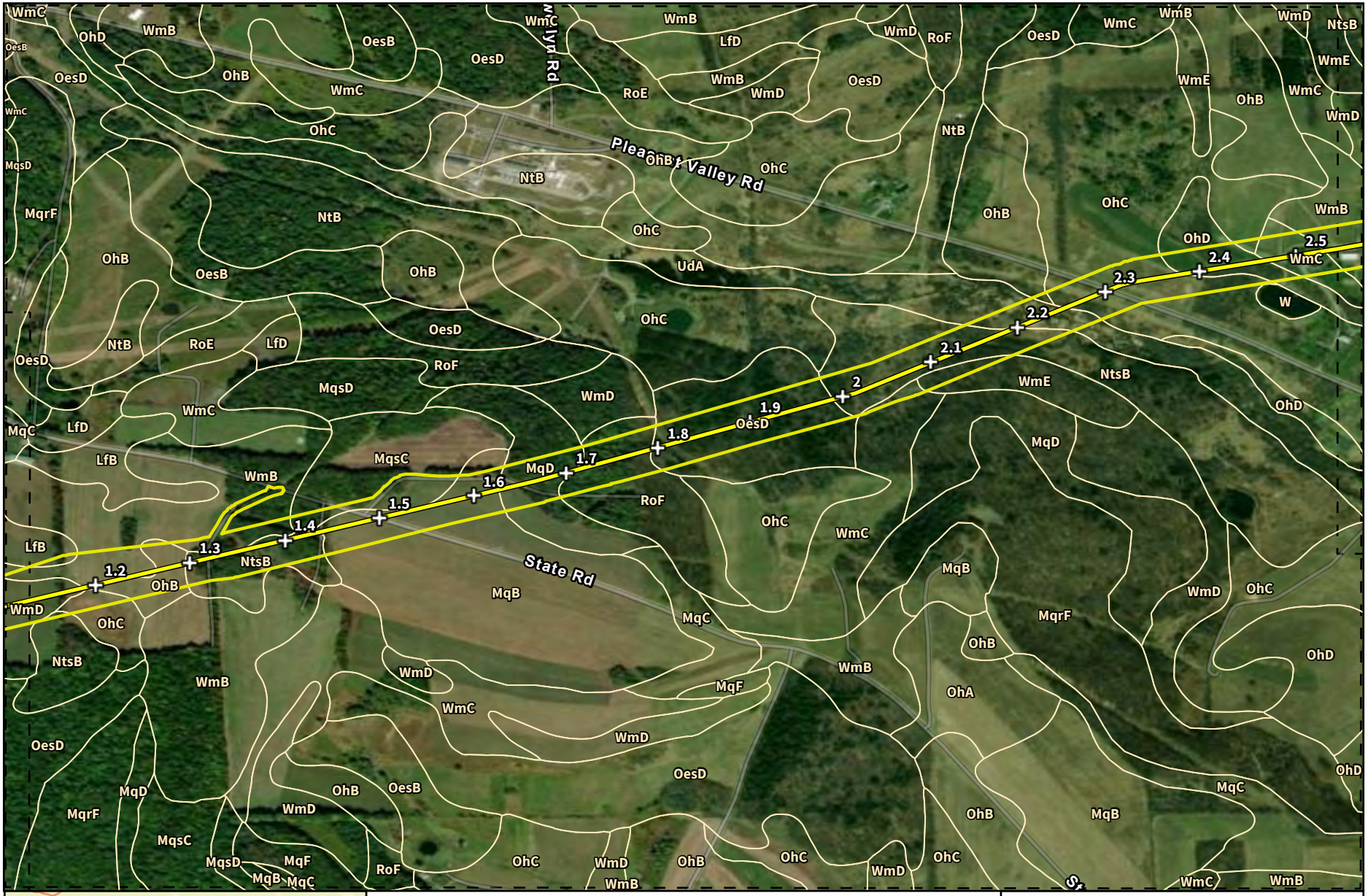

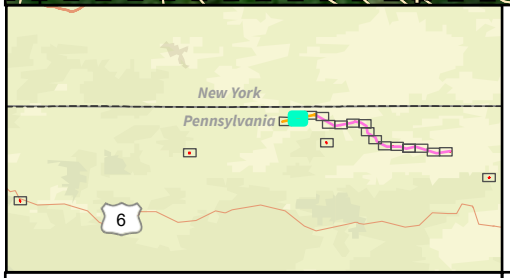

Legend

- Milepost
- Z20 Pipeline Replacement
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 2 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Potter County, PA

Prepared For: NF
Prepared By: TETRA TECH

Feet: 0, 500, 1,000, 2,000

Basemap: ESRI, World Imagery (11/9/2020)

Meters: 0, 150, 300, 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

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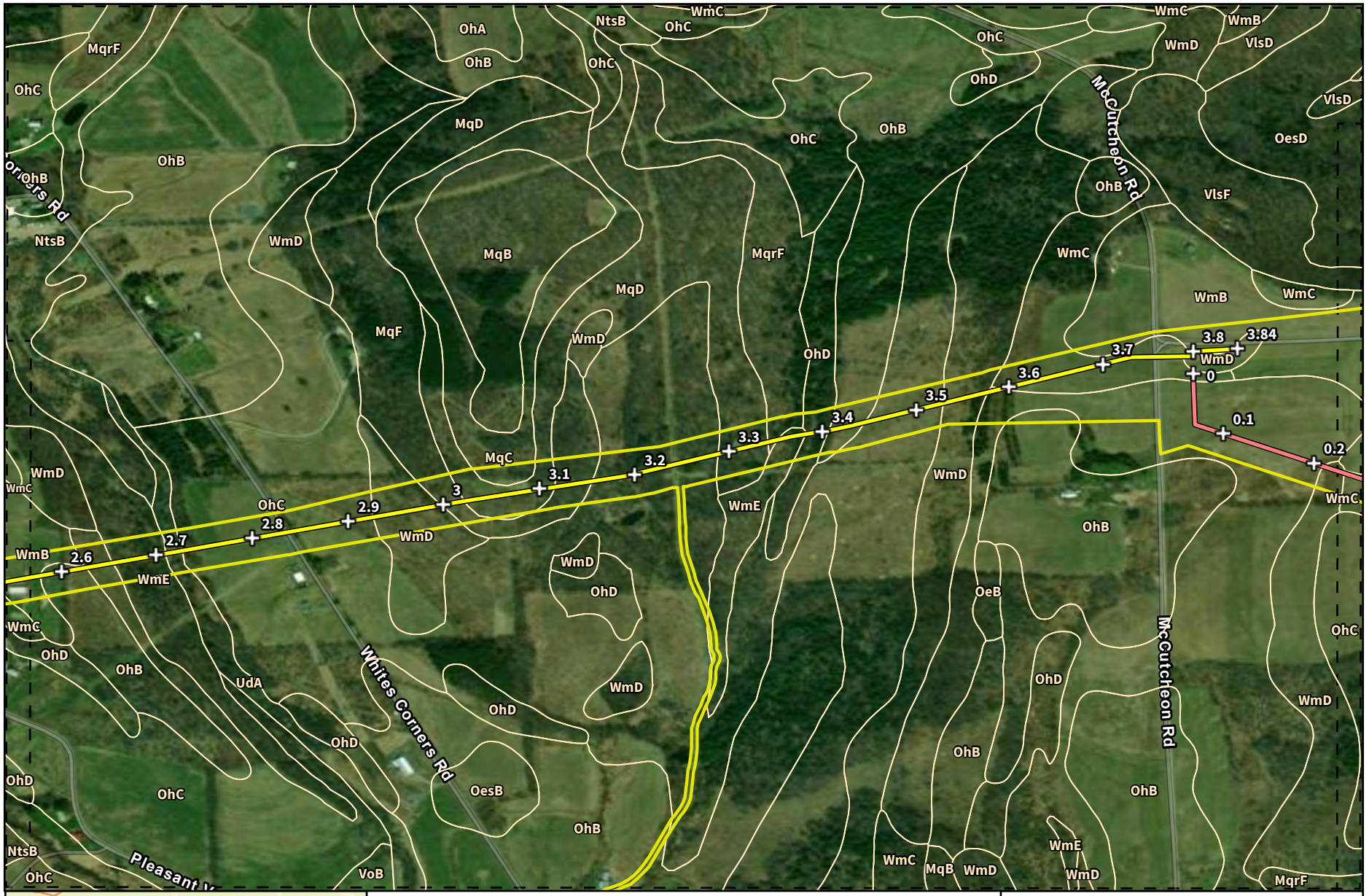

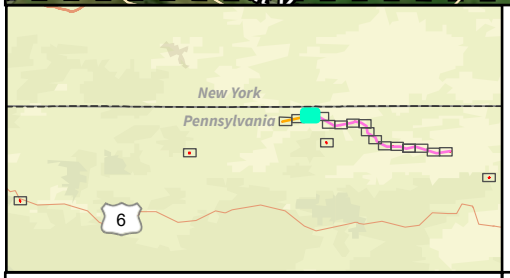

Legend

- Milepost
- Proposed YM59 Pipeline
- Z20 Pipeline Replacement
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 3 of 21

Tioga Pathway Project

Figure 2
USDA Soils Map
Potter County, PA

Prepared For: NF
Prepared By: TETRA TECH

Feet: 0, 500, 1,000, 2,000

Basemap: ESRI, World Imagery (4/6/2021)

Meters: 0, 150, 300, 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

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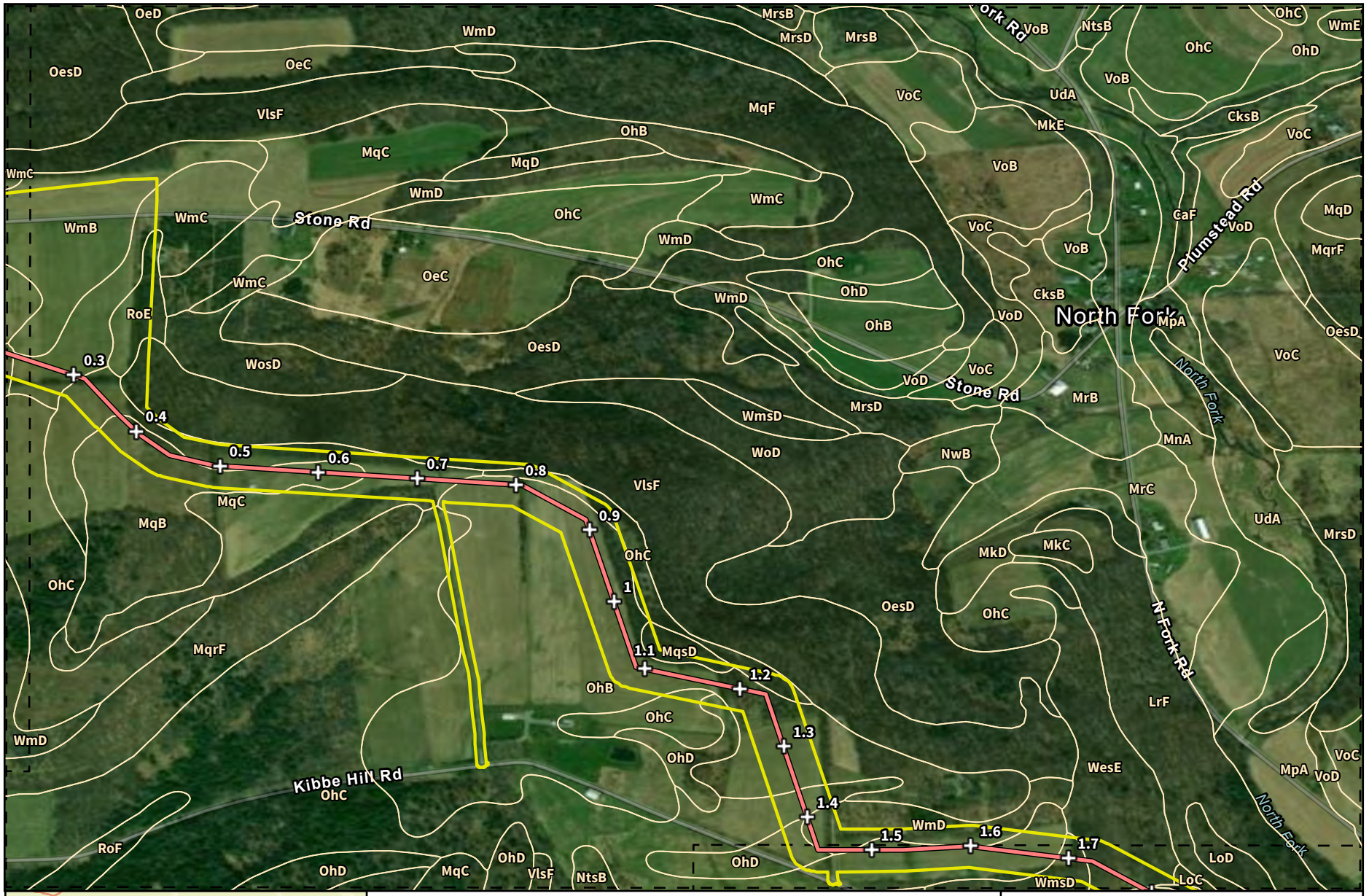
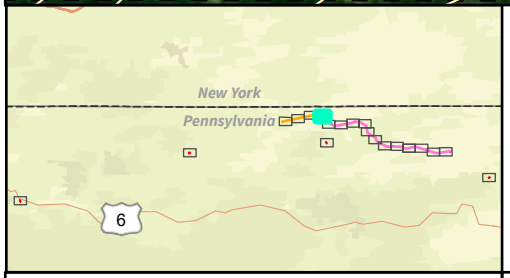




Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 4 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Potter County, PA

Prepared For: NF
Prepared By: TETRA TECH

Feet: 0, 500, 1,000, 2,000

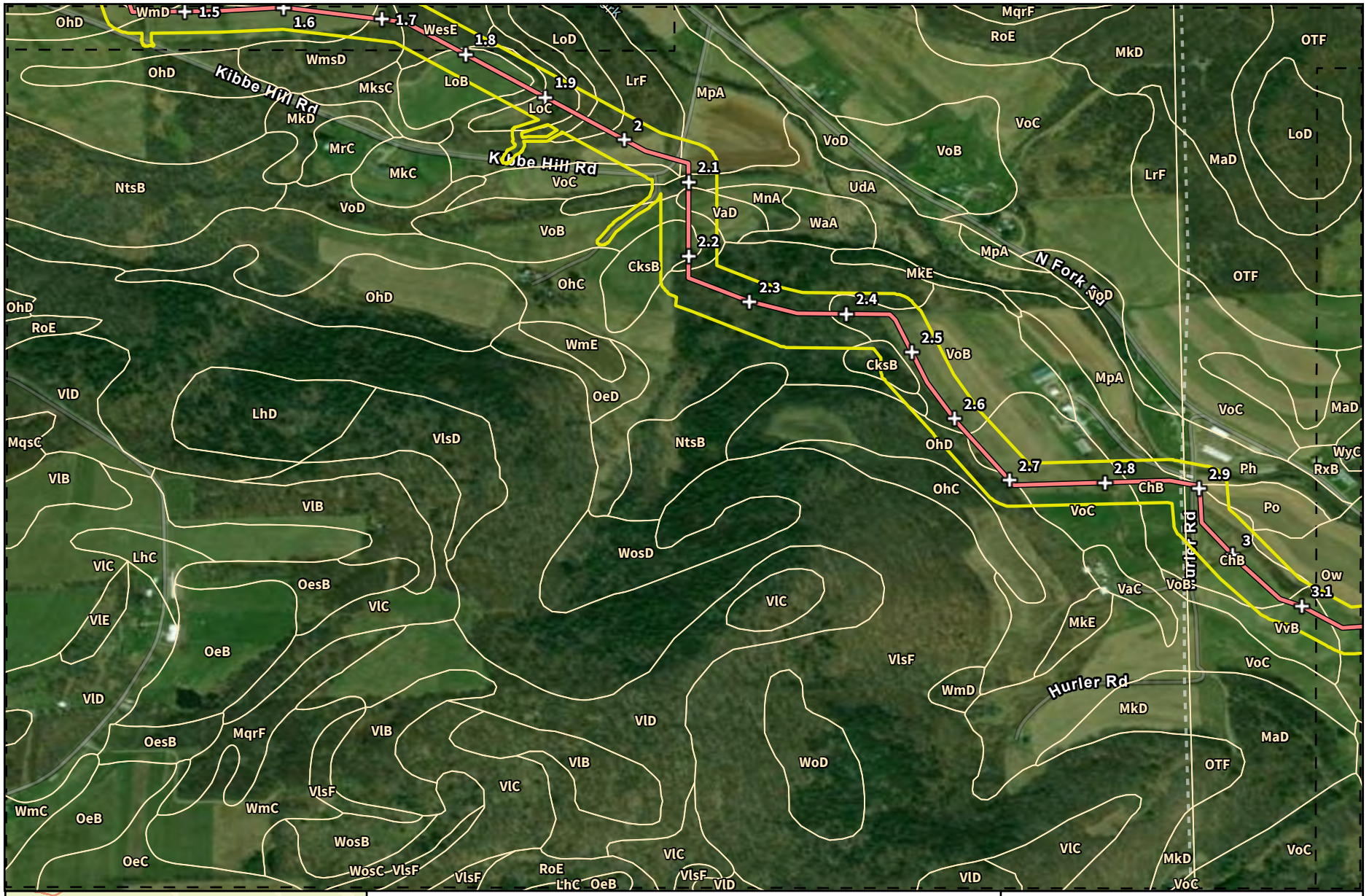
Basemap: ESRI, World Imagery (4/6/2021)

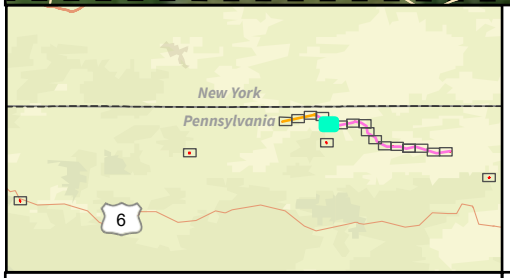
Meters: 0, 150, 300, 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

Date: 6/17/2024 2:17 PM





Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 5 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Potter and Tioga County, PA

Prepared For: NF
Prepared By: TETRA TECH

Feet
0 500 1,000 2,000

Basemap: ESRI, World Imagery (4/6/2021)

Meters
0 150 300 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

Date: 6/17/2024 2:17 PM

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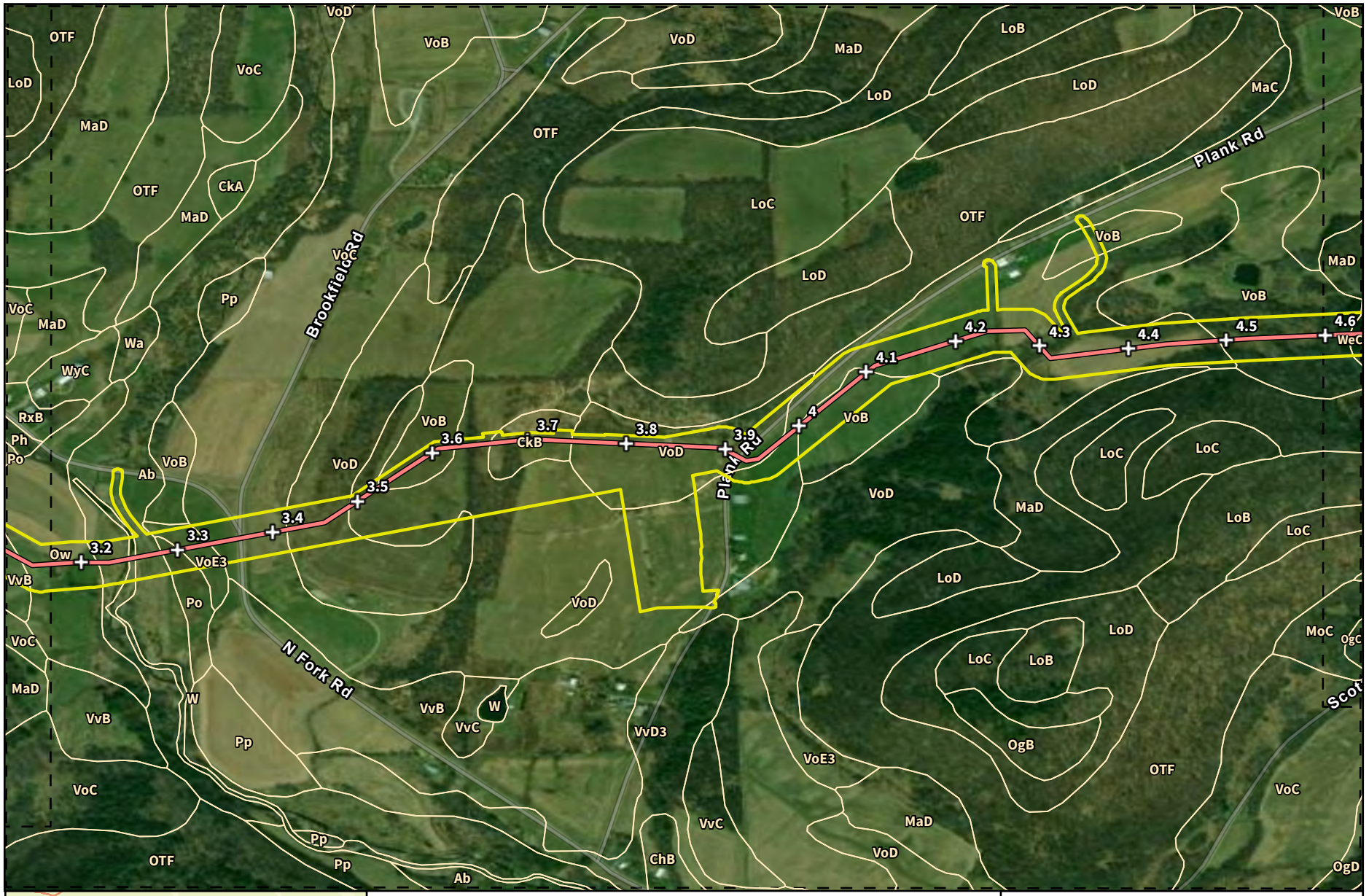
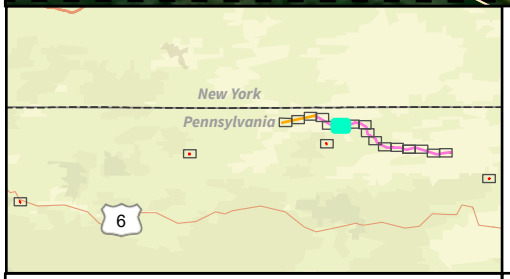




Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 6 of 21

Tioga Pathway Project

Figure 2
USDA Soils Map
Tioga County, PA

Prepared For:
NF
Prepared By:
TETRA TECH

Feet
0 500 1,000 2,000

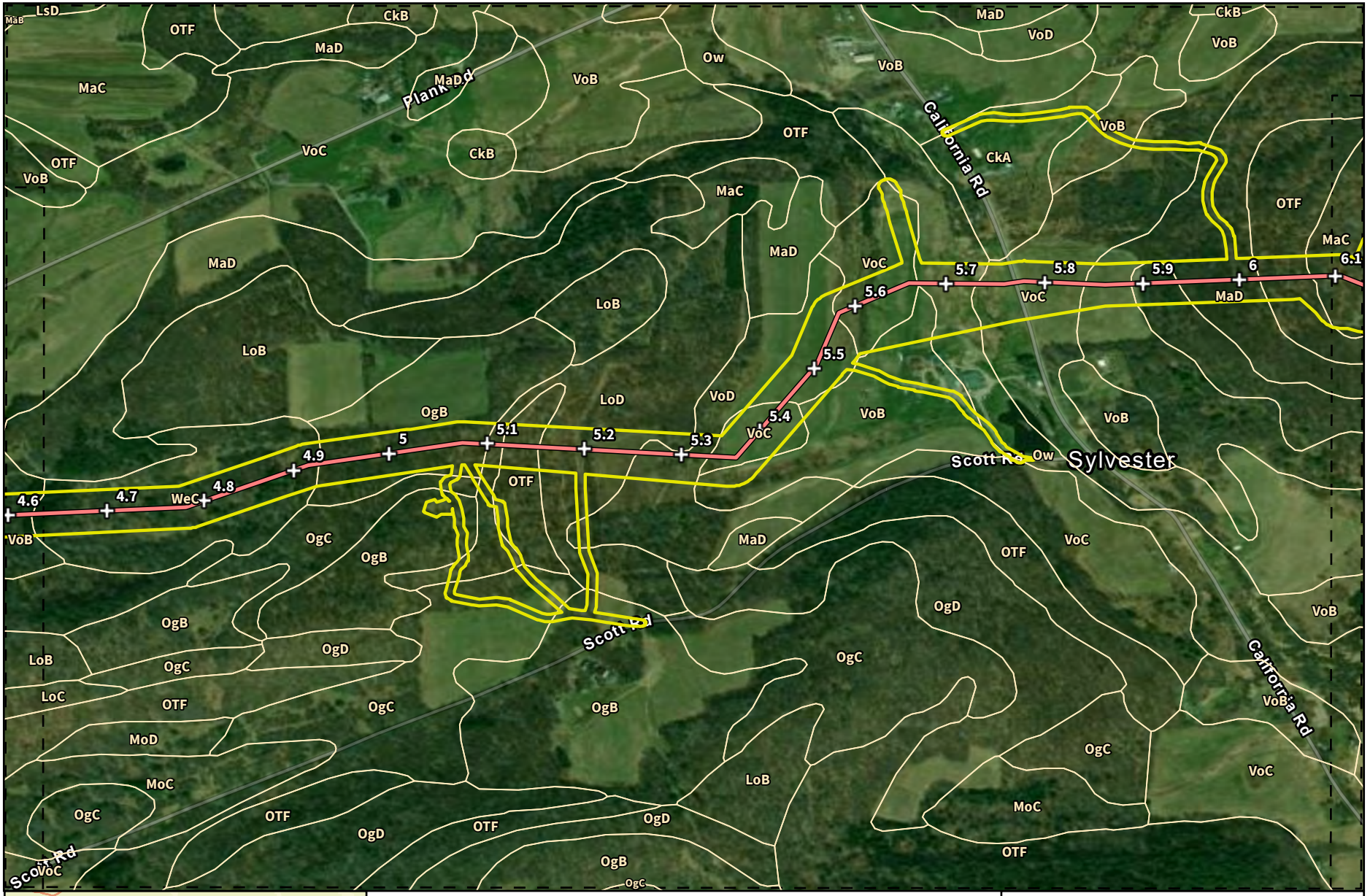
Basemap: ESRI, World Imagery (4/6/2021)

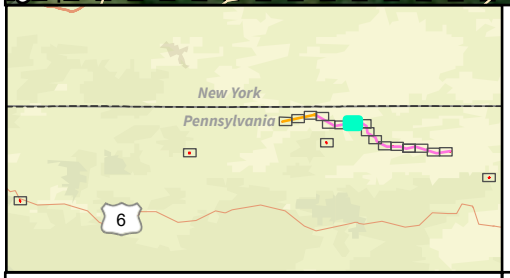
Meters
0 150 300 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

Date: 6/17/2024 2:18 PM





Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 7 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Tioga County, PA

Prepared For: NF
Prepared By: TETRA TECH

Feet: 0, 500, 1,000, 2,000

Basemap: ESRI, World Imagery (4/6/2021)

Meters: 0, 150, 300, 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

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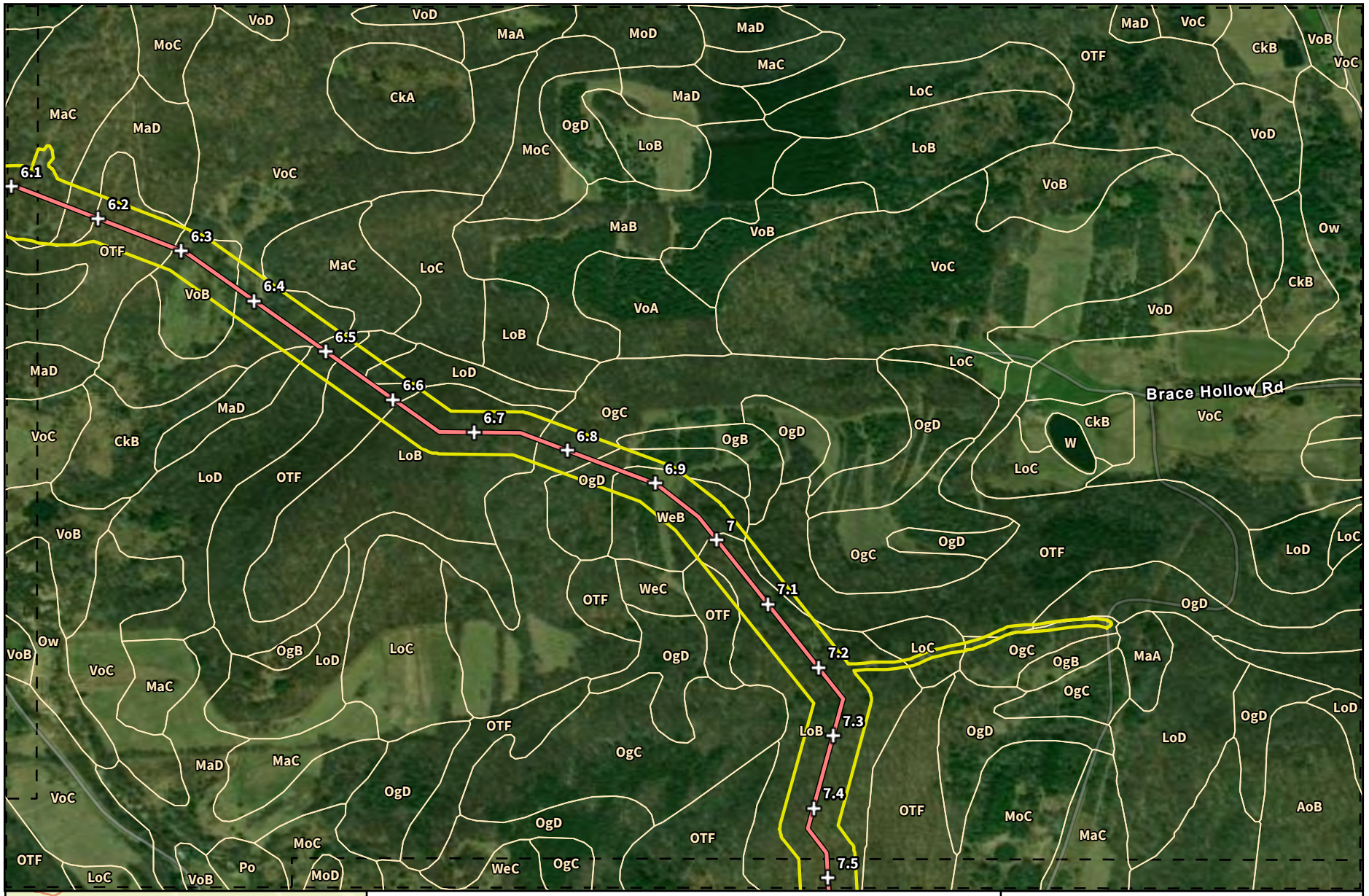

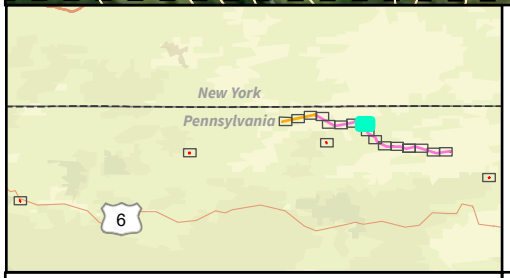

Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 8 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Tioga County, PA

Prepared For: NF
Prepared By: TETRA TECH

Feet: 0, 500, 1,000, 2,000

Basemap: ESRI, World Imagery (4/6/2021)

Meters: 0, 150, 300, 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

Date: 6/17/2024 2:18 PM

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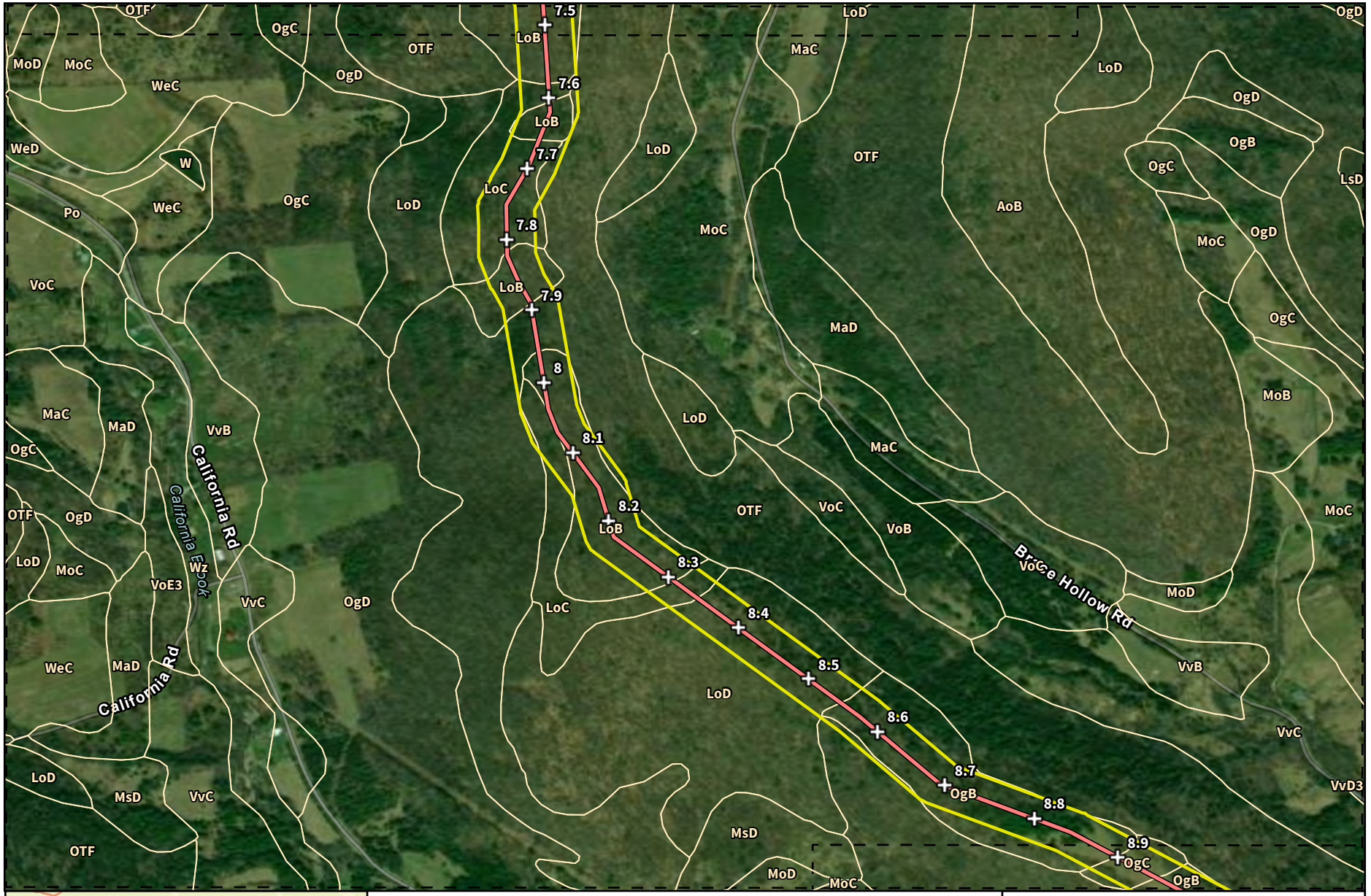

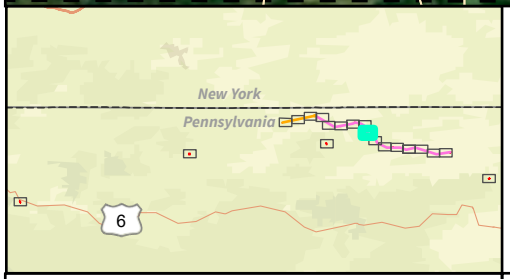

Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 9 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Tioga County, PA

Prepared For:
NF
Prepared By:
TETRA TECH

Feet
0 500 1,000 2,000

Basemap: ESRI, World Imagery (4/6/2021)

Meters
0 150 300 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

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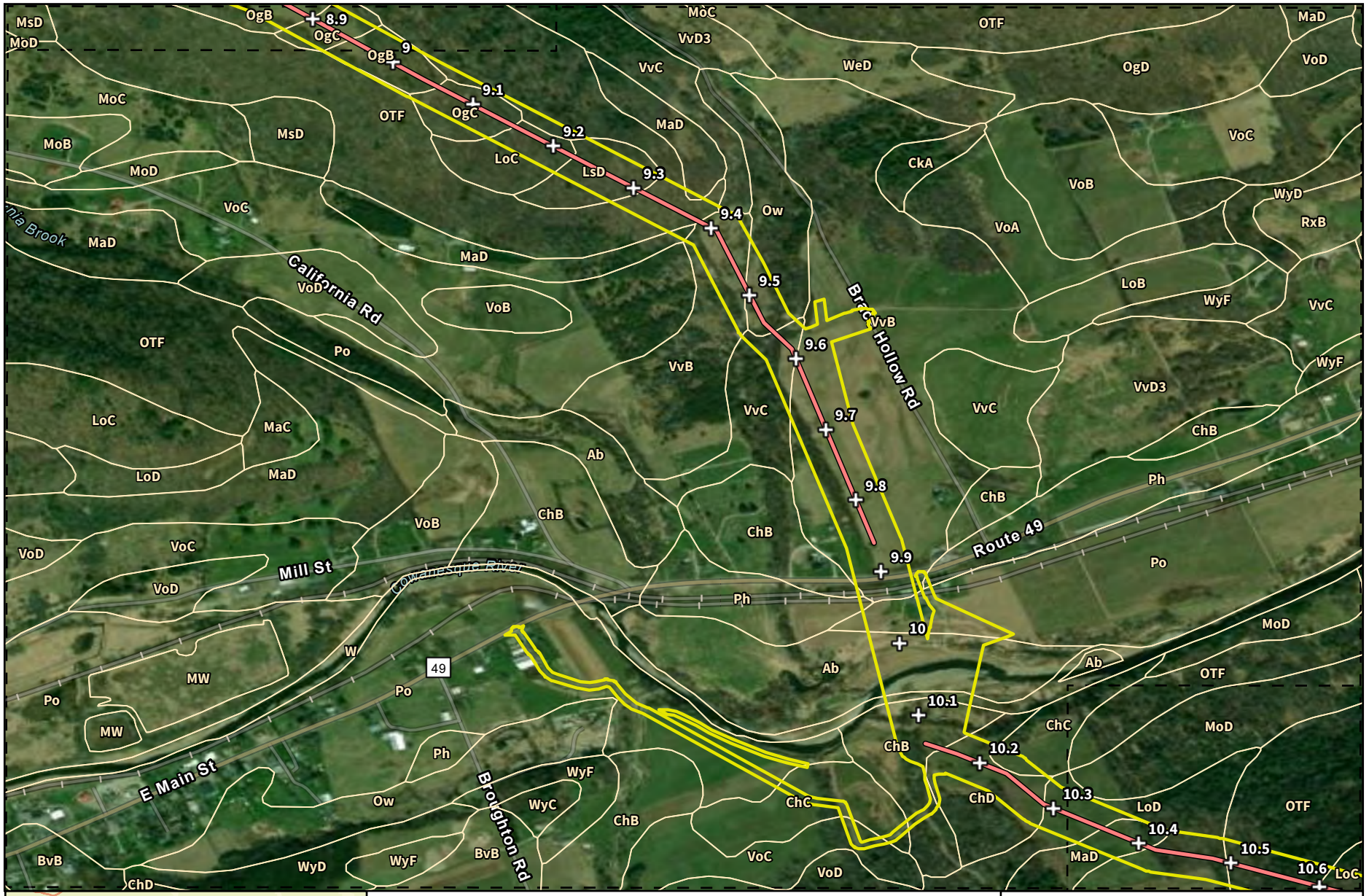

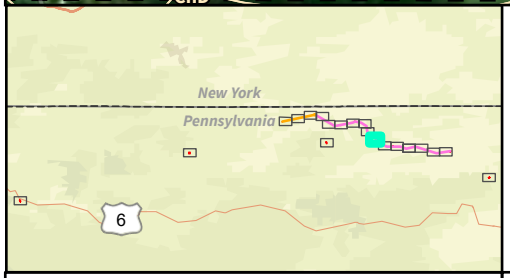

Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 10 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Tioga County, PA

Prepared For:
NF
Prepared By:
TETRA TECH

Feet
0 500 1,000 2,000

Basemap: ESRI, World Imagery (4/6/2021)

Meters
0 150 300 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

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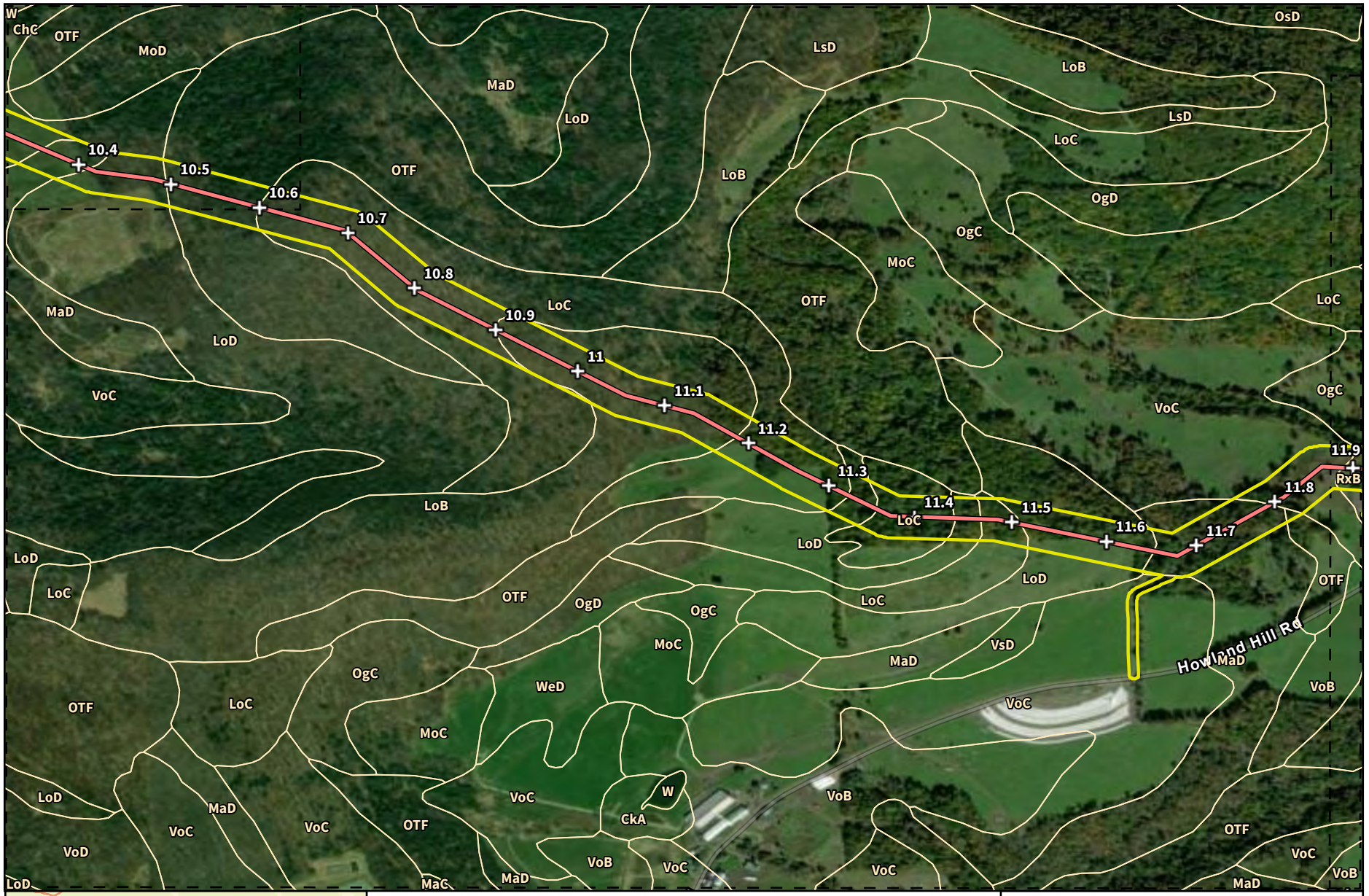

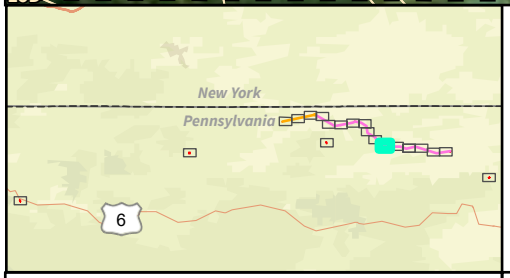

Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 11 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Tioga County, PA

Prepared For: NF
Prepared By: TETRA TECH

Feet
0 500 1,000 2,000

Basemap: ESRI, World Imagery (4/6/2021)

Meters
0 150 300 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

Date: 6/17/2024 2:18 PM

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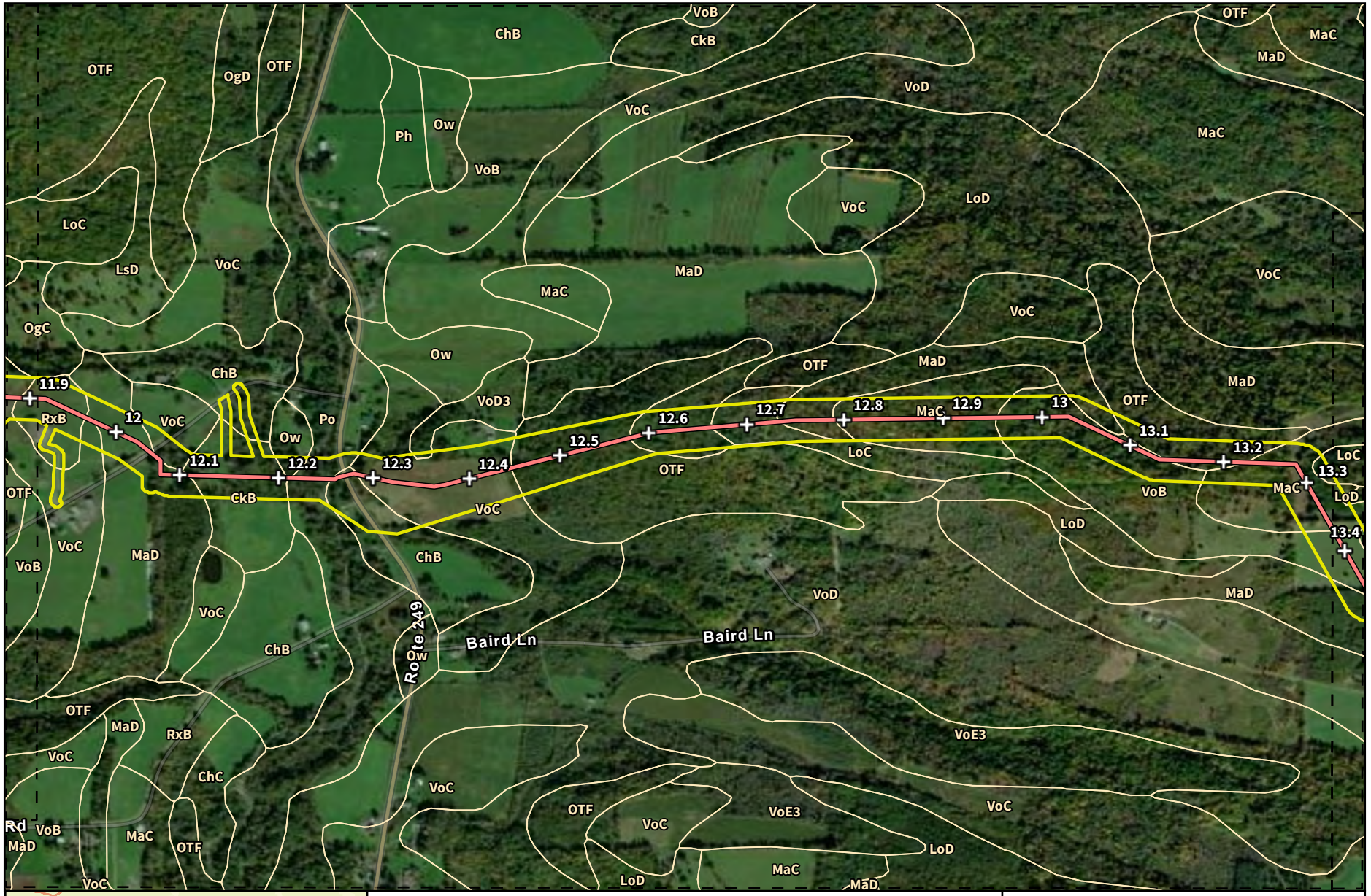
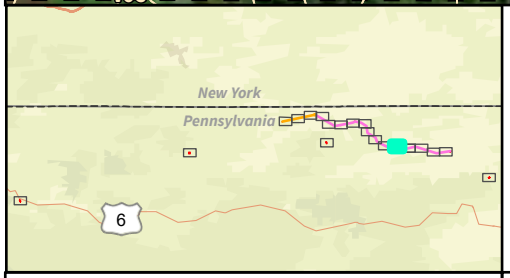




Legend

Sheet 12 of 21

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Tioga Pathway Project

Figure 2

USDA Soils Map

Tioga County, PA

Prepared For: NF

Prepared By: TETRA TECH

Feet: 0, 500, 1,000, 2,000

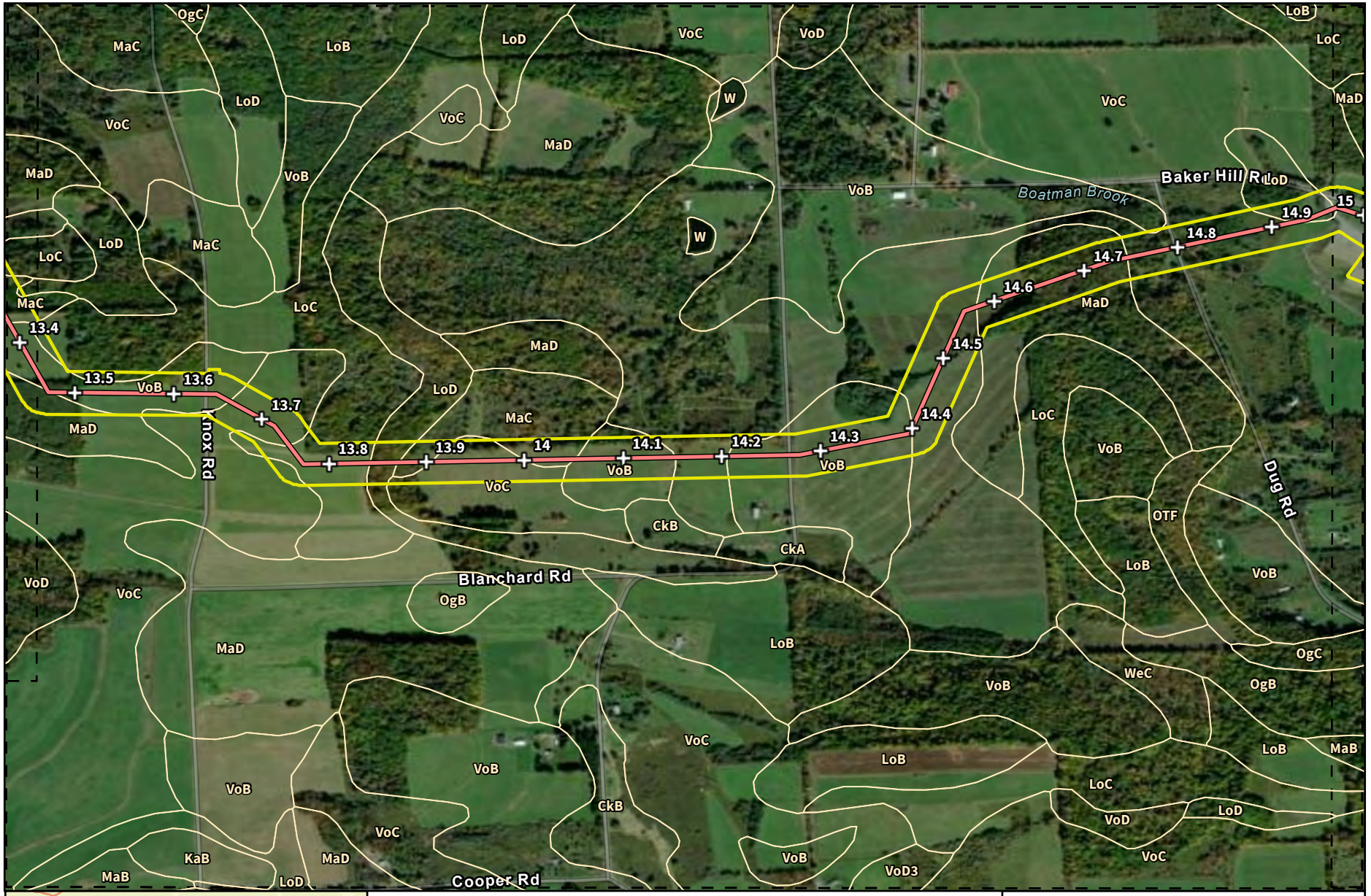
Basemap: ESRI, World Imagery (10/5/2015)

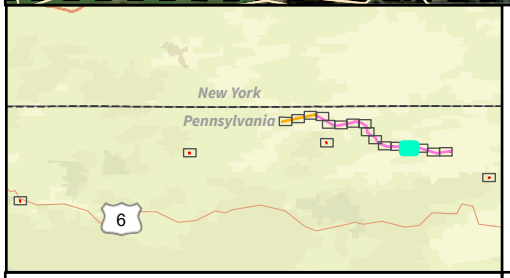
Meters: 0, 150, 300, 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

Date: 6/17/2024 2:18 PM





Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 13 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Tioga County, PA

Prepared For: NF
Prepared By: TETRA TECH

Feet: 0, 500, 1,000, 2,000

Basemap: ESRI, World Imagery (10/5/2015)

Meters: 0, 150, 300, 600

Cartographer: jen.laslovich

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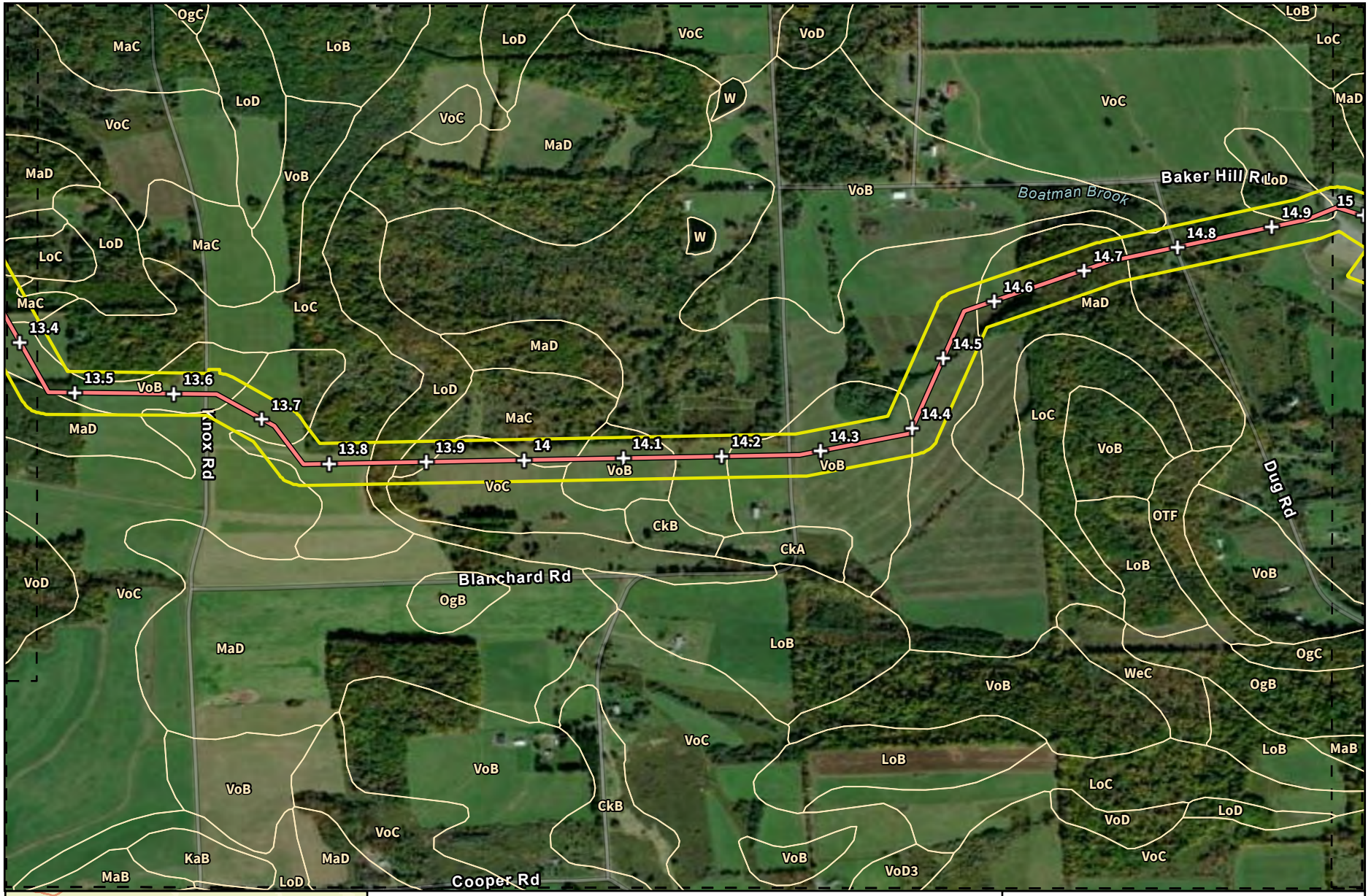

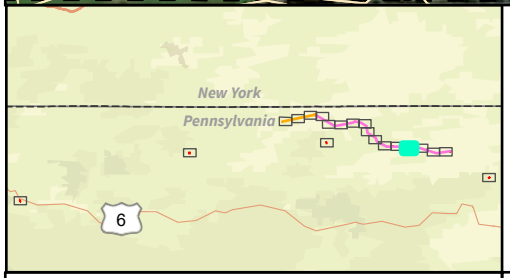

Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 14 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Tioga County, PA

Prepared For: NF
Prepared By: TETRA TECH

Feet: 0, 500, 1,000, 2,000

Basemap: ESRI, World Imagery (10/5/2015)

Meters: 0, 150, 300, 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

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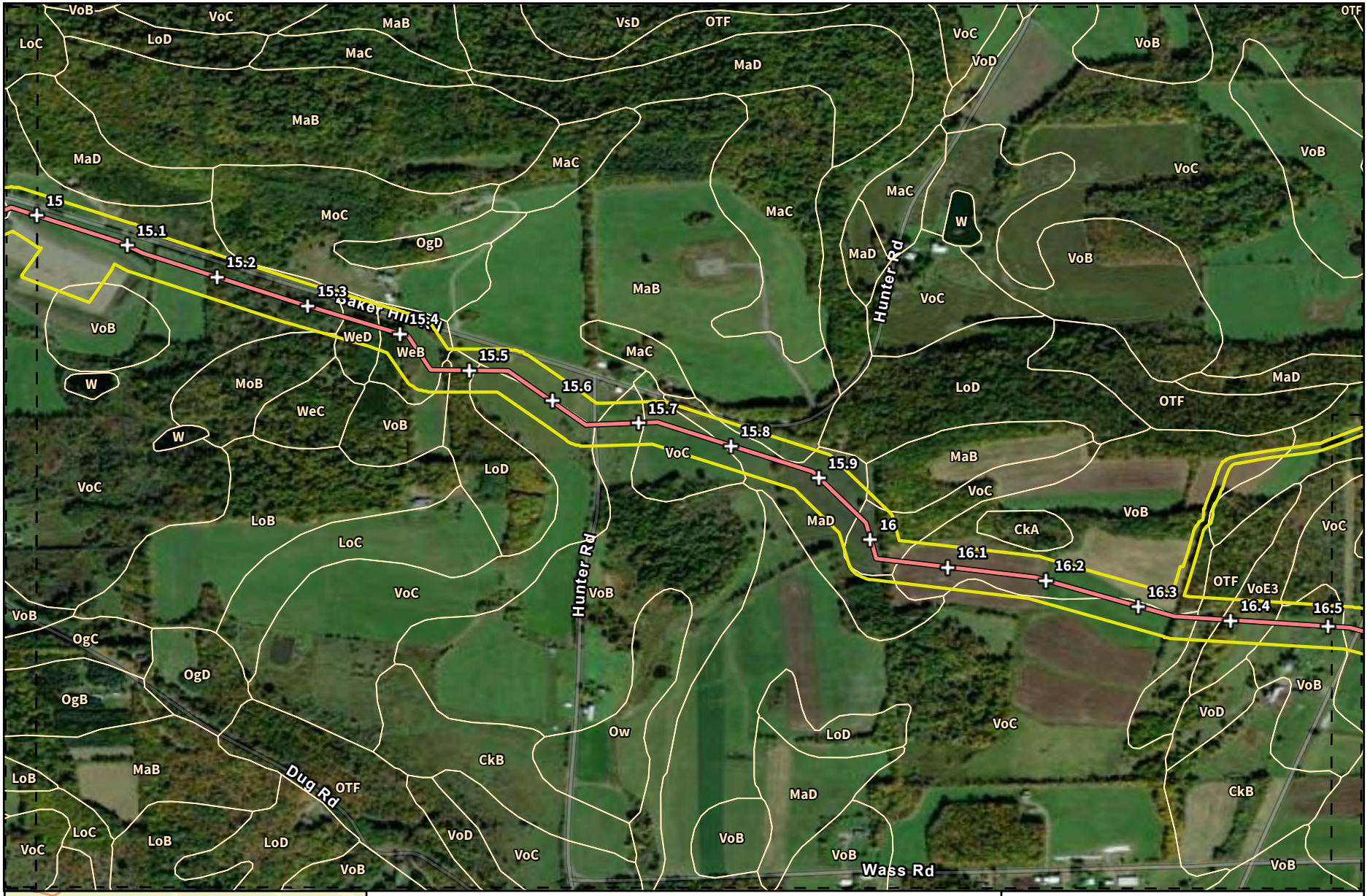

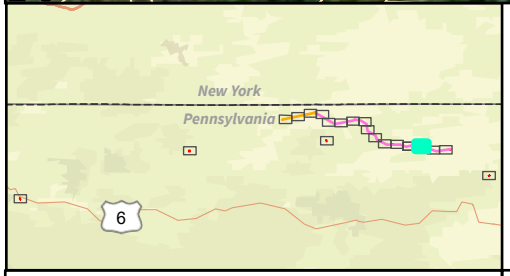

Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 15 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Tioga County, PA

Prepared For:
NF
Prepared By:
TETRA TECH

Feet
0 500 1,000 2,000

Basemap: ESRI, World Imagery (10/5/2015)

Meters
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Cartographer: jen.laslovich

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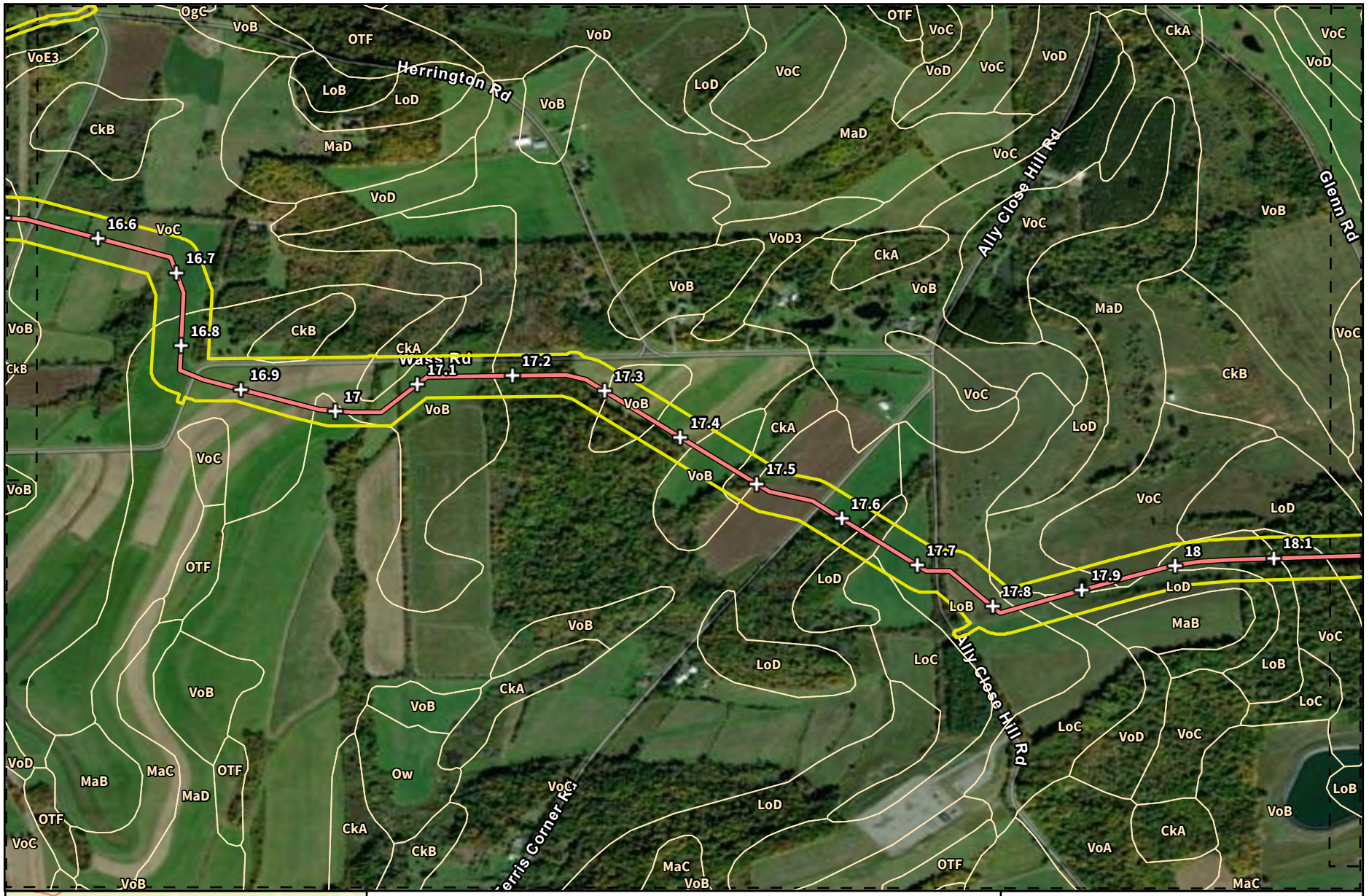

Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 16 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Tioga County, PA

Prepared For: NF
National Fuel Supply Corporation
Prepared By:
TETRA TECH

Feet
0 500 1,000 2,000

Basemap: ESRI, World Imagery (10/5/2015)

Meters
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Cartographer: jen.laslovich

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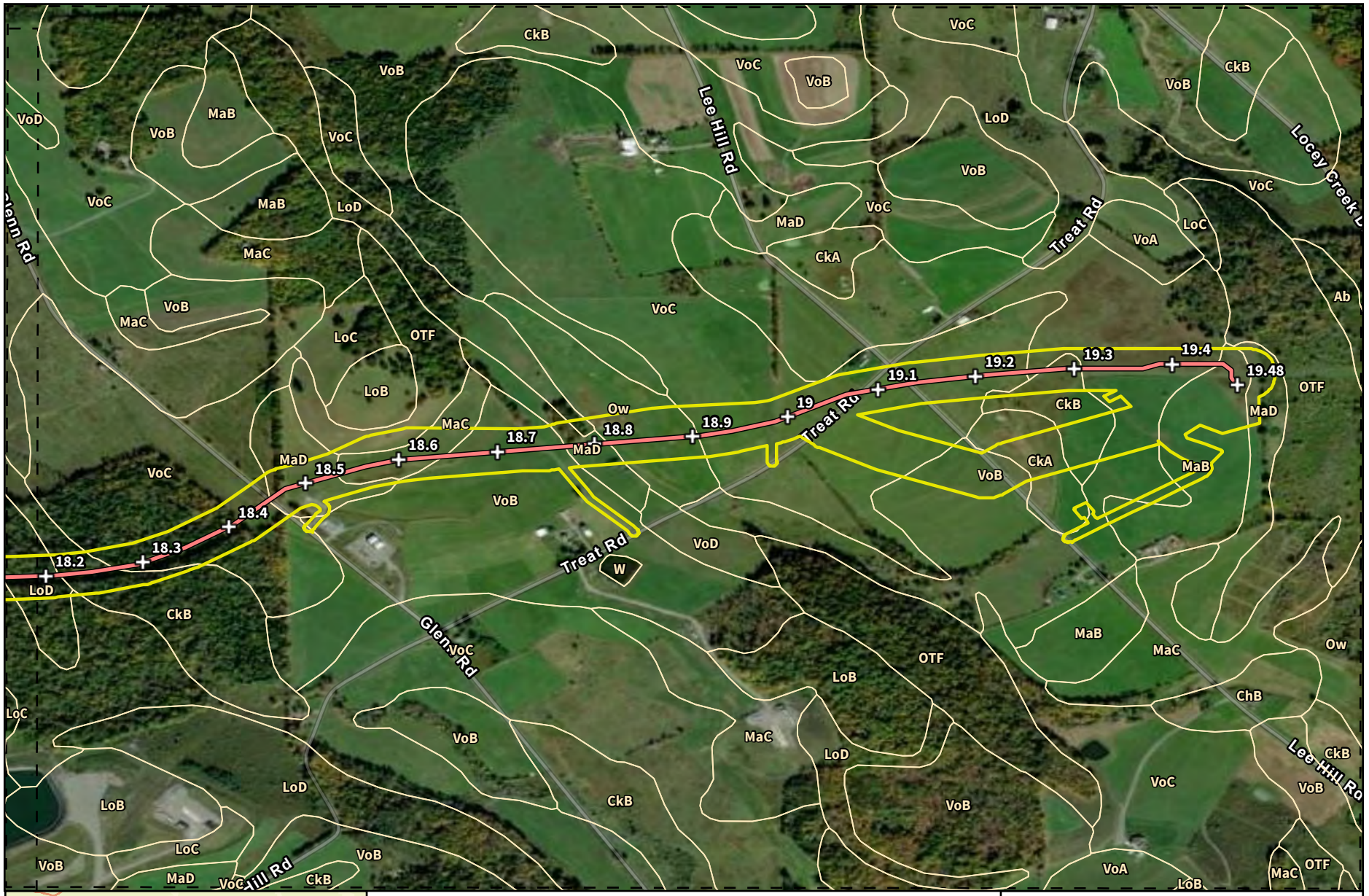

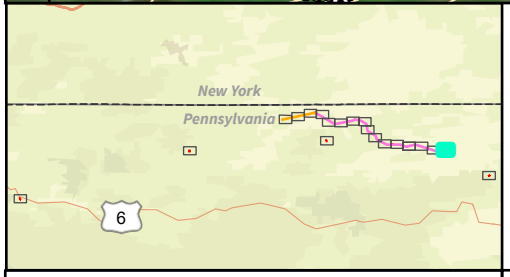

Legend

- Milepost
- Proposed YM59 Pipeline
- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 21 of 21

Tioga Pathway Project
Figure 2
USDA Soils Map
Tioga County, PA

Prepared For: NF
Prepared By: TETRA TECH

Feet: 0, 500, 1,000, 2,000

Basemap: ESRI, World Imagery (10/5/2015)

Meters: 0, 150, 300, 600

Cartographer: jen.laslovich

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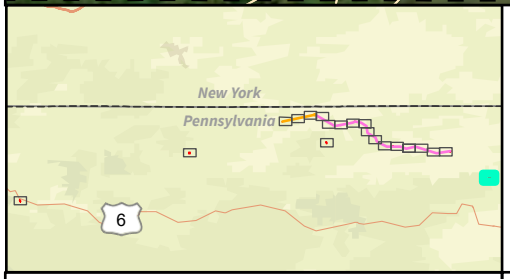

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Survey Area

Soil Unit Boundary (See text/document for translation of soils abbreviations.)

Sheet Boundary

Sheet 18 of 21

Tioga Pathway Project

Figure 2

USDA Soils Map

Tioga County, PA

Prepared For: NF

Prepared By: TETRA TECH

Feet: 0, 500, 1,000, 2,000

Basemap: ESRI, World Imagery (10/5/2015)

Meters: 0, 150, 300, 600

Cartographer: jen.laslovich

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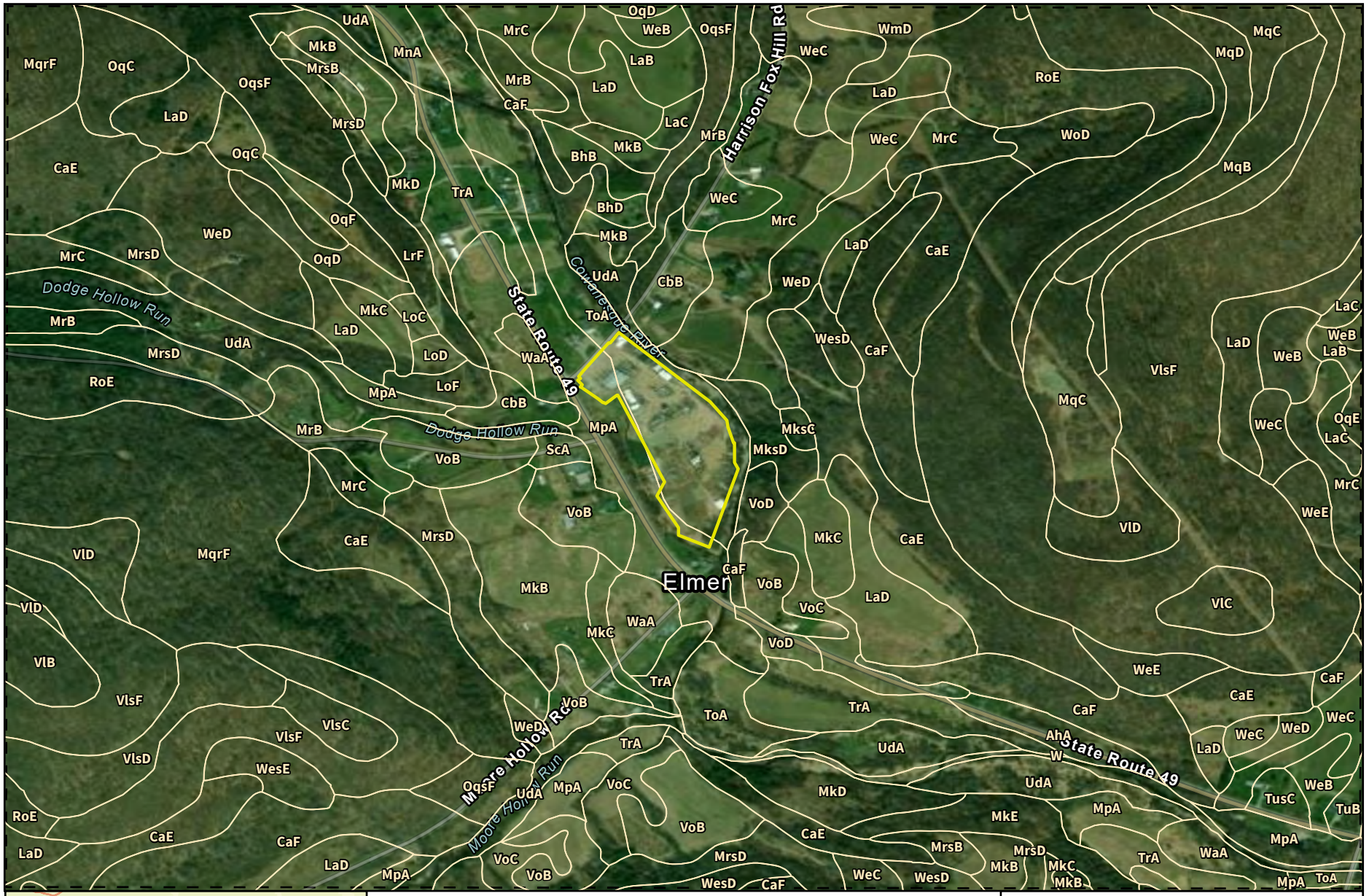

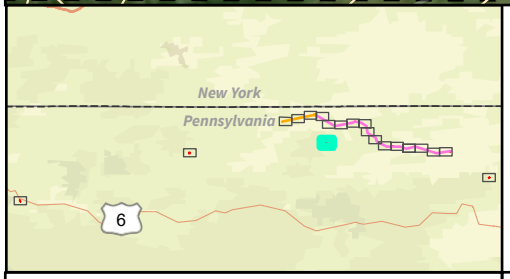

Legend

- Survey Area
- Soil Unit Boundary (See text/document for translation of soils abbreviations.)
- Sheet Boundary

Sheet 19 of 21

Tioga Pathway Project

Figure 2
USDA Soils Map
Tioga County, PA

Prepared For:
NF
Prepared By:
TETRA TECH

Feet
0 500 1,000 2,000

Basemap: ESRI, World Imagery (4/6/2021)

Meters
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Cartographer: jen.laslovich

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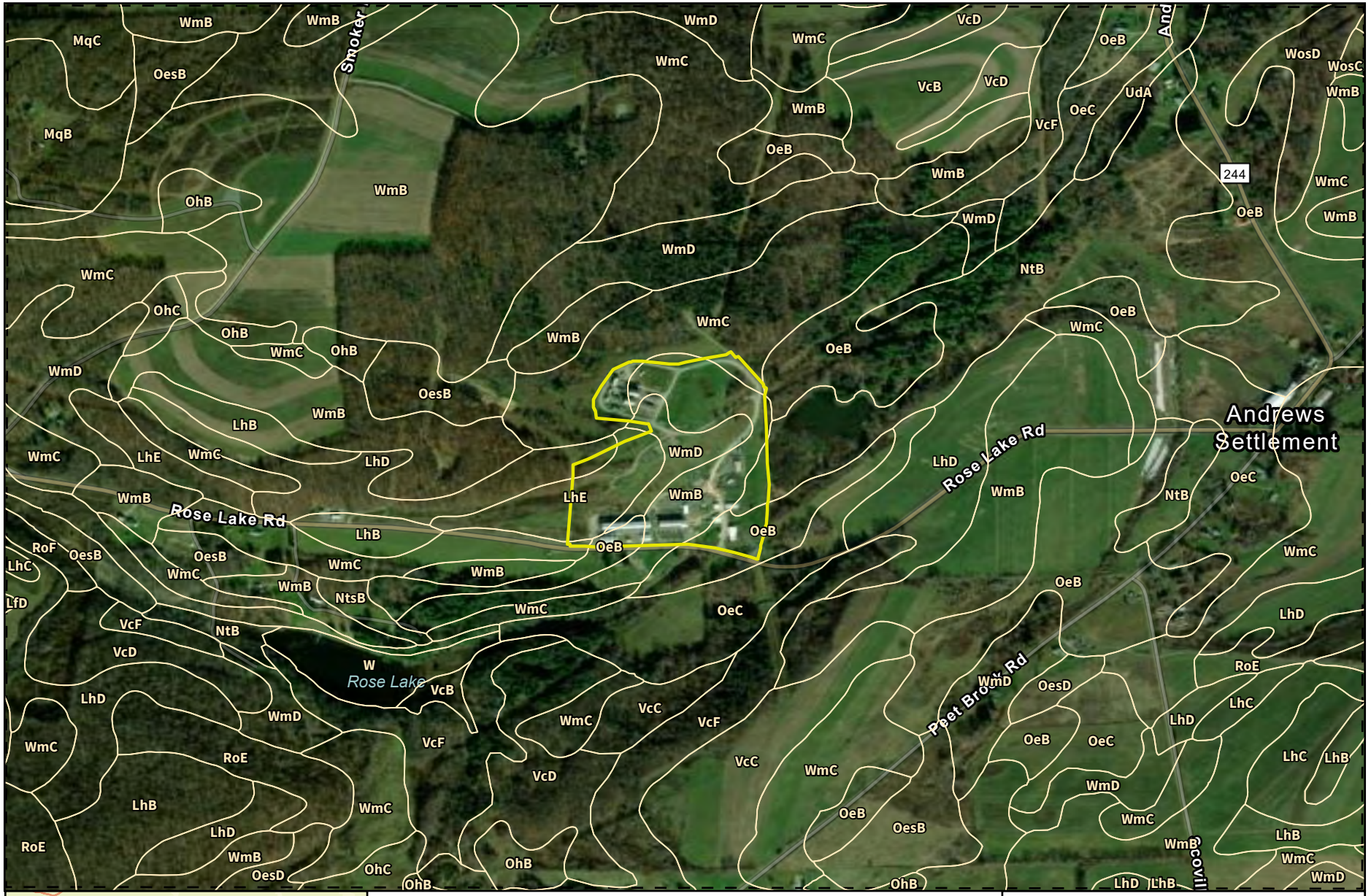

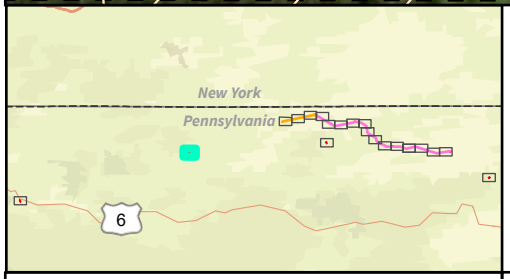

Legend

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Sheet 20 of 21

Tioga Pathway Project

Figure 2
USDA Soils Map
Tioga County, PA

Prepared For: NF
Prepared By: TETRA TECH

Feet: 0, 500, 1,000, 2,000

Basemap: ESRI, World Imagery (11/6/2020)

Meters: 0, 150, 300, 600

Cartographer: jen.laslovich

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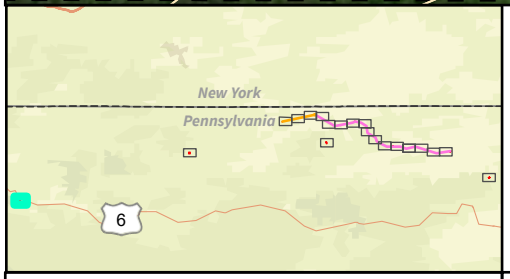

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Sheet 21 of 21

Tioga Pathway Project

Figure 2
USDA Soils Map
Tioga County, PA

Prepared For:
NF
Prepared By:
TETRA TECH

Feet
0 500 1,000 2,000

Basemap: ESRI, World Imagery (11/6/2020)

Meters
0 150 300 600

Cartographer: jen.laslovich

NOT FOR CONSTRUCTION

Date: 6/17/2024 2:19 PM

MCKEAN COUNTY, PENNSYLVANIA

Map Unit: BeB—Braceville silt loam, 3 to 8 percent slopes

Component: Braceville (85%)

The Braceville component makes up 85 percent of the map unit. Slopes are 3 to 8 percent. This component is on outwash terraces. The parent material consists of coarse-loamy outwash. Depth to a root restrictive layer, fragipan, is 20 to 32 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during January, February, March, November, December. Organic matter content in the surface horizon is about 3 percent. This component is in the F139XY004OH Moist Acidic Slopes ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Minor Components: Halsey (5%), Canfield (5%), and Braceville (5%)

Map Unit: ChB—Chenango gravelly loam, 3 to 8 percent slopes

Component: Chenango (90%)

The Chenango component makes up 90 percent of the map unit. Slopes are 3 to 8 percent. This component is on outwash terraces. The parent material consists of gravelly outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. This component is in the F140XY021NY Dry Outwash ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Minor Components: Braceville (5%) and Rexford, somewhat poorly drained (5%)

Map Unit: Po—Pope loam, 0 to 3 percent slopes, occasionally flooded

Component: Pope (85%)

The Pope component makes up 85 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains on dissected plateaus. The parent material consists of acid coarse-loamy alluvium derived from sandstone and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 69 percent. Below this thin organic horizon the organic matter content is about 5 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Minor Components: Philo (9%) and Atkins (6%)

POTTER COUNTY, PENNSYLVANIA

Map Unit: ChB—Chenango gravelly loam, 0 to 8 percent slopes

Component: Chenango (90%)

The Chenango component makes up 90 percent of the map unit. Slopes are 0 to 8 percent. This component is on valley trains, terraces, outwash plains. The parent material consists of gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY021NY Dry Outwash ecological site. Nonirrigated land capability classification is 2s. This soil does not meet hydric criteria.

Minor Components: Allard (5%) and Castile (5%)

Map Unit: CksB—Chippewa channery silt loam, 0 to 8 percent slopes, extremely stony

Component: Chippewa, extremely stony (85%)

The Chippewa, extremely stony component makes up 85 percent of the map unit. Slopes are 0 to 8 percent. This component is on depressions on uplands. The parent material consists of loamy till dominated by siltstone, sandstone, and shale fragments. Depth to a root restrictive layer, fragipan, is 8 to 20 inches (depth from the mineral surface is 8 to 17 inches). The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 7 percent. This component is in the F140XY016NY Mineral Wetlands ecological site. Nonirrigated land capability classification is 7s. This soil meets hydric criteria.

Minor Components: Volusia, extremely stony (8%) and Chippewa, extremely stony, very poorly drained (7%)

Map Unit: LhD—Lewbeach channery silt loam, 15 to 25 percent slopes

Component: Lewbeach (85%)

The Lewbeach component makes up 85 percent of the map unit. Slopes are 15 to 25 percent. This component is on hills on uplands. The parent material consists of loamy till derived mainly from reddish sandstone, siltstone, and shale. Depth to a root restrictive layer, fragipan, is 17 to 36 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 25 inches during January, February, March, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY005NY Frigid Steep Well Drained Dense Till ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Minor Components: Willowemoc (10%) and Vly (5%)

Map Unit: LhE—Lewbeach channery silt loam, 25 to 35 percent slopes

Component: Lewbeach (85%)

The Lewbeach component makes up 85 percent of the map unit. Slopes are 25 to 35 percent. This component is on hills on uplands. The parent material consists of loamy till derived mainly from reddish sandstone, siltstone, and shale. Depth to a root restrictive layer, fragipan, is 17 to 36 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 25 inches during January, February, March, November, December. Organic matter content in the surface horizon is about 10 percent. This component is in the F140XY005NY Frigid Steep Well Drained Dense Till ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Minor Components: Willowemoc (5%), Rockrift, very stony (5%), and Vly (5%)

Map Unit: LoB—Lordstown channery silt loam, 3 to 8 percent slopes

Component: Lordstown (90%)

The Lordstown component makes up 90 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on glaciated uplands. The parent material consists of loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Minor Components: Arnot (5%) Mardin (5%)

Map Unit: LoC—Lordstown channery silt loam, 8 to 15 percent slopes

Component: Lordstown (90%)

The Lordstown component makes up 90 percent of the map unit. Slopes are 8 to 15 percent. This component is on hills on glaciated uplands. The parent material consists of loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Minor Components: Arnot (5%) and Mardin (5%)

Map Unit: LoD—Lordstown channery silt loam, 15 to 25 percent slopes

Component: Lordstown (85%)

The Lordstown component makes up 85 percent of the map unit. Slopes are 15 to 25 percent. This component is on hills on glaciated uplands. The parent material consists of loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface

horizon is about 5 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Minor Components: Arnot (5%), Mardin (5%), and Cadosia, very stony (5%)

Map Unit: LrF—Lordstown-Cadosia complex, 25 to 60 percent slopes, extremely stony

Component: Lordstown, extremely stony (50%)

The Lordstown, extremely stony component makes up 50 percent of the map unit. Slopes are 25 to 60 percent. This component is on hills on glaciated uplands. The parent material consists of loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches (depth from the mineral surface is 20 to 38 inches). The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 15 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Cadosia, extremely stony (40%)

The Cadosia, extremely stony component makes up 40 percent of the map unit. Slopes are 25 to 60 percent. This component is on glaciated ridges, uplands. The parent material consists of channery loamy local colluvium derived from sedimentary rock and/or channery loamy till derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 11 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Minor Component: Mardin, very stony (10%)

Map Unit: MpA—Middlebury, acid subsoil and Basher soils, 0 to 3 percent slopes, occasionally flooded

Component: Middlebury, acid subsoil, occasionally flooded (45%)

The Middlebury, acid subsoil, occasionally flooded component makes up 45 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains, valleys. The parent material consists of loamy alluvium predominantly from areas of shale, sandstone and siltstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 22 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 6 percent. This component is in the F140XY014NY Low Floodplain ecological site. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Component: Basher, occasionally flooded (40%)

The Basher, occasionally flooded component makes up 40 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains, valleys. The parent material consists of coarse-loamy alluvium derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high.

Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 3 percent. This component is in the F140XY014NY Low Floodplain ecological site. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Minor Components: Barbour (5%), Fluvaquents (5%), and Tioga, acid subsoil, occasionally flooded (5%)

Map Unit: MqB—Mongaup channery silt loam, 3 to 8 percent slopes

Component: Mongaup (90%)

The Mongaup component makes up 90 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on glaciated uplands. The parent material consists of loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY009NY Frigid Till Uplands ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Minor Components: Halcott (5%) and Willdin (5%)

Map Unit: MqC—Mongaup channery silt loam, 8 to 15 percent slopes

Component: Mongaup (90%)

The Mongaup component makes up 90 percent of the map unit. Slopes are 8 to 15 percent. This component is on hills on glaciated uplands. The parent material consists of loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY009NY Frigid Till Uplands ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Minor Components: Halcott (5%) and Willdin (5%)

Map Unit: MqD—Mongaup channery silt loam, 15 to 25 percent slopes

Component: Mongaup (85%)

The Mongaup component makes up 85 percent of the map unit. Slopes are 15 to 25 percent. This component is on hills on glaciated uplands. The parent material consists of loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY005NY Frigid Steep Well Drained Dense Till ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Minor Components: Halcott (5%), Willdin (5%), Rockrift, very stony (5%)

Map Unit: MqF—Mongaup channery silt loam, 25 to 70 percent slopes

Component: Mongaup (80%)

The Mongaup component makes up 80 percent of the map unit. Slopes are 25 to 70 percent. This component is on hills on glaciated uplands. The parent material consists of loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches (depth from the mineral surface is 20 to 38 inches). The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 15 percent. This component is in the F140XY005NY Frigid Steep Well Drained Dense Till ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Minor Components: Rockrift, very stony (10%), Lewbath (5%), Halcott (5%), and Rock outcrop (<0.01%)

Map Unit: MqrF—Mongaup-Rockrift complex, 25 to 60 percent slopes, extremely stony

Component: Mongaup, extremely stony (50%)

The Mongaup, extremely stony component makes up 50 percent of the map unit. Slopes are 25 to 60 percent. This component is on hills on glaciated uplands. The parent material consists of loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches (depth from the mineral surface is 20 to 38 inches). The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 15 percent. This component is in the F140XY005NY Frigid Steep Well Drained Dense Till ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Rockrift, extremely stony (40%)

The Rockrift, extremely stony component makes up 40 percent of the map unit. Slopes are 25 to 60 percent. This component is on glaciated ridges, uplands. The parent material consists of channery loamy local colluvium derived from sedimentary rock and/or channery loamy till derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 11 percent. This component is in the F140XY008NY Frigid Steep Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Minor Component: Willdin, very stony (10%)

Map Unit: MqsC—Mongaup channery loam, 3 to 15 percent slopes, extremely stony

Component: Mongaup, extremely stony (80%)

The Mongaup, extremely stony component makes up 80 percent of the map unit. Slopes are 3 to 15 percent. This component is on hills on glaciated uplands. The parent material consists of brownish loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches (depth from the mineral surface is 20 to 38 inches). The natural drainage class is well drained. Water movement in the

most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 15 percent. This component is in the F140XY009NY Frigid Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Minor Components: Rockrift, extremely stony (10%), Willdin, very stony (5%), Halcott, extremely stony (5%), and Rock outcrop (<0.01%)

Map Unit: NtB—Norchip silt loam, 0 to 8 percent slopes

Component: Norchip (85%)

The Norchip component makes up 85 percent of the map unit. Slopes are 0 to 8 percent. This component is on depressions on uplands. The parent material consists of loamy till dominated by siltstone, sandstone, and shale fragments. Depth to a root restrictive layer, fragipan, is 10 to 20 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 7 percent. This component is in the F140XY001NY Frigid Till Depressions ecological site. Nonirrigated land capability classification is 4w. This soil meets hydric criteria.

Minor Components: Norchip, very poorly drained (10%) and Ontusia (5%)

Map Unit: NtsB—Norchip silt loam, 0 to 8 percent slopes, extremely stony

Component: Norchip, extremely stony (85%)

The Norchip, extremely stony component makes up 85 percent of the map unit. Slopes are 0 to 8 percent. This component is on depressions on uplands. The parent material consists of loamy till dominated by siltstone, sandstone, and shale fragments. Depth to a root restrictive layer, fragipan, is 10 to 20 inches (depth from the mineral surface is 10 to 17 inches). The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 7 percent. This component is in the F140XY001NY Frigid Till Depressions ecological site. Nonirrigated land capability classification is 7s. This soil meets hydric criteria.

Minor Components: Norchip, extremely stony, very poorly drained (10%) and Ontusia, very stony (5%)

Map Unit: OeB—Onteora channery silt loam, 3 to 8 percent slopes

Component: Onteora (90%)

The Onteora component makes up 90 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on uplands. The parent material consists of loamy till from reddish sandstone, siltstone, and shale. Depth to a root restrictive layer, fragipan, is 10 to 25 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 10 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY007NY Frigid Moist Dense Till ecological site. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria.

Minor Components: Norchip (5%) and Willowemoc (5%)

Map Unit: OesD—Onteora and Ontusia soils, 8 to 25 percent slopes, very stony

Component: Onteora, very stony (50%)

The Onteora, very stony component makes up 50 percent of the map unit. Slopes are 8 to 25 percent. This component is on hills on uplands. The parent material consists of loamy till from reddish sandstone, siltstone, and shale. Depth to a root restrictive layer, fragipan, is 10 to 25 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 10 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 10 percent. This component is in the F140XY007NY Frigid Moist Dense Till ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Ontusia, very stony (30%)

The Ontusia, very stony component makes up 30 percent of the map unit. Slopes are 8 to 25 percent. This component is on hills on uplands. The parent material consists of brownish loamy till derived from interbedded sandstone, siltstone and shale. Depth to a root restrictive layer, fragipan, is 10 to 25 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 10 percent. This component is in the F140XY007NY Frigid Moist Dense Till ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Minor Components: Willdin, very stony (5%), Norchip, very stony (5%), Willowemoc, very stony (5%), and Gretor, very stony (5%)

Map Unit: OhB—Ontusia channery silt loam, 3 to 8 percent slopes

Component: Ontusia (90%)

The Ontusia component makes up 90 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on uplands. The parent material consists of brownish loamy till derived from interbedded sandstone, siltstone and shale. Depth to a root restrictive layer, fragipan, is 10 to 25 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY007NY Frigid Moist Dense Till ecological site. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria.

Minor Components: Norchip (5%) and Willdin (5%)

Map Unit: OhC—Ontusia channery silt loam, 8 to 15 percent slopes

Component: Ontusia (90%)

The Ontusia component makes up 90 percent of the map unit. Slopes are 8 to 15 percent. This component is on hills on uplands. The parent material consists of brownish loamy till derived from interbedded sandstone, siltstone and shale. Depth to a root restrictive layer, fragipan, is 10 to 25 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during January, February,

March, April, May, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY007NY Frigid Moist Dense Till ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Minor Components: Willdin (5%) and Norchip (5%)

Map Unit: OhD—Ontusia channery silt loam, 15 to 25 percent slopes

Component: Ontusia (90%)

The Ontusia component makes up 90 percent of the map unit. Slopes are 15 to 25 percent. This component is on hills on uplands. The parent material consists of brownish loamy till derived from interbedded sandstone, siltstone and shale. Depth to a root restrictive layer, fragipan, is 10 to 25 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY007NY Frigid Moist Dense Till ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Minor Components: Willdin (7%) and Norchip (3%)

Map Unit: RoF—Rockrift channery silt loam, 35 to 70 percent slopes, very stony

Component: Rockrift, very stony (80%)

The Rockrift, very stony component makes up 80 percent of the map unit. Slopes are 35 to 70 percent. This component is on glaciated ridges, uplands. The parent material consists of channery loamy local colluvium derived from sedimentary rock and/or channery loamy till derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 11 percent. This component is in the F140XY008NY Frigid Steep Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Minor Components: Willdin, very stony (10%) and Mongaup, very stony (10%)

Map Unit: ToA—Tioga, acid subsoil, and Barbour soils, 0 to 3 percent slopes, occasionally flooded

Component: Tioga, acid subsoil, occasionally flooded (45%)

The Tioga, acid subsoil, occasionally flooded component makes up 45 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains, valleys. The parent material consists of loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY013PA High Floodplain ecological site. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria.

Component: Barbour (40%)

The Barbour component makes up 40 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains, valleys. The parent material consists of reddish coarse-loamy alluvium derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 54 inches during January, February, March, April. Organic matter content in the surface horizon is about 3 percent. This component is in the F140XY013PA High Floodplain ecological site. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Minor Components: Basher, occasionally flooded (5%), Middlebury, acid subsoil, occasionally flooded (5%), and Udifluvents (5%)

Map Unit: UdA—Udifluvents and Fluvaquents, 0 to 3 percent slopes, frequently flooded

Component: Udifluvents (42%)

The Udifluvents component makes up 42 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains, valleys. The parent material consists of alluvium with a wide range of texture. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 48 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 2 percent. This component is in the F140XY014NY Low Floodplain ecological site. Nonirrigated land capability classification is 5w. This soil does not meet hydric criteria.

Component: Fluvaquents (35%)

The Fluvaquents component makes up 35 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains, valleys. The parent material consists of alluvium with highly variable texture. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, September, October, November, December. Organic matter content in the surface horizon is about 3 percent. This component is in the F140XY015NY Wet Low Floodplain ecological site. Nonirrigated land capability classification is 5w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 8 percent.

Minor Components: Wyalusing (10%), Wayland (5%), Holderton (5%), and Canandaigua, mucky silt loam (3%)

Map Unit: VaD—Valois gravelly silt loam, 15 to 25 percent slopes

Component: Valois (90%)

The Valois component makes up 90 percent of the map unit. Slopes are 15 to 25 percent. This component is on lateral moraines, valley sides, end moraines, valleys. The parent material consists of loamy till derived mainly from sandstone, siltstone, and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY027NY Well

Drained Till Uplands ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Minor Components: Chenango (5%) and Mardin (5%)

Map Unit: VoB—Volusia channery silt loam, 3 to 8 percent slopes

Component: Volusia (90%)

The Volusia component makes up 90 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on uplands. The parent material consists of loamy till derived from interbedded sedimentary rock. Depth to a root restrictive layer, fragipan, is 10 to 22 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria.

Minor Components: Chippewa (5%) and Mardin (5%)

Map Unit: VoC—Volusia channery silt loam, 8 to 15 percent slopes

Component: Volusia (90%)

The Volusia component makes up 90 percent of the map unit. Slopes are 8 to 15 percent. This component is on hills on uplands. The parent material consists of loamy till derived from interbedded sedimentary rock. Depth to a root restrictive layer, fragipan, is 10 to 22 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Minor Components: Mardin (6%) and Chippewa (4%)

Map Unit: WesE—Wellsboro channery loam, 25 to 35 percent slopes, very stony

Component: Wellsboro, very stony (85%)

The Wellsboro, very stony component makes up 85 percent of the map unit. Slopes are 25 to 35 percent. This component is on hills on uplands. The parent material consists of loamy till from reddish sandstone, siltstone, and shale. Depth to a root restrictive layer, fragipan, is 14 to 30 inches (depth from the mineral surface is 14 to 27 inches). The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches (depth from the mineral surface is 17 inches) during January, February, March, April, November, December. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 10 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Minor Components: Morris, very stony (5%), Oquaga, extremely stony (5%), and Lackawanna, very stony (5%)

Map Unit: WmB—Willdin channery silt loam, 0 to 8 percent slopes

Component: Willdin (85%)

The Willdin component makes up 85 percent of the map unit. Slopes are 0 to 8 percent. This component is on hills on uplands. The parent material consists of brownish loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, fragipan, is 16 to 26 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 17 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY010NY Frigid Moist Till Uplands ecological site. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Minor Components: Ontusia (5%), Lewbath (5%), and Middlebrook (5%)

Map Unit: WmC—Willdin channery silt loam, 8 to 15 percent slopes

Component: Willdin (85%)

The Willdin component makes up 85 percent of the map unit. Slopes are 8 to 15 percent. This component is on hills on uplands. The parent material consists of brownish loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, fragipan, is 16 to 26 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 17 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY007NY Frigid Moist Dense Till ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Minor Components: Lewbath (6%), Ontusia (6%), and Middlebrook (3%)

Map Unit: WmD—Willdin channery silt loam, 15 to 25 percent slopes

Component: Willdin (80%)

The Willdin component makes up 80 percent of the map unit. Slopes are 15 to 25 percent. This component is on hills on uplands. The parent material consists of brownish loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, fragipan, is 16 to 26 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 17 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY007NY Frigid Moist Dense Till ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Minor Components: Lewbath (10%), Mongaup (5%), and Ontusia (5%)

Map Unit: WmE—Willdin channery silt loam, 25 to 35 percent slopes

Component: Willdin (85%)

The Willdin component makes up 85 percent of the map unit. Slopes are 25 to 35 percent. This component is on hills on uplands. The parent material consists of brownish loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, fragipan, is 16 to 26 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded.

A seasonal zone of water saturation is at 17 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 10 percent. This component is in the F140XY010NY Frigid Moist Till Uplands ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Minor Components: Mongaup (5%), Ontusia (5%), and Lewbath (5%)

Map Unit: WmsD—Willdin channery silt loam, 15 to 25 percent slopes, very stony

Component: Willdin, very stony (85%)

The Willdin, very stony component makes up 85 percent of the map unit. Slopes are 15 to 25 percent. This component is on hills on uplands. The parent material consists of brownish loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, fragipan, is 16 to 26 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 17 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 10 percent. This component is in the F140XY010NY Frigid Moist Till Uplands ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Minor Components: Mongaup, extremely stony (5%), Ontusia, very stony (5%), and Lewbath, very stony (5%)

TIOGA COUNTY, PENNSYLVANIA

Map Unit: Ab—Alluvial land

Component: Fluvents, (alluvial land) (65%)

The Fluvents, (alluvial land) component makes up 65 percent of the map unit. Slopes are 0 to 3 percent. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 39 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 2 percent. This component is in the F140XY014NY Low Floodplain ecological site. Nonirrigated land capability classification is 5w. This soil does not meet hydric criteria.

Minor Components: Wayland (15%), Orrville (15%), and Pope (5%)

Map Unit: ChB—Chenango gravelly loam, 2 to 12 percent slopes

Component: Chenango (100%)

The Chenango component makes up 100 percent of the map unit. Slopes are 2 to 12 percent. This component is on glacial outwash terraces. The parent material consists of water sorted glacial outwash derived from sedimentary rock. Depth to a root restrictive layer, bedrock, lithic, is 40 to 120 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. This component is in the F140XY021NY Dry Outwash ecological site. Nonirrigated land capability classification is 2s. This soil does not meet hydric criteria.

Map Unit: ChC—Chenango gravelly loam, 12 to 20 percent slopes

Component: Chenango (100%)

The Chenango component makes up 100 percent of the map unit. Slopes are 12 to 20 percent. This component is on glacial outwash terraces. The parent material consists of water sorted glacial outwash derived from sedimentary rock. Depth to a root restrictive layer, bedrock, lithic, is 40 to 120 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. This component is in the F140XY021NY Dry Outwash ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Map Unit: ChD—Chenango gravelly loam, 20 to 30 percent slopes

Component: Chenango (100%)

The Chenango component makes up 100 percent of the map unit. Slopes are 20 to 30 percent. This component is on glacial outwash terraces. The parent material consists of water sorted glacial outwash derived from sedimentary rock. Depth to a root restrictive layer, bedrock, lithic, is 40 to 120 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. This component is in the F140XY021NY Dry Outwash ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Map Unit: CkA—Chippewa silt loam, 0 to 3 percent slopes

Component: Chippewa (85%)

The Chippewa component makes up 85 percent of the map unit. Slopes are 0 to 3 percent. This component is on depressions on uplands. The parent material consists of loamy till dominated by siltstone, sandstone, and shale fragments. Depth to a root restrictive layer, fragipan, is 8 to 20 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 7 percent. This component is in the F140XY016NY Mineral Wetlands ecological site. Nonirrigated land capability classification is 4w. This soil meets hydric criteria.

Minor Components: Chippewa, very poorly drained (10%) and Volusia (5%)

Map Unit: CkB—Chippewa silt loam, 3 to 8 percent slopes

Component: Chippewa (85%)

The Chippewa component makes up 85 percent of the map unit. Slopes are 3 to 8 percent. This component is on depressions on uplands. The parent material consists of loamy till dominated by siltstone, sandstone, and shale fragments. Depth to a root restrictive layer, fragipan, is 8 to 20 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 7 percent. This component is in the

F140XY016NY Mineral Wetlands ecological site. Nonirrigated land capability classification is 4w. This soil meets hydric criteria.

Minor Components: Volusia (10%) and Chippewa, very poorly drained (5%)

Map Unit: GP—Gravel pit

Component: Pits, gravel (100%). The Pits are miscellaneous areas.

Map Unit: LoB—Lordstown channery loam, 3 to 12 percent slopes

Component: Lordstown (90%)

The Lordstown component makes up 90 percent of the map unit. Slopes are 3 to 12 percent. This component is on hills on glaciated uplands. The parent material consists of loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Minor Components: Arnot, very stony (5%) and Mardin (5%)

Map Unit: LoC—Lordstown channery loam, 12 to 20 percent slopes

Component: Lordstown (85%)

The Lordstown component makes up 85 percent of the map unit. Slopes are 12 to 20 percent. This component is on hills on glaciated uplands. The parent material consists of loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Minor Components: Cadosia, very stony (5%), Arnot, very stony (5%), and Mardin (5%)

Map Unit: LoD—Lordstown channery loam, 20 to 30 percent slopes

Component: Lordstown (85%)

The Lordstown component makes up 85 percent of the map unit. Slopes are 20 to 30 percent. This component is on hills on glaciated uplands. The parent material consists of loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Minor Components: Cadosia, very stony (5%), Bath (5%), and Arnot, extremely stony (5%)

Map Unit: LsD—Lordstown channery loam, 12 to 30 percent slopes, extremely stony

Component: Lordstown, extremely stony (80%)

The Lordstown, extremely stony component makes up 80 percent of the map unit. Slopes are 12 to 30 percent. This component is on hills on glaciated uplands. The parent material consists of brownish loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches (depth from the mineral surface is 20 to 38 inches). The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 15 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Minor Components: Cadosia, extremely stony (10%), Arnot, extremely stony (5%), Mardin, very stony (5%), and Rock outcrop (<0.01%)

Map Unit: MaB—Mardin channery silt loam, 3 to 8 percent slopes

Component: Mardin (85%)

The Mardin component makes up 85 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on uplands. The parent material consists of loamy till. Depth to a root restrictive layer, fragipan, is 14 to 26 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 17 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Minor Components: Volusia (5%), Lordstown (5%), and Bath (5%)

Map Unit: MaC—Mardin channery silt loam, 8 to 15 percent slopes

Component: Mardin (88%)

The Mardin component makes up 88 percent of the map unit. Slopes are 8 to 15 percent. This component is on hills on uplands. The parent material consists of loamy till. Depth to a root restrictive layer, fragipan, is 14 to 26 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 17 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Minor Components: Volusia (5%), Bath (5%), and Lordstown (2%)

Map Unit: MaD—Mardin channery silt loam, 15 to 25 percent slopes

Component: Mardin (85%)

The Mardin component makes up 85 percent of the map unit. Slopes are 15 to 25 percent. This component is on hills on uplands. The parent material consists of loamy till. Depth to a root restrictive layer, fragipan, is 14 to 26 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell

potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 17 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Minor Components: Volusia (5%), Lordstown (5%), and Bath (5%)

Map Unit: OgB—Oquaga channery loam, 3 to 12 percent slopes

Component: Oquaga (90%)

The Oquaga component makes up 90 percent of the map unit. Slopes are 3 to 12 percent. This component is on hills on glaciated uplands. The parent material consists of reddish loamy till derived from sandstone, siltstone, and shale. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Minor Components: Arnot, very stony (5%) and Wellsboro (5%)

Map Unit: OgC—Oquaga channery loam, 12 to 20 percent slopes

Component: Oquaga (85%)

The Oquaga component makes up 85 percent of the map unit. Slopes are 12 to 20 percent. This component is on hills on glaciated uplands. The parent material consists of reddish loamy till derived from sandstone, siltstone, and shale. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Minor Components: Arnot, very stony (5%), Cadosia, very stony (5%), and Wellsboro (5%)

Map Unit: OgD—Oquaga channery loam, 20 to 30 percent slopes

Component: Oquaga (85%)

The Oquaga component makes up 85 percent of the map unit. Slopes are 20 to 30 percent. This component is on hills on glaciated uplands. The parent material consists of reddish loamy till derived from sandstone, siltstone, and shale. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Minor Components: Wellsboro (5%), Arnot, very stony (5%), Cadosia, very stony (5%), and Rock outcrop (<0.01%)

Map Unit: OTF—Oquaga and Lordstown channery loams, 25 to 70 percent slopes, extremely stony

Component: Oquaga, extremely stony (55%)

The Oquaga, extremely stony component makes up 55 percent of the map unit. Slopes are 25 to 70 percent. This component is on hills on glaciated uplands. The parent material consists of reddish loamy till derived from sandstone and shale. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches (depth from the mineral surface is 20 to 38 inches). The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 15 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Lordstown, extremely stony (25%)

The Lordstown, extremely stony component makes up 25 percent of the map unit. Slopes are 25 to 70 percent. This component is on hills on glaciated uplands. The parent material consists of brownish loamy till derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches (depth from the mineral surface is 20 to 38 inches). The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 80 percent. Below this thin organic horizon the organic matter content is about 15 percent. This component is in the F140XY027NY Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Minor Components: Cadosia, extremely stony (10%), Arnot, extremely stony (10%), and Rock outcrop (<0.01%)

Map Unit: Ow—Orrville silt loam

Component: Orrville (80%)

The Orrville component makes up 80 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains. The parent material consists of recent loamy alluvium. Depth to a root restrictive layer, bedrock, lithic, is 40 to 70 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during January, February, March, April, May, June, November, December. Organic matter content in the surface horizon is about 3 percent. This component is in the F140XY014NY Low Floodplain ecological site. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Minor Components: Wayland (15%) and Philo (5%)

Map Unit: Ph—Philo silt loam

Component: Philo (85%)

The Philo component makes up 85 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains. The parent material consists of coarse-loamy alluvium derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 40 to 70 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 27 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 3 percent. This component is in the F140XY011NY Rich Organic Wetlands ecological site. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Minor Components: Pope (10%) and Wayland (5%)

Map Unit: Po—Pope soils

Component: Pope (85%)

The Pope component makes up 85 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains. The parent material consists of coarse-loamy alluvium derived from sandstone and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 40 to 70 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the F140XY013PA High Floodplain ecological site. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Minor Components: Pope (10%) and Wayland (5%)

Map Unit: RxA—Rexford silt loam, 0 to 3 percent slopes

Component: Rexford, somewhat poorly drained (46%)

The Rexford, somewhat poorly drained component makes up 46 percent of the map unit. Slopes are 0 to 3 percent. This component is on outwash terraces. The parent material consists of coarse-loamy outwash derived from sandstone and shale. Depth to a root restrictive layer, fragipan, is 15 to 24 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during March, April. Organic matter content in the surface horizon is about 4 percent. This component is in the F140XY020NY Dense Outwash ecological site. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria.

Component: Rexford, poorly drained (44%)

The Rexford, poorly drained component makes up 44 percent of the map unit. Slopes are 0 to 3 percent. This component is on depressions. The parent material consists of coarse-loamy outwash derived from sandstone and shale. Depth to a root restrictive layer, fragipan, is 15 to 24 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 4 inches during March, April. Organic matter content in the surface horizon is about 4 percent. This component is in the F140XY016NY Mineral Wetlands ecological site. Nonirrigated land capability classification is 3w. This soil meets hydric criteria.

Minor Component: Braceville (10%)

Map Unit: RxB—Rexford silt loam, 3 to 10 percent slopes

Component: Rexford, somewhat poorly drained (50%)

The Rexford, somewhat poorly drained component makes up 50 percent of the map unit. Slopes are 3 to 10 percent. This component is on outwash terraces. The parent material consists of coarse-loamy outwash derived from sandstone and shale. Depth to a root restrictive layer, fragipan, is 15 to 24 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during March, April. Organic matter content in the surface horizon is about 4 percent. This component is in the F140XY020NY Dense Outwash ecological site. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria.

Component: Rexford, poorly drained (40%)

The Rexford, poorly drained component makes up 40 percent of the map unit. Slopes are 0 to 3 percent. This component is on depressions. The parent material consists of coarse-loamy outwash derived from sandstone and shale. Depth to a root restrictive layer, fragipan, is 15 to 24 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 4 inches during March, April. Organic matter content in the surface horizon is about 4 percent. This component is in the F140XY016NY Mineral Wetlands ecological site. Nonirrigated land capability classification is 3w. This soil meets hydric criteria.

Minor Component: Braceville (10%)

Map Unit: VoB—Volusia channery silt loam, 3 to 8 percent slopes

Component: Volusia (90%)

The Volusia component makes up 90 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on uplands. The parent material consists of loamy till derived from interbedded sedimentary rock. Depth to a root restrictive layer, fragipan, is 10 to 22 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria.

Minor Components: Mardin (5%) and Chippewa (5%)

Map Unit: VoC—Volusia channery silt loam, 8 to 15 percent slopes

Component: Volusia (90%)

The Volusia component makes up 90 percent of the map unit. Slopes are 8 to 15 percent. This component is on hills on uplands. The parent material consists of loamy till derived from interbedded sedimentary rock. Depth to a root restrictive layer, fragipan, is 10 to 22 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Minor Components: Mardin (6%) and Chippewa (4%)

Map Unit: VoD—Volusia channery silt loam, 15 to 25 percent slopes

Component: Volusia (90%)

The Volusia component makes up 90 percent of the map unit. Slopes are 15 to 25 percent. This component is on hills on uplands. The parent material consists of loamy till derived from interbedded sedimentary rock. Depth to a root restrictive layer, fragipan, is 10 to 22 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY024NY

Moist Dense Till ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Minor Components: Mardin (7%) and Chippewa (3%)

Map Unit: VoE3—Volusia channery silt loam, 25 to 35 percent slopes, eroded

Component: Volusia, eroded (82%)

The Volusia, eroded component makes up 82 percent of the map unit. Slopes are 25 to 35 percent. This component is on hills on uplands. The parent material consists of loamy till derived from interbedded sedimentary rock. Depth to a root restrictive layer, fragipan, is 7 to 22 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 9 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 3 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Minor Components: Mardin, eroded (15%) and Chippewa (3%)

Map Unit: VvB—Volusia channery silt loam, silty substratum, 3 to 8 percent slopes

Component: Volusia, silty substratum (80%)

The Volusia, silty substratum component makes up 80 percent of the map unit. Slopes are 3 to 8 percent. This component is on valley sides, plateaus. The parent material consists of fine-loamy basal till derived from sandstone and siltstone. Depth to a root restrictive layer, fragipan, is 12 to 20 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during March, April. Organic matter content in the surface horizon is about 4 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria.

Minor Components: Chippewa, silty substratum (15%) and Mardin (5%)

Map Unit: VvC—Volusia channery silt loam, silty substratum, 8 to 15 percent slopes

Component: Volusia, silty substratum (85%)

The Volusia, silty substratum component makes up 85 percent of the map unit. Slopes are 8 to 15 percent. This component is on valley sides, plateaus. The parent material consists of loamy basal till derived from sandstone and siltstone over silty lacustrine deposits. Depth to a root restrictive layer, fragipan, is 12 to 20 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during March, April. Organic matter content in the surface horizon is about 4 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Minor Components: Chippewa, silty substratum (10%) and Mardin (5%)

Map Unit: W—Water

Component: Water (100%). Water is a miscellaneous area.

Map Unit: WeB—Wellsboro channery loam, 3 to 8 percent slopes

Component: Wellsboro (85%)

The Wellsboro component makes up 85 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on uplands. The parent material consists of loamy till from reddish sandstone, siltstone, and shale. Depth to a root restrictive layer, fragipan, is 14 to 30 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Minor Components: Lackawanna (5%), Oquaga (5%), and Morris (5%)

Map Unit: WeC—Wellsboro channery loam, 8 to 15 percent slopes

Component: Wellsboro (90%)

The Wellsboro component makes up 90 percent of the map unit. Slopes are 8 to 15 percent. This component is on hills on uplands. The parent material consists of loamy till from reddish sandstone, siltstone, and shale. Depth to a root restrictive layer, fragipan, is 14 to 30 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Minor Components: Morris (5%) and Lackawanna (5%)

Map Unit: WeD—Wellsboro channery loam, 15 to 25 percent slopes

Component: Wellsboro (85%)

The Wellsboro component makes up 85 percent of the map unit. Slopes are 15 to 25 percent. This component is on hills on uplands. The parent material consists of loamy till from reddish sandstone, siltstone, and shale. Depth to a root restrictive layer, fragipan, is 14 to 30 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 5 percent. This component is in the F140XY024NY Moist Dense Till ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Minor Components: Lackawanna (5%), Oquaga (5%), and Morris (5%)

Map Unit: WyF—Wyoming gravelly sandy loam, 30 to 50 percent slopes

Component: Wyoming (100%)

The Wyoming component makes up 100 percent of the map unit. Slopes are 25 to 45 percent. This component is on terraces. The parent material consists of sandy and gravelly glaciofluvial deposits derived from sandstone and siltstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded.

It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the F140XY021NY Dry Outwash ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

ATTACHMENT 3

E&S VISUAL SITE INSPECTION FORM

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

CHAPTER 102 VISUAL SITE INSPECTION REPORT

GENERAL INFORMATION

Inspection Date: _____ Inspection Time: _____ AM / PM Inspection No.: _____

Inspection Type: _____ Precipitation in Previous 24 hours: _____ inches

Current Site Conditions: ☐ Active Earth Disturbance ☐ Fully Stabilized ☐ Snow Covered

Current Weather Conditions: ☐ Rain/Sleet/Snow ☐ Overcast ☐ Sunny/Partly Sunny

Permittee Name: _____ Inspector Name: _____

Permittee Address: _____ Inspector Phone: _____

City, State, ZIP: _____ Inspector Firm: _____

Project Name: _____ Inspector Title: _____

Municipality: _____ County: _____

Permit Type: ☐ PAG-02 ☐ IP ☐ ESCGP ☐ ESP Permit No.: _____

INSPECTION INFORMATION

Areas for Inspection	Check if Inspected	Problems Observed
1. Areas that have been cleared and grubbed, graded, excavated, or otherwise disturbed and are not yet stabilized.	☐	
2. BMPs installed to comply with permit.	☐	
3. Material, waste, borrow and equipment storage and maintenance areas covered by permit or E&S Plan approval.	☐	
4. Areas where stormwater flows within the site, including drainageways designed to divert, convey and/or treat stormwater.	☐	
5. Discharge points on-site.	☐	
6. Locations where stabilization measures have been implemented.	☐	

Questions	Check One
7. Are the approved E&S Plan and drawings available on-site?	☐ Yes ☐ No ☐ N/A
8. Are the approved PCSM Plan and drawings available on-site?	☐ Yes ☐ No ☐ N/A
9. Are E&S BMPs properly installed, operational, and working as intended?	☐ Yes ☐ No ☐ N/A
10. Are PCSM BMPs properly installed, operational, and working as intended?	☐ Yes ☐ No ☐ N/A
11. Has a PPC Plan been prepared, implemented, and available on-site?	☐ Yes ☐ No ☐ N/A
12. Is all earth disturbance within the permitted limit of disturbance?	☐ Yes ☐ No ☐ N/A
13. Have all disturbed areas in which disturbance has ceased for more than 4 days been stabilized?	☐ Yes ☐ No ☐ N/A

Questions	Check One
14. Is the approved construction sequence being followed?	☐ Yes ☐ No ☐ N/A
15. Are areas intended for PCSM BMPs being protected from compaction and sediment laden runoff?	☐ Yes ☐ No ☐ N/A
16. For Questions 7 through 15, explain any answers of "No" in the space below or on a separate sheet.	
17. Are there signs of visible accelerated erosion and sedimentation due to discharges from the site?	☐ Yes ☐ No ☐ N/A
18. Are there any unauthorized non-stormwater discharges occurring from the site?	☐ Yes ☐ No ☐ N/A
19. Do stormwater discharges, if occurring during inspection, contain floating solids, foam, scum, sheen, or substances that result in observed deposits or produce an observable change in the color, taste, odor or turbidity of the receiving water?	☐ Yes ☐ No ☐ N/A
20. Were any instances of non-compliance observed during the inspection?	☐ Yes ☐ No
21. For Questions 17 through 20, explain any answers of "Yes" in the space below or on a separate sheet.	
22. Are critical stages of implementation of the PCSM Plan occurring at the time of inspection?	☐ Yes ☐ No ☐ N/A
23. If No. 22 is "Yes", is or was a licensed professional present on-site and responsible?	☐ Yes ☐ No
24. Has any fill material excavated on-site, imported to the site, or exported from the site been tested for clean fill since the last inspection? *(if "Yes" attach Form FP-001 to this report)*	☐ Yes ☐ No
25. Identify the names and addresses of all new operators that have commenced work on the project site since the last inspection was conducted (see 25 Pa. Code § 102.1 for the definition of "operator").	
Name: _____ Name: _____	
Address: _____ Address: _____	
City, State, ZIP: _____ City, State, ZIP: _____	
For new operators listed above, has the Transferee/Co-Permittee Application been completed and submitted?	☐ Yes ☐ No
26. **Corrective Action** – Describe any corrective actions that should be taken by the permittee to comply with the permit.	
27. Have photograph(s) been taken during the inspection and are attached to this report?	☐ Yes ☐ No
28. Are additional pages attached to this report?	☐ Yes ☐ No

I certify under penalty of law (see 18 Pa.C.S. § 4904 (relating to unsworn falsification)) that the information reported herein was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the information, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Inspector Signature **Date of Signature**

ATTACHMENT 4

E&S PLAN DRAWINGS