Watershed Inventory Report

Phase 1 of the Watershed Improvement Plan

Bernardsville Borough
Somerset County

December 30, 2025

Permit Number: NJG0151068

Stormwater Program Coordinator: Michele Hovan, AQUALIS

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Acronyms & Definitions

1. *Acronyms*
    - i. *"BMP" – Best Management Practice*
    - ii. *"DO" – Dissolved Oxygen*
    - iii. *"EPA" – U.S. Environmental Protection Agency*
    - iv. *"GIS" – Geographic Information System*
    - v. *"HUC 14" – Hydrologic Unit Code 14*
    - vi. *"MS4" – Municipal Separate Storm Sewer System*
    - vii. *"MTD" – Manufactured Treatment Device*
    - viii. *"NJPDES" – New Jersey Pollutant Discharge Elimination System*
    - ix. *"NJ-WET" – New Jersey Watershed Evaluation Tool*
    - x. *"TDS" – Total Dissolved Solids*
    - xi. *"TMDL" – Total Maximum Daily Load*
    - xii. *"TSS" – Total Suspended Solids*
    - xiii. *"WIP" – Watershed Improvement Plan*
2. *Definitions (*regulatory citations are included at the end of each definition for those that are copied from that regulation)
    - i. *"**HUC 14**" or "hydrologic unit code 14" means an area within which water drains to a particular receiving surface water body, also known as a subwatershed, which is identified by a 14-digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey. (see N.J.A.C. 7:9B)*
    - ii. *"**Municipal separate storm sewer**" (or MS4 conveyance) means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) as defined in more detail at N.J.A.C. 7:14A-1.2.*
    - iii. *"**Outfall**" means any point source which discharges directly to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States.*
    - iv. *"**Storm drain inlet**" means the point of entry into the storm sewer system.*
    - v. *"**Stormwater**" means water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, is captured by separate storm sewers or other sewerage or drainage facilities or is conveyed by snow removal equipment.*
    - vi. *"**Stormwater facility**" means stormwater infrastructure including, but not limited to, catch basins, infiltration basins, detention basins, green infrastructure (GI), filter strips, riparian buffers, infiltration trenches, sand filters, constructed wetlands, wet basins, bioretention systems, low flow bypasses, Manufactured Treatment Devices (MTDs), and stormwater conveyances.*
    - vii. *"**Stormwater management basin**" means a stormwater management basin as defined in N.J.A.C. 7:8.*
    - viii. *"**Stormwater management measure**" means a stormwater management measure as defined in N.J.A.C. 7:8.*
    - ix. *"**Stormwater runoff**" means water flow on the surface of the ground or in storm sewers, resulting from precipitation.*
    - x. *"**Total maximum daily load**" or "**TMDL**" means a total maximum daily load formally established pursuant to Section 7 of the Water Quality Planning Act (N.J.S.A. 58:11A-7) and Section 303(d) of the Clean Water Act, 33 U.S.C. §§12512 et seq. A TMDL is the sum of individual wasteload allocations for point sources, load allocations for nonpoint sources of pollution, other sources such as tributaries or adjacent segments, and allocations to a reserve or margin of safety for an individual pollutant.*

xi. *"**Waters of the State**" means the ocean and its estuaries, all springs, streams and bodies of surface or ground water, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction" (see N.J.A.C. 7:9B-1.4).*

Data Requirements & Resources

Field work using Trimble Global Positioning System (GPS) TDC6 units to collect data for the Watershed Inventory Report was conducted by AQUALIS in 2025, with additional data retrieved from NJDEP-provided resources such as:

New Jersey Watershed Evaluation Tool (NJ-WET)

https://experience.arcgis.com/experience/f40f65d807bb4372bd92b48bb98f1972

NJDEP Open Data

https://gisdata-njdep.opendata.arcgis.com/

TMDL Lookup Tool

https://dep.nj.gov/njpdes-stormwater/municipal-stormwater-regulation-program/tmdl/

New Jersey's Integrated Water Quality Assessment Reports – 303(d) List

https://dep.nj.gov/wms/bears/water-quality-assessment/

New Jersey Environmental Justice Mapping, Assessment, and Protection Tool (EJMAP)

https://experience.arcgis.com/experience/548632a2351b41b8a0443cfc3a9f4ef6

The New Jersey Hydrologic Modeling Database, or "H&H Database,"

https://hydro.rutgers.edu/about/

MS4 WIP Guidance Webpage

https://dep.nj.gov/njpdes-stormwater/municipal-stormwater-regulation-program/watershed-improvement-…

Required Data	*Data Source*
1. All stormwater outfalls owned/operated by the permittee	MS4 Infrastructure Map
2. Drainage area for each permittee owned/operated outfall	Topography ArcGIS Solutions/ArcHydro
3. Receiving waterbodies of those outfalls	NJ-WET NJDEP Open Data
4. Water quality classification of all receiving waterbody segments	NJ-WET NJDEP Open Data
5. All stormwater interconnections from the permittee's MS4 system into another entities' storm or sanitary sewer system	MS4 to MS4 interconnections acquired in MS4 Infrastructure Map, private interconnection(s) needed
6. The drainage area for each interconnection into another entities' storm or sanitary sewer system	Topography ArcGIS Solutions/ArcHydro
7. All stormwater interconnections into the permittee's system from another entities' storm sewer system	MS4 to MS4 interconnections acquired in MS4 Infrastructure Map, private interconnection(s) needed
8. All storm drain inlets owned/operated by the permittee	MS4 Infrastructure Map

9. Area associated with each TMDL for waters that lie within or bordering the permittee's property(s)/jurisdiction	NJ-WET NJDEP Open Data
10. Area associated with each water quality impairment for waters that lie within or bordering the permittee's property(s)/jurisdiction	NJ-WET NJDEP Open Data

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Acknowledgements

The Borough of Bernardsville Watershed Inventory Report is a collaborative report prepared by AQUALIS, stormwater management consultant for the Township, with contributions from the Bernardsville Stormwater Pollution Prevention Team, and data collected from New Jersey Highlands Water Protection and Planning Council, Raritan Headwaters Association, and the Rutgers Cooperative Extension (RCE) Water Resources Program. The Borough appreciates the support of its environmental partners and looks forward to expanded collaboration as the Watershed Improvement Plan develops in the phases to follow.

Funding for this project has been provided in part by the New Jersey Department of Environmental Protection (NJDEP) 2023 Municipal Stormwater Assistance Grant, with funding allocated for stormwater management purposes by the Bernardsville Borough Council in annual municipal budgets. Prior to completing the Watershed Inventory Report, it was necessary to complete the Municipal Separate Storm Sewer System (MS4) Infrastructure Map, a requirement under the 2023 NJDEP Tier A MS4 Municipal Stormwater Permit. The MS4 Infrastructure Map serves as a base map upon which Watershed Improvement Inventory features have been added. The MS4 Infrastructure Map was completed by AQUALIS and approved by the NJDEP on October 30, 2025. Funding for the MS4 Infrastructure Map was provided by the NJDEP Municipal Stormwater Assistance Grant and the 2023-2025 Bernardsville Borough Municipal Budgets.

Introduction – Watershed Improvement Plan

New Jersey municipalities operating Municipal Separate Storm Sewer Systems (MS4s) systems were introduced to new requirements in 2023 when the New Jersey Department of Environmental Protection Agency (NJDEP) issued a revised Tier A Municipal Stormwater General Permit (NJPDES: NJ0141852) for the period beginning January 1, 2023 through December 31, 2027. The 2023 Tier A permit acknowledges a changing climate by addressing stormwater quality issues relating to both new and existing development, increases preventative measures and inspection/reporting requirements, and expands community engagement to collectively reduce the discharge of pollutants into waterways. The 2023 permit – and amendments to the Stormwater Rules (N.J.A.C. 7:8) – address water quality and flooding issues in municipal stormwater systems to a greater extent than in prior versions in response to the increased frequency and intensity of severe storms that elevate flooding risks.

One major component of the 2023 Tier A MS4 Municipal Stormwater Permit is the development of a Watershed Improvement Plan (WIP) to inventory stormwater features in the permitted areas, evaluate data to identify potential improvement projects that will address water quality and quantity issues, and determine which projects can be implemented and on what schedule. The multi-year Watershed Improvement Plan project is designed to improve water quality by reducing the contribution of pollutant parameters for all receiving waters within and bordering the municipality that have percent reductions listed for stormwater in the Total Maximum Daily Loads (TMDLs) and water quality impairments, and reduce or eliminate flooding within the municipality by prioritizing areas of flooding for corrective actions based on human health and safety, environmental impacts, and frequency of occurrence. Since watersheds do not follow municipal

boundaries, hydrological systems are interconnected, and stormwater (and pollutants) flow downstream, it is necessary to consider subwatersheds and regions when planning water quality initiatives to determine cumulative benefits – and impacts.

The WIP is structured as a three-phase project with staggered completion dates due in years three, four, and five of the permit term. This report is known as the **Watershed Inventory Report (Phase I).** The three phases of the Watershed Improvement Plan and their corresponding deadlines are:

Watershed Inventory Report (Phase I) – The development of an electronic map that delineates stormwater features that affect subwatersheds by adding mapping layers to the MS4 Infrastructure Map.
Due by January 1, 2026

Watershed Assessment Report (Phase II) – An evaluation of data to identify potential projects (and necessary funding) that can address water quality and quantity issues.
Due by January 1, 2027

Watershed Improvement Plan (Phase III) – A summary of proposed projects, comments received from stakeholders, estimated costs, coordination of other programs (as appropriate), and planned implementation schedules.
Due by December 1, 2027

In its entirety, the Watershed Improvement Plan is a regional plan intended to improve water quality and quantity issues by focusing on the MS4 contribution of pollutants to waterbodies with listed impairments, Total Maximum Daily Loads (TMDLs) of pollutants that can enter a waterbody and maintain water quality standards. By identifying water quality and quantity issues that affect subwatersheds, a determination of the regional impact of the MS4 contributions to the issues can be analyzed and targeted for reduction.

Watershed Inventory Report

This Watershed Inventory Report adds the below listed features to the MS4 Infrastructure Map with data collected during from fieldwork conducted using Trimble TDC6 GIS units and by accessing data retrieved from NJDEP-provided resources in 2025. This report summarizes watershed characteristics, demographics, water quality conditions, and Total Maximum Daily Load (TMDL) requirements applicable to Bernardsville Borough. The pages to follow more fully describe the separate features of the mapping inventory, including how and when the data was collected to include:

- The drainage area for each outfall(s)
- The receiving waterbodies of those outfalls
- The water quality classification of all receiving waterbody segments
- All stormwater interconnections from the municipality into another entity's storm or sanitary sewer system
- The drainage area for each interconnection into another entity's storm or sanitary sewer

system

- Stormwater connection points into Bernardsville from another entities' storm sewer system
- Stormwater connection points into Bernardsville from another entities' storm sewer system
- Area associated with each TMDL for waters that lie within or bordering Bernardsville Borough
- Area associated with each water quality impairment for waters that lie within or bordering the Borough
- Overburdened communities areas
- Impervious areas

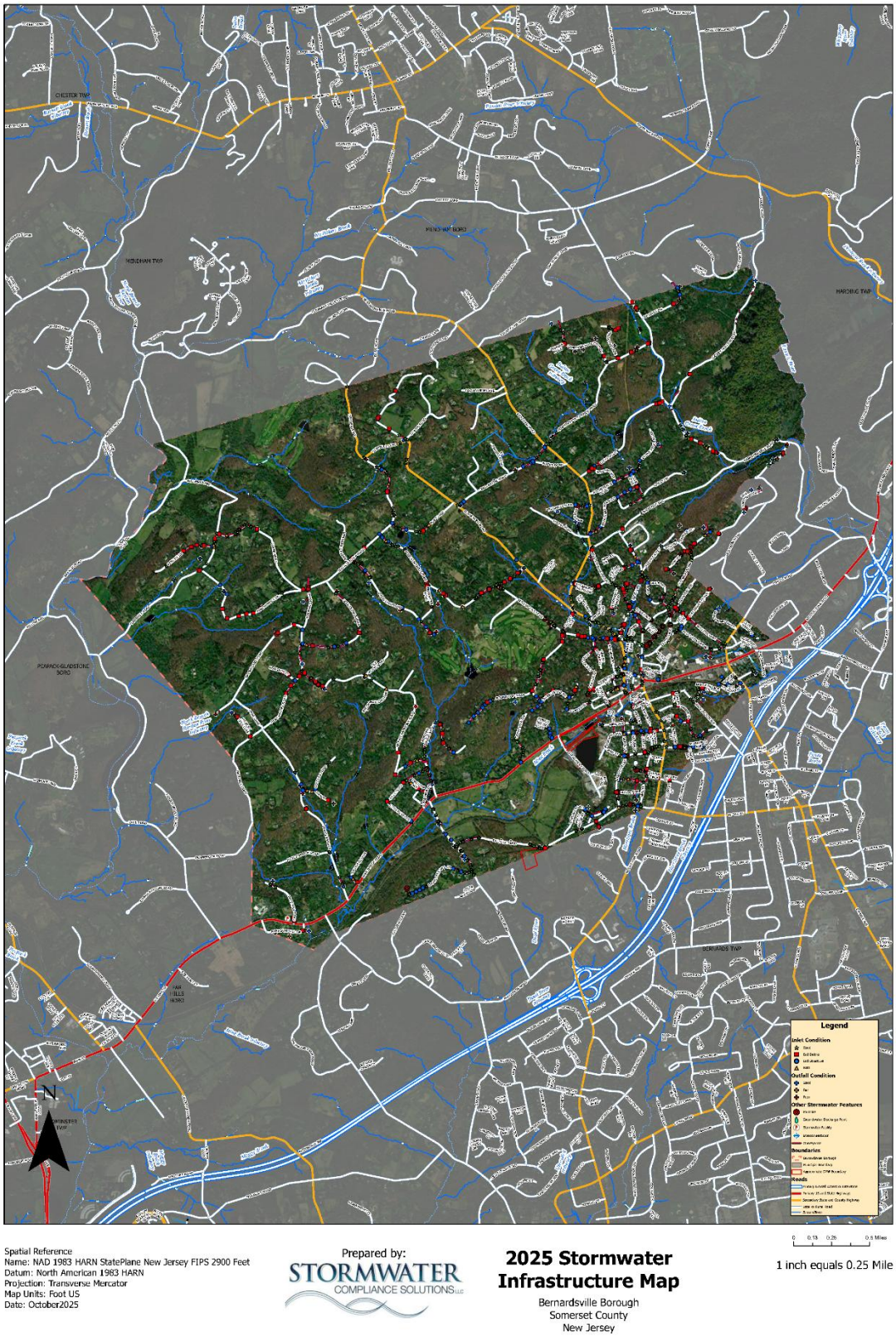
MS4 Infrastructure Map

Completion of the MS4 Infrastructure Map was a 2023 Tier A MS4 Permit prerequisite for preparing this Watershed Inventory Report. AQUALIS (known as Stormwater Compliance Solutions, LLC until April 2025) conducted fieldwork using Trimble TDC6 units in 2023-2025 and assembled the data in ESRI GIS for submission to the NJDEP, which was approved on October 30, 2025, containing the below listed features:

- MS4 outfalls (receiving surface water name, type of outfall)
- MS4 ground water discharge points (type)
- MS4 interconnections (type into/from, entity)
- Storm drain inlets (type, catch basin present, label present, retrofitted)
- MS4 manholes
- MS4 conveyance (type, direction of flow)
- Stormwater facilities (type)
- Property boundaries of maintenance yard(s) and other ancillary operations (type)

A PDF copy of the approved MS4 Infrastructure Map is posted on the Bernardsville Borough dedicated stormwater webpage at: https://bernardsville.gov/government/forms/public-works/991-bernardsville-ms4-infrastructure-map-2025/file

Figure 1: Bernardsville Borough Infrastructure Map 2025



Bernardsville Borough General Demographic Information

Bernardsville Borough is the northernmost municipality in Somerset County, New Jersey, encompassing 12.85 square miles. The Borough is regulated for stormwater discharge under NJPDES Permit Number NJG0151068. It is in the North and South Branch Raritan River Watershed Management Area (WMA 08) and the Upper Passaic, Whippany and Rockaway River Watershed Management Area (WMA 06).

The Borough contains portions of seven (7) hydrologic Unit Code (HUC) areas. There are four (4) Category 1 waterways within the Borough, including Mine Brook, the North Branch of the Raritan River, the Passaic River, and Indian Grove Brook. The Borough's proximity to high-quality waterways accentuates the importance of an effective stormwater management program. Additionally, the entirety of Bernardsville Borough is within the NJ Highlands Region Planning Area.

Based on the 2020 U.S. Census, Bernardsville Borough has a population of 7,893. According to published data confirmed in December 2025, Bernardsville Borough does not contain any NJDEP-designated Overburdened Communities areas.

Land use type(s): https://www.nj.gov/njhighlands/planning/rmp/monitoring/files/factbook_2025.pdf?utm_source

Table 1: Land Use Category Percentage

Land Use Category	Percentage (%)
Agricultural Land	6.3%
Forest / Woodlands	45.5%
Developed / Urban	45.1%
Water Bodies	0.9%
Other (e.g., wetlands, barren)	2.1%

Public Participation

Public participation is a critical component of the Watershed Improvement Plan (WIP) for Bernardsville Borough, Somerset County, New Jersey, and is essential to achieving the State's water quality objectives under the New Jersey Pollutant Discharge Elimination System (NJPDES) program. The Borough's objectives for stormwater management are consistent with the State's; that is, to reduce stormwater pollution and the adverse effects of stormwater runoff. This Watershed Inventory Report lays the groundwork for community discussion for Phases II and III of the Watershed Inventory Plan that identify potential improvement projects and establish costs and timelines for approved watershed improvement projects.

By engaging with the public and community stakeholders, the Borough ensures that watershed restoration strategies reflect local conditions, municipal priorities, and New Jersey Department of Environmental Protection (NJDEP) regulatory objectives. Stakeholder input offers valuable local knowledge regarding drainage patterns, recurring roadway and neighborhood flooding, streambank erosion, and potential sources of pollution, including illicit discharges, failing infrastructure, and nonpoint source runoff. Incorporating this local information improves the accuracy of watershed

assessments and supports the identification and prioritization of targeted, cost-effective Best Management Practices (BMPs) consistent with NJDEP stormwater management standards and municipal planning initiatives. A record of public input received will be maintained and made part of the comprehensive Watershed Improvement Plan.

Stormwater Outfall(s)

Outfalls are a critical component to a stormwater infrastructure network. An outfall is a point source where the municipal separate storm sewer system discharges directly to Waters of the State, which can mean the ocean and its estuaries, all springs, streams, and bodies of surface or ground waters whether natural or artificial, within the boundaries of the State of New Jersey (or subject to its jurisdiction)." A "point source," refers to the discharge point from which pollutants are or may be discharged from the stormwater conveyance system. As final discharge points for stormwater runoff, outfalls are optimal sites for pollutant sampling, detecting illicit discharges, and assessing Total Maximum Daily Load (TMDL) requirements. Outfalls must be inspected and maintained to detect erosion, blockages, structural damage, identify pollutant sources, etc.

Stormwater Outfalls Owned/Operated by Bernardsville Borough

Bernardsville Borough has identified 105 outfalls that are municipally owned and operated. A minimum of 20% of the total outfall number are visually inspected each year to determine if dry weather flow (flow occurring 72 hours after a rain event) or other evidence of illicit discharge is present. Reports containing outfall conditions and illicit discharge investigations are maintained in the office of the Director of Public Works.

The outfall inventory was initially determined in 2007 through field inspections and has been annually reviewed and updated as needed. Most recently, GIS data was collected in July 2025 using Trimble TDC6 GIS units capable of centimeter accuracy as part of the MS4 Infrastructure Map development. Field crews utilized existing stormwater infrastructure maps prepared by AQUALIS and/or Bernardsville Borough to locate and field verify data by navigating municipally owned roadways and properties. Visual analysis was performed to ensure that the observed conditions were accurately recorded, and each data parameter was captured pursuant to the Tier A Municipal Stormwater Permit, Section G1i.

The 105 outfalls that discharge to surface waterbodies and corresponding subwatersheds are identified in the chart below:

Table 2: Number of Outfalls That Discharge to Each Subwatershed

Subwatershed	**# of Outfalls**
Harrisons Brook	5
Passaic R Upr (above Osborn Mills)	28
Passaic R Upr (Dead R to Osborn Mills)	6
Raritan R NB(incl Mine Bk to Peapack Bk)	59
Raritan R NB(Peapack Bk to McVickers Bk)	7

Receiving Surface Waters

Under the **Clean Water Act (CWA),** receiving water is: "Any surface water body into which pollutants are, or may be, discharged." Discharges from outfalls are considered direct, and not indirect, such as from storm drains or ditches.

The identification of receiving surface waters was based on outfall data collected through fieldwork, combined with topographic analysis and GIS data. Fieldwork was conducted in June 2025 using GPS devices to record the coordinates and physical characteristics of visible and accessible outfall structures. These outfall locations were then analyzed alongside local topography and the Surface Water Quality Classification of New Jersey shapefiles to determine the receiving surface waters. The shapefiles were retrieved from the NJDEP Open Data portal in June 2025 from the Division of Information Technology, NJDEP Bureau of GIS website: https://gisdata-njdep.opendata.arcgis.com/

The receiving surface waters within Bernardsville Borough jurisdiction include Harrisons Brook UNT, Indian Grove Brook, Indian Grove Brook UNT, Mine Brook, Mine Brook UNT, North Branch Raritan River UNT, Passaic River UNT, Penns Brook UNT, Twin Lakes Lower Pond, and uncoded tributary(ies).

The receiving waters within Bernardsville Borough outfalls and the percentage of outfalls that discharge to them are listed below, as accessed from the NJ-WET and NJDEP Open Data resources in July 2025:

Table 3: Percent of Outfalls That Discharge to Each Receiving Surface Water

Receiving Surface Water	Percentage
Harrisons Brook UNT	3.81%
Indian Grove Brook	18.10%
Indian Grove Brook UNT	6.67%
Mine Brook	19.05%
Mine Brook UNT	33.33%
North Branch Raritan River UNT	6.67%
Passaic River UNT	1.90%
Penns Brook UNT	5.71%
Twin Lakes Lower Pond	2.86%
Uncoded Tributary	1.90%

Water Quality Classifications

The State of New Jersey has established Surface Water Quality Standards (SWQS) under the New Jersey Administrative Code at N.J.A.C. 7:9B to set forth water quality criteria based on designated uses (e.g. drinking water supply, recreation, etc.) to protect the surface waters for those uses.

The SWQS rules and policies for protecting water quality include general, technical, antidegradation, nutrients, and mixing zones. The SWQS contains procedures for establishing and modifying water quality-based effluent limitations for New Jersey Pollutant Discharge Elimination System (NJPDES) point sources as well as Surface Water Quality Standards Variance and procedures for reclassifying specific stream segments. (https://dep.nj.gov/wms/bears/surface-water-quality-standards-swqs).

Antidegradation policies are established in the SWQS to require that all surface waters and designated uses are maintained and protected, and that impaired waters are restored to meet SWQS. There are also three (3) tiers of antidegradation designations: Outstanding Natural Resource Waters (ONRW), classified as FW1 or nondegradation waters, and PL waters (Pinelands), which must be maintained in their natural state, Category One (C1) Waters that have exceptional ecological, recreational, water supply, or fisheries resources significance, and Category Two (C2), which are all surface waters not designated as ONRW or C1. While C2 waters may have a lower existing water quality than ONRW or C1, all existing and designated uses must be maintained in accordance with SWQS standards.

Surface water quality classifications are based on the type of waterbody, its designated use, and if saline or fresh. Within the freshwater category, there are three (3) trout classifications in surface water classification categories based on their ability to support trout production (FW2-TP), trout maintenance (FW2-TM), and non-trout (FW2-NT).

The applicable water quality classifications for the freshwaters of Bernardsville Borough include FW2-NT, FW2-TM, FW2-TP, and FW2-TPC1.

The chart below lists the percentage of outfalls that discharge to each water quality classification within the jurisdiction of Bernardsville Borough. The information contained in the chart was collected in June 2025 from the NJDEP resources at NJWET (https://experience.arcgis.com/experience/f40f65d807bb4372bd92b48bb98f1972/page/Home/)

Table 4: Percent of Outfalls That Discharge to Each Water Quality Classification

Water Quality Classification	Percentage
FW2-NT	45.71%
FW2-TM	2.86%
FW2-TP	1.90%
FW2-TPC1	49.52%

Table 5: Outfalls Receiving Surface Water Bodies & Water Quality Classifications

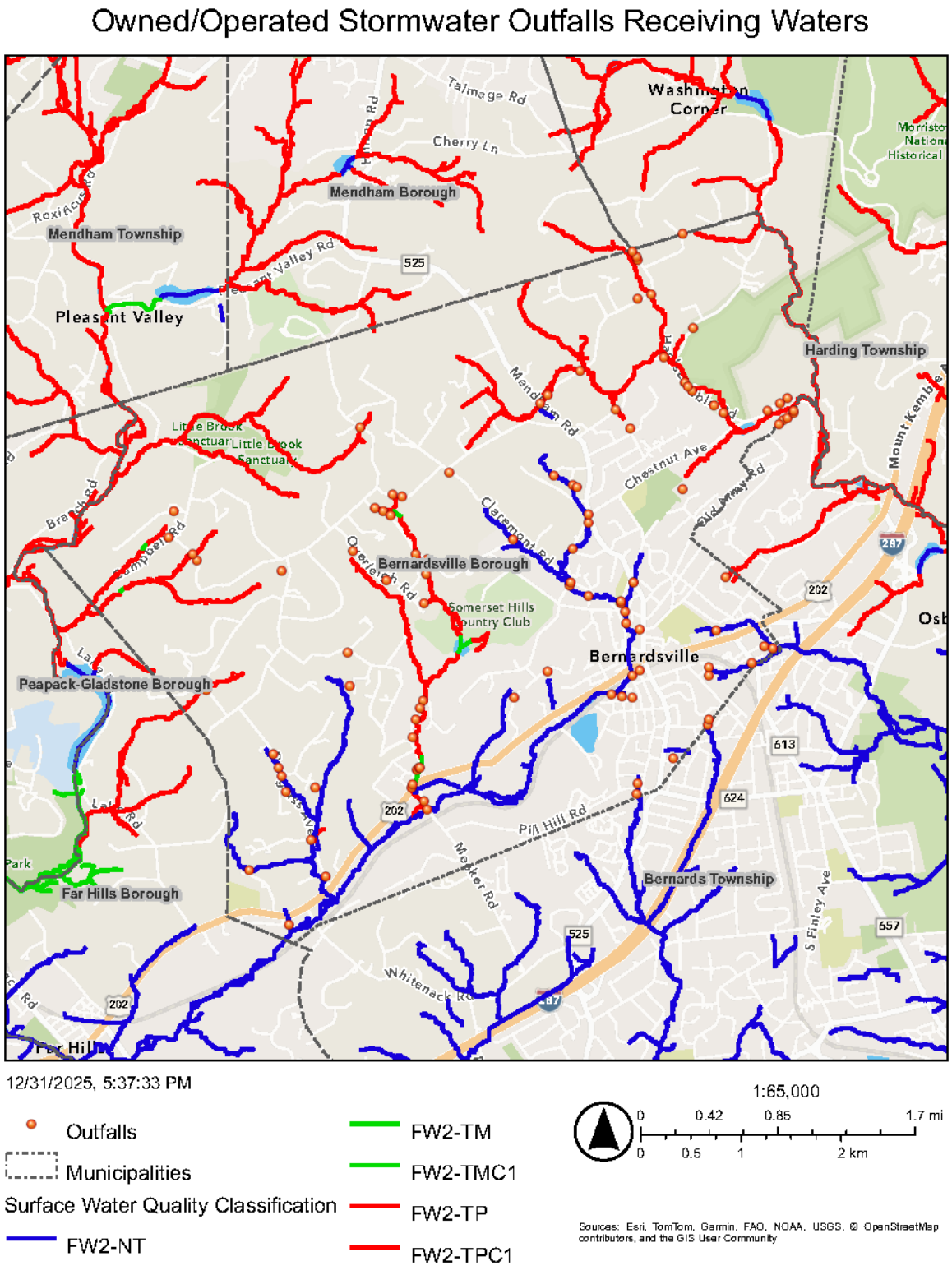
OUTFALL _ID	Receiving Surface Water	Water Quality Classification
AH OF1	Mine Brook	FW2-NT
AH OF3	Mine Brook	FW2-NT
AH-OF-2	Mine Brook UNT	FW2-NT
AM-OF-1	Harrisons Brook UNT	FW2-NT

BK-OF-1	Penns Brook UNT	FW2-NT
BK-OF-1	Mine Brook UNT	FW2-TPC1
BK-OF-2	Mine Brook UNT	FW2-TPC1
BRW-OF-1	Mine Brook	FW2-NT
BT-OF-1	Mine Brook UNT	FW2-NT
BT-OF-3	Indian Grove Brook UNT	FW2-TPC1
BV OF1	Passaic River UNT	FW2-TP
BY-OF-1	Mine Brook	FW2-NT
BY-OF-2B	Mine Brook	FW2-NT
CMB-OF-1	North Branch Raritan River UNT	FW2-TPC1
CN-OF-1	Mine Brook	FW2-NT
CV OF1	Mine Brook UNT	FW2-NT
DG-OF-1	Mine Brook UNT	FW2-NT
DG-OF-2	Mine Brook UNT	FW2-NT
DG-OF-3	Mine Brook UNT	FW2-NT
DG-OF-4	Mine Brook UNT	FW2-NT
DG-OF-5	Mine Brook UNT	FW2-NT
DG-OF-6	Mine Brook UNT	FW2-NT
DRY-OF-2	North Branch Raritan River UNT	FW2-TPC1
EM-OF-1	Mine Brook UNT	FW2-NT
GR-OF-1	Mine Brook	FW2-NT
HS OF4	Indian Grove Brook	FW2-TPC1
HS-OF-1	Indian Grove Brook	FW2-TPC1
HS-OF-11	Indian Grove Brook	FW2-TPC1
HS-OF-12	Indian Grove Brook	FW2-TPC1
HS-OF-13	Indian Grove Brook	FW2-TPC1
HS-OF-14	Indian Grove Brook	FW2-TPC1
HS-OF-3	Indian Grove Brook	FW2-TPC1
HS-OF-5	Indian Grove Brook	FW2-TPC1
HS-OF-6	Indian Grove Brook	FW2-TPC1
HS-OF-8	Indian Grove Brook	FW2-TPC1
HS-OF-9	Indian Grove Brook	FW2-TPC1
HT-OF-1	North Branch Raritan River UNT	FW2-TPC1
JH-OF-1	Indian Grove Brook UNT	FW2-TPC1
Lloyd OF1	Indian Grove Brook	FW2-TPC1
LR-OF-1	Uncoded Tributary	FW2-NT
LV-OF-1	Mine Brook UNT	FW2-TPC1
LV-OF-2	Mine Brook UNT	FW2-TPC1
LV-OF-3	Twin Lakes Lower Pond	FW2-TM

LV-OF-4	Twin Lakes Lower Pond	FW2-TM
LY-OF-2	Indian Grove Brook UNT	FW2-TPC1
MH-OF-2	Mine Brook UNT	FW2-NT
MH-OF-5	Twin Lakes Lower Pond	FW2-TM
MK-OF-4A	Mine Brook	FW2-NT
MK-OF-8	Mine Brook UNT	FW2-TPC1
MM-OF-2	Mine Brook	FW2-NT
MP-OF-1	Mine Brook	FW2-NT
MV-OF-1	Penns Brook UNT	FW2-NT
OA OF4	Indian Grove Brook	FW2-TPC1
OA-OF-2	Indian Grove Brook	FW2-TPC1
OA-OF-3	Indian Grove Brook	FW2-TPC1
OA-OF-5	Indian Grove Brook	FW2-TPC1
OA-OF-6	Indian Grove Brook	FW2-TPC1
OC-OF-1	Penns Brook UNT	FW2-NT
OK-OF-1	Uncoded Tributary	FW2-NT
OKR-OF-1	Harrisons Brook UNT	FW2-NT
OL-OF-1	Mine Brook	FW2-NT
OL-OF-2	Mine Brook	FW2-NT
OVL-OF-1	Mine Brook UNT	FW2-TPC1
OVL-OF-2	Mine Brook UNT	FW2-TPC1
OVL-OF-3	Mine Brook UNT	FW2-TPC1
PAK-OF-1	Mine Brook	FW2-NT
PC-OF-1	North Branch Raritan River UNT	FW2-TPC1
PC-OF-3	North Branch Raritan River UNT	FW2-TPC1
PGH-OF-2	Mine Brook UNT	FW2-NT
PHO-OF-1	Mine Brook	FW2-NT
PHO-OF-2	Mine Brook	FW2-NT
PKU-OF-1	Mine Brook UNT	FW2-TPC1
PKU-OF-2	Mine Brook UNT	FW2-TPC1
PKU-OF-3	Mine Brook UNT	FW2-TPC1
PKU-OF-4	Mine Brook UNT	FW2-TPC1
PKU-OF-5	Mine Brook UNT	FW2-TPC1
PKU-OF-7	Mine Brook UNT	FW2-NT
PO-OF-1	Mine Brook UNT	FW2-TPC1
PO-OF-2	Mine Brook UNT	FW2-TPC1
PTH-OF-1	Mine Brook UNT	FW2-NT
RB-OF-1	Mine Brook UNT	FW2-TPC1
RB-OF-2	Mine Brook UNT	FW2-TPC1
RB-OF-3	Mine Brook UNT	FW2-TPC1

RB-OF-4	Mine Brook UNT	FW2-TPC1
RO-OF-1	North Branch Raritan River UNT	FW2-TPC1
SB-OF-1	Passaic River UNT	FW2-TP
SE-OF-4	Mine Brook	FW2-NT
SE-OF-5	Mine Brook	FW2-NT
SF-OF-3	Indian Grove Brook UNT	FW2-TPC1
SKY-OF-1	North Branch Raritan River UNT	FW2-TPC1
SP OF1	Indian Grove Brook UNT	FW2-TPC1
SS-OF-1	Harrisons Brook UNT	FW2-NT
SY OF1	Mine Brook	FW2-NT
TH-OF-1	Mine Brook	FW2-NT
TY-OF-1	Penns Brook UNT	FW2-NT
WAC OF3	Indian Grove Brook	FW2-TPC1
WAC OF4	Indian Grove Brook UNT	FW2-TPC1
WAC-OF-1	Indian Grove Brook UNT	FW2-TPC1
WAC-OF-2	Indian Grove Brook	FW2-TPC1
WA-OF-1	Penns Brook UNT	FW2-NT
WS-OF-1	Mine Brook	FW2-NT
TBD	Mine Brook UNT	FW2-NT
TBD	Mine Brook UNT	FW2-NT
TBD	Harrisons Brook UNT	FW2-NT
TBD	Penns Brook UNT	FW2-NT

Figure 2: Bernardsville Borough Owned/Operated Stormwater Outfalls Receiving Surface Waterbodies



Stormwater Interconnection(s)

Interconnections are points where the MS4 system connects to or receives stormwater from another entity's stormwater conveyance system such as adjacent municipal MS4s, county or state-owned drainage systems, public authorities, and private stormwater systems. Identifying the interconnections defines jurisdictional boundaries, clarifies ownership and maintenance responsibility, and supports watershed and TMDL stormwater management efforts.

The MS4 Infrastructure Mapping project identified interconnections between the Borough and public entities. The Watershed Inventory Report extends that identification effort to include private systems.

- Number of interconnections from Bernardsville Borough's MS4 into another entity's stormwater, sanitary, or combined sewer collection system:25

Interconnections from Bernardsville's MS4 into another entity

Stormwater interconnections were identified using data collected during fieldwork conducted in June 2025. Utilizing existing publicly available road maps that differentiate local, county, state, and private roads, field crews identified MS4 conveyance systems that intersected at these crossroads. Additionally, the field crew field-verified county and state roads by locating the blue pentagon-shaped shield with yellow lettering, and white shield with black numbers and letters, respectively. GIS staff also verified roadway ownership under the guidance of the Borough and from publicly available roadway data. Finally, any MS4 conveyance system that intersected a municipal boundary, as defined by publicly available data, is an MS4 interconnection. All data was collected using a mapping grade Trimble GPS capable of centimeter accuracy, and each data parameter was captured pursuant to the Tier A Municipal Stormwater, Section G1iii.

Table 6: Other Systems (MS4s, Sanitary Sewers, Combined Sewers) Receiving Stormwater Flow from Bernardsville Borough

From Bernardsville	To Other Systems	Type
Bernardsville	Somerset County	Pipe
Bernardsville	US Highway	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	US Highway	Pipe
Bernardsville	US Highway	Pipe
Bernardsville	US Highway	Pipe
Bernardsville	US Highway	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	Somerset County	Pipe

Bernardsville	Somerset County	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	US Highway	Pipe
Bernardsville	US Highway	Pipe
Bernardsville	US Highway	Pipe
Bernardsville	Somerset County	Pipe
Bernardsville	Private	Pipe

Interconnection(s) into Bernardsville Borough's MS4 from another entity

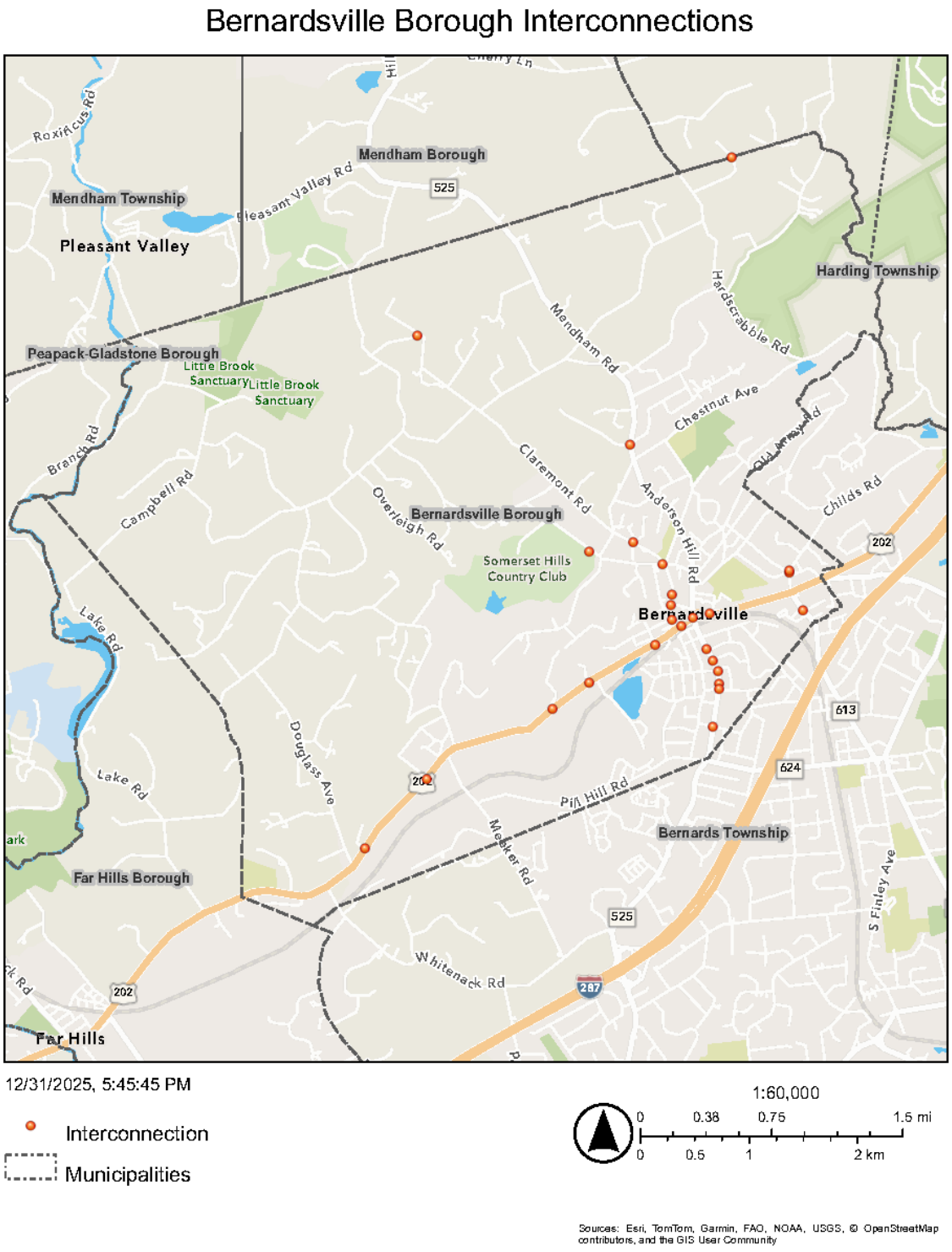
Stormwater interconnections were identified using data collected during fieldwork conducted in June 2025. Utilizing existing publicly available road maps that differentiate local, county, state, and private roads, field crews identified MS4 conveyance systems that intersected at these crossroads. Additionally, the field crew field-verified county and state roads by locating the blue pentagon-shaped shield with yellow lettering, and white shield with black numbers and letters, respectively. GIS staff also verified roadway ownership under the guidance of the municipality and publicly available roadway data. Finally, any MS4 conveyance system that intersected a municipal boundary, as defined by publicly available data, is an MS4 interconnection. All data was collected using a mapping grade Trimble GPS capable of centimeter accuracy, and each data parameter was captured pursuant to the Tier A Municipal Stormwater, Section G1iii.

- Indicate the number of interconnections from other entities into Bernardsville Borough**: 1**

Table 7: Other Systems (MS4s, Sanitary Sewers, Combined Sewers) Discharging into Bernardsville Borough

From Other Systems	**To Bernardsville**	**Type**
Mendham TWP	Bernardsville	Pipe

Figure 3: Interconnections into and from Bernardsville Borough's MS4



Drainage Area(s) for Stormwater Outfalls and Stormwater Interconnections

Stormwater runoff is conveyed through a combination of natural drainage features and engineered stormwater infrastructure that collectively direct stormwater to receiving surface waters through outfalls or groundwater discharge locations. Drainage areas contributing to individual outfalls were determined based on topographic mapping, land use data, and field observations. The drainage boundaries provided reflect flow patterns influenced by watershed topography and locations of stormwater conveyance systems. The proportion of impervious and pervious cover within each drainage area is an important factor influencing runoff volume, pollutant loading, and downstream water quality conditions. Stormwater interconnections convey runoff through shared storm sewer infrastructure prior to discharge and may cross property boundaries, roadway corridors, or municipal jurisdictions. These interconnections can consolidate runoff, and associated pollutant loads at downstream outfalls.

Storm Drain Inlets

The data for storm drain inlets was collected through fieldwork conducted in June 2025. Utilizing existing stormwater infrastructure maps prepared by our firm and/or the Permittee, field crews navigated municipally owned roadways and properties to locate, and field verify each storm drain inlet. Visual analysis was performed to ensure that the observed conditions were accurately recorded, and each data parameter was captured pursuant to the Tier A Municipal Stormwater, Section G1iv. There are 1460 storm drain inlets installed in the Borough of Bernardsville.

MS4 Outfall Drainage Areas

The data used to delineate MS4 outfall drainage areas was collected during fieldwork conducted in June 2025. GPS devices were used to locate and document the positions of all visible and accessible outfalls. Using this outfall data, drainage areas were delineated in QGIS by analyzing surface topography with digital elevation model (DEM) data to determine flow direction and contributing areas for each outfall.

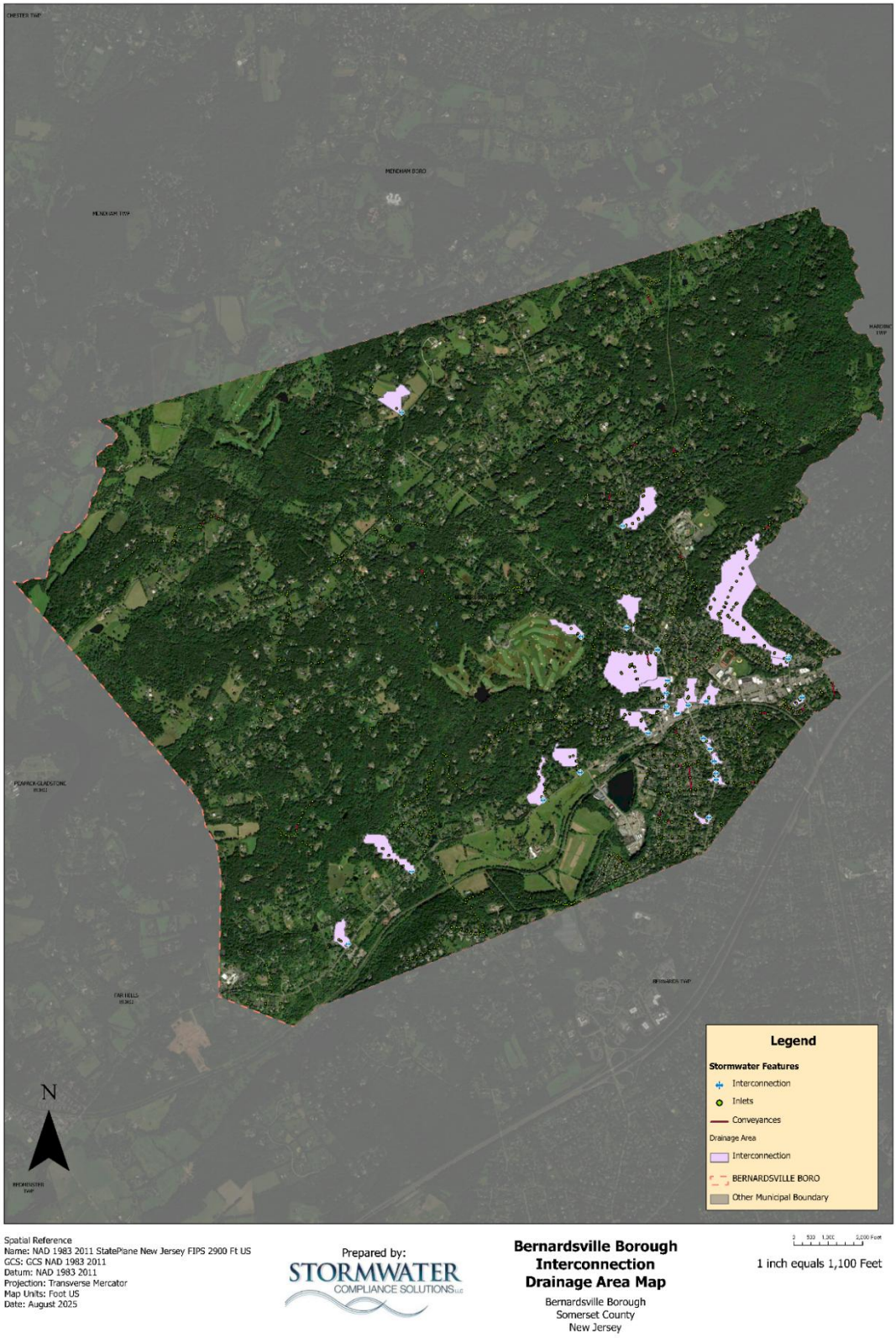
Drainage area of interconnection(s) from Bernardsville Borough to another entity

The data used to delineate the drainage area of interconnection(s) from Bernardsville Borough to another entity was collected during fieldwork conducted in June 2025. GPS devices were used to locate and document the positions of all visible and accessible interconnection points. Using this data, drainage areas were delineated in QGIS by analyzing surface topography with digital elevation model (DEM) data to determine flow direction and contributing areas for each interconnection.

Figure 4:Outfall Drainage Area(s)

Digital Map: https://arcg.is/0Sv00i1

Figure 5:Interconnection Drainage Area(s)



Digital Map: https://arcg.is/0Sv00i1

TMDLs and Water Quality Impairments

The identification of TMDLs and water quality impairments was based on outfall data collected through fieldwork collected in 2024, combined with GIS data from the NJDEP Open Data. These outfall locations were then overlayed with the 'Total Maximum Daily Loads (TMDL) for Streamsheds in New Jersey' and 'Total Maximum Daily Loads (TMDL) Historic (Pre-2008) for Streamsheds in New Jersey' shapefiles to determine the TMDLs and any applicable impairments. The shapefiles were retrieved from the NJDEP Open Data portal in July 7, 2025 from the Division of Information Technology, NJDEP Bureau of GIS website: https://gisdata-njdep.opendata.arcgis.com/.

TMDL Summary Table

Waterbody	**HUC14 Subwatershed**	**Pollutant**	**TMDL Status**	**Typical Load Reduction Target**
North Branch Raritan River	North Branch Raritan (HUC14)	Total Phosphorus	Approved TMDL	20–40%
North Branch Raritan River	North Branch Raritan (HUC14)	Bacteria (E. coli)	Approved TMDL	85–95%
Mine Brook	Mine Brook (HUC14)	TSS / Sediment	Approved TMDL	30–50%
Mine Brook	Mine Brook (HUC14)	Biological Impairment	Assessment-based	Narrative reduction

Summary of the environmental impacts of each parameter identified for each TMDL and impairment for each subwatershed within Bernardsville Borough as provided by the NJDEP: https://dep.nj.gov/wp-content/uploads/njpdes-stormwater/wip/pollutants-of-concern.pdf

Temperature

The concentration of dissolved oxygen in the receiving waters is also affected by the temperature of the water. Cold water holds more dissolved oxygen than warm water, so in New Jersey during winter and early spring, the dissolved oxygen concentration in the surface waters is relatively high. However, in summer and fall, the dissolved oxygen concentration is often lower and therefore can pose a risk to designated uses associated with aquatic life. Deeper water also tends to be colder and hold more dissolved oxygen than shallower waters. Yet, turbid waters will absorb more heat. The elevated temperatures are especially harmful to cold water fish, such as trout.

Temperature impairments in the receiving waters can be due to heating of stormwater runoff as it runs across hot paved areas, such as roadways and parking lots, overflow of heated stormwater ponded in basins, stream bank erosion that widens the stream and creates more shallow stream beds, and increased solar incidence in areas where shading vegetation is lacking in the riparian buffer. In addition to the other Tier A permit conditions noted below, the increased temperature impacts associated with stormwater runoff can also be mitigated by implementing green

infrastructure measures to manage stormwater runoff at the source rather than direct it into the MS4 and receiving waterbodies, providing proper stormwater management practices, and conducting streambank restoration projects where needed.

MS4 permit conditions that regulate this parameter:

- Pet Waste Ordinance
- Wildlife Feeding Ordinance
- Litter Control Ordinance
- Improper Disposal of Waste Ordinance
- Yard Waste Ordinance
- Street Sweeping Program
- Herbicide Application Management
- Roadside Vegetative Waste Management
- Roadside Erosion Control
- Inspection and Maintenance of Stormwater Facilities
- Stream Scouring Program
- Illicit Discharge Detection and Elimination Program

Pathogens (Enterococcus, E. coli, Fecal Coliform, Total Coliform)

Pathogens, including enterococcus, E. Coli, fecal coliform, and total coliform, enter the receiving waters when stormwater comes into contact with sources of these pathogens, such as pet waste, animal waste from geese and other wildlife, some farming activities, illicit discharges, failing sewage conveyance systems and septic systems, combined sewage overflows, and sanitary sewer overflows (SSOs). While sewage treatment plants contribute a steady input of treated sewage to their receiving waters, stormwater runoff is the primary contributor to pathogen loads in the surface waters of the state.

Many of these pathogens affect the designated uses of the receiving waters and are harmful to human or animal health when ingested causing intestinal disease. Pathogens can attack the immune system and cause infections that may result in abdominal issues, respiratory problems, fever, headache, skin rashes, etc. (Water Quality Topics: Pathogens | US EPA).

When receiving surface waters include shellfish harvesting as a designated use, pathogens also pose additional concerns. Proximity to potential sources such as marinas, development served by septic systems and concentrated stormwater outfall locations warrant precautionary closures of shellfish waters on a seasonal or full-time basis. The National Shellfish Sanitation Program has established criteria for pathogens that are used to determine support of the shell fishing use.

MS4 permit conditions that regulate this parameter:

- Pet Waste Ordinance
- Wildlife Feeding Ordinance
- Litter Control Ordinance
- Improper Disposal of Waste Ordinance

- Yard Waste Ordinance
- Street Sweeping Program
- Herbicide Application Management
- Roadside Vegetative Waste Management
- Roadside Erosion Control
- Inspection and Maintenance of Stormwater Facilities
- Stream Scouring Program
- Illicit Discharge Detection and Elimination Program

Dissolved Oxygen

Dissolved oxygen (DO) refers to the concentration of oxygen gas incorporated into the water. Oxygen enters the water by direct absorption from the atmosphere and is enhanced by turbulence. Running water, such as that of a swift moving stream, normally contains more dissolved oxygen than the still water of a pond or lake. Water also absorbs oxygen released by aquatic plants during photosynthesis. Sufficient DO is essential to growth and reproduction of aerobic aquatic life (e.g., see Murphy 2006, Giller and Malmqvist 1998, Allan 1995; https://www.epa.gov/caddis-vol2/dissolved-oxygen). Low levels of oxygen (hypoxia) or no oxygen levels (anoxia) can occur when excess organic materials are decomposed by microorganisms. During this decomposition process, the DO in the water is consumed. In some water bodies, DO levels fluctuate periodically, seasonally, and even as part of the natural daily ecology of the aquatic resource. As DO levels drop, some sensitive animals may move away, decline in health, or even die. DO is considered an important measure of water quality as it is a direct indicator of an aquatic resource's ability to support aquatic life. While each organism has its own DO tolerance range, generally, DO levels below 3 milligrams per liter (mg/L) are of concern and waters with levels below 1 mg/L are considered hypoxic and are usually devoid of life.

Stormwater runoff containing nutrients such as nitrate, phosphorus, and organic TSS matter and animal and pet waste cause the levels of dissolved oxygen to decrease in the receiving waters. An increase in these materials transported via stormwater runoff will have a greater impact on receiving waters.

MS4 permit conditions that regulate this parameter:

- Pet Waste Ordinance
- Wildlife Feeding Ordinance
- Litter Control Ordinance
- Improper Disposal of Waste Ordinance
- Yard Waste Ordinance
- Street Sweeping Program
- Herbicide Application Management
- Roadside Vegetative Waste Management
- Roadside Erosion Control
- Inspection and Maintenance of Stormwater Facilities
- Stream Scouring Program
- Illicit Discharge Detection and Elimination Program

pH

pH (scientifically referred to as the Potential of Hydrogen) measures the concentration of hydrogen ions in a solution and is the indicator of the acidity or alkalinity of a substance, representing its ability to donate or accept hydrogen ions. pH values can range from 0 to 14, with 0 representing the most acidic and 14 representing the most basic. Fluctuations in pH and pH levels outside of the typical levels for a waterbody can negatively impact aquatic life, including reduced biodiversity if those values exceed critical thresholds. These impacts happen when the receiving waters experience even slight changes in pH levels that negatively impact reproduction, growth, and the ability to sustain life for species that live within them.

Pure water has a neutral pH equal to 7 but when chemicals or pollutants are mixed with stormwater runoff, the mixture can become either acidic or basic. Such is the case when stormwater comes into contact with ammonia, sulfur, battery acids, lime, cement, wet or fresh concrete, fertilizers, compost, and other pollutants. This mixing can happen on the ground with runoff or can happen in the atmosphere with air pollutants causing "acid rain." When acid rain or pH impacted storm water runoff collect in streams and ponds, the pH of that water body is changed. Microsoft Word - Rain Events Newsletter - June 2010 - CA (wgr-sw.com)

MS4 permit conditions that regulate this parameter:

- Pet Waste Ordinance
- Wildlife Feeding Ordinance
- Litter Control Ordinance
- Improper Disposal of Waste Ordinance
- Yard Waste Ordinance
- Street Sweeping Program
- Herbicide Application Management
- Roadside Vegetative Waste Management
- Roadside Erosion Control
- Inspection and Maintenance of Stormwater Facilities
- BMPs at Municipal Maintenance Yards
- Stream Scouring Program
- Illicit Discharge Detection and Elimination Program

The table below lists HUC 14 within or bordering Bernardsville Borough:

Table 8: TMDLs and Impairments for Subwatershed Within or Bordering Bernardsville Borough

HUC 14	Subwatershed Name	TMDL(s)	Impairment(s)
02030105060040	Raritan R NB(Peapack Bk to McVickers Bk)	Streamshed*:* Total Phosphorus Total Suspended Solids	None
02030105060030	Raritan R NB(incl McVickers to India Bk)	Streamshed*:* Total Phosphorus Total Suspended Solids	DISSOLVED OXYGEN, TEMPERATURE
02030103010010	Passaic R Upr (above Osborn Mills)	Streamshed Total Phosphorus Streamshed 2008:	PH, TEMPERATURE

		Fecal Coliform	
02030103010070	Passaic R Upr (Dead R to Osborn Mills)	Streamshed Total Phosphorus Streamshed 2008: Fecal Coliform	DISSOLVED OXYGEN
02030103010090	Harrisons Brook	Streamshed*:* Total Phosphorus Streamshed 2008: Fecal Coliform	None
02030103010080	Dead River (above Harrisons Brook)	Streamshed*:* Total Phosphorus Streamshed 2008: Fecal Coliform	None
02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)	Streamshed*:* Total Phosphorus Total Suspended Solids	None

Figure 6: Subwatersheds Within or Bordering Bernardsville Borough

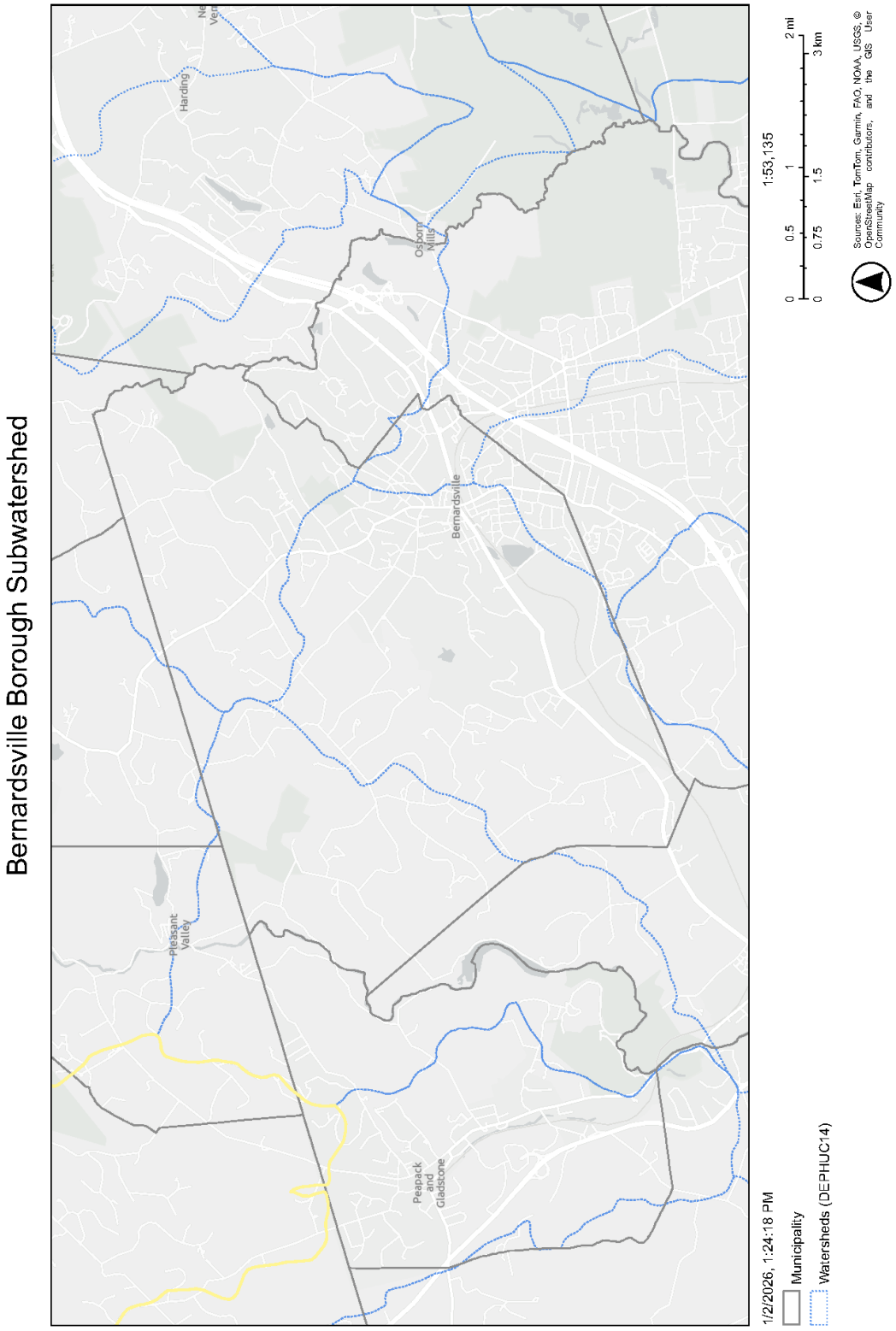


Figure 7: TMDL Streamshed Within or Bordering Bernardsville Borough

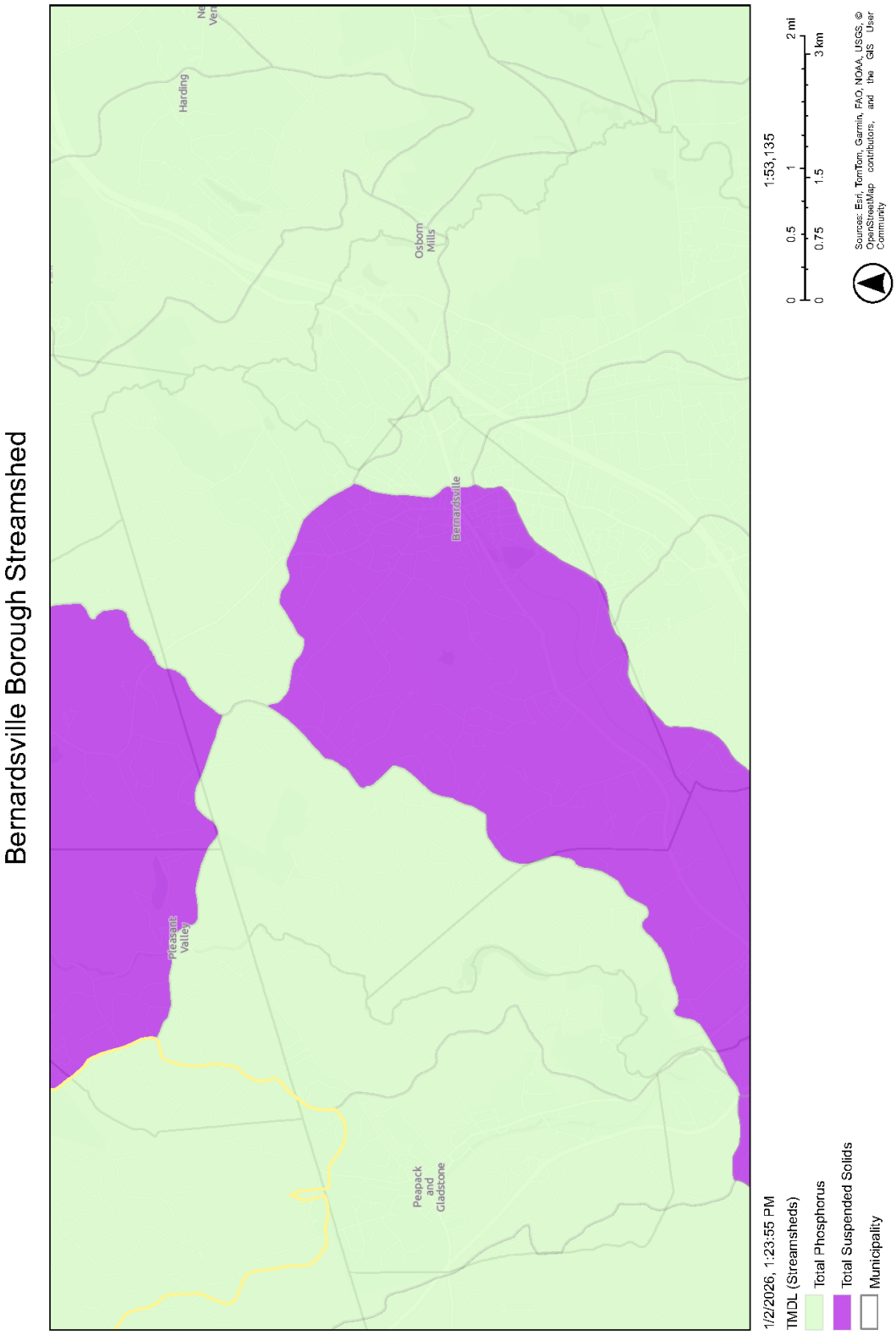
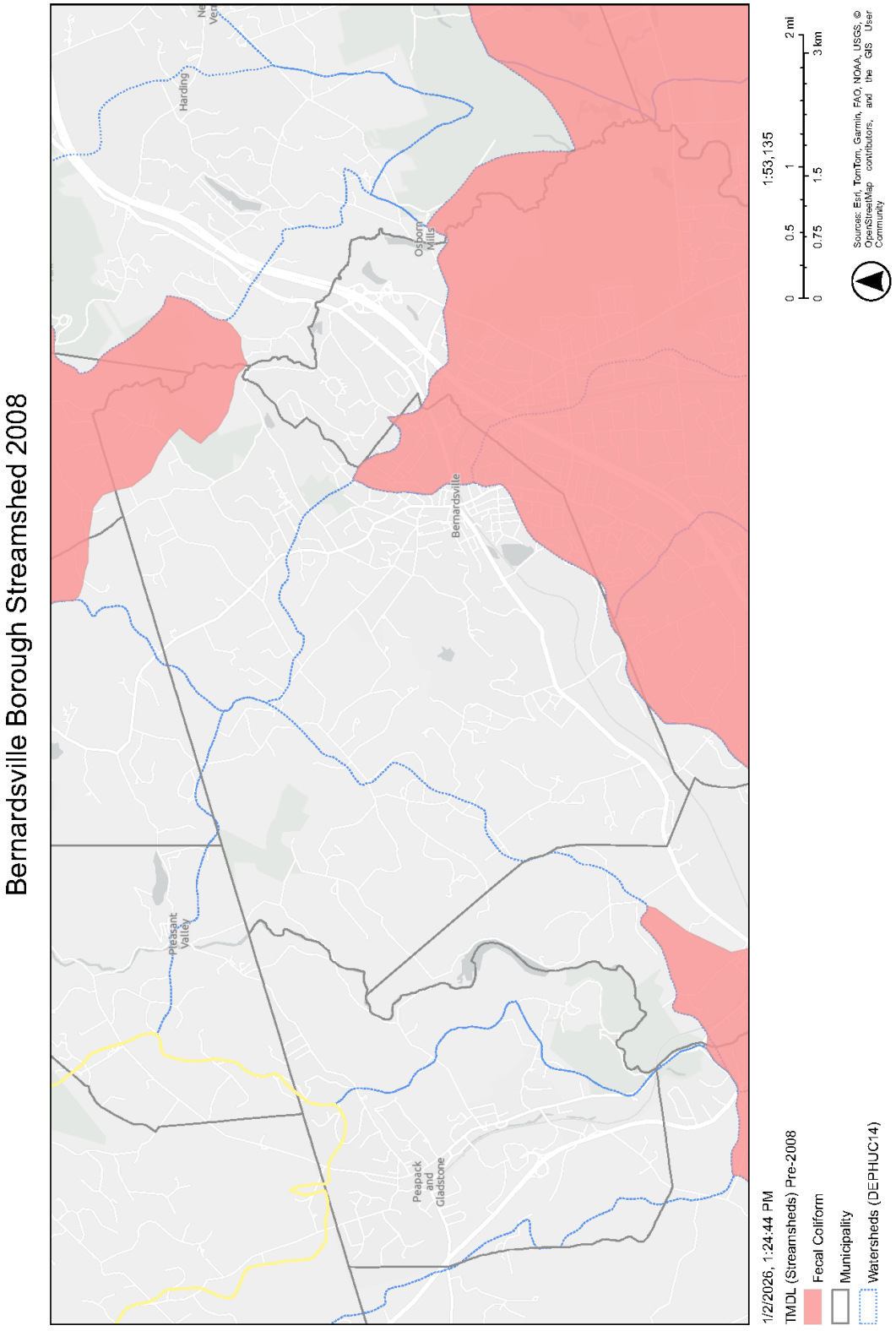


Figure 8: TMDL Streamshed Pre-2008 Within or Bordering Bernardsville Borough



Overburdened Communities

The Environmental Justice (EJ) Law (N.J.S.A. 13:1D-157 through 13:1D-165) requires that the NJDEP develop a list of Overburdened Communities (OBCs), to notify municipalities of the block groups that met the criteria, and to develop corresponding dataset mapping. As defined in the EJ law, "overburdened community" means any census block group, as determined in accordance with the most recent United States Census, in which at least: (1) 35 percent of the households qualify as low-income households; (2) 40 percent of the residents identify as minority or as members of a State recognized tribal community; or (3) 40 percent of the households have limited English proficiency.

Under the EJ law, development applications within (in whole or in part) Overburdened Communities areas (or applications for a permit for a new or expanded facility, or any application for the renewal of an existing facility's major source permit) are required to prepare and submit an environmental justice impact statement to the NJDEP, to the municipal clerk and the municipal governing body, and meet the public notice requirements set forth in the law.

Based on the NJDEP published EJMAP, NJ-WET, and confirmed in December 2025, it is determined that there are no Overburdened Communities areas within Bernardsville Borough.

Impervious Area

Impervious surfaces - including roadways, driveways, parking areas, rooftops, sidewalks, and other paved or compacted surfaces—alter the natural hydrology of the watershed and contribute to stormwater-related water quality impacts. As development increases and impervious coverage expands, the result is an increase in stormwater runoff volumes, elevated peak discharge rates, and greater pollutant transport to receiving waters.

The identification of impervious areas was based on GIS analysis using publicly available data. The dataset used was from the New Jersey Watershed Evaluation Tool (NJ-WET) and was retrieved on July 7, 2025, from the Division of Watershed and Land Management, Bureau of NJPDES Stormwater Permitting & Water Quality Management website: https://dep.nj.gov/njpdes-stormwater/municipal-stormwater-regulation-program/watershed-improvement-plan-guidance/. Additional information was obtained and is available from a January 2020 Impervious Cover Assessment Report prepared by the Rutgers Cooperative Extension Water Resources Program funded by the New Jersey Highlands Water Protection and Planning Council. The table below identifies the percentage of impervious cover in each subwatershed within Bernardsville Borough jurisdiction

Table 9:Subwatershed Percent Impervious Cover within Bernardsville Borough Jurisdiction

Subwatershed	**Percent Impervious**
Dead River (above Harrisons Brook)	7.14%
Harrisons Brook	25.5%
Passaic R Upr (above Osborn Mills)	7.7%
Passaic R Upr (Dead R to Osborn Mills)	28%

Raritan R NB(incl McVickers to India Bk)	9.3%
Raritan R NB(incl Mine Bk to Peapack Bk)	12.4%
Raritan R NB(Peapack Bk to McVickers Bk)	5.6%

Impervious surfaces limit infiltration and increase the volume and rate of stormwater runoff, thereby significantly impacting watershed hydrology and stream condition. Increases to stormwater rates and volume can result in stream bed erosion, diminish bank integrity, adversely affect habitat and aquatic communities, and accelerate the transport of pollutants, sediment, nutrients, metals, hydrocarbons, and fecal bacteria, to surface waters. Runoff from paved surfaces can also elevate stream temperatures and reduce dissolved oxygen, which, in turn, diminishes stream conditions and aquatic ecosystems.

Figure 9:Overburdened Communities and Impervious Surfaces within Bernardsville Borough

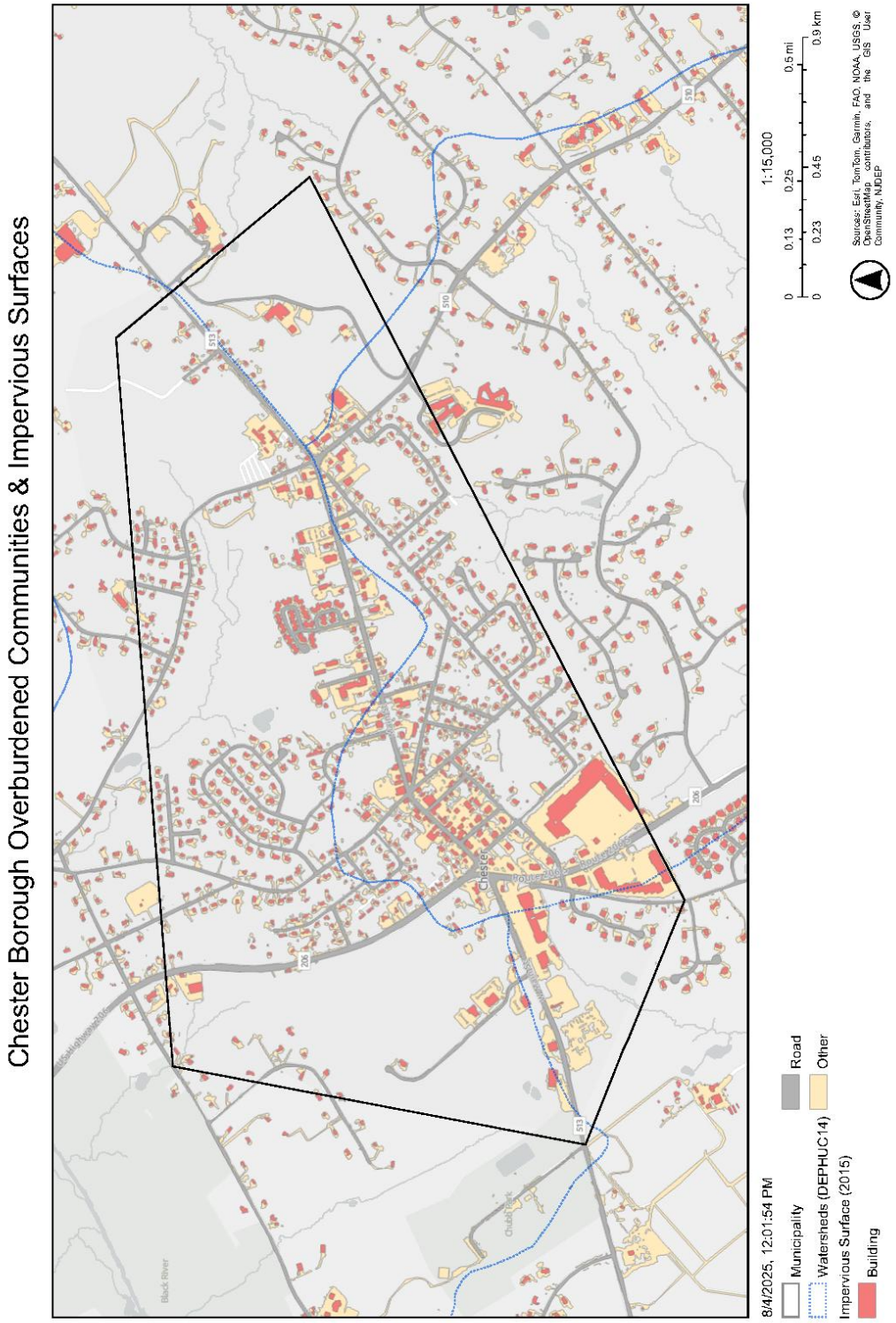
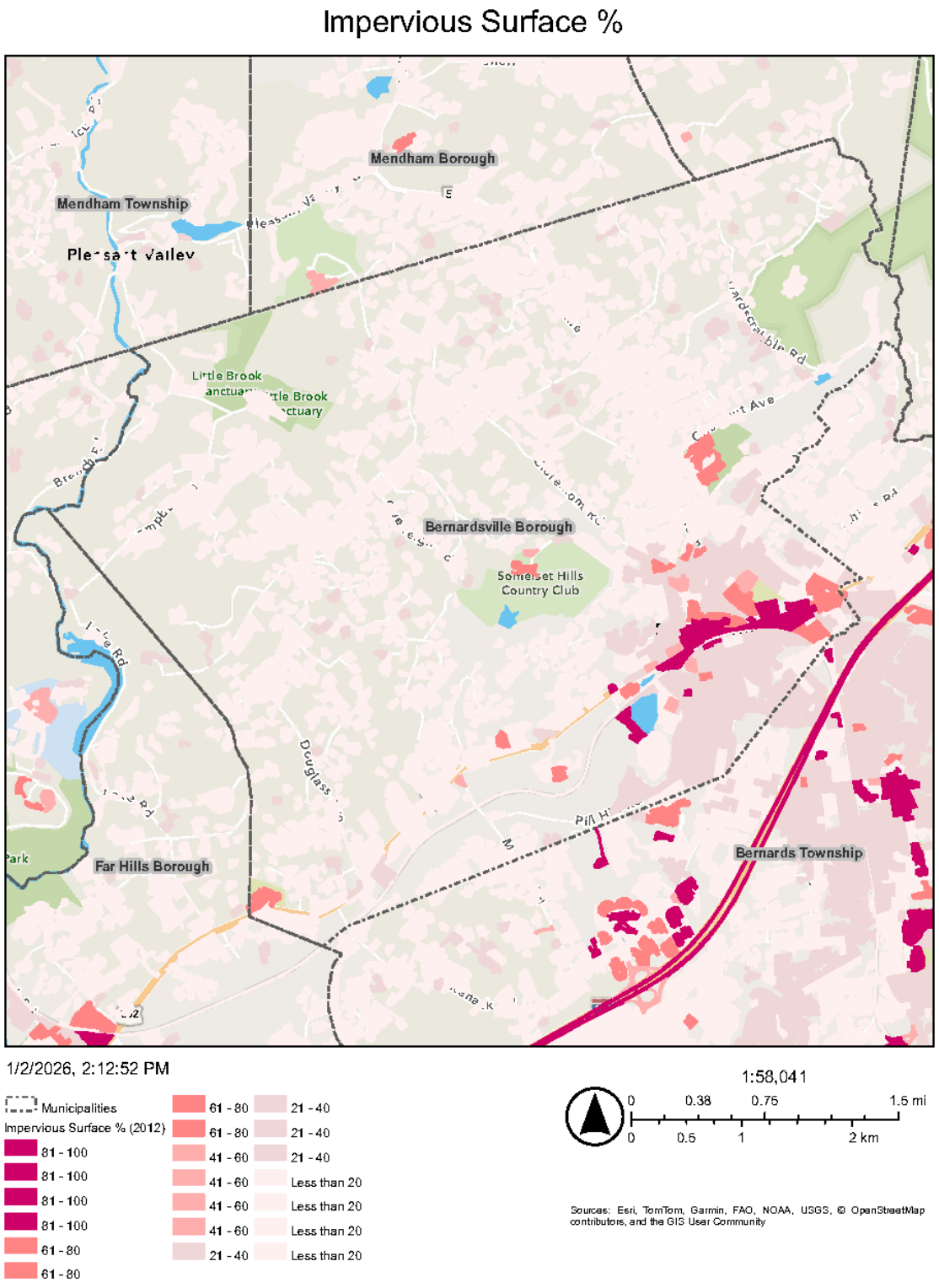


Figure 10:Bernardsville Borough Impervious Surface %



Non-Municipally Owned or Operated Stormwater Facilities

Privately-owned stormwater systems are an important part of a comprehensive municipal stormwater management system. The identification of these facilities helps to accurately assess watershed conditions, quantify pollutant sources, and identify TMDL improvement strategies in a watershed improvement plan. The private systems discharge to the same municipal conveyances as the public systems, so including them strengthens the consistency of long-term planning efforts, while also helping to identify issues (erosion, sedimentation, illicit discharges, etc.) that may arise. Examples of structural privately-owned stormwater systems can include:

- Bioretention Systems (large-scale)
- Blue Roofs
- Cisterns
- Dry Wells
- Extended Detention Basins
- Grass Swales
- Green Roofs
- Infiltration Basins (large-scale)
- Manufactured Treatment Devices (MTDs)
- Pervious Paving Systems
- Sand Filters (large-scale)
- Small-scale Bioretention Systems
- Small-scale Infiltration Basins
- Small-scale Sand Filters
- Standard Constructed Wetlands
- Stormwater Outfalls
- Subsurface Gravel Wetlands
- Vegetative Filter Strips
- Wet Ponds

Non-municipally owned or operated stormwater facilities were identified through fieldwork in June 2025, supplemented by publicly available data and input from Bernardsville Borough. Field crews verified site conditions and recorded required parameters per Tier A Permit Section G1viii.The New Jersey Hydrologic Modeling (H&H) Database was also used to support identification. The dataset used was from the New Jersey Hydrologic Modeling Database (H&H Database) and was retrieved on July 7, 2025, from the Rutgers University HydroLab website: https://hydro.rutgers.edu/about/.

Table 10:Subwatersheds That Have Non-Municipally Owned or Operated Stormwater Infrastructure

HUC-14	**Sub-Watershed Name**
02030103010010	Passaic R Upr (above Osborn Mills)
02030103010070	Passaic R Upr (Dead R to Osborn Mills)
02030103010090	Harrisons Brook
02030105060070	Raritan R NB (incl Mine Bk to Peapack Bk)

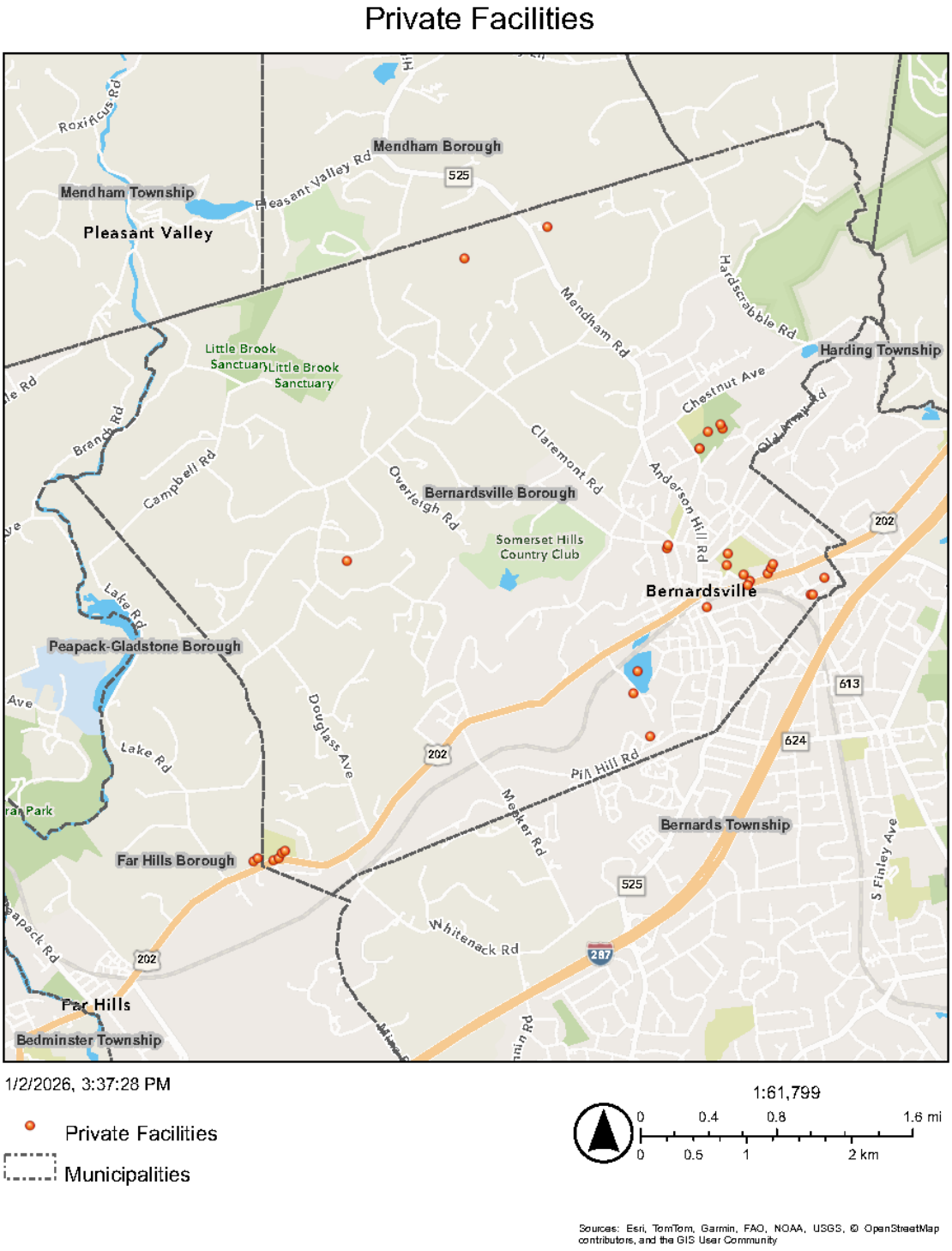
Table 11:Type, Quantity, Block and Lot, and Owner of the Infrastructure Within Each Subwatershed

Owner	**Block**	**Lot**	**Type**	**HUC_14**	**Subwatershed**
Bernards High School	64.0	1.0	Detention Basin	02030103010070	Passaic R Upr (Dead R to Osborn Mills)

	64.0	1.0	Detention Basin	02030103010070	Passaic R Upr (Dead R to Osborn Mills)
	64.0	1.0	Detention Basin	02030103010070	Passaic R Upr (Dead R to Osborn Mills)
Bernardsville Audi Service Prep	100.0	2.5	Detention Basin	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
	64.0	1.0	Detention Basin	02030103010070	Passaic R Upr (Dead R to Osborn Mills)
	64.0	1.0	Outfall	02030103010070	Passaic R Upr (Dead R to Osborn Mills)
Bernardsville Centre, LLC	64.0	1.0	Outfall	02030103010070	Passaic R Upr (Dead R to Osborn Mills)
	35.0	2.0	Detention Basin	02030103010010	Passaic R Upr (above Osborn Mills)
Bernardsville Turf Field	35.0	2.0	Detention Basin	02030103010010	Passaic R Upr (above Osborn Mills)
Boulderwood	14.0	11.0	Detention Basin	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
Chestnut Ridge	100.0	2.0	Detention Basin	02030103010090	Harrisons Brook
	4.0	12.0	Detention Basin	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
	89.0	10.0	Detention Basin	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
	89.0	10.0	Detention Basin	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
	4.0	10.0	Detention Basin	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
Far Hills Country Day School	89.0	10.0	Outfall	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)

	89.0	10.0	Outfall	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
	125.0	27.3	Detention Basin	02030103010070	Passaic R Upr (Dead R to Osborn Mills)
Rolling Hills @ Bernardsville	125.0	27.3	Outfall	02030103010070	Passaic R Upr (Dead R to Osborn Mills)
	35.0	2.0	Detention Basin	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
	35.0	2.0	Outfall	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
Seney Drive Pickleball Courts	35.0	2.0	Detention Basin	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
Silverman Residence	5.0	2.0	Detention Basin	02030103010010	Passaic R Upr (above Osborn Mills)
Single Family Home	7.0	2.0	Detention Basin	02030103010010	Passaic R Upr (above Osborn Mills)
Subdivision	124.0	2.0	Detention Basin	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
TD Bank	125.0	14.0	Detention Basin	02030103010070	Passaic R Upr (Dead R to Osborn Mills)
TD Bank 1	64.0	1.0	Underground basin	02030103010070	Passaic R Upr (Dead R to Osborn Mills)
	68.0	9.0	Detention Basin	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
The Heritage @ Claremont	68.0	9.0	Detention Basin	02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)
Tysley Estates	142.0	6.0	Detention Basin	02030103010070	Passaic R Upr (Dead R to Osborn Mills)

Figure 11:Non-municipally Owned/Operated Stormwater Infrastructure in Bernardsville Borough



Conclusion

The Watershed Inventory Report, Phase 1 of the Watershed Improvement Plan, identifies stormwater infrastructure, as required in the NJDEP Tier A MS4 permit. As the Borough continues its work in collaboration with the stakeholders, environmental partners, municipal neighbors, and the residents of Bernardsville Borough during Phases II & III, it will develop an actionable plan to address areas of concern and reduce stormwater-driven water quality impairments.

Priority areas for watershed improvement include Mine Brook, downtown drainage areas, roadway corridors, and outfalls discharging directly to impaired waters. Improvement strategies to be identified through the Phase II analysis may include green infrastructure projects, enhanced maintenance of stormwater facilities, riparian restoration, and coordination with county, municipal, and regional environmental partners. The Borough of Bernardsville will continue its focus on best management practices and sustained public engagement as it works to protect and enhance critical local waterways and reduce local flooding risks.