Illicit Discharge Detection and Elimination (IDDE) Plan

TOWN OF WINDHAM, NEW HAMPSHIRE

Permit Year 7

Prepared By:

Town of Windham, Seacoast Stormwater Coalition and Manchester/Nashua Stormwater Coalition

EPA NPDES Permit Number NHR041000

Original Document Date – July 1, 2019

Updated Date – January 2020 (Catchment Investigations Section 7.0 – 7.8)

Update Date – September 2024

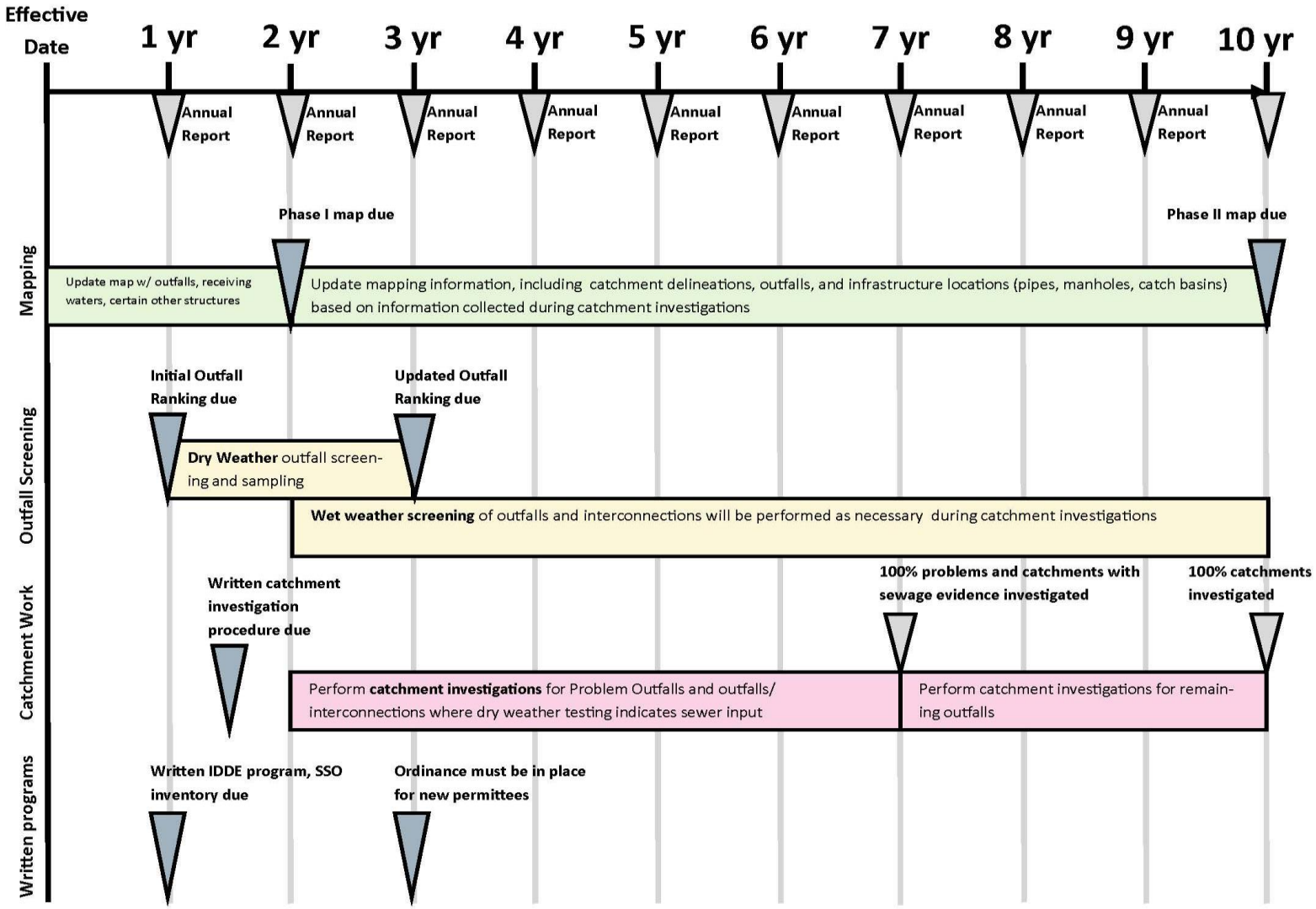

Effective Date
1 yr
2 yr
3 yr
4 yr
5 yr
6 yr
7 yr
8 yr
9 yr
10 yr
Annual Report
Mapping
Phase I map due
Phase II map due
Update map w/ outfalls, receiving waters, certain other structures
Update mapping information, including catchment delineations, outfalls, and infrastructure locations (pipes, manholes, catch basins) based on information collected during catchment investigations
Outfall Screening
Initial Outfall Ranking due
Updated Outfall Ranking due
Dry Weather outfall screening and sampling
Wet weather screening of outfalls and interconnections will be performed as necessary during catchment investigations
Catchment Work
Written catchment investigation procedure due
100% problems and catchments with sewage evidence investigated
100% catchments investigated
Perform catchment investigations for Problem Outfalls and outfalls/ interconnections where dry weather testing indicates sewer input
Perform catchment investigations for remaining outfalls
Written programs
Written IDDE program, SSO inventory due
Ordinance must be in place for new permittees

TABLE OF CONTENTS

Tables

Figures

Appendices

1 IDDE Program Implementation Introduction and Timeline

Introduction:

The Town of Windham has developed an Illicit Discharge Detection and Elimination (IDDE) program to address the requirements of the National Pollutant Discharge Elimination System (NPDES) Phase II rule, most recently updated with an effective date of July 1, 2018. The rule requires regulated operators of municipal separate storm sewer systems (MS4s) to obtain a permit to discharge stormwater runoff from their MS4, and establishes conditions they must meet to reduce the impacts of stormwater discharges.

The MS4 Permit requires that each permittee or regulated community address six (6) Minimum Control Measures. The measures include the following:

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management in New Development or Redevelopment (Post Construction Stormwater Management)
6. Pollution Prevention / Good Housekeeping for Permitee Owned Operations

Under Minimum Control Measure #3, the Town is required to implement an IDDE program to provide the legal authority to prohibit and eliminate illicit discharges to the MS4, find the source of any illicit discharges, eliminate those illicit discharges, and ensure ongoing screening and tracking to prevent and/or eliminate future illicit discharges. In this regard, the Town relies heavily on its General Services staff to observe and scrutinize the Town's MS4 outfalls for illicit discharges, illegal dumping and illicit connections, during their routine duties. The main methodology used involves Dry Weather Screening, which helps to ensure the integrity of the stormwater drainage system by detecting non-stormwater discharges during dry weather conditions. The IDDE program must also be recorded in a written (hardcopy or electronic) document. This IDDE Plan has been prepared to address this requirement.

1.1 Purpose

The purpose of this Plan is to outline a program to systematically detect and eliminate non-stormwater illicit discharges to the Windham Municipal Separate Storm Sewer System (MS4) and waterways to improve water quality and meet the Federal Phase II Stormwater requirements. It provides the Town staff with direction as to the frequency and procedures for performing field screenings, collecting samples, equipment needed, discusses possible sources of potential pollutants, and outlines guidelines for investigating an illicit discharge.

1.2 Definitions – Illicit Discharge

An “illicit discharge” is any discharge to a municipal separate storm sewer that is not composed entirely of stormwater, with the exception of discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer), and discharges resulting from firefighting activities (refer to section 1.3).

Illicit discharges may take a variety of forms. Illicit discharges may enter the drainage system through direct or indirect connections. Direct connections may be relatively obvious, such as cross-connections of sewer services to the storm drain system. Indirect illicit discharges may be more difficult to detect or address, such as failing septic systems that discharge untreated sewage to a ditch within the MS4, or a sump pump that discharges contaminated water on an intermittent basis.

Some illicit discharges are intentional, such as dumping used oil (or other pollutant) into catch basins, a resident or contractor illegally tapping a new sewer lateral into a storm drain pipe to avoid the costs of a sewer connection fee and service, and illegal dumping of yard wastes into surface waters.

Some illicit discharges are related to the unsuitability of original infrastructure to the modern regulatory environment. Examples of illicit discharges in this category include connected floor drains in old buildings, as well as sanitary sewer overflows that enter the drainage system. Sump pumps legally connected to the storm drain system may be used inappropriately, such as for the disposal of floor wash water or old household products, in many cases due to a lack of understanding on the part of the homeowner.

Elimination of some discharges may require substantial costs and efforts, such as funding and designing a project to reconnect sanitary sewer laterals. Others, such as improving self-policing of dog waste management, can be accomplished by outreach in conjunction with the minimal additional cost of dog waste bins and the municipal commitment to disposal of collected materials on a regular basis.

Regardless of the intention, when not addressed, illicit discharges can contribute high levels of pollutants, such as heavy metals, toxics, oil, grease, solvents, nutrients, and pathogens to surface waters.

1.3 Allowable Non-Stormwater Discharges

The following categories of non-storm water discharges are allowed under the MS4 Permit unless the permittee, USEPA or New Hampshire Department of Environmental Services (NHDES) identifies any category or individual discharge of non-stormwater discharge as a significant contributor of pollutants to the MS4 regulated area:

Water line flushing	Landscape irrigation
Diverted stream flows	Rising ground waters
Uncontaminated ground water infiltration*	Uncontaminated pumped ground water
Discharge from potable water sources	Foundation drains
Air conditioning condensation	Irrigation water
Springs	Footing drains
Water from crawl space pumps	Individual resident car washing
Lawn watering	De-chlorinated swimming pool discharges

Flows from riparian habitats and wetlands	Residential building wash waters w/o detergents
Street wash waters	Firefighter flows or discharges**

* As defined at 40 CFR 35.2005(20))

** Discharges or flows from firefighting activities are allowed and only need to be addressed where they are identified as significant sources of pollutants to waters of the Town of Windham or State of New Hampshire.

1.4 Urbanized Area:

The MS4 Permit requires towns to implement the IDDE program within the Urbanized Area as depicted in the Figure below:

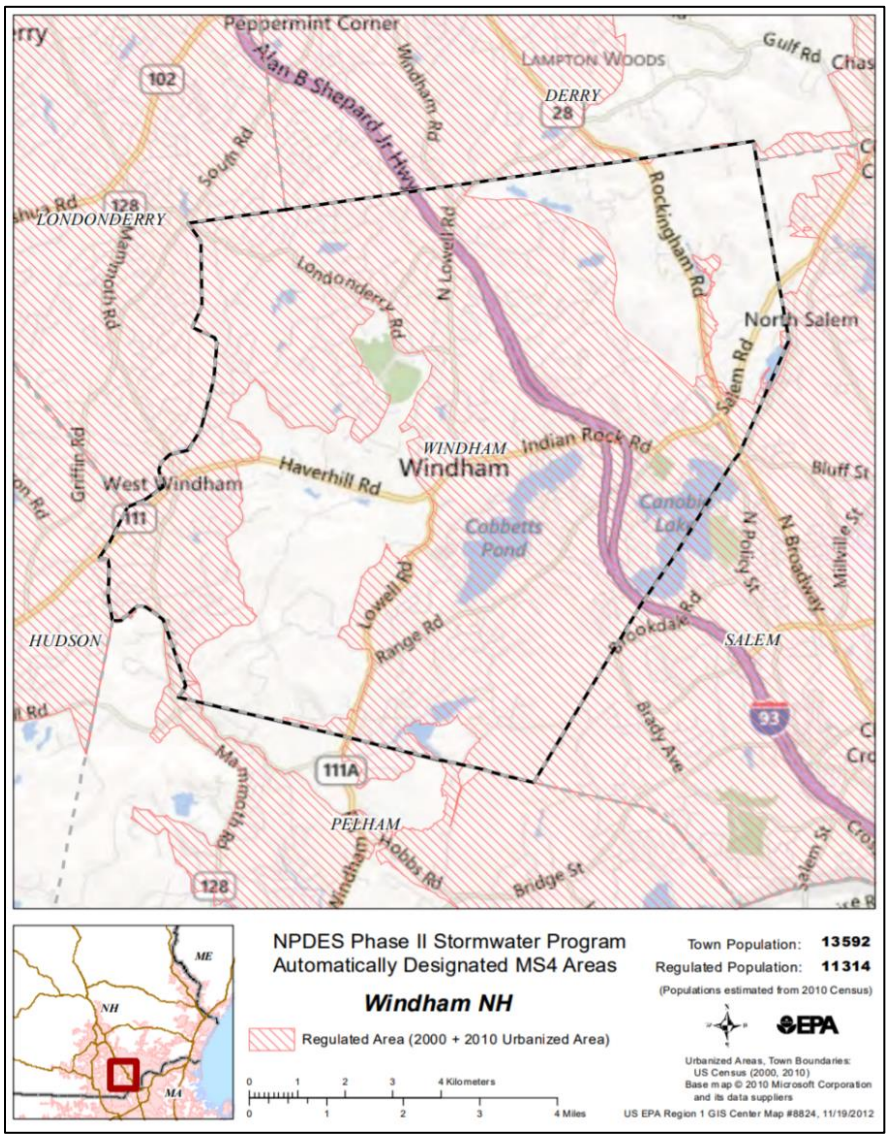


Figure 1.4.A : Windham, NH | NPDES Phase II Stormwater Program Automatically Designated MS4 Areas
https://www3.epa.gov/region1/npdes/stormwater/nh/ram/Windham.pdf

1.5 Timeline

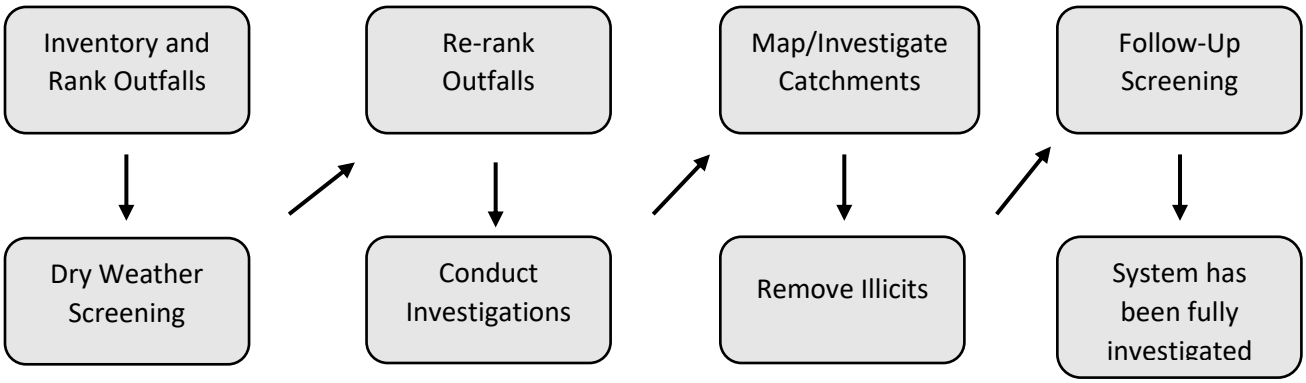


Table 1 below provides a timeline over which the Town intends to fully implement the requirements of the IDDE program.

TABLE 1 – IDDE Program Implementation Timeline

IDDE Program Requirement	Completion Date from Effective Date of Permit*					
	1 Year	1.5 Years	2 Years	3 Years	7 Years	10 Years
Written IDDE Program Plan	X					
SSO Inventory	X					
Initial Outfall Ranking	X					
Employee Training on IDDE Implementation	X					
Written Catchment Investigation Procedure		X				
Phase I Mapping			X			
Phase II Mapping						X
Dry Weather Outfall Screening				X		
Follow-up Ranking of Outfalls and Interconnections				X		
Catchment Investigations – Problem Outfalls					X	
Catchment Investigations – all Problem, High and Low Priority Outfalls						X

2 Authority and Statement of IDDE Responsibilities

2.1 Legal Authority

The Town of Windham has adopted the Windham Stormwater Management Program (#WIN 2:06:25:11); and Site Plan Regulations (Section 701.5 Erosion and Sedimentation Control Provisions; Section 705 Design and Construction Standards for Drainage and Stormwater Management); both of which can be found in **Appendix A**, which provide the Town with the legal authority to:

- Prohibit illicit discharges
- Investigate suspected illicit discharges
- Eliminate illicit discharges, including discharges from properties not owned by or controlled by the MS4 that discharge into the MS4 system
- Implement appropriate enforcement procedures and actions

The Town of Windham will review its current Stormwater Regulation and related land use regulations and policies for consistency with the 2017 MS4 Permit.

2.2 Statement of Responsibilities

The Board of Selectmen shall be responsible for the overall enforcement and implementation of the IDDE Program pursuant to the provisions of Section VI of the Windham Stormwater Management Program Ordinance. The General Services Division and Community Development Department shall be the designated lead Town agency responsible for implementing the IDDE program in accordance with the general oversight of the Board of Selectmen. Other departments with responsibility for aspects of the program include:

- ***General Services Division*** – implementing the stormwater components of the program to include such items as dry and wet weather screenings, catch basin cleaning, street sweeping, inspection of facilities, and infrastructure maintenance; and assisting in the public relations and education components
- ***Building Inspector*** – overseeing septic system construction, enforcing plumbing codes
- ***Health Department*** – first response to notification of spills or discharges that do not pose an immediate health or safety concern and implementing the wastewater components (if any)
- ~~***IT Department –*** mapping services~~
- ***Environmental Planner –*** Conducts work related to MS4 Compliance, mapping, field work, public outreach, responds to reports of illicit discharge/environmental concerns
- ***Community Development Director*** – public relations and education
- ***Planning Director*** – implementing construction site stormwater runoff control measures and post construction stormwater management components to include written procedures for site

plan reviews, erosion and sediment control, development of site inspections and enforcement procedures, and street design and parking lot guidelines.

- ***Board of Selectmen*** – general oversight of the program and enforcement, signatory authority. The Board of Selectmen have the authority to issue fines.
- ***Town Administrator*** – overall coordination oversight of the program and coordination of the Stormwater Committee
- ***Town Counsel*** – taking court-related enforcement actions as directed by Town Officials
- ***Stormwater Management Committee*** – centrally coordinating all responsibilities and supporting actions of officials
- ***Emergency Services*** – first response to notification of spills or discharges which may pose an immediate health or safety concern

3 Stormwater System Mapping

The Town of Windham originally developed mapping of its stormwater system to meet the mapping requirements of the 2003 MS4 Permit. A copy of the existing storm system map is provided in **Appendix B**.

The General Service Division/Highway Department and the Community Development Department/ Environmental Planner (Summer 2023 – present) are responsible for updating the stormwater system mapping pursuant to the 2017 MS4 Permit. The Permit requires the storm system map to be updated in two phases as outlined below. The Town of Windham will report on the progress towards completion of the storm system map in each annual report. Updates to the stormwater mapping will be included in **Appendix B**.

3.1 Phase I Mapping

As required under the 2003 MS4 General Permit, Windham performed system mapping of all outfalls and most of the catch basins under Phase I of the current Permit. The Town will update its mapping within two (2) years of the effective date of the permit (July 1, 2020) and will include the following information per Part 2.3.4.5.a of the MS4 Permit if it does not already exist:

- Outfalls and receiving waters
- Open channel conveyances (swales, ditches, etc.)
- Interconnections with other MS4s and other storm sewer systems
- Municipally-owned stormwater treatment structures (e.g., detention and retention basins, infiltration systems, bio-retention areas, water quality swales, gross particle separators, oil/water separators, or other proprietary systems)

- Waterbodies identified by name and indication of all use impairments as identified on the most recent EPA approved New Hampshire Integrated List of waters report pursuant to Clean Water Act section 303(d) and 305(b)
- Initial catchment delineations. Any available systems data and topographic information may be used to produce initial catchment delineations. For the purpose of this permit, a catchment is the area that drains to an individual outfall or interconnection.

3.2 Phase II Mapping

Phase II mapping must be completed within ten (10) years of the effective date of the permit (July 1, 2028) and include the information per Part 2.3.4.5.b of the MS4 Permit.

- Outfall location (latitude and longitude with a minimum accuracy of +/- 30 feet)
- Pipes
- Manholes
- Catch basins
- Refined catchment delineations. Catchment delineations shall be updated to reflect information collected during catchment investigations
- Municipal sanitary sewer system (if available) Not applicable to Windham, NH
- Municipal combined sewer system (if applicable) Not applicable to Windham, NH

3.3 Additional Recommended Mapping Elements

Although not a requirement of the 2017 MS4 Permit, the town of Windham will include the following recommended elements in its storm system mapping coinciding with the Phase II stormwater map within the Town's ability and resources:

- Storm sewer material, size (pipe diameter)

4 Sanitary Sewer Overflows (SSOs)

The Town of Windham has no municipally owned sewer and therefore no (SSOs).

5 Assessment and Priority Ranking of Outfalls

The MS4 Permit requires an assessment and priority ranking of outfalls in terms of their potential to have illicit discharges and related public health significance. The ranking will be used to determine the priority order for screening of outfalls and interconnections pursuant to meeting permit milestones.

5.1 Outfall Catchment Delineations

The catchments for each of the MS4 outfalls were delineated in 2019 to define contributing areas for investigation of potential sources of illicit discharges. The initial catchment delineations (2019) can be located at this link: https://www.windhamnh.gov/DocumentCenter/View/7075/Catchment-Area-Map or in Appendix B of this document.

Refined catchment delineations will be completed as part of the Phase II mapping to reflect information collected during catchment investigations.

5.2 Outfall and Interconnection Inventory and Initial Ranking

The General Services Division completed an initial outfall and interconnection inventory and priority ranking to assess illicit discharge potential based on existing information. The initial inventory and ranking will be completed 2019. An updated inventory and ranking will be provided in each annual report hereafter. The inventory will be updated annually to include data collected in connection with dry weather screening and other relevant inspections. *Refer to **Appendix D** for the most up to date outfall and interconnection priority ranking inventory (Most recent update: September 2024, Year 6).*

Outfall means a point source as defined by 40 CFR § 122.2 as the point where the municipal separate storm sewer discharges 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 that are used to convey waters of the United States. Culverts longer than a simple road crossing shall be included in the inventory unless the permittee can confirm that they are free of any connections and simply convey waters of the United States.

Interconnection means the point (excluding sheet flow over impervious surfaces) where the permittee's MS4 discharges to another MS4 or other storm sewer system, through which the discharge is conveyed to waters of the United States or to another storm sewer system and eventually to a water of the United States.

Outfalls and interconnections will be classified into one of the following categories:

Outfalls that Require Screening – Generally the following types of outfalls require screening:

- Both large and small diameter pipes that appear to be part of the storm drain infrastructure
- Outfalls that appear to be piped headwater streams
- Field connections to culverts
- Submerged or partially submerged outfalls
- Outfalls that are blocked with debris or sediment deposits
- Pipes that appear to be outfalls from stormwater treatment practices
- Drop inlets from roads in culverts
- Pipes that appear to only drain roof downspouts but that are subsurface, preventing definitive confirmation

Outfalls that Do Not Require Screening – Generally the following types of outfalls DO NOT require screening:

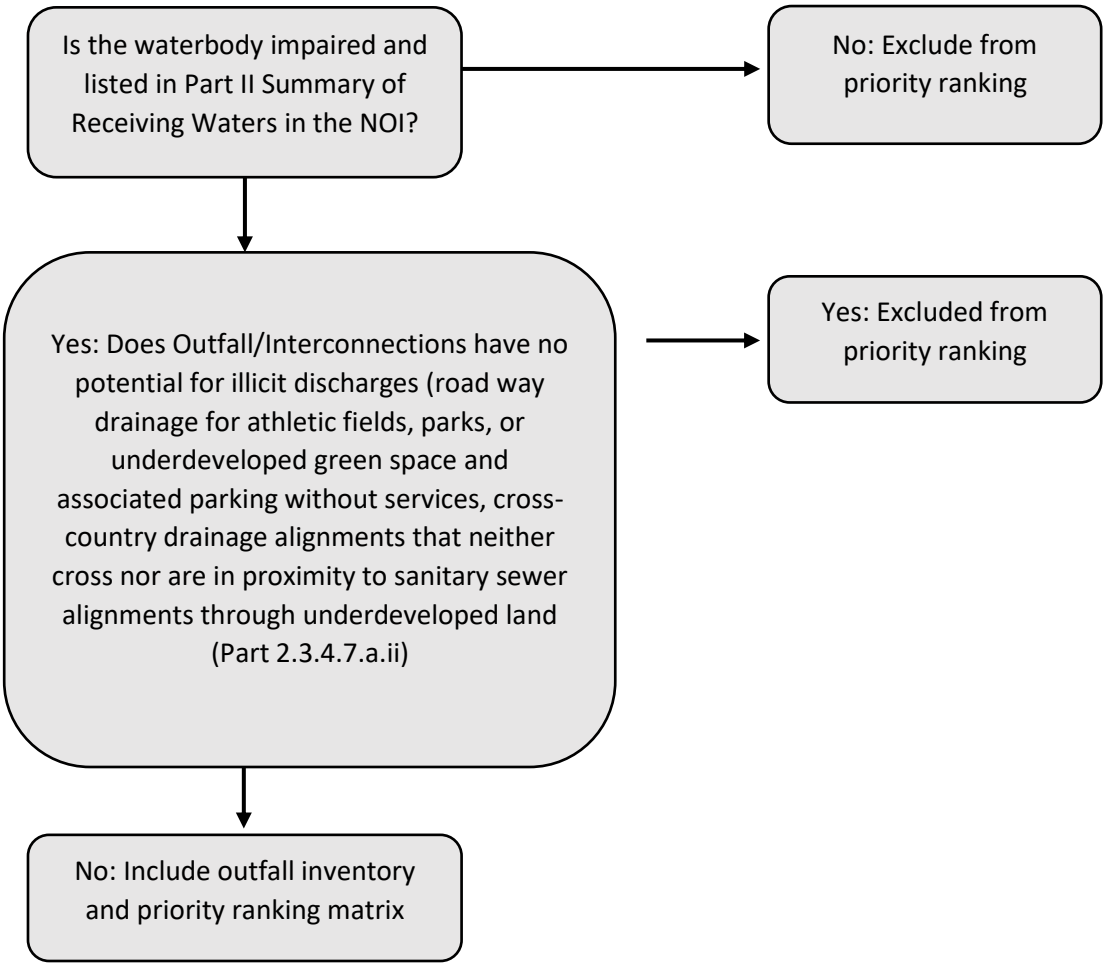
- Cross-drainage culverts in transportation right-of-way (can see daylight at the other end)
- Parking lot drains to curbs
- Weep holes
- Flexible HDPE pipes that are known to serve as slope drains
- Pipes that are clearly connected to roof downspouts via above-ground connections

Those Outfalls and interconnections that require screening were classified into one of the following categories:

1. **Excluded outfalls:**
   - Outfalls/interconnections that are not in the Urbanized Area.
   - Outfalls/interconnections with no potential for illicit discharges including roadway drainage in undeveloped areas with no dwellings and no sanitary sewers; drainage for athletic fields, parks or undeveloped green space and associated parking without services; cross-country drainage alignments (that neither cross nor are in proximity to sanitary sewer alignments) through undeveloped land.
2. **Problem Outfalls:** Outfalls/interconnections with known or suspected contributions of illicit discharges based on existing information shall be designated as Problem Outfalls. This shall include any outfalls/interconnections where previous screening indicates likely sewer input. Likely sewer input indicators are any of the following:
   - Olfactory or visual evidence of sewage,
   - Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
   - Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.
3. **High Priority Outfalls:** Outfalls/interconnections that have not been classified as Problem Outfalls and that are:
   - Discharging to a water quality limited waterbody
   - Discharging to an area of concern to public health due to proximity of public beaches, recreational areas, drinking water supplies or shellfish beds
   - Determined by the Town as high priority based on the field investigations or other available information.
4. **Low Priority Outfalls:** Outfalls/interconnections determined by the Town as low priority based on the field investigations or other available information. Windham has further prioritized Low Priority Outfalls based on the following:
   - Outfalls that discharge to an impaired waterbody
   - Outfalls that discharge within 250 feet of a surface waterbody
   - Outfalls that discharge within 400 feet of a public water supply well; or
   - Outfalls that do not meet any of the above

FIGURE 1

Initial Outfall Prioritization Flowchart



see **Appendix D for the outfall inventory and priority ranking matrix (2019)*

Outfalls are ranked into the above priority categories (except for excluded outfalls, which may be excluded from the IDDE program) based on the following characteristics of the defined initial catchment areas, or where information is available.

- **Previous screening results** – previous screening/sampling results indicate likely sewer input (see criteria above for Problem Outfalls).
- **Past discharge complaints and reports**.
- **Poor receiving water quality** – the following guidelines are recommended to identify waters as having a high illicit discharge potential:
    - Exceeding water quality standards for bacteria
    - Ammonia levels above 0.5 mg/l
    - Surfactants levels greater than or equal to 0.25 mg/l
- **Density of generating sites** – Generating sites are those places, including institutional, municipal, commercial, or industrial sites, with a potential to generate pollutants that could contribute to illicit discharges. Examples include, but are not limited to, car dealers; car washes; gas stations; garden centers; and industrial manufacturing areas.
- **Age of development and infrastructure** – Industrial areas greater than 40 years old will probably have a high illicit discharge potential. Developments 20 years or younger will probably have a low illicit discharge potential.
- **Surrounding density of aging septic systems** – Septic systems thirty years or older in residential land use areas are prone to have failures and may have a high illicit discharge potential.
- **Culverted streams** – Any river or stream that is culverted for distances greater than a simple roadway crossing may have a high illicit discharge potential.
- **Water quality limited waterbodies** that receive a discharge from the MS4 or waters with approved TMDLs applicable to the permittee, where illicit discharges have the potential to contain the pollutant identified as the cause of the water quality impairment.

*Note: To prioritize initial mapping and outfall assessment work the Town is using location-specific characteristics of water body impairments to focus initial work as included in **Appendix B**. It is understood that not all currently excluded catchments will remain excluded throughout the 10-year assessment period, however for initial outfall ranking and catchment investigations this approach will target the worst areas first.*

Appendix C lists the waterbodies that the Town of Windham MS4 discharges to inclusive of the number of outfalls discharging into it, if applicable, its NH segment ID, and any impairments.

- **Resource Waters:** There are several resource waters throughout Windham that the Town values for habitat preservation, active and passive recreational uses, and education purposes. Much of the Town is comprised of surface water or wetland areas. The primary resource waters include: Cobbetts Pond, Canobie Lake, Rock Pond, Shadow Lake, Moeckel Brook, Policy Brook, Beaver Brook, Golden Brook, Flat Rock Brook, Dinsmore Brook, and several unnamed brooks. Stormwater outfalls discharging in close proximity to these waters are more likely to adversely affect water quality than outfalls further away.
- **Public Drinking Water Supply:** The Town considers community water supplies as a priority for protection due to public health concerns. The Town ranks wellhead protection as a high priority due to the importance of maintaining a clean water supply for community wells, which include those for small residential developments, day cares, public schools, elderly housing, and

commercial buildings. A list that includes public drinking water sources and the Town's existing community wells as obtained from the NHDES are shown in Table 2 below:

TABLE 2 – List of Public Drinking Water Sources in Windham

Name	Address	Type	Population Served
Canobie Lake	Range Rd	Salem Drinking Water	~18,000
Town Hall	3 North Lowell Rd	Municipal Building Community Well	25
PEU – Golden Brook	Sharon Rd	Single Family Residences	315
PEU – W and E	West Shore Rd	Single Family Residences	523
Braemar Woods Condos	Braemar Rd	Condominiums	60
PEU – Hardwood Hts – Birch Hill	N Lowell Rd	Condominiums	167
Villages of Windham	RTE 28	Condominiums	145
Wynridge Condos	14 Wynridge Rd	Condominiums	58
McAuley Commons	37 Searles Rd	Senior Housing	25
PEU – Castle Reach	82 Searles Rd	Single Family Residences	100
PEU – Fletcher Estates	21 Corliss Rd	Single Family Residences	135
Hadleigh Woods	22 Hadleigh Rd	Senior Housing	93
PEU – Lamplighter	Mountain Village Rd	Condominiums	162
PEU – Spruce Pond Estates	11 Northland Rd	Single Family Residences	120
Camelot 111	17 Sheffield St	Single Family Residences	30
Wood Meadow Estates	1 Acadia Drive	Single Family Residences	25
Warde Rehabilitation / Nursing	21 Searles Rd	Resident Homes (Nursing, Group, Live in)	148
Windham Terrace	3 Church Rd	Resident Homes (Nursing, Group, Live in)	110
Gateway Park	Gateway Blvd	Commercial Business Park	~25

Appendix D shows the catchment areas graphically depicted as well as a tabulation that provides an initial illicit discharge potential assessment and priorities ranking based on available information. Windham will continually update this assessment and ranking annually based on new relevant information.

6 Dry and Wet Weather Outfall Screening and Sampling

Dry weather flow is a common indicator of potential illicit connections. The MS4 Permit requires all outfalls/interconnections (excluding Problem and Excluded Outfalls) to be inspected for the presence of dry weather flow. The General Services Division: Highway Department and Environmental Planner (2023 – present) is responsible for conducting dry weather outfall screening, starting with High Priority outfalls, followed by Low Priority outfalls, based on the initial priority rankings described in **Section 5** by the end of Year 3 (June 2021).

During a dry weather period, it is anticipated that minimal flow from stormwater outfalls will be observed. Therefore, dry weather inspections aim to characterize any/all flow observed during a dry weather period and identify potential source(s) of an illicit discharge through testing.

Dry weather outfall Screening and Sampling shall be completed in accordance with the following procedures, including sample collection, use of field kits, storage and conveyance of samples, and field data collection and storage, all of which are intended to meet the requirements as specified in Part 2.3.4.7.b. of the MS4 Permit.

6.1 Dry Weather Screening – General Procedure

Note: Screening and sampling shall proceed only when no more than 0.1 inch of rainfall has occurred in the previous twenty-four (24) hour period and no significant snow melt is occurring.

~~Unlike wet weather sampling, dry weather inspections are not intended to capture a "first flush" of stormwater discharge, rather they~~ Dry weather inspections are intended to identify any/all discharges from a stormwater outfall during a period without recorded rainfall. The intent of inspections during a dry weather period is to characterize observed discharges and facilitate detection of illicit discharges.

The dry weather outfall inspection and sampling procedure consists of the following general steps:

1. Identify outfall(s) to be screened/sampled based on initial outfall inventory and priority ranking.
2. Acquire the necessary staff, mapping, and field equipment (see Table 3 for list of potential field equipment).
3. Conduct the outfall inspection during dry weather (see Note above):
    a. Identify appropriate location of outfall. Observe outfall. Do not enter water below outfall as disturbance of sediments may skew sampling results.
    b. ~~Mark and~~ Photograph the outfall.
    c. Record the inspection information and outfall characteristics using the Dry Weather Outfall Screening Form or the electronic Survey123 forms (Outfall Condition Form, Outfall Sample Form, Interconnection Sample Form) located in **Appendix E** using a tablet or similar device. These forms will be used for initial site inspections. ~~and to document follow-up activities should a potential illicit discharge be detected.~~ The electronic forms were developed in year 6 of the 2017 NH MS4 Permit and may need to be updated in the future should the Town deem that necessary.
        a. Should an illicit discharge be detected, follow up activities will be planned and documented by the Town. An Illicit Discharge Incident Report (Appendix E, Figure E.10) will be filled out which documents conditions of initial discovery of potential illicit discharge as well as a section to document any relevant notes. A report will be created by the Town documenting all information related to detecting the potential/confirmed illicit discharge, any planned or completed actions taken to further investigate or locate the source of the potential/confirmed illicit discharge, as well as any and all relevant photos, lab information, and Survey123 inspection reports if applicable. Should an illicit discharge be confirmed, a Confirmed Illicit

Discharge Report (Appendix E, Figure E.11) will be filled out and added into the final report of the investigation. This procedure will be effective as of year 6, when the Environmental Planner was hired.

d. Look for and record visual/olfactory evidence of pollutants in flowing outfalls including odor, color, turbidity, and floatable matter (oily sheen [petroleum or naturally occurring], grease, foam, suds/soap, sewage, or other). Also observe outfalls for deposits and stains, vegetation, and damage to outfall structures. It is important to indicate the conditions visually observed at an outfall location. This includes:
    i. Foam: indicator of upstream vehicle washing activities, or an illicit discharge.
    ii. Oil sheen: result of a leak or spill
    iii. Cloudiness: indicator of suspended solids such as dust, ash, powdered chemicals and ground up materials.
    iv. Color or odor: indicator of raw materials, chemicals, or sewage.
    v. Excessive sediment: indicator or disturbed earth of other unpaved areas lacking adequate erosion control measures.
    vi. Sanitary waste and optical enhancers (florescent dyes added to laundry detergent and some toilet paper): indicators of illicit discharge.
    vii. Orange staining: indicator of high mineral concentrations.
e. **Table 4** provides some possible sources of illicit discharges based on physical parameters observed or collected during field reviews. Note that some of these indicators may occur naturally. For instance, Foam can be formed when the physical characteristics of water are altered by the presence of organic materials. Natural foam is typically persistent, light, not slimy to the touch.

4. If flow is observed, a sample of the flow shall be collected and analyzed following the procedures described in **Section 6.2**.
5. If no flow is observed, but evidence of illicit flow exists (illicit discharges are often intermittent or transitory), revisit the outfall during dry weather within one week of the initial observation, if practicable, to perform a second dry weather screening and sample any observed flow. Other techniques can be used to detect intermittent or transitory flows including conducting inspections during evenings or weekends, using optical brighteners, or using sandbags to dam any potential flow during a period of dry weather with no significant precipitation or snow melt.
6. Input results from screening and sampling into spreadsheet. Include pertinent information in the outfall/interconnection inventory and priority ranking.
7. The number of outfalls screened and any monitoring results must be documented each year in the Town's SWMP and in the MS4 annual report.

*Note: During field screening, the presence of a dry weather flow alone is not conclusive evidence of an illicit discharge. The presence of one or more indicator parameters is needed to verify a potential illicit storm sewer discharge. Observations for color, oil sheen, surface scum (floatables), odor, clarity, and sanitary sewer evidence etc. are made of any dry weather discharge. Field or laboratory analyses are used to quantify turbidity, pH, total chorine, total copper, total phenol, and detergents (surfactants). The significance and potential source contributors of the analysts listed above are summarized in **Table 4**.*

Additionally, per the NH MS4 General Permit section 2.3.4.7 footnote 4, likely sewer input indicators are any of the following:

- *Olfactory or visual evidence of sewage,*
- *Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or*
- *Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.*

It is important to note, in the event of the presence of low concentrations of surfactants in an outfall sample (0.1 – 0.3 mg/L) with no visual or olfactory evidence as well as no detectable levels of ammonia or chlorine this will be deemed no evidence of sewer input. Detection of low concentrations (0.1- 0.3 mg/L) of surfactants is common at stormwater outfalls. Most detections are not correlated with other wastewater indicators and do not lead to a definite source. These detections may be attributable to outdoor vehicle or building washing.

TABLE 3 – Field Equipment

Dry Weather Outfall Screening and Sampling

Equipment	Use/Notes
Clipboard	For organization of field sheets and writing surface
Field Sheets / Inspection Forms/ Electronic inspection form	Physical paper field sheets or electronic form for both dry weather inspection
Chain of Custody Forms	To ensure proper handling of all samples
Pens/Pencils/Permanent Markers	For proper labeling
Nitrile Gloves	To protect the sampler as well as the sample from contamination
EPA approved cleaning / disinfecting agent	Rubbing alcohol-based cleaning agent of the end of the extension pole
Distilled water	For decontamination of end of extension pole if used
Waste Container	Plastic baggies or buckets with sealable screw on lid for holding used testing strips or other wastes produced by test kit
Reclosable, transparent container/ bucket with screw on lid	For holding liquid waste materials
Watch or other time device	For recording observation times
Flashlight/headlamp w/batteries	For looking in outfalls or manholes, helpful in early mornings as well
Cooler with Ice	For transporting samples to the laboratory
Digital Camera/Tablet/Phone	For documenting field conditions at time of inspection as well as filling out electronic forms and updating map in field
Personal Protective Equipment (PPE)	Reflective vest, Safety glasses and boots at a minimum
GPS Receiver	For taking spatial location data
Water Quality Sonde	If needed, for sampling conductivity, temperature, pH, salinity

Equipment	Use/Notes
Water Quality Meter	Hand held meter, if available, for testing for various water quality parameters such as ammonia, surfactants and chlorine
Test Kits	To include Chlorine Testing Strips, visual kit, or hand held meter, Ammonia Testing Strips, visual kit, or hand held meter, Surfactants Testing Kit, Thermometer, pH and Conducting Testing Meter, Turbidimeter, Dissolved Oxygen Meter
Label Tape	For labeling sample containers
Sample Containers	Make sure all sample containers are clean. Make sure there are proper sample containers for what is being sampled for (i.e., bacteria requires sterile containers).
Pry Bar/Pick/Hook	For opening catch basins and manholes when necessary
Sandbags	For damming low flows in order to take samples
Small Mallet or Hammer	Helping to free stuck manhole and catch basin covers
Utility Knife	Multiple uses
Measuring Tape	Measuring distances and depth of flow
Traffic Safety Cones	Safety
Paper Towels	For cleanup
Hand Sanitizer	Disinfectant/decontaminant
Zip Ties/Duct Tape	For making field repairs
Rubber Boots/Waders	For accessing shallow streams/areas
Sampling Pole/Dipper/Sampling Cage	For accessing hard to reach outfalls and manholes

TABLE 4 – Interpretation of Physical Observation Parameters

Parameter	Observations	Basis
Odor	Suspicious or Strong	Odors can vary widely and directly reflect the source of contamination. Sewage odors are associated with sanitary wastewater; Sulfur or rotten egg odors can indicate meat packers, canneries, dairies, and sanitary wastewater; oil and gas odors indicate petroleum refineries or facilities associated with vehicles; and spoiled food odors can indicate food preparation facilities.
Color	Yellow Brown Green Red Gray	Textile, chemical, and tanning facilities Meat packers, stone and concrete plants, fertilizers, printing facilities Textile and chemical facilities Metal works and meat packers Sewage, Dairies
Clarity	Other than clear	Lack of clarity is generally the result of suspended clay, silt, organic, and inorganic matter. Natural waters have some degree of suspended solids that affect clarity.
Floatables	Foaming Oily	Foam, soap suds, oil sheen, trash, and fecal matter are all considered floatables. Oily sheen reflects contamination from petroleum refineries and vehicle service facilities.
Deposits and Stains	Sediment - Oily -	Storage facilities, refineries, automobile service stations, and restaurants. Sanitary wastewater
Turbidity	Cloudy or Opaque	Cloudy may indicate sanitary wastewater, concrete or stone plants, fertilizers, and vehicle facilities. Opaque may indicate food processors, lumber mills, metal facilities.
Vegetation	Excessive Growth Stressed Growth	Fertilizers, food product facilities Metal and printing plants, drug manufacturing, vehicle service stations, automobile dealers

Refer to Appendix H for Year 1-6 Dry Weather Screening Results

6.2 Sample Collection and Analysis

If flow is present during a dry weather outfall inspection, a sample will be collected and analyzed for the required permit parameters. The general procedure for collection of outfall samples is as follows:

1. Fill out all sample information on sample bottes and field sheets or electronic form (developed in 2023)
    a. (When using electronic forms) for each outfall screening completed, field staff will fill out an Outfall Condition Form and an Outfall Sampling Form which can be located in Appendix E.
2. Put on protective gloves (nitrile/latex/other) before sampling
3. Collect sample with dipper/sampling rod or directly in sample containers. If possible, collect water from the flow directly in the sample bottle. Be careful not to disturb sediments.
4. If using a dipper or other device, triple rinse the device with distilled water then in water to be samples (not for bacteria sampling)
5. Use test strips, test kits, and field meters (rinse similar to dipper) for most parameters (see Table 5)
6. Place laboratory samples on ice for analysis of bacteria and pollutants of concern
7. Fill out chain-of-custody form for laboratory samples (Refer to Appendix E)
8. Deliver samples to Town selected laboratory
9. Dispose of used test strips and test kit ampules properly
10. Decontaminate all testing personnel and equipment

In the event the outfall is submerged, either partially or completely, or inaccessible, field staff will proceed to the first accessible upstream manhole or structure for the observation and sampling and report the location with the screening results. Field staff will continue to the next upstream structure until there is no longer an influence from the receiving water on the visual inspection or sampling.

Field test kits or field instruments are permitted for all parameters except indicator bacteria and any pollutants of concern. Field kits need to have appropriate detection limits and ranges.

6.2.A Human and Total Bacteroides

Fecal indicator bacteria such as E.Coli remains a largely referenced indicator of illicit discharges within the 2017 NH MS4 General Permit. The Town intends on fully abiding by requirements and thresholds related to E.Coli within samples collected for compliance related to the aforementioned permit. To further facilitate source-specific detection (and ultimately, elimination) of potential identified illicit discharges, the Town will also utilize Bacteroides PCR based methods which identifies host-specific DNA. The primary purpose of collecting these samples is for narrowing down where the potential source of the high E.Coli count could be coming from. Should there be any detected human Bacteroides within a sample, this information will aid the Town in where to focus efforts regarding the detection and elimination of the suspected illicit discharge.

The process of collecting a human and total Bacteroides goes as follows:

1.) Initial E.Coli sample results return indicating numbers beyond the allowable threshold for that class of water.
2.) The Town returns to the location where the sample was located and looks for any indication as to where the source of the high E.Coli might be from. If there is no discernable source (through olfactory, visual, and if necessary, test kit evidence), the Town may decide to collect a sample at that same location for E.Coli, human Bacteroides, and total Bacteroides.
3.) The sample is collected and shipped overnight to EMSL Analytical in Cinnaminson, NJ which is the nearest lab that performs this test.

If a sample indicates the presence of human Bacteroides, the Town will investigate available septic information for surrounding properties within the drainage area of where the sample was collected to identify any potential aged septic tanks. The Town intends on using this analysis as a tool on a case-by-case basis.

TABLE 5 – Guidance Used for Concentrations of Non-Stormwater Discharges

Sampling Parameters	Class A Waters	Class B Waters
Ammonia[1]	> 0.5 mg / L	> 0.5 mg/ L
Chloride[2]	Acute Standard–860 mg/l Chronic Standard – 230 mg/l	
Conductivity[2]	Background Levels-Normal: 0-100 µS/cm (Benchmark Field Indicator >2,000 µS/cm)	
Salinity	TBD	
E. Coli[4]	>153 colonies/100mL in a single sample	>406 colonies/100mL in a single sample (Beach Area >88 colonies/100mL in a single sample)
Surfactants (such as MBAS)[1]	>0.25 mg/L	
Temperature[3]	No numeric standard; as natural occurs	
pH[3]	As naturally occurs	Outside of 6.5 and 8.0 (unless due to natural causes)
Turbidity[3]	No turbidity unless naturally occurring	Shall not exceed naturally occurring conditions by more than 10 NTU
Dissolved Oxygen[3,7]	< 6 mg / L	< 5 mg / L
Chlorophyll-a[7]		

1 – 2017 NH Small MS4 General Permit

2 – NHDES Volunteer River Assessment Program/Chloride Reduction Implementation Plan for Dinsmore Brook Watershed

3 – ENV-Wq1700, NHDES Surface Water Quality Regulations

4 – NH RSA 485-A:8, Water Pollution and Waste Disposal

5 – ENV-Or 600, NHDES Ambient Groundwater Quality Standards

7 – Pollutant of Concern for Windham Impaired Water Bodies

The number of outfalls screened and any monitoring results must be documented each year in the Town's SWMP and in the MS4 annual report.

When collecting any type of stormwater sample, it is imperative that the sample is collected before the stormwater reaches the receiving water.

A new, clean pair of gloves should be worn when testing a new sample and especially when moving to a different outfall as dirty gloves could cause contamination of water samples and distort results.

6.3 Wet Weather Sampling

Wet weather analytical monitoring of all outfalls and at interconnections with another MS4 must be conducted, particularly for those that did not have flow in dry weather or those with dry weather flow that passed screening thresholds. The primary difference between dry and wet weather screening is that wet weather inspections aim to describe and evaluate the stormwater discharged from an outfall during a storm in the event that there are illicit discharges that are triggered by precipitation ~~"first flush" of stormwater discharged from an outfall during a storm, representing the maximum pollutant load managed by receiving water. Ideally, the evaluation and any samples collected for wet weather screening should occur within the first thirty (30) minutes of discharge to reflect the first flush or maximum pollutant load.~~

A significant purpose for doing wet weather screening and sampling is to identify illicit discharges that may activate or become evident during wet weather; therefore, samples should be taken under conditions where storm event intensities are likely to trigger a septic system failure in situations such as:

- Elevated groundwater that can now cause an exchange of wastewater between cracked or broken sanitary sewers, failed septic systems, underdrains, and storm drains.
- Increase sewer volume that can exfiltrate through cracks in the sanitary piping. (Not applicable to Windham, NH)
- Increase sewer volume that can enter the storm drain system in common manholes (Not applicable to Windham, NH) or directly-piped connections to storm drains through the storm drain system in dry-weather.

In these cases, wet weather screening and sampling shall proceed during or after a storm event of sufficient depth or intensity to produce a stormwater discharge ~~but only~~ to the extent feasible during the spring (March to June) when groundwater levels are relatively high.

The Town shall conduct wet weather screening on problem outfalls as soon as they are identified (no later than two (2) years from the permit effective date). A portion of remaining outfalls will be wet weather screened each year of the permit beginning in the third year (July 2020-June 2021) depending on the presence of one or more SVF's (System Vulnerability Factor) identified for the catchment. The chosen outfalls should begin with those that are monitored for dry weather screening to the extent practical. If not, practical the reasoning why shall be explained in the MS4 annual report. Samples should be analyzed following the same procedures and parameters as outlined in **section 6.1-6.2** for Dry Weather Screening. ~~except for filling out the Wet Weather Outfall Inspection Survey~~ The electronic form indicates sampling during dry or wet weather therefore can be used for both sampling weather conditions. The forms can be found in **Appendix E**.

6.4 Sample Preservation

Laboratory samples should be stored in a cooler with ice or cold packs as soon as possible. Refrigeration at temperatures near freezing is the best preservation technique available, but it is not applicable to all types of samples. Table 6 gives types of containers, preferred method of preservation, and holding times for various test parameters.

TABLE 6 – Required Containers, Preservation Techniques, and Holding Times

PARAMETER	CONTAINER[2]	VOLUME	PRESERVATION	MAXIMUM HOLDING TIME
Ammonia	P or G	100 mL or 125mL	N/A (Field Analysis), H_2SO_4 to pH<2, Cool at 4^0C / H_2SO_4 and cool <6^0C	Within 28 days[2]
Chloride, Total Residual	P or G	500 mL	Analyze Immediately	Within 15 minutes[2]
Chlorine	G	100 ml	None required	Within 15 minutes
Color, Apparent	P or G	500 ml	Cool at 4^0C (39^0F)	Within 48 hours[2]
Conductivity	P or G	500 ml	N/A (Field analysis) if measuring immediately / Refrigerate	Within 28 days
Copper, Total	P or G	1000 ml	N/A (Field Analysis), Filter and HNO_3 to pH<:2 and Cool at 4^0C (39^0F) (Lab Analysis)	Within 6 months[2]
Surfactants	P or G	250 ml or 500ml	N/A (Field Analysis), Cool at 4^0C (39^0F) (Lab Analysis)	Within 4 8 hours[2]
pH	P or G	50 ml	Analyze Immediately (Field analysis)	Within 15 minutes[2]
Phenol, Total	P or G (PTFE lined cap)	500 ml	N/A (Field Analysis), Cool at 4^0C (39^0F)[3] and adjust pH < 2 with H_2SO_4 (Lab Analysis)	Within 28 days[2]
Turbidity	P or G	100 ml	N/A (Field Analysis), Store in dark up to 24 hours, refrigerate	Within 48 hours[2]
Human Bacteroides Total Bacteroides[4]	P	500 mL or 1000 mL	Ship with insulated container.	None

Sources: Federal Register 40 CFR. PART 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants" September 16, 2002.

Standard Methods for the Examination of Water and Wastewater, 20th Ed., 1999. American Water Works Association

[1] Polyethylene (P) or Glass (G).

[2]For field analysis, preserve at same temperature as outfall water by placing sample in outfall water until ready for testing.

[3]Or colder for testing.

[4] Information regarding this analysis can be found here: https://emsl.com/Services.aspx?action=list&TopServiceCategoryID=5&ServiceCategoryID=182

6.5 Field Water Analysis

The Town shall generally follow the guidelines outlined in the EPA New England Bacterial Source Tracking Protocol. Table 7 below summarizes observations and/or tests that will be performed onsite (at the outfall) using the field test kits. Non-starred (*) analyses may be performed as long as the allowable holding times are not exceeded. Field test kits or field instrumentation are permitted for all parameters except indicator bacteria and any pollutants of concern. Field kits need to have appropriate detection limits and ranges.

Table 7 – Onsite Field Analysis Options

Analyte or Parameter	Method	Instrumentation (Portable Meter)	Field Test Kit	Range	Detection Limit
Ammonia	Test Strip, Field Meter, or Direct Nesslerization	Freshwater Low Range Ammonia Colorimeter - Checker HC	CHEMetrics™ K-1410 CHEMetrics™ K-1510 (series) Hach™ Ammonia Test Strips	0-10 mg/L or ppm	1 ppb or 0.001 ppm or mgL
***Chlorine**	DPD (free and total), Color Disk, Test Strips, Field Meter	Ultra-Low Range Total Chlorine Colorimeter Checker HC	CHEMetrics™ K-2504	0 - 3 mg/L	1 ppb or 0.001 ppm or mgL
Detergents/ Surfactants	Field Spectrometer, Methylene Blue, or Field Meter	Detergents (anionic surfactants, MBAS) SAM Kit	CHEMetrics™ K-9400 and K9404	0-3 mg/L or ppm	0.25 mg/L
***pH**	Platinum Electrode, Field Meter	Extech ExStik II EC500	N/A	0-14 pH	0.1 pH
***Temperature**	Field Meter/ Thermomenter	Extech ExStik II EC500, Oakton CTS Testr 50	N/A	N/A	
Conductivity	Field Meter	Extech ExStik II EC500, Oakton CTS Testr 50	N/A	0-10,000 µS/cm	
Salinity	Field Meter	Extech ExStik II EC500, Oakton CTS Testr 50	N/A	0 to 99.9ppm	

Methods must be updated when formal procedures are developed.
** Test MUST be performed immediately at outfall site, upon sample collection (no allowable holding time-as shown in Table 6).*

6.6 Follow-up Ranking of Outfalls and Interconnections

The Town of Windham will update and re-prioritize the initial outfall and interconnection rankings based on information gathered during dry weather screening. The rankings will be updated periodically as dry weather screening information becomes available but will be completed by Year 8 of the 2017 MS4 NH General Permit. ~~within three (3) years of the effective date of the permit (June 2021).~~

Outfalls/interconnections where relevant information was found indicating sewer input to the MS4 or sampling results indicating sewer input are highly likely to contain illicit discharges from sanitary sources.

Such outfalls/interconnections will be ranked at the top of the High Priority Outfalls category for investigation. Other outfalls and interconnections may be re-ranked based on any new information from the dry weather screening.

7 Catchment Investigations

Once stormwater outfalls with evidence of illicit discharges have been identified, various methods can be used to investigate the source of the potential discharge within the outfall catchment area. Common catchment investigation techniques include, but are not limited to:

- Review of maps, historic plans, and records
- Drainage manhole inspection
- Dry and wet weather sampling
- Video inspection
- Smoke testing
- Dye testing

This section outlines a systematic procedure to investigate outfall catchments and identify the source(s) of potential illicit discharges. Information and data collected as part of the catchment investigations will be reported in each annual report.

Map and Record Review

System Vulnerability Factors

Dry Weather Investigation – Catchment Investigation

7.1 Map and Record Review

The Town of Windham will review relevant mapping and historic plans and records to identify areas within the catchment with higher potential for illicit connections. The following information will be reviewed:

- Plans related to the construction of the drainage network
- Prior work on the storm drains
- Health Department or other municipal data on septic system failures or required upgrades
- Records related to septic system breakouts

7.2 System Vulnerability Factors

The Town of Windham does not have any public sewer and therefore, there are no defined System Vulnerability Factor (SVF) sites to be evaluated. However, per recommendations outlined in the permit, the Town of Windham will consider the following factors when evaluating overall System Vulnerability Factors (SVFs). The Town of Windham's SVF inventory will be updated based on this information.

- Known aging septic (30 years or older in residential neighborhoods)
- Area with known infrastructure defects and leaking

The EPA recommends but does not require the below listed system vulnerability factors to consider when completing SVF inventory. The factors below cannot be completed at this time due to lack of resources, however, may be considered in the future as resources become available.

- Any storm drain infrastructure greater than 40 years old in medium and densely developed areas.
- Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance).
- History of multiple health department actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance).

TABLE 8 – SYSTEM VULNERABILITY FACTORS

Location	Element of Concern	SVF

Updated outfall/interconnection ranking and system vulnerability factors can be located in Appendix D (Most recent update: Year 6)

7.3 Dry Weather Catchment Investigation (Manhole Inspections)

The Town of Windham will implement a dry weather storm drain network investigation that involves systematically and progressively observing, sampling and evaluating key junction manholes in the MS4 to determine the approximate location of suspected illicit discharges.

The Town of Windham will be responsible for implementing the dry weather manhole inspection program and making updates as necessary. Infrastructure information will be incorporated into the storm system map, and catchment delineations will be refined based on the field investigation where necessary. The SVF inventory will also be updated based on information obtained during the field investigations, where necessary.

Several important terms related to the dry weather manhole inspection program are defined by the MS4 Permit as follows:

- **Junction Manhole** is a manhole or structure with two or more inlets accepting flow from two or more MS4 alignments. Manholes with inlets solely from private storm drains, individual catch basins, or both are not considered junction manholes for these purposes.
- **Key Junction Manholes** are those junction manholes that can represent one or more junction manholes without compromising adequate implementation of the illicit discharge program. Adequate implementation of the illicit discharge program would not be compromised if the exclusion of a particular junction manhole as a key junction manhole would not affect the permittee's ability to determine the possible presence of an upstream illicit discharge. A permittee may exclude a junction manhole located upstream from another located in the immediate vicinity or that is serving a drainage alignment with no potential for illicit connections.

For all catchments identified for investigation, during dry weather, field crews will systematically inspect **key junction manholes** for evidence of illicit discharges and confirm or identify potential system vulnerability factors. This program involves progressive inspection and sampling at manholes in the storm drain network to isolate and eliminate illicit discharges.

The manhole inspection methodology will be conducted in one of two ways (or a combination of both):

- By working progressively up from the outfall and inspecting key junction manholes along the way (Bottum-Up), or
- By working progressively down from the upper parts of the catchment toward the outfall and inspecting key junction manholes along the way (Top-Down).

For most catchments, manhole inspections will proceed from the outfall moving up into the system.

However, the decision to move up or down the system depends on the nature of the drainage system and the surrounding land use and the availability of information on the catchment and drainage system. Moving up the system can begin immediately when an illicit discharge is detected at an outfall, and only a map of the storm drain system is required. Moving down the system requires more advance preparation and reliable drainage system information on the upstream segments of the storm drain system but may be more efficient if the sources of illicit discharges are believed to be located in the upstream portions of the catchment area. Once a manhole inspection methodology has been selected, investigations will continue systematically through the catchment.

Inspection of key junction manholes will proceed as follows:

1. Manholes will be opened and inspected for visual and olfactory evidence of illicit connections. A sample field inspection form is provided in **Appendix E**.
2. If flow is observed, a sample will be collected and analyzed at a minimum for ammonia, chlorine, and surfactants. Field kits can be used for these analyses, provided that they meet the minimum threshold indicator concentrations as outlined on Page 38 of the Permit (Section 2.3.4.7.b.iii.4.b). Sampling and analysis will be in accordance with procedures outlined in **Section 6**. Additional indicator sampling may assist in determining potential sources.
3. Where sampling results or visual or olfactory evidence indicate potential illicit discharges, the area draining to the junction manhole will be flagged for further upstream manhole investigation and/or isolation and confirmation of sources.

4. Subsequent key junction manhole inspections will proceed until the location of suspected illicit discharges can be isolated to a pipe segment between two manholes.
5. If no evidence of an illicit discharge is found, catchment investigations will be considered complete upon completion of key junction manhole sampling.

In the event of no **key junction** manholes in a catchment, the Town of Windham will default to inspecting junction manholes as needed to fully assess the catchment area. In the event of no junction manholes present in the catchment, the Town will make the determination of which manholes to inspect to fully assess the catchment area to determine if there is evidence of an illicit discharge present. If no evidence of illicit discharge is found, the dry weather catchment investigation will be considered complete.

Refer to Appendix H for most recent catchment inventory and investigations (Updated September 2024)

7.4 Wet Weather Catchment Investigation (Outfall Sampling)

The Town of Windham does not have any public sewer and therefore, there are no sanitary sewer associated System Vulnerability Factor (SVF) sites to be evaluated. Aging stormwater infrastructure and on-site disposal system constraints will be evaluated for potential impacts to the SVF inventory. The Town of Windham will be responsible for implementing the wet weather outfall sampling program and making updates as necessary.

Outfalls will be inspected and sampled under wet weather conditions, to the extent necessary, to determine whether wet weather-induced high flows in sanitary sewers or high groundwater in areas served by septic systems result in discharges of sanitary flow to the MS4.

Wet weather outfall sampling will proceed as follows:

1. Wet weather sampling will occur during or after a storm event of sufficient depth or intensity to produce a stormwater discharge at the outfall.
    a. To the extent feasible, sampling should occur during the spring (March through June) when groundwater levels are relatively high.
    b. There is no specific rainfall amount that will trigger sampling, although minimum storm event intensities that are likely to trigger sanitary sewer interconnections are preferred.
    c. Sampling during the initial period of discharge (“first flush”) will be avoided.
2. If wet weather outfall sampling indicates a potential illicit discharge, then additional wet weather source sampling will be performed, as warranted, or source isolation and confirmation procedures will be followed as described in section **7.5 : S**ource Isolation and Confirmation
3. If wet weather outfall sampling does not identify evidence of illicit discharges, and no evidence of an illicit discharge is found during dry weather manhole inspections, catchment investigations will be considered complete.

At least one wet weather sample will be collected at the outfall for the same parameters required during dry weather screening (refer to Table 8, Required Containers, Preservation Techniques, and

Holding Times and Table 9, Onsite Field Analysis Options) should the catchment have at least one SVF identified.

If Evidence of Illicit Discharge – Outfall Screening, Catchment Investigations

Should a potential illicit discharge be detected (after 8/8/2023) by either visual/olfactory evidence, field test kit results reaching sewer input indicators per the NH MS4 General Permit section 2.3.4.7 footnote 4, or a lab sample, an Illicit Discharge Hotline/Incident Tracking sheet (Appendix E) shall be filled out with all relevant information at the time of detection. This will document descriptions of field conditions upon initial detection including precipitation in the last 24-48 hours, location of the suspected illicit, narrative description of problem indicators, suspected violator, as well as any investigation notes. A report will be completed compiling all information regarding locating the suspected illicit and either confirming or disproving presence of one. The report will include relevant information to the investigation such as a narrative description of site conditions, location(s) where sample was taken with any test kit information, follow-up activities planned to locate and eliminate the illicit discharge (if proven to be present), actions taken by the town, as well as any relevant photos and lab information/results.

- All relevant information will be attached to the report and shall be retained within the Town's records.

7.5 Source Isolation and Confirmation

Once the source of an illicit discharge is approximated between two manholes, more detailed investigation techniques will be used to isolate and confirm the source of the illicit discharge. The following methods may be used in isolating and confirming the source of illicit discharges:

- Sandbagging
- Smoke Testing
- Dye Testing
- CCTV/Video Inspections
- Optical Brightener Monitoring
- IDDE Canines.

These methods are described in the sections below. Instructions and Standard Operating Procedures (SOPs) for these methods are provided in within this section.

Public notification is an important aspect of a detailed source investigation program. Prior to smoke testing, dye testing, or TV inspections, the Town of Windham will notify property owners in the affected area. Smoke testing notification will include site visits, hanging notifications, website notifications and email, if available for single family homes, businesses and building lobbies for multi-family dwellings.

7.5.1 Sandbagging

This technique can be particularly useful when attempting to isolate intermittent illicit discharges or those with very little perceptible flow. The technique involves placing sandbags or similar barriers (e.g., caulking, weirs/plates, or other temporary barriers) within outlets to manholes to form a temporary dam that collects any intermittent flows that may occur. Sandbags are typically left in place for 48 hours, and should only be installed when dry weather is forecast. If flow has collected behind the sandbags/barriers after 48 hours it can be assessed using visual observations or by sampling. If no flow collects behind the sandbag, the upstream pipe network can be ruled out as a source of the intermittent discharge. Finding appropriate durations of dry weather and the need for multiple trips to each manhole makes this method both time-consuming and somewhat limiting.

7.5.2 Smoke Testing

Smoke testing involves injecting non-toxic smoke into drain lines and noting the emergence of smoke from sanitary sewer vents in illegally connected buildings or from cracks and leaks in the system itself. Typically, a smoke bomb or smoke generator is used to inject the smoke into the system at a catch basin or drain manhole and air is then forced through the system. Test personnel are place in areas where there are suspected illegal connections or cracks/leaks, noting any escape of smoke (indicating an illicit connection or damaged storm drain infrastructure). It is important when using this technique to make proper notifications to area residents and business owners as well as local police and fire departments.

If the initial test of the storm drain system is unsuccessful then a more thorough smoke-test of the sanitary sewer lines can also be performed. Unlike storm drain smoke tests, buildings that do not emit smoke during sanitary sewer smoke tests may have problem connections and may also have sewer gas venting inside, which is hazardous.

It should be noted that smoke may cause minor irritation of respiratory passages. Residents with respiratory conditions may need to be monitored or evacuated from the area of testing altogether to ensure safety during testing.

This method will only be utilized if a sanitary sewer connection to a storm sewer is suspected from a facility thought to be connected to an on-site sanitary sewage disposal system.

7.5.3 Dye Testing

Dye testing involves flushing non-toxic dye into plumbing fixtures such as toilets, showers, and sinks and observing nearby storm drains and drain manholes as well as stormwater outfalls for the presence of the dye. Similar to smoke testing, it is important to inform local residents and business owners. Police, fire, and local public health staff should also be notified prior to testing in preparation of responding to citizen phone calls concerning the dye and their presence in local surface waters.

A team of two or more people is needed to perform dye testing (ideally, all with two-way radios). One person is inside the building, while the others are stationed at the appropriate storm sewer and/or outfalls. The person inside the building adds dye into a plumbing fixture (i.e., toilet or sink) and runs a sufficient amount of water to move the dye through the plumbing system. The person inside the building then radios to the outside crew that the dye has been dropped, and the outside crew watches for the dye in the storm sewer, recording the presence or absence of the dye.

The test can be relatively quick (about 30 minutes per test), effective (results are usually definitive), and inexpensive. Dye testing is best used when the likely source of an illicit discharge has been narrowed down to a few specific houses or businesses.

7.5.4 CCTV/Video Inspection

Another method of source isolation involves the use of mobile video cameras that are guided remotely through stormwater drain lines to observe possible illicit discharges. IDDE program staff can review the videos and note any visible illicit discharges. While this tool is both effective and usually definitive, it can be costly and time consuming when compared to other source isolation techniques.

7.5.5 Optical Brightener Monitoring

Optical brighteners are fluorescent dyes that are used in detergents and paper products to enhance their appearance. The presence of optical brighteners in surface waters or dry weather discharges suggests there is a possible illicit discharge or insufficient removal through adsorption in nearby septic systems or wastewater treatment. Optical brightener monitoring can be done in two ways. The most common, and least expensive, methodology involves placing a cotton pad in a wire cage and securing it in a pipe, manhole, catch basin, or inlet to capture intermittent dry weather flows. The pad is retrieved at a later date and placed under UV light to determine the presence/absence of brighteners during the monitoring period. A second methodology uses handheld fluorometers to detect optical brighteners in water sample collected from outfalls or ambient surface waters. Use of a fluorometer, while more quantitative, is typically more costly, and is not as effective at isolating intermittent discharges as other source isolation techniques.

7.5.6 IDDE Canines

Dogs specifically trained to smell human related sewage are becoming a cost-effective way to isolate and identify sources of illicit discharges. While not widespread at the moment, the use of IDDE canines is growing as is their accuracy. The use of IDDE canines is not recommended as a

standalone practice for source identification; rather it is recommended as a tool to supplement other conventional methods, such as dye testing, in order to fully verify sources of illicit discharges.

7.6 Illicit Discharge Removal

When the specific source of an illicit discharge is identified, the Town of Windham will exercise its authority as necessary to require its removal. The annual report will include the status of IDDE investigation and removal activities including the following information for each confirmed source:

- The location of the discharge and its source(s)
- A description of the discharge
- The method of discovery
- Date of discovery
- Date of elimination, mitigation or enforcement action
- Estimate of the volume of flow removed.

This documentation can be completed using the Confirmed Illicit Discharge Report in Appendix E.

7.6.1 Confirmatory Outfall Screening

Within one (1) year of removal of all identified illicit discharges within a catchment area, confirmatory outfall or interconnection screening will be conducted. The confirmatory screening will be conducted in dry weather unless System Vulnerability Factors have been identified, in which case both dry weather and wet weather confirmatory screening will be conducted. If confirmatory screening indicates evidence of additional illicit discharges, the catchment will be scheduled for additional investigation. Confirmatory screening is not required in catchments where no illicit discharges or System Vulnerability Factors have been identified and no previous screening indicated suspicious flows.

7.7 Follow-up Screening

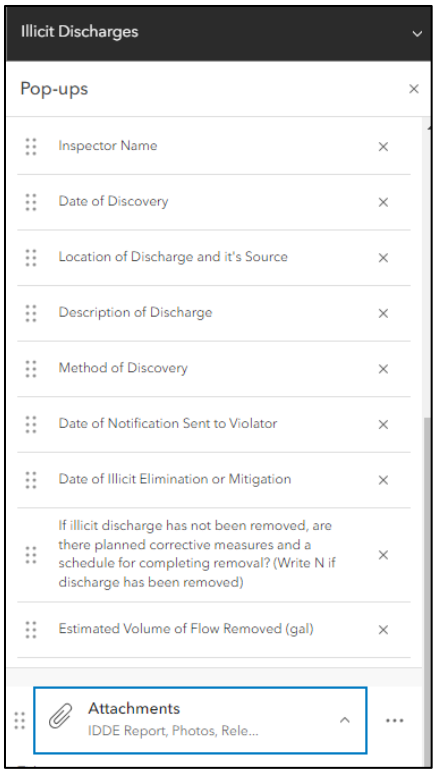
Upon completion of all catchment investigations and illicit discharge removal and confirmation (if necessary), each outfall or interconnection will be scheduled for follow-up screening within five (5) years, or sooner based on the catchment's illicit discharge priority. Ongoing screening will consist of dry weather screening and sampling consistent with the procedures described in **Section 6** of this document. Ongoing wet weather screening and sampling will also be conducted at outfalls where wet weather screening was required due to System Vulnerability Factors and will be conducted in accordance with the procedures described in **Section 6**. All sampling results will be reported in the annual report.

7.8 Documentation of Confirmed Illicit Discharges

7.8.1 Mapping

Should the town confirm the presence of an illicit discharge through aforementioned methods, the Town will have all documentation and relevant information in the report and will continue to document updates or actions by the Town in the report along with the information noted in section 7.6. Additionally, the Town intends on mapping the locations of confirmed illicit discharges on the Town's ArcGIS Stormwater Map with the following fields (if applicable):

Figure 2 : Information to be Filled Out in the Town of Windham's ArcGIS Stormwater Map



Discharges shall be visible on the map and will have any relevant attached documents and photographs.

7.8.2 Illicit Discharge Removal Report

The most recent Illicit Discharge Removal Report (Year 6) can be found in Appendix G. This was submitted to the EPA with the year 6 annual report.

7.9 Illicit Discharge Detection and Elimination Training

The Town of Windham will implement a training program, as outlined in **Section 8** and documented in **Appendix F** of the IDDE Program Plan, to employees involved in IDDE program about the program,

including how to recognize illicit discharges. The permittee shall report on the frequency and type of employee training in the annual report.

8 Training

Annual IDDE training will be made available to employees involved in the IDDE program. This training will at a minimum include information on how to identify illicit discharges and SSOs and may also include additional training specific to the functions of particular personnel and their function within the framework of the IDDE program. Training records will be maintained in **Appendix F**. The frequency and type of training will be included in the annual report.

9 Progress Reporting

The progress and success of the IDDE program will be evaluated on an annual basis. The evaluation will be documented in the annual report and will include the following indicators of program progress:

- Number of SSOs and illicit discharges identified and removed
- Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure
- Number of dry weather outfall inspections/screenings
- Number of wet weather outfall inspections/sampling events
- Estimate of the volume of sewage removed, as applicable
- Number of employees trained annually

The success of the IDDE program will be measured by the IDDE activities completed within the required permit timelines.

Appendices

Table of Contents

Appendix A

Legal Authority (IDDE Bylaw or Ordinance)

TOWN OF WINDHAM, NEW HAMPSHIRE **# WIN 2:06:25:11**

ORDINANCE:
WINDHAM STORM WATER MANAGEMENT PROGRAM:

SECTION I: PURPOSE:

The purpose of this Ordinance is to mandate a storm water management program to reduce the discharge of pollutants from municipal storm water collection systems within the urbanized area of the Town of Windham, NH as mandated by the U.S. EPA Phase II National Pollutant Discharge Elimination System (NPDES) Storm Water Program.

SECTION II: AUTHORITY:

This Ordinance has been enacted pursuant to the statutory authority granted to the Town of Windham by provisions of the Clean Water Act, 33 USC 1251, under 40 CFR part 122 EPA Administered Permit Programs: The National Pollutant Discharge Elimination System.

SECTION III: DEFINITIONS:

"Regulated Storm Water": Water from rain and/or melting snow or ice, which flows over paved or unpaved surfaces to a Town of Windham storm water collection system and migrates to a State of New Hampshire water resource.

"Storm Water Conveyance System": A storm water collection mechanism and discharge point for storm water runoff.

"Impaired Waters": Waters of the State of New Hampshire that are adversely affected by non-natural impacts of contamination and have been designated as such by the State.

"Illicit Discharge": Non-storm water discharge or contaminated storm water, which is not authorized for discharge to a Windham storm water collection system.

"MS4 Plan": Municipal separate storm water sewer systems plan to control storm water pollution.

"Control Measures": Required elements within the MS4 Plan.

SECTION IV: PROGRAM CONTROL MEASURES:

Each of the six mandated Control Measures, listed below, have associated goals or "Best Management Practices (BMPs)", which shall be implemented during the term of the NPDES Permit and presented in detail in the Town's mandated MS4 Plan.

A) Public Education and Outreach.

B) Public Participation/Involvement.

C) Illicit Discharge Detection and Elimination.

D) Construction Site Runoff Control.

E) Post-Construction Runoff Control.

F) Pollution Prevention/Good Housekeeping.

SECTION V: RECORD KEEPING:

Records will be kept public for period of 5 years. Records will be only submitted when requested by the permitting authority.

SECTION VI: ENFORCEMENT:

The Board of Selectmen is hereby charged to carry out the enforcement of the provisions within this Ordinance and the provisions within the MS4 Plan this Ordinance represents by statute. The Board of Selectmen may delegate such powers to one or more designees with authority to bring actions to force compliance with this Ordinance and the MS4 Plan.

SECTION VII: PENALTIES:

Any person(s) (including individuals, corporations, associations, etc.) who knowingly violate the provisions of this Ordinance and its referenced MS4 Plan shall be subject to imposition of the following:

A) Windham procedural rules regulating planning & development, construction, post-construction, and road maintenance are used in conjunction with the MS4 Plan. These rules include, but not limited to, Site Plan Regulations, Subdivision Regulations, and Zoning & Land Use Ordinance. Violations and penalties of the above regulations are levied through designated Town authorities.

B) Penalties relating to illicit discharges or improper run-off controls as referenced in the Storm Water Plan and not under the jurisdiction of Windham's Community Development Department or other regulating authority shall be levied by an agent of the Board of Selectmen. Penalties are as follows:

1. Aforesaid persons shall receive a written notification to cease and desist discharging into Windham's storm water conveyance system and shall be required to take corrective measures to permanently eliminate the illicit discharge from entering Windham's storm water conveyance system and/or correct the run-off controls within 10 days of the notification.

2. Upon non-compliance of the cease and desist notification, aforesaid persons shall be fined $1000/day until illicit discharge is eliminated from the Windham storm water conveyance system.

3. Upon 30 days of non-compliance, the New Hampshire Department of Environmental Services (NH DES) and the US EPA shall be notified for further enforcement actions.

4. In additional to the monetary fines established by this policy, the Town further reserves the right to require, with the assistance of NH DES and US EPA, aforesaid persons to remediate any infrastructure and/or environmental damages caused by the illicit discharge.

SECTION VIII : WAIVERS:

The Windham Board of Selectmen reserves the right, for good cause shown, to make special exceptions and/or waive any portion of the regulations.

SECTION IX : SEVERABILITY:

If any provision of these Regulations is held to be invalid, other provisions and sections shall not be affected, and to this end, the provisions and sections hereof are declared to be severable.

SECTION X - AMENDMENTS:

These Regulations shall be adopted, and subsequent amendments shall be adopted from time to time by the Board of Selectmen, following a public hearing, notice of which shall be posted pursuant to State and local laws in two (2) or more public places, or published in a newspaper of general circulation not less than ten (10) days prior to the public hearing.

SECTION XII - ADOPTION:

These Regulations shall take effect immediately upon adoption of the Board of Selectmen.

Approved by the Board of Selectmen this 28th day of March, 2011.

_____

_____

_____

_____

_____

Board of Selectmen

Planning Board - Site Plan Regulations

Section 705 *(Latest Update February 2016)*

https://www.windhamnh.gov/DocumentCenter/View/541/Site-Plan-Regulations-PDF?bidId=

July 13, 2016 Adopted

Town of Windham
New Hampshire

SITE PLAN REGULATIONS

0

a minimum of one indigenous shade tree (such as oak, maple, elm, ash, linden, etc.) having a minimum caliper of 2.5 inches and branching height of not less than 8 feet at the time of planting shall be provided for each 50 feet of street frontage. Street trees shall be planted not closer than 25 feet to one another, within a public right-of-way, closer than 20 feet from the edge of pavement of any driveway or public street, nor within 20 feet of the drip line of any overhead utility lines.

704.2.2 A minimum of one deciduous or ornamental tree, having a minimum caliper diameter of 2.5 inches, per 30 feet of building perimeter shall be planted within the developed portion of any site. Trees shall be located so as to maximize the aesthetic quality of the property.

704.2.3 A minimum of one deciduous or evergreen shrub, with a minimum height and diameter of 18 inches, or a one gallon pot of perennial ornamental grass per required parking space shall be planted within the developed portion of any site. Shrubs and/or ornamental grasses shall be located so as to maximize the aesthetic quality of the site.

704.2.4 In order to promote the preservation of mature specimen trees as part of the design and construction of new sites, healthy deciduous trees having a diameter of at least 8 inches at breast height may be preserved and used to fulfill the minimum tree planting requirements of this Section.

704.3 Screening of Unsightly Site Features

704.3.1 General screening requirements. Refuse storage areas, stockpiled materials, tractor trailers used for storage and other unsightly materials and objects situated on any site subject to review and approval under these regulations, shall be located so as to be out of view from abutting properties and public streets to the extent possible. In cases where such positioning is not possible, those items shall be effectively screened. A minimum screening shall be achieved by use of landscape plantings, fencing or enclosures of a height at least as tall as the item or items to be screened.

704.3.2 Screening requirements for loading and receiving areas. Loading docks and receiving areas shall be situated so as to be out of view from abutting properties and public streets where possible. Where such provisions are not possible, the applicant shall propose a method of screening and buffering acceptable to the Planning Board.

705 Design & Construction Standards for Drainage and Stormwater Management

705.1 Analysis and Design of Improvements:

705.1.1 All analysis and corresponding calculations prepared and submitted for the purposes of demonstrating fulfillment of specific requirements of these Regulations shall be prepared and sealed by a Licensed Professional Engineer. For the purposes of these Regulations, the applicable minimum standard for stormwater analysis and design shall be identical to requirements established by the New Hampshire Department of Environmental Services, under Chapter ENV-Wq 1500 of the New Hampshire Code of Administrative Rules, whether or not an Alteration of

installed in lieu of headwalls on the discharge end of culverts and storm drains having a diameter of less than 24 inches. Appropriate outlet protection shall be provided at all stormwater discharge points.

705.2.5 Stormwater flow velocities for all ditches, stormwater conveyance channels and swales shall be checked by the design engineer. Suitable surface protection shall be provided within all ditches, channels and swales anticipated to have a flow velocity of more than 2.5 feet-per-second during the 10 year return frequency design storm.

705.2.6 In instances where stormwater detention ponds, retention basins, or infiltration basins are planned, such facilities shall be designed and constructed in accordance with recommendations contained in a publication entitled Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire, published by the NHDES.

705.2.7 All stormwater treatment accommodations shall be designed and constructed in accordance with recommendations contained in a publication entitled Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire, published by the NHDES.

706 Design and Construction Standards for Utilities

706.1 Subsurface Sewage Disposal (Septic) Systems: Design and construction of on-site subsurface sewage disposal systems shall conform to applicable requirements of Town of Windham Regulations Governing Sewage or Waste Disposal Systems and the New Hampshire Code of Administrative Rules, as amended.

706.2 Water Supply Systems: Design and construction of on-site water supply systems shall conform to applicable requirements of Town of Windham Water Supply Regulations and the New Hampshire Code of Administrative Rules, as amended.

706.3 Other Utilities: All proposed utilities (electric, telephone, cable T.V., etc.) shall be installed underground in accordance with the specifications of each individual utility provider and applicable code.

707 Special Flood Hazard Areas

707.1 All development proposals which contain lands designated as Special Flood Hazard Area by the Federal Emergency Management Agency (FEMA) in its "Flood Insurance Study for Rockingham County, New Hampshire", associated Flood Insurance Rate Maps (FIRM) and Flood Boundary and Floodway Maps dated May 17, 2005, as amended, shall conform to the requirements of this Section.

707.2 The Planning Board shall review the proposed development to assure that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334.

707.3 The Planning Board shall require that development proposals identify base flood elevation if it has been established by FEMA.

Appendix B – Storm System Map(s)

The map of the Windham, NH MS4 Regulated Area (2017 NH MS4 General Permit) can be located in on page 7

Publicly available *AxisGIS map can be found here

This map does not have the most up to date information, refer to map below for updated information
The following elements can be found on this map:

- Catch basins
- Water Drainage Line
- Drainage Areas

Publicly available ArcGIS map of Windham, NH's separate storm sewer system/stormwater assets can be found here

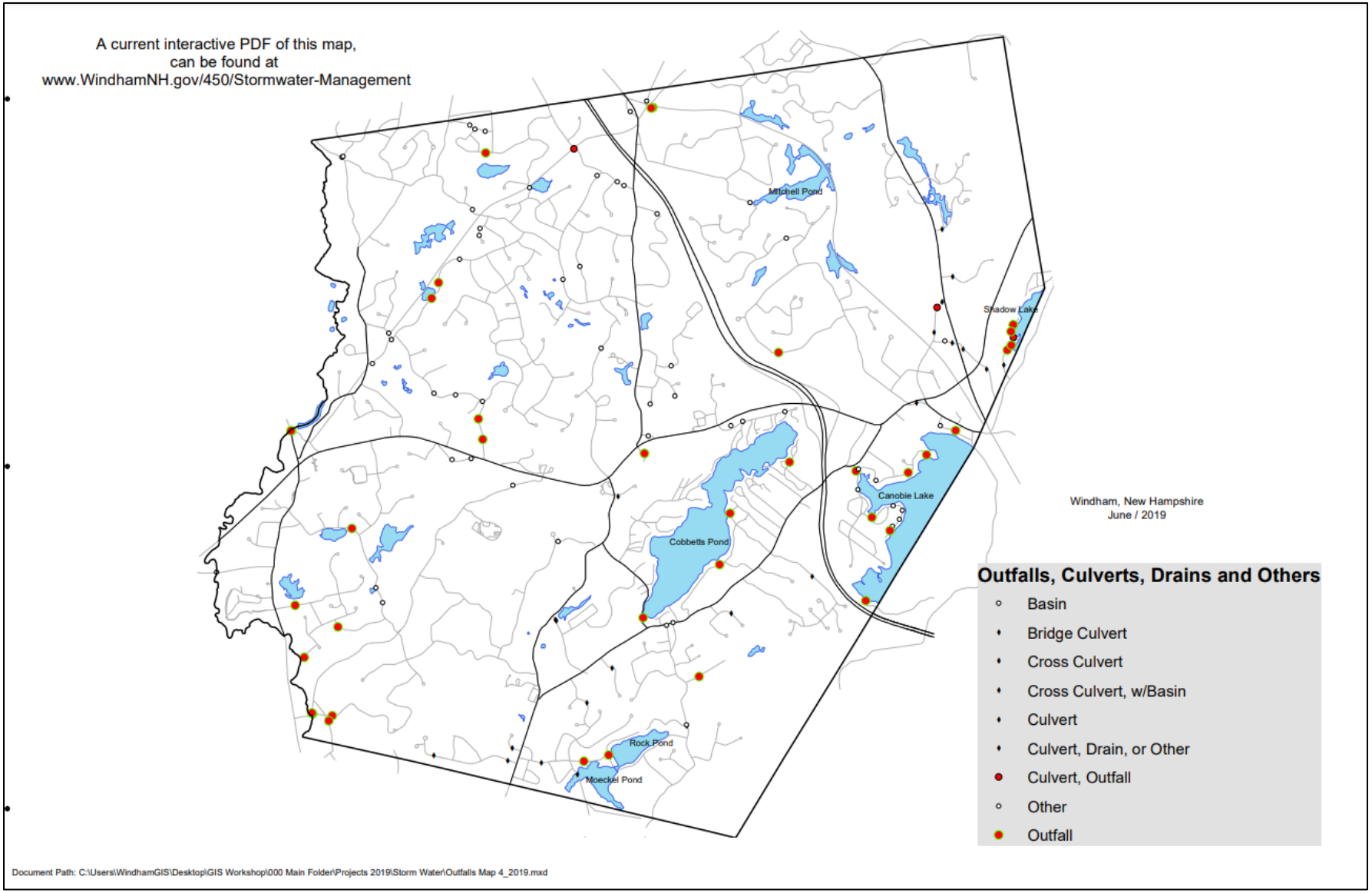
This map was developed in 2023 and is continuously being updated as more information becomes available. The following information can be found on this map:

- Catch basins
- Manholes
- Outfalls
- Interconnections
- Structural BMP's – Stormwater Treatment Structures
- Original AxisGIS Water Drainage Line layer (Stormdrain Pipes – Original Layer [Axis GIS])
- Stormdrain Pipes (2023 – Present)
- Cross Culverts
- Swales
- Field Inlet
- Surface Waters – Waterbodies, Streams, Wetlands (AxisGIS Layer)
- MS4 Area (2010 Census)

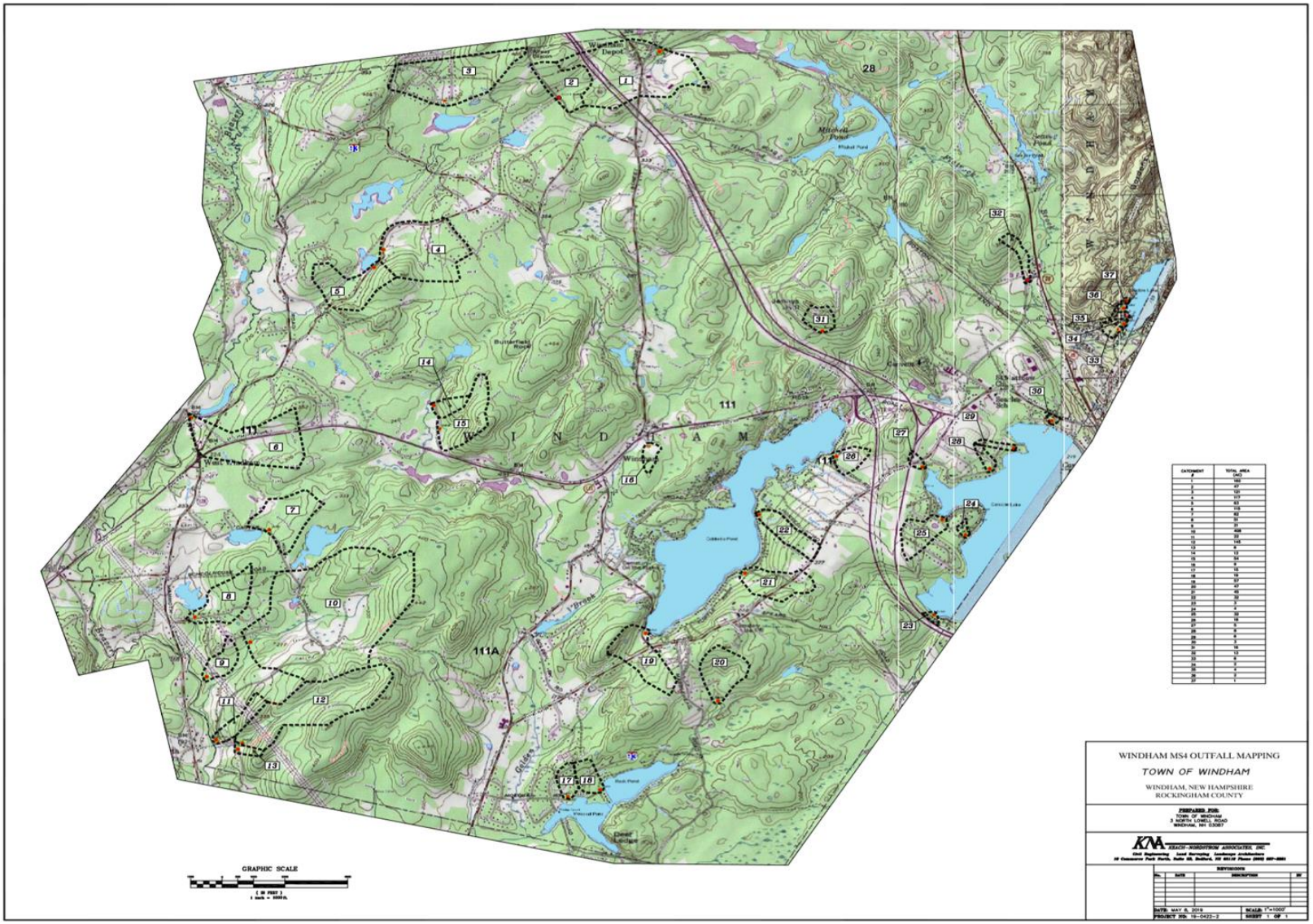
As of September 2024, approximately 50% of the Town of Windham's municipally owned streets (both MS4 and Non-MS4) has been mapped (with above storm drain assets). The Town will continue to make an effort to complete the storm drain map focusing primarily on the 2017 NH Small MS4 Regulated area first and subsequently the rest of the Town for full completion.

If you have any questions or inquiries, please contact the Environmental Planner at the Community Development Department (603) 432-3806

Outfall and Culverts Map (2019)



Map of Initial Catchment Delineation (2019)



Appendix C – Summary of Receiving Waterbodies

Images taken from NOI.

C.1 : Receiving Waterbodies from NOI (2018)

Waterbody that receives flow from the MS4 and segment ID if applicable	Number of outfalls into receiving water segment	Chloride	Chlorophyll-a	Dissolved Oxygen/ DO Saturation	Nitrogen	Oil & Grease/ PAH	Phosphorus	Solids/ TSS/ Turbidity	E. coli	Enterococcus	Other pollutant(s) causing impairments
Cobbetts Pond - NHLAK700061204-01-01	2	☐	☒	☐	☐	☐	☒	☐	☐	☐	pH, Cyanobacteria hepatoxic microcystins, Non-native aquatic plants, Mercury
Cobbetts Pond - Town Beach - NHLAK700061204-01-03	1	☐	☐	☒	☐	☐	☐	☐	☒	☐	Cyanobacteris hepatotoxic microcystins, Mercury
Unnamed Brook - NHRIV700061204-14	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
Canobie Lake - NHLAK700061102-02	12	☐	☐	☒	☐	☐	☐	☐	☐	☐	Mercury
Policy Brook - Porcupine Brook - NHRIV700061102-18	1	☒	☐	☐	☐	☐	☐	☐	☐	☐	Mercury, pH, Iron, Arsenic [Habitat Assessment & Benthic-Macroinvertebrate Bioassessments]
Beaver Brook - NHRIV700061203-21	8	☐	☐	☐	☐	☐	☐	☐	☐	☐	pH, Mercury
Rock Pond Smith Rd Inlet - NHRIV700061204-08	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	pH, Mercury
Connies Brook - NHRIV700061204-06	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
Unnamed Brook - to Beacon Hill Estates Detention Pond - NHRIV700061203-18	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
Searles School Brook - NHRIV700061102-22	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
Unnamed Brook - NHRIV700061203-39	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
Shadow Lake - NHLAK700061102-09-01	3	☐	☐	☐	☐	☐	☐	☐	☐	☐	pH, Mercury
Flatrock Brook - NHRIV700061102-13	10	☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
Golden Brook - NHRIV700061204-03	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
Rock Pond - NHLAK700061204-03	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
Moeckel Pond - NHLAK700061204-04	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
Golden Brook - NHRIV700061204-02	5	☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
Unnamed Brook - NHRIV700061204-15	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury

Waterbody that receives flow from the MS4 and segment ID if applicable	Number of outfalls into receiving water segment	Chloride	Chlorophyll-a	Dissolved Oxygen/ DO Saturation	Nitrogen	Oil & Grease/ PAH	Phosphorus	Solids/ TSS/ Turbidity	E. coli	Enterococcus	Other pollutant(s) causing impairments
Unnamed Brook to Western Embayment - NHRIV700061102-23	2	☒	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
Unnamed Brook - NHRIV700061102-24	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
Dinsmore Brook - NHRIV700061204-01	1	☒	☐	☐	☐	☐	☐	☐	☐	☐	Mercury
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
*See Note 1 in Section IV.		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	

C.2 : Receiving Waterbodies as of the most recent 303(d) list (2020/2022)

Town of Windham NH Receiving Waters (Updated for NHDES 2020/2022 305(b)/ 303(d) list)

Impaired Waterbodies in MS4 Regulated Area with a TMDL : *CHLORIDE*

Assessment Unit ID (AUID)	Assessment Unit Name	Assessment Unit Category	On Original NOI (2018)?	NOI - Outfalls into receiving water segment	Number of Outfalls Discharging to Waterbody Years 1-6	Impairment Name, Category									
						Chloride	Chlorophyll-a	Dissolved Oxygen/DO Satuation	Nitrogen	Oil & Grease	Phosphorus	Solids/ TSS/ Turbidity	E.Coli	Enterococcus	Other Pollutants Causing Impairments
NHRIV700061102-18	POLICY BROOK - PORCUPINE BROOK	5-P	Y	1	0	X									Arsenic, Benthic Macroinvertebrate Bioassessment (Streams), Iron, pH, Mercury[1]
NHRIV700061102-23	UNNAMED BROOK TO WESTERN EMBAYMENT	4A-P	Y	2	1	X									Mercury[1]
NHRIV700061204-01	DINSMORE BROOK	4A-M	Y	1	1	X									Mercury[1]

Impaired Waterbodies in MS4 Regulated Area with a TMDL : *E.COLI (ESCHERICHIA COLI)*

Assessment Unit ID (AUID)	Assessment Unit Name	Assessment Unit Category	On Original NOI (2018)?	NOI - Outfalls into receiving water segment	Number of Outfalls Discharging to Waterbody Years 1-6	Impairment Name, Category									
						Chloride	Chlorophyll-a	Dissolved Oxygen/DO Satuation	Nitrogen	Oil & Grease	Phosphorus	Solids/ TSS/ Turbidity	E.Coli	Enterococcus	Other Pollutants Causing Impairments
NHRIV700061203-22	BEAVER BROOK	5-P	N		1								X		Benthic Macroinvertebrate Bioassessment (Streams)

Impaired Waterbodies in MS4 Regulated Area without a TMDL - *E.Coli (Escherichia Coli) Impairment*

Assessment Unit ID (AUID)	Assessment Unit Name	Assessment Unit Category	On Original NOI (2018)?	NOI - Outfalls into receiving water segment	Number of Outfalls Discharging to Waterbody Years 1-6	Impairment Name, Category									
						Chloride	Chlorophyll-a	Dissolved Oxygen/DO Satuation	Nitrogen	Oil & Grease	Phosphorus	Solids/ TSS/ Turbidity	E.Coli	Enterococcus	Other Pollutants Causing Impairments
NHLAK700061204-01-03	COBBETTS POND - TOWN BEACH	5-M	Y	1	2								X		Cyanobacteria hepatotoxic microcystins, Mercury[1]

Impaired Waterbodies in MS4 Regulated Area without a TMDL - *Phosphorus Impairment*

Assessment Unit ID (AUID)	Assessment Unit Name	Assessment Unit Category	On Original NOI (2018)?	NOI - Outfalls into receiving water segment	Number of Outfalls Discharging to Waterbody Years 1-6	Impairment Name, Category									
						Chloride	Chlorophyll-a	Dissolved Oxygen/DO Satuation	Nitrogen	Oil & Grease	Phosphorus	Solids/ TSS/ Turbidity	E.Coli	Enterococcus	Other Pollutants Causing Impairments
NHLAK700061204-01-01	COBBETTS POND	5-M	Y	2	6		X				X				pH, Cyanobacteria hepatotoxic microcystins, Non-Native Aquatic Plant Species, Mercury[1]

Impaired Waterbodies in MS4 Regulated Area without a TMDL - *Chloride Impairment*																
Assessment Unit ID (AUID)	Assessment Unit Name	Assessment Unit Category	On Original NOI (2018)?	NOI - Outfalls into receiving water segment	Number of Outfalls Discharging to Waterbody Years 1-6	Impairment Name, Category										
						Chloride	Chlorophyll-a	Dissolved Oxygen/DO Satuation	Nitrogen	Oil & Grease	Phosphorus	Solids/ TSS/ Turbidity	E.Coli	Enterococcus	Other Pollutants Causing Impairments	
NHRIV700061204-06	CONNIES BROOK	5-M	Y	1	0	X									Mercury[1]	

Impaired Waterbodies in MS4 Regulated Area without a TMDL - *Other Pollutants Causing Impairment*																
Assessment Unit ID (AUID)	Assessment Unit Name	Assessment Unit Category	On Original NOI (2018)?	NOI - Outfalls into receiving water segment	Number of Outfalls Discharging to Waterbody Years 1-6	Impairment Name, Category										
						Chloride	Chlorophyll-a	Dissolved Oxygen/DO Satuation	Nitrogen	Oil & Grease	Phosphorus	Solids/ TSS/ Turbidity	E.Coli	Enterococcus	Other Pollutants Causing Impairments	
NHLAK700061102-02	CANOBIE LAKE	5-P	Y	12	16			X							Mercury[1]	
NHLAK700061102-08	SEAVEY POND	5-M	N		0			X							pH	
NHLAK700061102-09-01	SHADOW LAKE	5-M	Y	3	3										pH, Mercury[1]	
NHRIV700061203-21	BEAVER BROOK	5-M	Y	8	5										pH, Mercury[1]	
NHRIV700061204-08	ROCK POND-SMITH RD INLET	5-M	Y	1	5										pH, Mercury1	

Impaired Waterbodies in MS4 Regulated Area where Mercury[1] is the only cause of impairment																
Assessment Unit ID (AUID)	Assessment Unit Name	Assessment Unit Category	On Original NOI (2018)?	NOI - Outfalls into receiving water segment	Number of Outfalls Discharging to Waterbody Years 1-6	Impairment Name, Category										
						Chloride	Chlorophyll-a	Dissolved Oxygen/DO Satuation	Nitrogen	Oil & Grease	Phosphorus	Solids/ TSS/ Turbidity	E.Coli	Enterococcus	Other Pollutants Causing Impairments	
NHRIV700061101-10	UNNAMED BROOK - TO ARLINGTON MILL RESERVOIR	3-ND	N		0										Mercury[1]	
NHRIV700061102-11	UNNAMED BROOK - TO MITCHELL POND	3-ND	N		2											
NHLAK700061102-12	SKATING POND	3-ND	N		0										Mercury[1]	
NHRIV700061102-12	UNNAMED BROOK - TO SEAVEY POND	3-ND	N		0										Mercury[1]	
NHRIV700061102-13	FLATROCK BROOK	3-PAS	Y	10	2										Mercury[1]	
NHRIV700061102-20	SOUTHWEST TRIB. TO CANOBIE LAKE	3-ND	N		5										Mercury[1]	
NHRIV700061102-22	SEARLES SCHOOL BROOK	3-PNS	Y	1	1										Mercury[1]	
NHRIV700061102-24	UNNAMED BROOK	3-ND	Y	2	3										Mercury[1]	
NHLAK700061203-11	UNNAMED POND	3-ND	N		0										Mercury[1]	
NHIMP700061203-11	UNNAMED BROOK - GUDEK WILDLIFE POND DAM	3-ND	N		1											
NHLAK700061203-13	UNNAMED POND	3-ND	N		0										Mercury[1]	
NHRIV700061203-18	UNNAMED BROOK TO BEACON HILL ESTATES DETENTION POND	3-ND	Y	4	1										Mercury[1]	

NHRIV700061203-19	UNNAMED BROOK	3-ND	N		0										Mercury[1]
NHRIV700061203-20	BEAVER BROOK	3-PAS	N		0										Mercury[1]
NHRIV700061203-39	UNNAMED BROOK	3-ND	Y	1	0										Mercury[1]
NHRIV700061203-40	UNNAMED BROOK	3-ND	N		0										Mercury[1]
NHIMP700061204-01	UNNAMED BROOK	3-ND	N		0										Mercury[1]
NHRIV700061204-02	GOLDEN BROOK	3-PAS	Y	5	9										Mercury[1]
NHIMP700061204-02	UNNAMED BROOK	3-ND	N		0										Mercury[1]
NHRIV700061204-03	GOLDEN BROOK	3-PAS	Y	2	8										Mercury[1]
NHLAK700061204-03	ROCK POND	2-M	Y	1	1										Mercury[1]
NHLAK700061204-04	MOECKEL POND	3-ND	Y	1	1										Mercury[1]
NHRIV700061204-04	GOLDEN BROOK - ISLAND POND BROOK	3-ND	N		0										Mercury[1]
NHRIV700061204-05	WEIGHT STATION BROOK	3-ND	N		0										Mercury[1]
NHLAK700061204-05	UNNAMED POND	3-ND	N		0										Mercury[1]
NHRIV700061204-07	UNNAMED BROOK	3-PAS	N		0										Mercury[1]
NHRIV700061204-10	IVERS BROOK	2-G	N		0										Mercury[1]
NHRIV700061204-12	UNNAMED BROOK - TO COBBETTS POND	3-PAS	N		0										Mercury[1]
NHRIV700061204-13	UNNAMED BROOK	3-ND	N		0										Mercury[1]
NHRIV700061204-14	UNNAMED BROOK	3-ND	Y	1	0										Mercury[1]
NHRIV700061204-15	UNNAMED BROOK	3-ND	Y	1	0										Mercury[1]
NHRIV700061204-16	UNNAMED BROOK	3-ND	N		0										Mercury[1]
NHRIV700061204-17	UNNAMED BROOK	3-ND	N		2										Mercury[1]

All Other Waterbodies

AUID	*Name*	Assessment Unit Category	On Original NOI (2018)?	Number of Outfalls Discharging to Waterbody Years 1-6	*No Impairments*
N/A	Unnamed Wetland/Waterbody/Brook/Stream	N/A	No	93	
TBD	TBD - Outfalls have yet to be assigned to receieving water	N/A	N/A	43	
(Blank)	N/A Outfalls that have been mapped, but do not need to be sampled	N/A	N/A	24	

Notes

	Northeast Regional Mercury TMDL, page vi	
Mercury[1]	"In the Northeast, the majority of mercury pollution is a result of atmospheric deposition. Thus, the TMDL is based primarily on reduction of atmospheric deposition, which can be achieved through reductions in anthropogenic mercury emissions."	NOTE: There is no information listed in "Northeast Regional Mercury TMDL" for wasteload allocations or other requirements related to MS4 due to the reduction being focused on atmospheric deposition. It is still listed as an impairment in this spreadsheet, but there are no requirements outlined in MS4 for reduction. Appendix G of MS4 Permit also lists "No Monitoring Required" for Mercury unless there is potential for it to be present in the sample due to proximity to a potential source.

Appendix D – Outfall Inventory and Priority Ranking Matrix (2019)

Catchment #	Total Area (AC)	Address # Street	Outfall Classification →			
			Excluded	*Problem*	*High*	*Low*
1	160	Depot (Frost)				X
2	47	Beacon (S. of Tarbell)				X
3	121	Gertrude				X
4	117	Nashua (S. of Millstone)				X
5	63	Nashua (S. of Millstone)				X
6	115	Anderson (near border)				X
7	62	Castle Hill (Bancroft)				X
8	51	Glance (Mammoth)				X
9	21	Winter				X
10	408	Lancaster				X
11	22	Castle Hill				X
12	145	Castle Hill				X
13	6	Castle Hill				X
14	13	Meeting House (N. of 111)				X
15	54	Meeting House (N. of 111)				X
16	9	Fellowes				X
17	15	Rock Pond (Simpson)			X	
18	19	Rock Pond (Jordan)			X	
19	57	The Town Beach			X	
20	47	Osgood				X
21	45	Turtle Rock (Turtle Rock)			X	
22	32	Farmer (Horseshoe)			X	
23	3	South Shore (Salem)			X	
24	4	West Shore			X	
25	32	West Shore (Pine Ridge)			X	
26	18	Armstrong (York)			X	
27	5	Johnson (Woodvue)			X	
28	8	Woodvue (Edgewood)			X	
29	6	Woodvue (Cul-de-sac)			X	
30	3	Hayes Hart (Sylvestri)			X	
31	16	Gov. Dinsmore				X
32	13	Roulston (Jones south)				X
33	6	Cole (North)				X
34	2	Cole (South)			X	
35	4	Doiron (South)			X	
36	2	Doiron			X	
37	1	Doiron (North)			X	

Outfall Priority Ranking (as of Year 6)

https://www.windhamnh.gov/DocumentCenter/View/17005/Outfall-and-Interconnection-Priority-Ranking-Year-6

As mapping continues to be updated, this list is subject to change.

Appendix E – Field Forms [Paper and Electronic (August 2023 – present)], Sample Bottle Labels, Chain of Custody Forms, Reporting Forms

Table of Contents

Page(s)

E.1 : Dry & Wet Weather Paper Outfall Inspection Form

TOWN OF WINDHAM
Stormwater Outfall Inspection Form

SECTION 1: BACKGROUND DATA

Address:	Outfall ID:
Date:	Time:
Temperature:	Inspector (s):
Previous 24 Hours Precipitation: Less than 1" More than 1"	Type of Outlet: Pipe Swale
Flow Observed: Yes No	Photos Taken: Yes No
Flow Description: Dry Trickle Moderate Substantial	If yes, Photo Numbers:

SECTION 2: OUTFALL DESCRIPTION AND

GPS Location	Material	Shape	Dimension (in.)	Submerged
Latitude: _____ Longitude: _____	___ Concrete ___ Clay ___ PVC ___ HDPE ___ Steele ___ Cast Iron Other: _____	___ Circular ___ Elliptical ___ Box Other: _____	Diameter: _____ Width: _____	In water: ___ No ___ Partially ___ Fully With sediment: ___ No ___ Partially ___ Fully

SECTION 3: PHYSICAL INDICATORS

Do physical indicators suggest an illicit discharge is present?: Yes No	
Comments:	

Indicator	Y/N	Description	Comments
Outfall / Pipe Damage	___ Yes ___ No	___ Spalling, Cracking or Chipping ___ Peeling Paint ___Corrosion	
Deposits / Stains	___ Yes ___ No	___ Oil/Grease ___ Paint ___ Flow Line ___ Paper/Trash ___Foam ___ Heavy Sed. Other: _____	
Abnormal Vegetation	___ Yes ___ No	___ Excessive ___ Inhibited	
Pool Quality	___ Yes ___ No	___ Odors ___ Colors ___ Floatables ___ Excessive Algae ___ Oil Sheen ___ Suds Other: _____	
Pipe Algae / Growth	___ Yes ___ No	___ Brown ___ Orange ___ Green Other: _____	
Are there any non-illicit discharge concerns (e.g. trash or infrastructure repairs)?: ___ Yes ___ No			
Comments:			

Channel, Ditch or Swale Condition	Slope (degrees)	Outlet Structure	Discharge directly to surface water?*
___ Good ___ Clogged ___ Debris ___ Scoured or Eroded Other: _____	___ Flat ___ Moderate ___ Steep	___ Headwall ___ Riprap ___ Flared End ___ No Outlet ___ Protection Other: _____	___ Yes ___ No *If yes, provide receiving water name _____

SECTION 4: PHYSICAL INDICATORS (FLOWING OUTFALLS ONLY)			
Do physical indicators (flowing) suggest an illicit discharge is present?: ___ Yes ___ No			
Comments:			
Indicator	**Y/N**	**Description**	**Relative Severity Index (1-3)**
Odor	___ Yes ___ No	___ Sewage ___ Laundry ___ Sulfide ___ Petroleum/Gas ___ Rancid/Sour ___ Chemical Other: _____	
Color	___ Yes ___ No	___ Clear ___ Brown ___ Gray ___ Yellow ___ Green ___ Orange/Res ___ Multi-color ___ Cloudy Other: _____	
Turbidity	___ Yes ___ No	See severity	
Floatables (Does Not Include Trash)	___ Yes ___ No	___ Sewage ___ Suds & Foam ___ Grease ___ Petroleum (oil sheen) Other: _____	

SECTION 5: ON-SITE SAMPLING/TESTING (FLOWING OUTFALLS ONLY)			
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature			
pH			
Specific Conductivity			
Chlorine		Acute Standard – 860 mg/L Chronic Standard – 230 mg/L	
Ammonia		> 0.5 mg/L	
Surfactants		> 0.25 mg/L	
E.coli		> 153 colonies/100 mL in a single sample (class A waters) > 406 colonies/100 mL in a single sample (class B waters) > 88 colonies/100 mL in a single sample (beach area)	

E.2 : Outfall Condition Form (Survey123)

Stormwater Outfall Inspection Form (Outfall Condition Assessment)				
Inspection Date and Time		Inspector Initials		
Outfall ID		Object ID		
Nearest Address to Outfall				
Receiving Water				
Type of Inspection	Condition Assessment - Outfall Screening	Condition Assessment - Follow up	Condition Assessment - Mapping	Could Not Locate
Condition	Good	Fair	Poor	Failing (Needs immediate attention)
	Could not locate	Unknown		
Is outfall located at the end of a swale?	Yes	No	Unknown	
Channel, Ditch, or Swale Condition	Good	Clogged	Debris	Scoured or Eroded
	Other:			
Shape of Outfall	Circular	Oval	Rectangular	Square
	N/A - Swale	Other:		
Size of Outfall				
Dimension (In) [if rectangular or square]				
Outfall Material	Concrete (Reinforced)	Concrete (non reinforced)	Concrete (Unknown if reinforced)	Cast Iron
	Corrugated Metal Pipe	PVC	HDPE	Clay
	N/A - Swale	Other:		
Needs Cleaning?	Yes		No	
If Y, Percent of Pipe Blocked with Sediment or Debris				
Is Outfall Submerged?	Not Submerged	Partially Submerged	Fully Submerged	
Scouring Present?	No	Yes - 0.1 - 1 in	Yes - 1 in - 2 in	Yes - 2+ in
	Not Visible	Other:		
Rip Rap Present?	Yes		No	
Rip Rap Condition	Good	Fair	Poor	Failing
Headwall present?	Yes	No	N/A - Swale	
Indicator 1/5 - Damage to Outfall Structure Observed	None	Concrete cracking	Concrete Spalling	Chipping
	Peeling Paint	Metal Corrosion	Other:	
Indicator 2/5 - Deposits or Staining Observed?	Yes	No	N/A - CNL Outfall	
(If Y) Color/ Type of Staining or Deposits Observed	Orange	Grey	Brown	Flow Line
	Paint	Oily/Greasy	Excessive Sediment	Foam
	Paper/Trash	Other:		
Indicator 3/5 - Vegetation	None	Normal	Excessive	Inhibited
	Stressed			

Indicator 4/5- Pool Quality	Normal	No pool	Unkown	Odor
	Suds	Excessive Algae	Colors	Floatables
	Oily Sheen	Other:		
Indicator 5/5 - Benthic Growth Observed?	Yes	No	Unknown	
If Yes, Color of Benthic Growth	Brown	Orange/Red	Green	Other:
Do physical indicators suggest an illicit discharge is present?	Yes	No	N/A	
Any non-illicit discharge concerns?	Yes	No	N/A	
Describe non illicit discharge concerns				
Notes:				
Structure Photos	1 zoomed in photo		1 photo zoomed out with surrounding area	
If maintenance / cleaning needed, 1-4 photos of issue				

E.3 : Outfall Sample Form (Survey123)

Outfall Sample Form				
Inspection Date and Time		Inspector Initials		
Outfall ID		Object ID		
Dry or Wet Weather Sampling?	Dry		Wet	
Precipitation in last 24 hours	0 in	≤0.1 in	≥0.1 in	
Outside Temperature (F)				
Condition Assessment?	Yes		No	
Sample Point?	Yes		No	
If outfall not sample point - what type of structure is the sample point?	Catchbasin	Manhole	Other:	
Object ID of Sample Point (If not outfall)				
Flow Observed?	Yes	No	No - Standing Water	
If flow observed : Yes, answer questions below				
Description of Flow	Trickle	Moderate	Substantial	
Indicator 1/4 - Color of Flow	Clear	Yellow	Brown	Green
	Red	Grey	Black	Multi Color
	Other:			
Relative Severity Index	1 - Faint color in sample bottle	2 - Clearly visible in sample bottle	3 - Clearly visible in flow	
Indicator 2/4 - Turbidity Relative Severity Index	0 - Clear/ No Color	1 - Slight Cloudiness	2 - Cloudy	3 - Opaque
Indicator 3/4 - Odor Present?	Yes		No	
Description of Odor	Sulfur (Rotten eggs)	Sewage	Soap/Laundry	Oil / Gas
	Rancid - Sour	Chlorine	Sharp, pungent (Chemicals)	Other:
Relative Severity Index	1 - Faint	2 - Easily detected	3 - Noticeable from a distance	
Indicator 4/4 - Floatables Observed	Yes	No	N/A - Dry	
If yes, Type of Floatables Observed	Oily Sheen (Petroleum)	Oily sheen (Naturally Occuring)	Grease	Sewage
	Soap/Suds	Foam	Other:	
Relative Severity Index of Floatables	1 - Few/slight; origin not obvious	2 - Some; indicators of origin (ex possible suds or oily sheen)	3 - Some; origin clear (ex obvious oil sheen, suds, or floating	
Sediment Observed	None	Less than half full	Half Full	More than half full
	Completely Full or Buried	N/A - CNL Outfall or Unknown	Swale	
Sediment Observed - Swale	Sediment at appropriate level	Light buildup of sediment	Medium buildup of sediment	Significant buildup of sediment
	Completely full of sediment	Other:		
Sample Collected?	Yes		No	
If No Sample Collected, why?	Dry / No Flow	Standing Water	CNL Structure	Other:

Field Test Kit Information				
Result		Typical EPA Benchmark		
		Class A Waters	Class B Waters	
Temperature (Celsius)		No numeric standard; as natural occurs		
pH		As naturally occurs	Outside of 6.5 and 8.0 (unless due to natural causes)	
Conductivity µS/cm		Background Levels-Normal: 0-100 µS/cm (Benchmark Field Indicator >2,000 µS/cm)		
Salinity ppm				
Ammonia mg/L or ppm		> 0.5 mg / L	> 0.5 mg/ L	
Surfactants mg/L		>0.25 mg/L		
Chlorine mg/L		Acute Standard - 860 mg/L Chronic Standard - 230 mg/L		
Dissolved Oxygen mg/L		< 6 mg / L	< 5 mg / L	
Lab Samples Collected	None	E.coli	Total Phosphorus	BOD5
	Chloride	Total Arsenic	Total Iron	Total Mercury
	Benthic Macroinvertebrate Bioassessment (Streams)			
COC Reference #				
Lab Results				
E.Coli (MPN/100ml)		Total Phosphorus (mg/L)		
BOD5 (mg/L)		Chloride		
Total Arsenic		Total Iron		
Total Mercury		Benthic Macroinvertebrate Bioassessment (Streams)		
Notes/Additional Comments				
Contamination Found?	No Contamination Found - Observed Dry	No Contamination Found - By test kit or lab sample	Potential Illicit Discharge - Sample has contamination but does not reach sewer input indicators	Suspected Illicit Discharge - Sample reaches sewer input indicators
	Confirmed Illicit Discharge - Visual Evidence Observed	N/A - Standing Water	TBD - Waiting on Lab Results	

E.4 : Interconnection Sample Form (Survey123)

Interconnection Sampling Survey				
Inspection Date and Time		Inspector Initials		
Object ID of interconnection				
Type of Structure where Interconnection is Located	Catchbasin	Manhole	Other:	
ObjectID (of interconnecting structure)				
Object ID of pipe sample was taken from		Direction of pipe sample was taken from		
Where does the interconnection discharge to?	State	Pelham, NH	Derry, NH	Londonderry, NH
	Hudson, NH	Private	Other:	
Location of Interconnection	Survey123 Form: Location autopopulates			
Dry or Wet Weather Sampling?	Dry		Wet	
Precipitation in last 24 hours	0 in	≤0.1 in	≥0.1 in	
Outside Temperature (F)				
Condition Assessment?	Yes		No	
Sample Point?	Yes		No	
If interconnection not sample point - what type of structure is the sample point?	Catchbasin	Manhole	Other:	
Object ID of Sample Point (If not at interconnection)				
Flow Observed?	Yes	No - Dry	No - standing water	
If flow observed : Yes, answer questions below				
Description of Flow	Trickle	Moderate	Substantial	
Indicator 1/4 - Color of Flow	Clear	Yellow	Brown	Green
	Red	Grey	Black	Other:
Relative Severity Index	1 - Faint color in sample bottle	2 - Clearly visible in sample bottle	3 - Clearly visible in outfall (interconnection) flow	
Indicator 2/4 - Turbidity Relative Severity Index	0 - Clear/ No Color	1 - Slight Cloudiness	2 - Cloudy	3 - Opaque
Indicator 3/4 - Odor Present?	Yes		No	
Description of Odor	Sulfur (Rotten eggs)	Sewage	Soap/Laundry	Oil / Gas
	Rancid - Sour	Chlorine	Sharp, pungent (Chemicals)	Other:
Relative Severity Index	1 - Faint	2 - Easily detected	3 - Noticeable from a distance	
Indicator 4/4 - Floatables Observed	Yes		No	
If yes, Type of Floatables Observed	Oily Sheen (Petroleum)	Oily sheen (Naturally Occuring)	Sewage	Soap/Suds
	Foam	Other:		
Relative Severity Index of Floatables	1 - Few/slight; origin not obvious	2 - Some; indicators of origin (ex possible suds or oily sheen)	3 - Some; origin clear (ex obvious soil sheen, suds, or floating sanitary material)	
Deposits or Staining Observed?	Yes		No	
(If Y) Color/ Type of Staining or Deposits Observed	Orange	Grey	Brown	Flow Line
	Paint	Oily/Greasy	Excessive Sediment	Other:
Sediment Observed	None	Less than half full	Half Full	More than half full
	Completely Full or Buried	N/A - Unknown		
Sample Collected?	Yes		No	
If No Sample Collected, why?	Dry / No Flow	Standing Water	Other:	

Field Test Kit Information				
Result		Typical EPA Benchmark		
		Class A Waters	Class B Waters	
Temperature (Celsius)		No numeric standard; as natural occurs		
pH		As naturally occurs	Outside of 6.5 and 8.0 (unless due to natural causes)	
Conductivity µS/cm		Background Levels-Normal: 0-100 µS/cm (Benchmark Field Indicator >2,000 µS/cm)		
Salinity ppm				
Ammonia mg/L or ppm		> 0.5 mg / L		
Surfactants mg/L		>0.25 mg/L		
Chlorine mg/L		Acute Standard - 860 mg/L Chronic Standard - 230 mg/L		
Dissolved Oxygen mg/L		< 6 mg / L	< 5 mg / L	
Lab Samples Collected	None	E.coli	Total Phosphorus	BOD5
	Chloride	Total Arsenic	Total Iron	Total Mercury
	Benthic Macroinvertebrate Bioassessment (Streams)			
COC Reference #				
Lab Results				
E.Coli MPN/100ml		Total Phosphorus mg/L		
BOD5 mg/L		Chloride		
Total Arsenic		Total Iron		
Total Mercury				
Notes/Additional Comments				
Contamination Found?	No Contamination Found - Observed Dry	No Contamination Found - By test kit or lab sample	Potential Illicit Discharge - Sample has contamination but does not reach sewer input indicators	Suspected Illicit Discharge - Sample reaches sewer input indicators
	Confirmed Illicit Discharge - Visual Evidence Observed	N/A - Standing Water	TBD - Waiting on Lab Results	

E.5 : Manhole Condition Form (Survey123)

Manhole Condition Assessment Form			
Inspection Date and Time		Inspector Initials	
ObjectID			
Purpose of Inspection	Condition Assessment - Catchment Investigation	Condition Assessment - Outfall Screening	Condition Assessment - Follow up
	Cannot Locate (CNL)	Cleaning	Mapping
	Other:		
Location	Survey123 Form: Location autopopulates		
Needs Cleaning?	Yes	No	Purpose of visit is cleaning
	N/A - CNL	Unknown	
Cover Condition	Good	Fair	Poor
	Failing		
Frame Condition	Good	Fair	Poor
	Failing	Rusted	
Corbel Condition	Good	Fair	Poor
	Failing	Not Visible	
Corbel Material	Brick	Concrete Block	Precast Concrete
	Cast in Place Concrete	Other:	
Cone Condition	Good	Fair	Poor
	Failing	Not Visible	N/A - No Cone
Cone Material	Brick	Concrete Block	Precast Concrete
	Cast in Place Concrete	N/A	
Wall Condition	Good	Fair	Poor
	Failing	Not Visible	
Wall Material	Brick	Concrete Block	Precast Concrete
	Cast in Place Concrete	Other:	
Bench Condition	Good	Fair	Poor
	Failing	Not Visible	
Bench Material	Brick	Concrete Block	Precast Concrete
	Cast in Place Concrete	Other:	
Channel Condition	Good	Fair	Poor
	Failing	Not Visible	N/A - None
Channel Material	Brick	Concrete Block	Precast Concrete
	Cast in Place Concrete	Other:	
Any Failing Features?	Yes	No	
Notes/Comments			
Photos of Structure	Photo 1: Outlet at 6 O'Clock	Photo 2: Surrounding Area	
Additional Photos - Poor or Failing Rating	Add up to 4 photos of any features needing maintenance rated "poor" or "failing"		
Describe Issues needing Immediate Maintenance (If anything failing):			

E.6 : Catchbasin Condition and Cleaning Form (Survey123)

Catchbasin Cleaning/Inspection Survey			
Inspection Date and Time		Inspector Initials	
Catchbasin ObjectID			
Location	Survey123 Form: Location autopopulates		
Purpose of Inspection	Condition Assessment - Catchment Investigation	Condition Assessment - Outfall Screening	Condition Assessment - Follow up[1]
	Cannot Locate (CNL)	Cleaning	Mapping
[1]Description of Original Complaint/Report (If Purpose of Inspection is Follow up)			
(If purpose of inspection is cleaning) Weather Today?	Clear, No Precipitation	Light Rain	Moderate/Heavy Rain
(If purpose of inspection is cleaning) Precipitation in the last 3 days?	Yes	No	
Cleaning Required?	Yes	No	
Percentage of Sump Filled Before Cleaning (If purpose of visit is cleaning)	0% - 100%		
Required Maintenance or Problems Observed?	Yes	No	
Required Maintenance Problems (check/circle all that apply)	Tree work required	New grate required	Pipe is blocked
	Frame maintenance required	Basin undermined	Cannot remove cover
	Evidence of dumping	Ditch work	Corrosion at structure
	Erosion around structure	Need cement around grate	Other:
Condition Assessment?	Yes	No	
Cover/Grate Condition	Good	Fair	Poor
	Failing		
Frame Condition	Good	Fair	Poor
	Failing	Rusted	
Riser Condition	Good	Fair	Poor
	Failing	N/A - No Riser Present	
Riser Material	Brick	Concrete Block	Other:
Corbel/Chimney Condition	Good	Fair	Poor
	Failing	Not Visible	
Corbel Material	Brick	Concrete Block	Precast Concrete
	Cast in Place Concrete	Other:	
Wall Condition	Good	Fair	Poor
	Failing	Not Visible	
Wall Material	Brick	Concrete Block	Precast Concrete
	Cast in Place Concrete	Other:	
Bench Condition	Good	Fair	Poor
	Failing	Not Visible	
Bench Material	Brick	Concrete Block	Precast Concrete
	Cast in Place Concrete	Dirt	Other:
Any Failing Features?	Yes	No	
Describe Issues needing Immediate Maintenance (If anything failing):			
Observed Potential Sources of Pollution	None	Construction Activity	Erosion
	Material Storage	Equipment Storage	Other:
Notes or Comments			
Photos of Structure	Photo 1: Outlet at 6 O'Clock	Photo 2: Surrounding Area	
Additional Photos - Poor or Failing Rating	Add up to 4 photos of any features needing maintenance rated "poor" or "failing"		

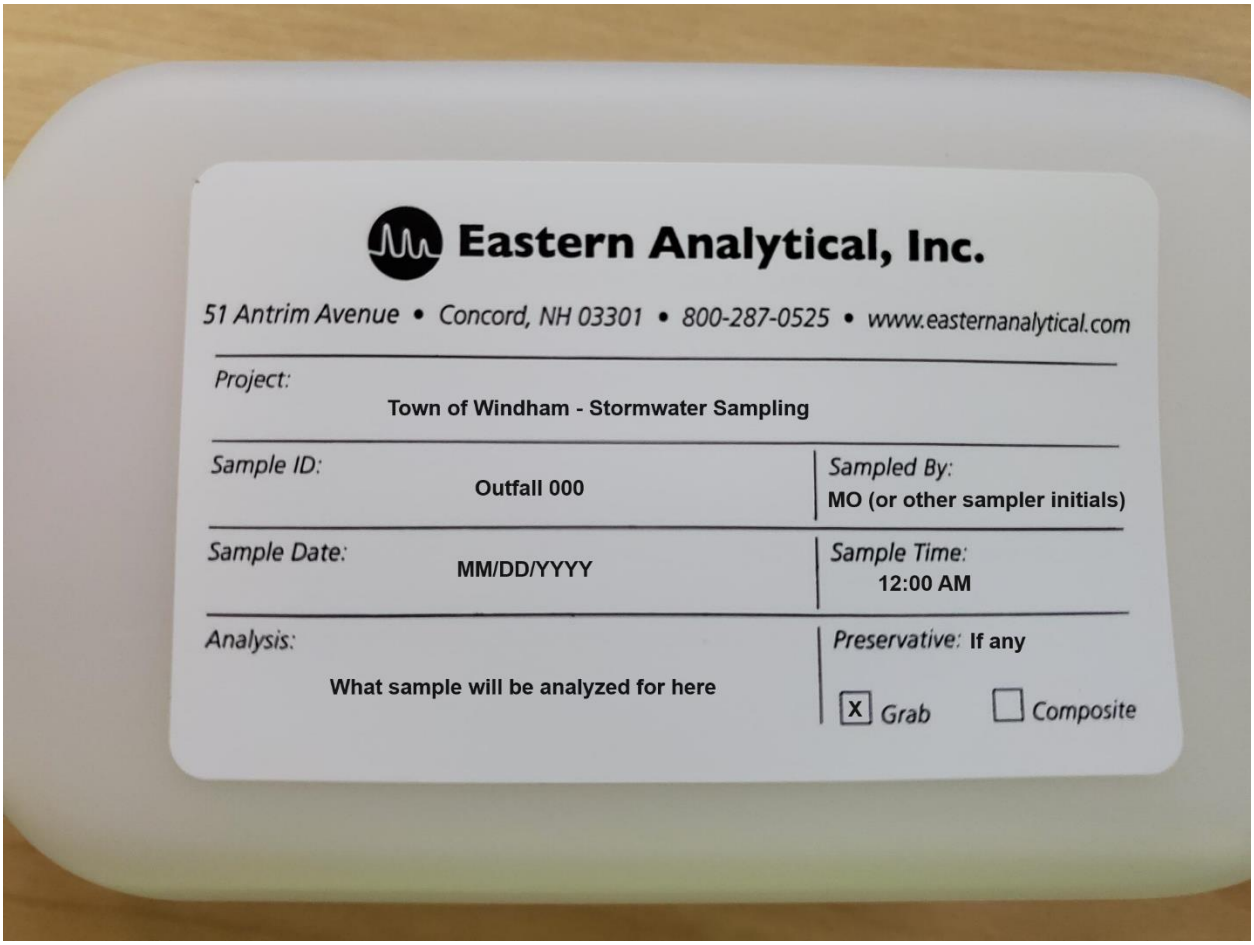
E.7 : Pipe Sampling Form (Survey123)

Pipe Sampling Form				
Inspection Date and Time		Inspector Initials		
Purpose of Inspection	Routine Catchment Investigation	IDDE Investigation or Follow Up	Mapping	Other:
Is this a field inlet conveying a surface flow into a closed drainage system?	Yes		No	
Pipe Object ID				
Structure Pipe Discharges Into	Manhole	Catchbasin	Outfall	Other:
Structure ID				
Catchment				
Precipitation in Last 24 Hours	0 in	≤0.1 in	≥0.1 in	
Flow Observed?	Yes	No	N/A - Standing Water	
If Y, Description of Flow	Trickle	Moderate	Substantial	
Indicator 1/4 - Color of Flow	Clear	Yellow	Brown	Green
	Red	Grey	Black	Multi Color
	Other:			
Relative Severity Index - Color	1 - Faint color in sample bottle	2 - Clearly visible in sample bottle	3 - Clearly visible in pipe flow	
Indicator 2/4 - Turbidity Relative Severity Index	0 - Clear/ No Color	1 - Slight Cloudiness	2 - Cloudy	3 - Opaque
Indicator 3/4 - Odor Present?	Yes		No	
If Y, Description of Odor	Sulfur (Rotten eggs)	Sewage	Soap/Laundry	Oil/Gas
	Rancid - Sour	Chlorine	Sharp, pungent (chemicals)	Other:
Relative Severity Index - Odor	1 - Faint	2 - Easily Detected	3 - Noticeable from a distance	
Indicator 4/4 - Floatables Observed?	Yes	No	N/A - Dry	
If yes, Type of Floatables Observed	Oily Sheen (Petroleum)	Oily sheen (Naturally Occuring)	Sewage	Soap/Suds
	Foam	Other:		
Relative Severity Index of Floatables	1 - Few/slight; origin not obvious	2 - Some; indicators of origin (ex possible suds or oily sheen)	3 - Some; origin clear (ex obvious soil sheen, suds, or floating sanitary material)	
Deposits or Staining Observed?	Yes		No	
(If Y) Color/ Type of Staining or Deposits Observed	Orange	Grey	Brown	Flow Line
	Paint	Oily/Greasy	Excessive Sediment	Other:
Sediment Observed	None	Less than half full	Half Full	More than half full
	Completely Full or Buried	N/A - Unknown		
Sample Collected (field test kit)?	Yes	No	No - Standing water	
Sandbag Placed?	Yes	No	Date Sandbag Placed	
Date Sandbag Checked		Date Sandbag Rechecked		
Sandbag Flow Captured?	Yes	No	Fouled	

Field Test Kit Information			
Result		**Typical EPA Benchmark**	
		Class A Waters	**Class B Waters**
Temperature (Celsius)		No numeric standard; as natural occurs	
pH		As naturally occurs	Outside of 6.5 and 8.0 (unless due to
Conductivity µS/cm		Background Levels-Normal: 0-100 µS/cm (Benchmark Field Indicator >2,000 µS/cm)	
Salinity ppm			
Ammonia mg/L or ppm		> 0.5 mg / L	> 0.5 mg/ L
Surfactants mg/L		>0.25 mg/L	
Chlorine mg/L		Acute Standard - 860 mg/L Chronic Standard - 230 mg/L	
Dissolved Oxygen mg/L		< 6 mg / L	< 5 mg / L

Lab Sample Collected?	Yes		No	
Lab Samples Collected	None	E.coli	Total Phosphorus	BOD5
	Chloride	Total Arsenic	Total Iron	Total Mercury
	Benthic Macroinvertebrate Bioassessment (Streams)	Human Bacteriodes	Total Bacteriodes	Other:
Lab Results				
E.Coli (MPN/100ml)		Total Phosphorus (mg/L)		
BOD5 (mg/L)		Chloride		
Total Arsenic		Total Iron		
Total Mercury		Benthic Macroinvertebrate Bioassessment (Streams)		
Surfactants mg/L		Human Bacteriodes CEs*/ 100 mL		
Total Bacteriodes CEs*/100 mL		Other Lab Results		
COC Reference #				
Notes/Additional Comments				
Photos				
Contamination Found?	Cleared - No flow behind sandbag or observed dry	Cleared - by test kit or lab sample	Potential Illicit Discharge - sample has contaminants but does not reach sewer input indicators	Suspected Illicit Discharge - sample reaches sewer input indicators
	Confirmed Illicit Discharge - Visual evidence observed	N/A - Standing Water	Partial Inspection - fouled sandbag	TBD - Waiting on lab results
Upstream Clean Structure Type	Catchbasin	Manhole	Other:	
Object ID of Upstream Clean				

E.8 : Sample Bottle Label



E.9 Chain of Custody Form(s)

Page 1 of 1

CHAIN-OF-CUSTODY RECORD

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

FOR LAB USE ONLY

				VOC				SVOC					TCLP	INORGANICS							MICRO		METALS		OTHER					
SAMPLE I.D.	SAMPLING DATE / TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE / TIME	MATRIX (SEE BELOW)	GRAB/*COMPOSITE	5242 / 524.2 MTBE ONLY	VTICs 624 / 8260B 1,4-DIOXANE	8021B	8015B GRO MAVPH	8270D 625 / ABN PAH / EDB DBCP	TPH8100 L1 L2	8015B DRO MAEPH	PEST 608 PCB 608 / PEST 8081A PCB 8082	OIL & GREASE 1664 TPH 1664	TCLP 1311 ABN METALS / VOC PEST HERB	BOD CBOD / TS TSS TDS	Br Cl F SO_4 / NO_2 NO_3 NO_3NO_2	TKN NH_3 TN / T. PHOS. O. PHOS.	pH T. RES. CHLORINE / SPEC. CON. T. ALK.	COD PHENOLS TOC DOC	TOTAL CYANIDE TOTAL SULFIDE	REACTIVE CYANIDE REACTIVE SULFIDE / FLASHPOINT IGNITABILITY	TOTAL COLIFORM E. COLI / FECAL COLIFORM	ENTEROCOCCI / HETEROTROPHIC PLATE COUNT	DISSOLVED METALS (LIST BELOW)	TOTAL METALS (LIST BELOW)	Surfactants				# OF CONTAINERS	NOTES MeOH VIAL #
		SW	G																											

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER

PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

PROJECT MANAGER: Meaghan O'Dwyer

COMPANY: Town of Windham

ADDRESS: 3 North Lowell Rd

CITY: Windham STATE: NH ZIP: 03087

PHONE: (603) 432-3806 EXT.:

E-MAIL: MODwyer@windhamnh.gov

SITE NAME: Town of Windham - Stormwater Sampling

PROJECT #:

STATE: NH MA ME VT OTHER:

REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER GWP, OIL FUND BROWNFIELD OTHER:

QUOTE #: PO #:

QA/QC REPORTING

A B C

MA MCP

TEMP. ___ °C

ICE? YES NO

REPORTING OPTIONS

PRELIMS: YES OR NO

ELECTRONIC OPTIONS

PDF EXCEL EQUIS

OTHER

TURN AROUND TIME

24hr* 48hr*

3 - 4 DAYS*

5 DAY 7 DAY

10 DAY

*Pre-approval Required

METALS: 8 RCRA 13 PP FE, MN PB, CU

OTHER METALS:

SAMPLES FIELD FILTERED? YES NO

NOTES: (IE: SPECIAL DETECTION LIMITS, BILLING INFO, IF DIFFERENT)

SAMPLER(S):

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

SITE HISTORY:

SUSPECTED CONTAMINATION:

FIELD READINGS:

Eastern Analytical, Inc.
professional laboratory and drilling services

51 Antrim Avenue | Concord, NH 03301 | Tel: 603.228.0525 | 1.800.287.0525 | E-Mail: CustomerService@EasternAnalytical.com | www.EasternAnalytical.com

(WHITE: Lab Copy GREEN: Customer Copy)

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL Order Number (*Lab Use Only*):

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX:(856) 786-0262

Company : Town of Windham	EMSL-Bill to: ☐ Same ☐ Different If Bill to Is Different please note in Comments** *Third Party Billing requires written authorization from third party*
Street: 3 North Lowell Road	
City: Windham / State/Province: NH	Zip/Postal Code: 03087 / Country: USA
Report To (Name): Meaghan O'Dwyer	Fax #:
Telephone #: 603-432-3806	E-mail Address: modwyer@windhamnh.gov
Project Name/ Number: Town of Windham - Stormwater Sampling	
Please Provide Results: ☐ Fax ☒ E-mail	PO# / State Samples Taken: NH

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour	☐ 6 Hour	☐ 24 Hour	☐ 48 Hour	☒ 72 Hour	☐ 96 Hour	☐ 1 Week	☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. TATs are subject to methodology requirements.*

Fungi	Bacteria	Insects
☐ ERMI Panel (M180) *Dust Only*	☒ Human *Bacteroides* (M199)	☐ Bed Bug (*Cimex lectularius*) (M146)
☐ EPA 36 Panel (M233) *Air, Swab*	☒ Total *Bacteroides* (M095)	☐ Tick - *Anaplasma phagocytophilum* Anaplasmosis (M261)
☐ Water Damage 20 Panel (M181)	☐ *E. coli* O157:H7 (M140)	☐ Tick - *Babesia microti* Babesiosis (M260)
☐ Wood Rot Fungi 10 Panel (M232)	☐ *E. coli* (M200)	☐ Tick - *Borrelia burgdorferi* Lyme disease (M196)
☐ *Aspergillus* 15 Panel (M186)	☐ Total *Enterococcus* (M096)	**Other**
☐ *Aspergillus* 6 Panel (M188)	☐ *Helicobacter pylori* (M207)	☐ *Acanthamoeba* spp. (M147)
☐ *Penicillium* 13 Panel (M189)	☐ *Legionella pneumophila* (M103)	☐ *Cryptosporidium* spp. (M237)
☐ Customized Fungi Panel (M100)	☐ *Legionella* 4 species-EPA (M162)	☐ *Giardia* spp. (M149)
☐ *Penicillium* Mycotoxin 9 Panel (M190)	☐ *Legionella* Broad Screen (M163)	☐ Enterovirus RT-PCR (M142)
Birds, Animal Droppings	☐ MRSA (M203)	☐ Food Authentication (F130)
☐ *Chlamydophila psittaci* (M234)	☐ *Mycobacterium avium* (M144)	☐ GMO Analysis (F131)
☐ *Cryptococcus neoformans* (M143)	☐ *Mycobacterium tuberculosis* (M159)	☐ DNA Barcode Analysis (M195)
☐ *Histoplasma capsulatum* (M208)	☐ *Pseudomonas aeruginosa*	☐ DNA Sequencing Fungi/Bacteria Isolates (M192)
☐ Raccoon Roundworm (M236)	☐ *Salmonella* spp. (M141)	☐ Special Request:
☐ Rodent (Mouse, Rat) Dropping (M271)	☐ *Shigella* spp. (F122)	

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
				250 mL	

Client Sample # (s): - Total # of Samples:

Relinquished (Client): Date: Time:

Received (Lab): Date: Time:

Comments:

Page 1 of ____ pages

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL Order Number (*Lab Use Only*):

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX:(856) 786-0262

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected

**Comments/Special Instructions

Page _____ of _____ pages

E.10 Illicit Discharge Hotline/Incident Tracking Sheet

Town of Windham New Hampshire

COMMUNITY DEVELOPMENT
3 N Lowell Road, Windham, NH 03087
(603) 432-3806 / www.WindhamNH.gov

Illicit Discharge Hotline/Incident Tracking Sheet

Incident ID:	
Responder Information - If Reported by Citizen	
Call Taken By:	N/A
Call Time:	N/A
Call Date:	N/A
Precipitation in last 24-48 hours (inches) :	N/A
Reporter Information	
Incident Date and Time	
Caller Contact Information (Optional) or Town Employee	
Observed During Regular Maintenance or Inspection? Y/N	
Incident Location	
Stream Address or Outfall #:	
Closest Street Address:	
Nearby Landmark:	
Primary Location Description (Select One)	
Stream Corridor (In or adjacent to stream) ☐	
Upland Area (Land not adjacent to stream) ☐	
Secondary Location Description (select One)	
Outfall ☐	In Stream Flow ☐
Near Storm Drain ☐	Near other water source (stormwater pond, wetland, etc) ☐
Along Banks ☐	In Drainage Structure ☐ Drainage Structure Type: ObjectID:
Narrative Description of Location:	
Upland Problem Indicator Description	
Dumping☐	Oil/Solvents/ Chemicals ☐
Wash water, suds, etc☐	Sewage ☐
Other ☐ Description:	
Stream Corridor Problem Indicator Description	
Odor	None☐
	Rancid/ Sour ☐
Sulfide (rotten eggs) ☐	Sewage ☐
Petroleum (gas) ☐	
Other☐ Description:	

Town of Windham New Hampshire
COMMUNITY DEVELOPMENT
3 N Lowell Road, Windham, NH 03087
(603) 432-3806 / www.WindhamNH.gov

Appearance	"Normal" ☐
Cloudy☐	Suds☐
Oil Sheen ☐	Other. Describe in "Narrative Section" ☐
Floatables	None☐
Algae ☐	Dead Fish ☐
Other. Describe in "Narrative Section" ☐	Sewage/ Toilet Paper ☐
Narrative Description of problem indicators:	
Suspected Violator	
Name	
Personal or Vehicle Description	
License Plate Number	
Address	
Investigation Notes	
Initial Investigation Date:	
Investigator(s):	
☐ No investigation made. (Please include description why on right)	
☐ Referred to different department/agency? List department/ agency on right	
☐ Investigated: No action necessary	
☒ Investigated: Requires action (Write description of actions on right	
Hours between call and investigation:	

Hours to close incident:	
Date case closed:	
Notes:	

E.11 Confirmed Illicit Discharge Report

COMMUNITY DEVELOPMENT
3 N Lowell Road, Windham, NH 03087
(603) 432-3806 / www.WindhamNH.gov

Confirmed Illicit Discharge[i] Report

Name: Meaghan O'Dwyer
Date:

Date of First Notice:
Location of Discharge:
Source of Discharge:
Method of Discovery:
Description of the Discharge:

Date of elimination, mitigation, or enforcement action:

OR

If not possible within 60 days of discovery, planned corrective measure for completing illicit discharge removal:

Estimate of volume of flow removed: N/A

Summary of Event: Refer to report located here -

NHDES Notified: No
EPA Notified: No
Required Actions:
Documented in NH MS4 Annual Report:
Photos/Videos: Refer to report located here -

[i] An illicit discharge is any discharge to a municipal separate storm sewer that is not composed entirely of stormwater, except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from firefighting activities. (2.3.4.1 of GENERAL PERMITS FOR STORMWATER DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS IN NEW HAMPSHIRE)

Appendix F

Illicit Discharge Detection and Elimination (IDDE)

Employee Training Record

TOWN OF WINDHAM

Date	Type of Training	Participants
12/20/2023	Powerpoint – *What is Illicit Discharge? And how do we look for signs of it?* A powerpoint discussing what illicit discharge is, what are some signs of illicit discharge to look out for when in the field, and what is the procedure when one suspects illicit discharge.	Meaghan O'Dwyer - Environmental Planner (Presenter) Dennis Senibaldi – General Services Director John Devlin – General Services Manager Alex Mello – Community Development Director
2/22/2024	Powerpoint – ArcGIS for Mapping and Asset Management A powerpoint explaining how to use ArcGIS to update mapping in the field and fill out Survey123 forms when encountering a structure in need of maintenance/ repair. The powerpoint serves as a guide to utilize in-field when individuals are updating stormdrain mapping with required elements per MS4.	Meaghan O'Dwyer - Environmental Planner (Presenter) Dennis Senibaldi – General Services Director John Devlin – General Services Manager Caden Blazek – Highway Department Mike Boutin – Highway Department Alex Mello – Community Development Director George Frangomihalos – Code Enforcement/ Deputy Health Officer
3/12/2024	Field Training - ArcGIS Mapping A training completed in the field that educates different participating employees of the Town of Windham who will be aiding in updating stormwater mapping and completing Survey123 forms. This is a follow up training to the in-office powerpoint presentation that was presented on 2/22/2024	Caden Blazek – Highway Department Mike Boutin – Highway Department Alex Mello – Community Development Director George Frangomihalos – Code Enforcement/ Deputy Health Officer John Devlin – General Services Manager

Date	Type of Training	Participants

Appendix G

Illicit Discharge Detection and Elimination (IDDE)

Illicit Discharge Removal Report (Update Year 6) can be found here:
https://www.windhamnh.gov/DocumentCenter/View/17003/Illicit-Discharge-Tracking-Sheet-Year-6

IDDE Investigations

Date of First Notice: December 21, 2023

Location: Sample initially collected at Outfall 28, high bacteria originating from Field Inlet_21 (inlet directing surface water flow into CB 2360, which is part of catchment that discharges to Outfall 28).

Summary of Situation/Violation:

On December 8, 2023 multiple lab samples were collected at outfall 28 located between 38 and 40 Woodvue Rd in Windham, New Hampshire by the Environmental Planner, Meaghan O'Dwyer. The samples were collected as part of a routine outfall screening and the lab samples were collected for the following analyses: E. coli, Total Phosphorus, and BOD5. On the day of sample collection, there was no rain within the previous 24 hours and the weather was noted at the time of sampling as cloudy and 22 degrees Fahrenheit. Upon arrival to the outfall, the flow was noted as moderate, clear, with no odor or floatables (refer to photos 1 and 2). Additionally, sediment was observed in the outfall but was less than half full – roughly 1-2% of the pipe. The sample was taken at 8:50 AM directly from the outfall pipe. A field test kit was also performed at the time of sampling and had the following results: Ammonia – 0.1 ppm, Surfactants – 0 mg/L, Chlorine – 0 mg/L, Dissolved Oxygen – 10.6 mg/L, Temperature – 6 (Celsius), pH – 7.74, Conductivity – 335 µS/cm, and Salinity – 154 ppm. On December 21, 2024, the lab results returned with the following measurements: E. coli: >2419.6 MPN/100ml, BOD: <6 mg/L, Total Phosphorus: 0.064 mg/L. Notably, the E. coli measurement was noted as high, therefore the source of this required further investigation by the Town.

After establishing an account with the nearest laboratory that performs Bacteroides analyses (Cinnaminson, NJ), MO attempted to return to this location to collect additional follow up samples on February 5, 2024, but there was snow melt/runoff at the time which could potentially create inaccurate results, therefor the Town had to wait for appropriate weather conditions to collect additional samples. MO returned on February 9, 2024 when there was no runoff observed from snow melt to perform a catchment investigation and collect additional lab samples with the goal of determining the source of the high E. coli reading. MO performed test kits throughout the catchment, beginning with the outfall. The results of the field test kit performed at outfall 28 on February 9, 2024 are as follows: Ammonia –

0.1 ppm, Surfactants – 0.25 mg/L, Chlorine – 0 mg/L, Temperature – 1.8 (Celsius), pH – 7.75, Conductivity – 270 µS/cm, and Salinity – 127 ppm. Additionally, at the outfall a lab sample was collected for E. coli, Total Bacteroides, and Human Bacteroides. The purpose of sampling for Human Bacteroides is to determine where to focus the Town's efforts on locating the illicit discharge. If there are human Bacteroides present, the Town will focus efforts on looking for a failed/leaking septic tank and if there are no human Bacteroides present, the Town will have to investigate other potential sources of E. coli (pet/animal waste and anything else that may be contributing). Only one sampling location (at the outfall) was deemed necessary to collect the Human and Total Bacteroides samples because should there be a human indicator anywhere in the catchment, no matter where it originates it will ultimately discharge to this outfall. This single sampling location will give adequate information regarding where the Town will direct its efforts/investigation moving forward should there be any detection of human DNA.

The Town collected lab samples and performed test kits at various other locations in the catchment area to narrow down where the E. Coli is originating from (refer to Attachment 1 for locations of sample collection). Ultimately, none of the field test kits performed during the catchment investigation indicated any suspected sources of bacteria/contamination therefor the Town utilized the results of the three E. coli samples and the two Bacteroides samples collected during this investigation to narrow down the source of the bacteria. Along with the sample collected at the outfall, MO collected an E. coli sample at field inlet_21, the most northern catch basin in the catchment, where a surface water stream enters the closed drainage system (sample name, CB2360[W]). This location was selected to determine if the E. coli may be coming from this stream. A third and final lab sample was collected at catch basin 2364 (pipe ID 882, lab sample name CB2364[W]) to determine if E. coli may be coming from the western branch of the catchment (Lakewood Rd) and compare the results with those of the other two E. coli lab samples collected at outfall 28 and field inlet_21.

On February 13, 2024, the Town received the results from the E. coli lab analyses which are as follows: Outfall 28: 2419.6 MPN/100mL, Field Inlet_21 (lab sample name: CB2360[W]): 1986.3 MPN/100mL, and CB2364(W): 1.0 MPN/100mL (refer to lab reports in attachment 2). On February 16, 2024, the Town received the Bacteroides lab results which are as follows: Total Bacteroides: 4,616 CEs/100 mL, Human Bacteroides: None Detected (refer to lab reports in Attachment 2). Based on the lab information received by the Town, it appears that there is no indication that the E. Coli is originating from a human source and appears to be originating from the surface water stream entering field inlet_21, as these results are comparable. Based on this information, the Town distributed pet waste outreach flyers (and septic outreach for informational purposes) to properties that may be contributing to the high E. coli measurements in the stream, however at the time of sampling, there were no observed pet waste bags to suggest this was a source. The Town followed up in March by looking at historical aerial imagery from the years 2019 – 2023 to see if there were any large visible animal presence noted and none were observed. On May 2, 2024, the Town completed a drive by of the neighborhood surrounding/within the catchment to determine if there were any signs (visual, auditory, olfactory) of significant animal presence that may be the cause of the high E. coli, but none were detected. The Town intends on continuing to monitor this area for any potential sources of E. coli. Any further investigations will be documented within the Town's records.

NHDES Notified: No

EPA Notified: No

Required Actions: The Town intends on continuing to make efforts in this area by doing physical inspections of the area to determine if there is presence of animals that could be contributing to the E.coli reading.

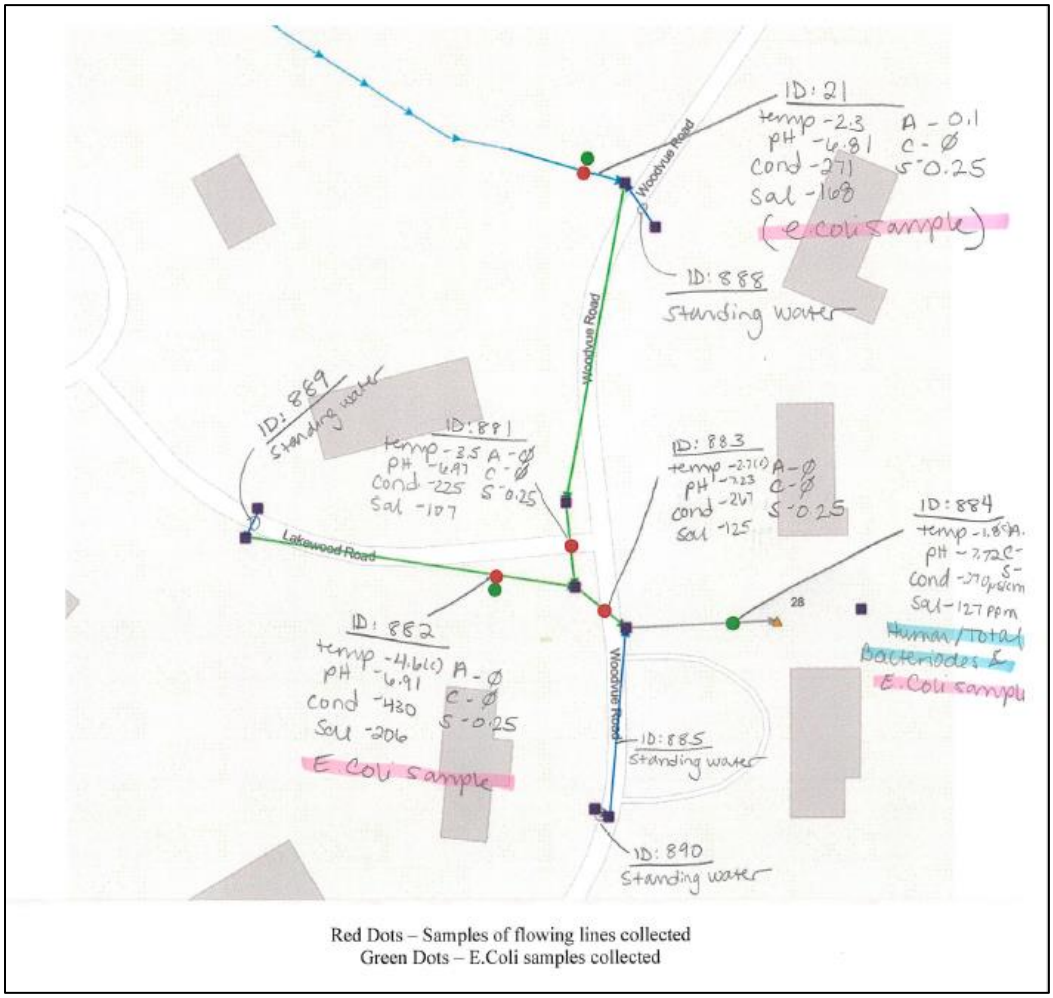
Documented in NH MS4 Annual Report: This will be reported in the year 6 annual report

Photos/Attachments

Photos 1 - 2: Outfall 28 on 12/8/2023

Photo 3: CB 2360 where Field Inlet_21 is located

Attachment 1: Locations where lab samples/field analyses were performed during investigation



Attachment(s) 2: Lab Report(s)

LABORATORY REPORT

EAI ID#: **271241**

Client: **Windham, Town of**
Client Designation: **Town of Windham - Stormwater Sampling**

Sample ID:	Outfall 28	Outfall 42
Lab Sample ID:	271241.01	271241.02
Matrix:	aqueous	aqueous
Date Sampled:	12/8/23	12/8/23
Date Received:	12/8/23	12/8/23

			Analysis			
	Units	Date	Time	Method	Analyst
Total Phosphorus-P	**0.064**	**0.011**	mg/L	12/14/23	9:42	365.1	PHA
BOD	< 6	< 6	mg/L	12/08/23	15:36	5210B-11	PEN
E.coli	**> 2419.6**	**2.0**	MPN/100ml	12/08/23	14:36	9223B-04	SEL

Sample ID:	Outfall 49
Lab Sample ID:	271241.03
Matrix:	aqueous
Date Sampled:	12/8/23
Date Received:	12/8/23

			Analysis			
	Units	Date	Time	Method	Analyst
E.coli	**2.0**	MPN/100ml	12/08/23	14:36	9223B-04	SEL

Initial Outfall Screening Results (12/8/2023)

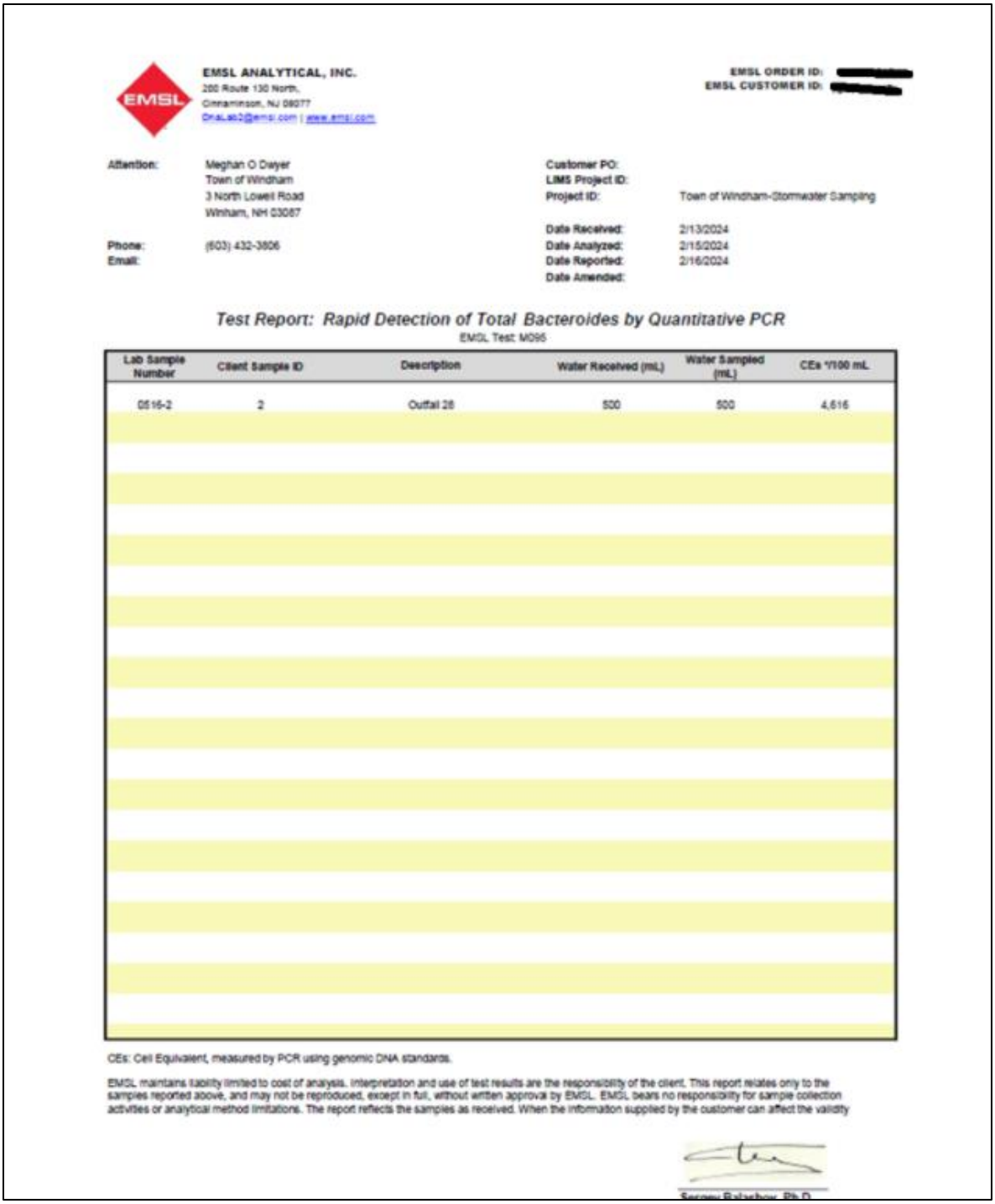
LABORATORY REPORT

EAI ID#: **273929**

Client: **Windham, Town of**
Client Designation: **Town of Windham - Stormwater Sampling**

Sample ID:	Outfall 28	CB2360 (W)	CB2364 (W)					
Lab Sample ID:	273929.01	273929.02	273929.03					
Matrix:	aqueous	aqueous	aqueous					
Date Sampled:	2/9/24	2/9/24	2/9/24					
Date Received:	2/9/24	2/9/24	2/9/24		**Analysis**			
				Units	**Date**	**Time**	**Method**	**Analyst**
E.coli	**2419.6**	**1986.3**	**1.0**	MPN/100ml	2/09/24	14:45	9223B-04	SEL

Follow Up Sampling Results (2/9/2024)



EMSL ANALYTICAL, INC.
200 Route 130 North,
Cinnaminson, NJ 08077
OnaLab2@emsl.com | www.emsl.com

EMSL ORDER ID: [redacted]
EMSL CUSTOMER ID: [redacted]

Attention: Meghan O Dwyer
Town of Windham
3 North Lowell Road
Windham, NH 03087

Phone: (603) 432-3806
Email:

Customer PO:
LIMS Project ID:
Project ID: Town of Windham-Stormwater Sampling

Date Received: 2/13/2024
Date Analyzed: 2/15/2024
Date Reported: 2/16/2024
Date Amended:

Test Report: Rapid Detection of Total Bacteroides by Quantitative PCR
EMSL Test: M096

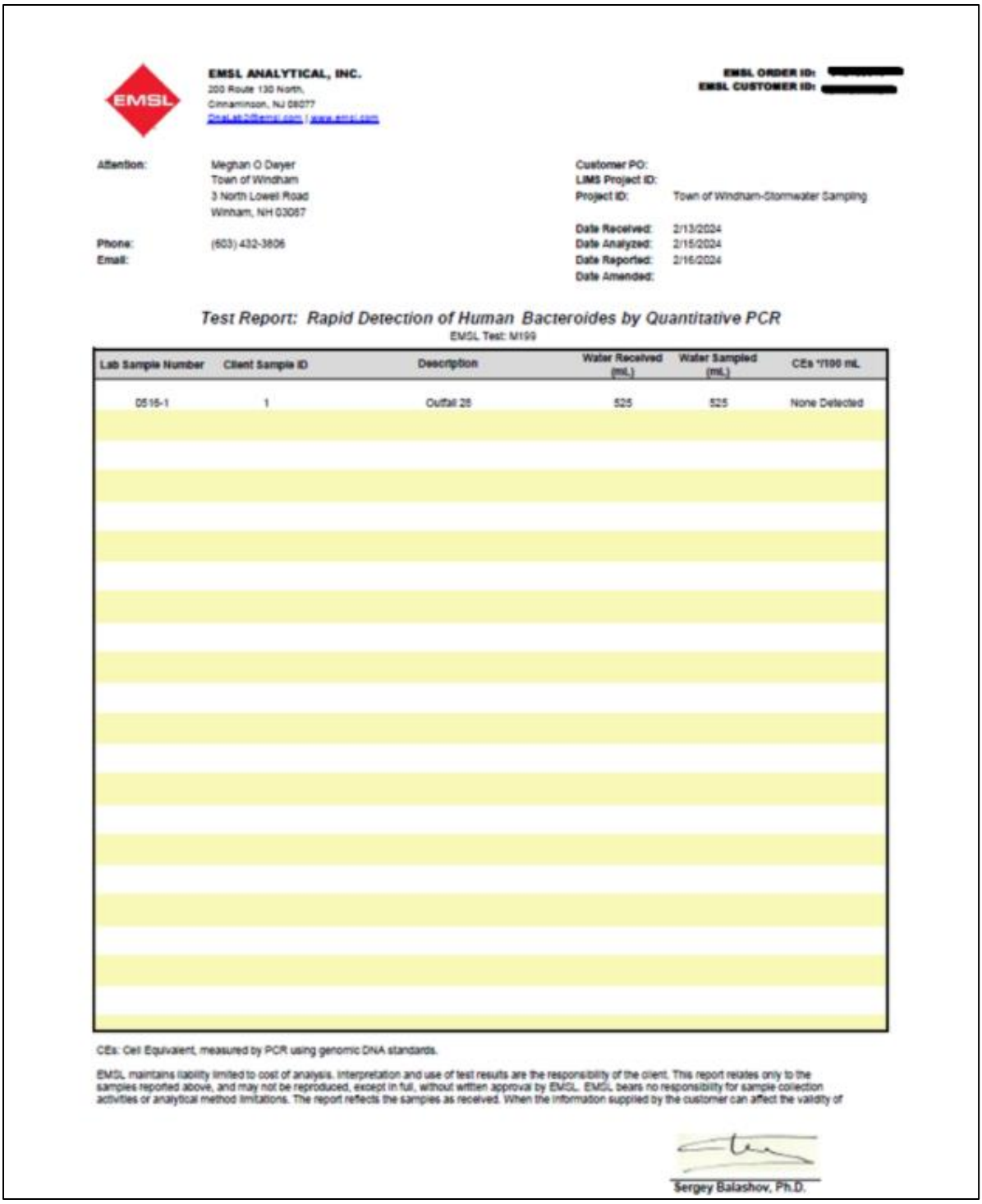
Lab Sample Number	Client Sample ID	Description	Water Received (mL)	Water Sampled (mL)	CEs *1100 mL
0516-2	2	Outfall 28	500	500	4,616

CEs: Cell Equivalent, measured by PCR using genomic DNA standards.

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. When the information supplied by the customer can affect the validity

Sergey Bolshakov, Ph.D.

Total Bacteroides Results from sample collected on 2/9/2024 (shipped following Monday, received by lab 2/13/2024)



EMSL ANALYTICAL, INC.
200 Route 130 North,
Cinnaminson, NJ 08077
[redacted]

EMSL ORDER ID: [redacted]
EMSL CUSTOMER ID: [redacted]

Attention: Meghan O Dwyer
Town of Windham
3 North Lowell Road
Windham, NH 03087

Phone: (603) 432-3806
Email:

Customer PO:
LIMS Project ID:
Project ID: Town of Windham-Stormwater Sampling

Date Received: 2/13/2024
Date Analyzed: 2/15/2024
Date Reported: 2/16/2024
Date Amended:

Test Report: Rapid Detection of Human Bacteroides by Quantitative PCR

EMSL Test: M199

Lab Sample Number	Client Sample ID	Description	Water Received (mL)	Water Sampled (mL)	CEs *100 mL
0515-1	1	Outfall 28	525	525	None Detected

CEs: Cell Equivalent, measured by PCR using genomic DNA standards.

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. When the information supplied by the customer can affect the validity of

Sergey Balashov, Ph.D.

Human Bacteroides Results from sample collected on 2/9/2024 (shipped following Monday, received by lab 2/13/2024)

Date of First Notice: April 19, 2024

Location: Mitchell Pond Rd Detention Basin (Mitchell Pond Rd_DB) between 44 and 46 Mitchell Pond Rd

Summary of Situation/Violation:

On April 19, 2024 around 2:30 PM, Meaghan O'Dwyer was working on updating the mapping of connectivity of drainage structures on Mitchell Pond Rd when the detention basin between 44 and 46 Mitchell Pond Rd was observed as having a significant number of pet waste bags at the end of the pipe that discharges into the BMP. An estimated 25-30 bags were observed at the end of the pipe (Pipe ID 1748) in various stages of decomposition. The weather at the time of discovery was clear with rain predicted to occur over the upcoming weekend (4/20-4/21). After noting the significant amount of bags in the BMP, MO continued upstream to determine if the bags are being disposed of directly in the basin or are being dumped in any upstream structures or ground surface and are being washed out to the drainage basin. MO observed what appeared to be 2 pet waste bags in the outlet of catch basin 1617 and roughly 10 pet waste bags on the ground surface in the area near that catch basin in the designated open space south of the drainage basin, parcel 3-A-512. Based on this observation, it appears that pet waste is being disposed of on the ground surface as well as potentially in the catch basin directly. After identifying the locations where the pet waste bags appear to be originating from, MO collected all visible pet waste bags and disposed of them in the dumpster located at the Community Development Department, 3 N. Lowell Rd in Windham, NH to prevent further spreading of bacteria since there was precipitation in the forecast for the upcoming weekend. Based on the number of bags observed, this appears to be a repeated discharge as opposed to the typical transitory illicit pet waste disposal.

On April 26, 2024, the Town of Windham sent letters and educational materials to 81 properties on and directly adjacent to Mitchell Pond Rd informing residents that the Town has identified a significant amount of dumping in this area and providing educational materials about pet waste.

Many additional bags were collected in and around the drainage structures between the date of discovery and May 6 – in total roughly 90 pet waste bags. During the site visit on May 6, 2024, there were a number of pet waste bags located in the sump of a nearby catch basin (Catch basin 1617) which may have been there upon initial discovery, but the water level caused them to not be visible at the time. On May 14, 2024, the Town cleaned out catch basin 1617 of the remaining bags. On June 5, MO returned to the location to check if there were additional dog waste bags and about 12 were located and removed from the end of Pipe 1748 and disposed of in the trash. On July 12 and 15, the Town sent out 120 outreach letters to a larger audience on and around Mitchell Pond Rd in an attempt to reach the individual(s) responsible for the illicit discharge. A letter of explanation as well as educational brochures about proper disposal of pet waste were distributed at this time.

Because this is an apparent ongoing situation, the Town intends on continuing to monitor this known dumping spot.

NHDES Notified: No

EPA Notified: No

Required Actions: The Town has ordered a stencil to spray on the ground by the drainage structures where pet waste was observed. Additionally, this area will continue to be monitored and the IDDE report will be updated as new information is gathered in the Town's records.

Documented in NH MS4 Annual Report: This will be reported in the year 6 annual report

Photos

Photo 1 – Zoomed out photo of Pipe 1748 discharge point into Mitchell Pond Rd_DB

Photo 2 – Discharge point of Pipe 1748

Photo 6 – Bags observed in Parcel 3-A-512

Photo 7 – Pet waste bags collected on 4/19/2024

Photo 6– Outlet of Pipe 1748 on 4/24/2024 when an additional 15 bags were retrieved

Photo 7 – Pipe 1748 on 5/6/2024

Photo 8 – Pet waste bags observed in sump of catch basin 1617 on 5/6/2024

Photo 9 – Additional bags collected during site visit 5/6/2024

Photos 10-12 – Photos taken of end of Pipe 1748 on 06.05.2024 where an additional 12 bags were located

Date of First Notice: April 23, 2024

Location: 28 Sawtelle Rd

Summary of Situation/Violation:

On April 23, 2024 around 1:30 PM Health Officer, Michael McGuire, was performing routine inspection of a property around the area of Cobbett's Pond when he noted discharge coming from the property of 28 Sawtelle Rd. He noted a significant amount of discharge from the yard directly adjacent to the property as well as a notable odor of sewage. After inspection of the area, it was determined that this appeared to be the result of a leach field not functioning properly which was causing septage to escape the system. It should be noted that while the septage did not enter any drainage structures, the proximity of the outbreak to Cobbetts Pond is approximately 200 feet at its nearest distance.

Mr. McGuire reached out to Meaghan O'Dwyer, Environmental Planner and Deputy Health Officer, and George Frangomihalos, Code Enforcement and Zoning Administrator, who then completed a site visit at around 2:30 PM the same day. At the time of the visit, the visual evidence was observed and documented. After the site visit was completed, Ms. O'Dwyer and Mr. Frangomihalos returned to the Community Development Department where Mr. McGuire informed them that he had already reached out to the homeowner and informed them of the issue on their property. He informed them verbally over the phone that they were to get their septic tank pumped immediately to alleviate the amount of water/ liquid in the tank and stop the overburdening of the system. The same day, at around 3:15 PM, Ms. O'Dwyer reached out to Deb Loiselle, Stormwater Coordinator for NHDES, to inquire about notification of appropriate parties for the identified issue. Loiselle advised the Town reach out to Teresa Ptak, NHDES Compliance Supervisor, as well as Solanch Pastrana-Del Valle, Environmental Engineer from EPA Region 1, to inform them of the incident. Ms. O'Dwyer sent written notification in the form of email to NHDES around 4:05 PM on 4/23/2024 and to EPA on 4/24/2024 around 8:45 AM.

On 4/24/2024, Mr. McGuire performed a follow up site visit to 28 Sawtelle Rd to confirm the tank has been pumped and assess the situation to determine follow up actions that will need to be completed in order to determine how to avoid a reoccurrence. Due to the ground still being saturated, the conditions appear the same. Mr. McGuire performed a follow up site inspection on 4/25/2024. Mr. McGuire intends on notifying the property owner to have the system assessed by a certified licensed septic inspector to determine the issue and the remedy.

On May 3, 2024, Mr. McGuire received notification that LaFrance Septic inspected the system located at 28 Sawtelle Rd and discovered there was a failed pump. The failed pump was removed and replaced with a one. A septic report was completed by LaFrance which indicated the issues with the tank and that repairs were completed. The property owner communicated with MO that they are working with an engineer and the septic company to get a new system design.

NHDES Notified: Yes – Deb Loiselle, Teresa Ptak via written notification and verbally 4/23/2024

EPA Notified: Yes - Solange Pastrana-Del Valle via written notification 4/24/2024

Required Actions: None – issues causing system to fail repaired May 2, 2024 by LaFrance Septic.

Documented in NH MS4 Annual Report: This will be reported in the year 6 annual report

Photos

Pictures 1 and 2 – Runoff from suspected failed septic system

Picture 3 –system location

Picture 4 – Visible runoff on ground (facing septic system)

Picture 5 – Facing away from septic system toward Cobbett's Pond to show proximity to waterbody

Pictures 6 & 7 – Photos from site visit on 5/6/2024.

Pictures 8 – 10 – Photos from site visit on 6/4/2024.

Date of First Notice: 4/30/2024

Location: Outfall 184 near 162 Londonderry Rd

Source of Discharge: Leaking transformer from downed telephone pole upstream of drainage structures.

Summary of Situation/Violation:

On April 30, 2024 around 11:45 AM, a phone call was placed from John Devlin (Highway Department) to Meaghan O'Dwyer (Environmental Planner) to report an observed oily sheen in the flow exiting outfall 184 near 162 Londonderry Rd. MO reported to the site around 12:15 PM and located at the site was Dennis Senibaldi, John Devlin, and Caden Blazek of the Highway Department and Chief Thomas McPherson, Fire Chief for the Town of Windham. At the time of visual observation, the weather was noted as raining with active runoff entering the drainage system. Due to the rain, the flow exiting the outfall was relatively deep, around 8 inches and flowing at a moderate pace, but was also noted as being turbid. A light oily sheen was observed in the flow therefor additional tests were deemed necessary to rule out hazardous substance. Chief McPherson called for additional backup to bring oil absorbing pads to determine if there was oil present in the flow. Five pads were placed in the flow discharging from the outfall (about 10-15 ft beyond pipe end) and no oil was picked up by the pads. MO continued upstream to check catch basin 680, but no obvious oily sheen was noted. The Town's Highway Department cleared naturally formed drainage swale of brush and shrubs to improve the drainage and deposited the collected soil along the bank of the swale

On May 1, 2024, MO placed a call to NHDES and was directed to Cameron Simmons, Oil Remediation and Compliance Investigator for NHDES who informed MO that he would be performing a site visit at this location. MO went out to the scene to meet with Mr. Simmons and additionally, Clean Harbors arrived at the scene as well as Dennis Senibaldi. At the location, MO was informed that Eversource had reported the spill at a nearby utility pole on the day of April 4, 2024 during a winter storm to NHDES and that this was an active scene. The State was aware of the spill and Clean Harbors had already been involved in the process of the cleanup since the spill in early April. According to Mr. Simmons, Clean Harbors had been at the scene 3 or 4 times already and had performed remediation actions such as removing the affected soil and initially cleaning up the spill. Additionally, Mr. Simmons informed MO that the contents of the transformer were mineral oil. Upon arrival at the scene, Mr. Simmons observed oil in the removed soil that was placed along the bank of the swale from the previous day. A lab sample was not deemed necessary since this was already a known site of a spill. At the scene, it as noted that there was additional material (soil, leaves) in the end of the outfall that appeared to be affected by the initial discharge. Because of this observation, Clean Harbors will have the catchment lines jetted by a qualified contractor/ company to clear out any affected material that may be present in the pipes and remove that material as well as the material that was cleaned out from the swale by the Town the day prior. NHDES placed a hydrophobic, oil absorbing boom around the affected sediment as well as at the discharge point of the outfall and the point at which the flow enters the presumed wetland in order to contain any oil that may additionally discharge between the site visit and time of removal of affected material.

Additional investigation was conducted upstream near where the site of the confirmed spill occurred and additional affected material near the mailbox of 161 Londonderry Rd was removed. Mr. Simmons stated this was likely residual runoff from the road (refer to pictures 8 & 9). At the site, Clean Harbors indicated that an estimated 20 - 22 gallons of mineral oil was initially spilled.

On May 2, 2024 Mr. Simmons emailed the site visit report to MO. On May 6, 2024, MO performed a site visit to the outfall and noted that there is plastic tarp that has now been placed over

the affected material that was placed by the Town next to the drainage swale the week prior and the booms placed by NHDES were still present. Additionally, MO observed that there was backfill placed in the locations along the road where Clean Harbors had removed additional affected material. Clean Harbors was nearby the site when MO visited around 1:00 PM on May 6.

On May 13, 2024, MO returned to the site and observed that drain lines appeared to have been jetted and all affected material removed (including the material placed on the bank of the drainage that the town had moved). The outfall appeared to have clear flow with no residual oily sheen and there was no evidence of an illicit discharge. **Conclusion: As of May 13, 2024, this area has been cleared and there is no remaining evidence of illicit discharge at the site at this time.**

NHDES Notified: Yes – Oil Remediation and Compliance Sector

EPA Notified: No

Required Actions: None

Documented in NH MS4 Annual Report: This will be reported in the year 6 annual report

Photos

Picture 1 – Outfall 184 on 4/30/2024

Picture 2 – Swale leaving outfall on 4/30/2024

Picture 3 – Oil absorbing pads placed in flow exiting outfall (4/30/2024)

Picture 4 – CB 680 on 4/30/2024

Picture 5 – Swale cleared with affected material placed on right (5/1/2024)

Picture 6 – Zoomed in photo of outfall 5/1/2024

Picture 7 – Scene after Boom was placed 5/1/2024

Picture 8 – Additional material caused by runoff from road 5/1/2024

Picture 9 – Affected material being removed by Clean Harbors 5/1/2024

Picture 10 – Photo from site visit 5.06.24

Picture 11 – Backfill

Picture 12 and 13 – Photos from site visit 5.13.24

Appendix H

Outfall/Interconnection Inventory, Sampling Results, and Catchment Investigations

- To view the Outfall and Interconnection Inventory (Updated Year 6), click here
- To view year 1-6 Dry Weather Screening Results, click here
    - To view Year 4 Dry Weather Screening Results, click here
    - To view Year 6 Dry Weather Screening Results, click here
- To view Catchment Inventory and Investigations (Updated Year 6), click here