Interim
Municipal Stormwater Management Plan

for the

Township of West Milford
Passaic County, New Jersey

Prepared by:

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TABLE OF CONTENTS

List of Figures

I. INTRODUCTION

This Municipal Stormwater Management Plan (hereinafter the MSWMP or the Plan) documents the strategy for the Township of West Milford (the Township) to address stormwater-related impacts. The creation of this Plan is required by N.J.A.C. 7:14A-25 Municipal Stormwater Regulations.

This Plan contains the required elements described in N.J.A.C. 7:8 Stormwater Management Rules. The Plan addresses groundwater recharge, stormwater quantity and stormwater quality impacts by incorporating stormwater design and performance standards for new major developments, defined as projects that disturb one (1) or more acres of land or increasing impervious surface by one-quarter (1/4) acre. These standards are intended to minimize the adverse impact of stormwater runoff on water quality, water quantity and the loss of groundwater recharge that provides base flow in receiving water bodies.

The Plan describes long-term operation and maintenance measures for existing and future stormwater facilities. A build-out analysis has been performed based upon existing zoning and land available for development. The Plan also addresses the review and update of existing ordinances, the Township Master Plan and other planning documents to allow for project designs that include low-impact development techniques. The Township Master Plan was last reviewed in 2003. The final component of this Plan is a mitigation strategy for when a variance or exemption of the design and performance standards is sought. As part of the mitigation section of the Plan, specific stormwater management measures are identified to lessen the impact of existing development.

II. GOALS

The goals of this MSWMP are to:

- reduce flood damage, including damage to life and property;
- minimize, to the extent practical, any increase in stormwater runoff from any new development;
- reduce soil erosion from any development or construction project;
- assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;
- maintain groundwater recharge;
- prevent, to the greatest extent feasible, an increase in non-point pollution;
- maintain the integrity of stream channels for their biological functions, as well as for drainage;
- minimize pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the State, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of water; and
- protect public safety through the proper design and operation of stormwater basins.

To achieve these goals, this Plan outlines specific stormwater design and performance standards for new development. Additionally, the plan proposes stormwater management controls to address impacts from existing development. Preventative and corrective maintenance strategies are included in the plan to ensure long-term effectiveness of stormwater management facilities. The plan also outlines safety standards for stormwater infrastructure to be implemented to protect public safety.

III. STORMWATER DISCUSSION

Land development can dramatically alter the hydrologic cycle (Image 1) of a site and, ultimately, an entire watershed. Prior to development, native vegetation can either directly intercept precipitation or draw that portion that has infiltrated into the ground and return it to the atmosphere through evapotranspiration.

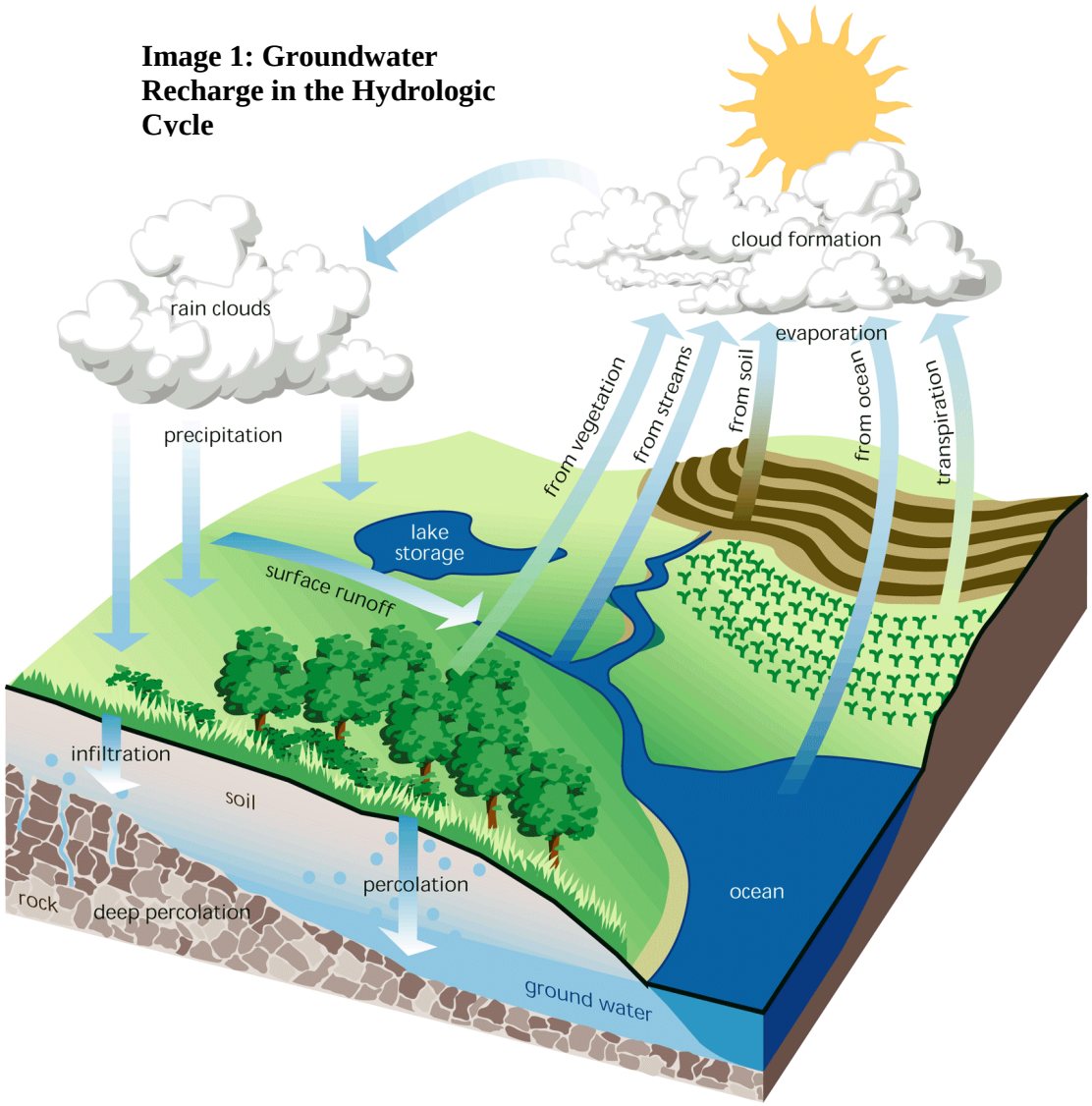
Development can remove this beneficial vegetation and replace it with lawn or impervious cover, reducing the site's evapotranspiration and infiltration rates. Clearing and grading a site can remove depressions that store rainfall. Construction activities may also compact the soil and diminish its infiltration ability, resulting in increased volumes and rates of stormwater runoff from the site.

Impervious areas that are connected to each other through gutters, channels, and storm sewers can transport runoff more quickly than natural areas. This shortening of the transport or travel time quickens the rainfall-runoff response of the drainage area, causing flow in downstream waterways to peak faster and higher than natural conditions. These increases can create new and aggravate existing downstream flooding and erosion problems and increase the quantity of sediment in the channel.

Filtration of runoff and removal of pollutants by surface and channel vegetation is eliminated by storm sewers that discharge runoff directly into a stream. Increases in impervious area can also decrease opportunities for infiltration which, in turn, reduces stream base flow and groundwater recharge. Reduced base flows and increased peak flows produce greater fluctuations between normal and storm flow rates, which can increase channel erosion. Reduced base flows can also

negatively impact the hydrology of adjacent wetlands and the health of biological communities that depend on base flows. Finally, erosion and sedimentation can destroy habitat from which some species cannot adapt.

Image 1: Groundwater Recharge in the Hydrologic Cycle



In addition to increases in runoff peaks, volumes, and loss of groundwater recharge, land development often results in the accumulation of pollutants on the land surface that runoff can mobilize and transport to streams. New impervious surfaces and cleared areas created by development can accumulate a variety of pollutants from the atmosphere, fertilizers, animal wastes, and leakage and wear from vehicles. Pollutants can include metals, suspended solids, hydrocarbons, pathogens, and nutrients. In addition to increased pollutant loading, land development can adversely affect water quality and stream biota in more subtle ways. For example, stormwater falling on impervious surfaces or stored in detention or retention basins can become heated and raise the temperature of the downstream waterway, adversely affecting cold water fish species such as trout. Development can remove trees along stream banks that normally provide shading, stabilization, and leaf litter that falls into streams and becomes food for the aquatic community.

IV. BACKGROUND

West Milford encompasses 81 square miles in northwestern Passaic County, New Jersey. The Township is largely undeveloped with approximately 4,700 acres of developable privately owned property equating to approximately 9.1% of the Township's total area, according to the Township Tax Assessor's class 1 and 3B classifications. Approximately 90% of the Township is serviced by private septic systems and private wells. The remaining 10% of the Township is provided water and sewer service by the West Milford Municipal Utilities Authority (WMMUA), the Passaic Valley Water Commission (PVWC) or United Water. United Water provides potable water to Bald Eagle Manor. The WMMUA provides water service to Awosting, Birch Hill, Greenwood Lake Beach, Highview, Olde Milford Estates, Crescent Park, Bald Eagle Village and Greenbrook Estates. The WMMUA provides sewer service to Awosting, Birch Hill, Highview, Olde Milford Estates and Crescent Park. Shop Rite Plaza has a packaging treatment Plant while the A&P utilizes a community septic system. **Figure 1** illustrates West Milford's waterways while **Figure 2** depicts West Milford on the United States Geological Survey (USGS) Quadrangle Maps. **Figure 4** illustrates the Township's sanitary sewer service areas.

The Township's population increased from 22,750 in 1980 to 25,430 in 1990, and slightly increased again to 26,410 in 2000. In addition to the population increase, the number of dwelling units has also increased. In the past, a number of the dwelling units in the Township, especially those near lakes, were originally intended for use during the summer months. However, many of these units are now used as year-round residences. Most of the Township's lakes are either private or only open to residents. Non-residents are permitted to utilize Greenwood Lake. Although West Milford is a largely undeveloped municipality, new development on the Township's waterways has likely increased stormwater runoff volumes or

pollutant loadings. Dwelling units constructed since the 1980s may implement some of the new performance standards and best management practices (BMP) to alleviate increased stormwater runoff and pollutant loadings. The Township Wastewater Management Plan requires all discharges from sewage treatment plants to be in-ground discharge. Also, the Township has maintained a policy of requiring new houses and additions greater than 500 square feet to install drywells for roof leaders.

The Highlands Water Protection and Planning Act is a law signed in August 2004 that will preserve open space and protect the state's water resources that supply drinking water to many of the state's households. This law divides the Highlands into two (2) distinct regions – the Preservation Area and the Planning Area. The entire Township of West Milford falls within the Highlands Preservation Area. Within the Preservation Area, all "major Highlands development," as defined by the Highlands Act, is regulated and will require New Jersey Department of Environmental Protection (NJDEP) approval, unless otherwise exempted by the Act. The Highlands Region is depicted in **Figure 11.**

The majority of the Township lies within the Environmentally Sensitive Planning Area (PA-5). This includes nearly the entire southern half of the Township, as well as sizeable portions within the northern half. The second largest planning area within the Township is designated State Park (PA-8), comprising much of the northern half of the Township. Three (3) separate areas are designated Park 1st Plan (PA-6), with the remainder of the Township designated as Water (PA-11). The Planning Areas within the Township of West Milford are shown in **Figure 3.**

There are currently dozens of major development projects at various stages of approval and/or construction with the Township. The following is a list of the largest projects:

- Eagle Ridge – A townhouse project with 280 units on Cahill Cross Road;
- Valley Ridge Gardens – A townhouse project with 100 units on Union Valley Road;
- Village on Ridge – A 54 -lot single-family home subdivision on Ridge Road;
- Random Woods – A 103 -lot single-family home subdivision;
- Fieldstone Estates – A 33-lot single-family home subdivision on High Crest Lake;
- Castle Rock – A 15-lot single-family subdivision on Union Valley Road; and
- Green Valley Estates – A 17-lot single-family subdivision on Wooley Road.
- Rockburn North – A 20-lot single-family subdivision on Clinton Road.

The NJDEP is designating an increasing number of streams in the state as Category-1 (C1) waterways, especially those that provide drinking water and important habitat for threatened and endangered species and popular recreation fish like trout. The streams can be designated as C1 based on their ecological significance, recreational or aesthetic significance, water supply significance, fisheries resources, shellfisheries or their location within publicly preserved open space. The C1 designation prevents further degradation in existing water quality. Moreover a 300' buffer is established around the C1 waterways and is referred to a Special Water Resource Protection Area (SWRPA). Some existing development in the Township may already encroach within the 300' buffers. The Township of West Milford contains more than 30 C1 designated waterways. It should be noted, however, that not all waterways in the Highlands Preservation Area are designated C1.

The Township also contains several waterways that are classified as FW1. This classification is given to fresh surface waters that are to be maintained in their natural state and not subjected to man-made wastewater discharges or increases from runoff from anthropogenic activities. The Township of West Milford contains eight (8) FW1 classified waterways.

The majority of West Milford is located in Watershed Management Area 3 (WMA-3), Pompton, Pequannock, Wanaque, Ramapo. An area comprising the northwest corner of the Township is located in Watershed Management Area 2 (WMA-2), Wallkill, Pochuck, Papakating. This area is approximately 10% of the Township's total area. The WMAs 2 & 3 are divided into smaller sub-watersheds and assigned 14-digit Hydrologic Unit Codes (HUC-14). The different HUC-14s are shown in **Figure 5**.

West Milford's major watercourses are as follows:

- Pequannock River (FW2-TP/C1) – [HUC-14s – 02030103050030, 02030103050040, 02030103050050, 02030103050060, 02030103050080]

  The Pequannock River generally flows west to east, forming the Township's southern boundary with several Morris County Municipalities. As the Pequannock River traverses the southern edge of West Milford, it crosses four (4) different sub-watersheds (HUC-14's). The NJDEP assigns the river a Surface Water Quality Standard of FW2-TP/C1, indicating a general fresh surface water classification (FW2) applied to waters that are not FW1 or Pinelands Waters. Additionally, the river supports trout production (TP) and is designated for implementation of anti-degradation policies for protection from any measurable change in water quality (C1).

From the southwest corner of the Township and extending approximately 200' from the southern end of the Oak Ridge Reservoir, the Pequannock River lies in HUC-14 – 02030103050030. It then enters HUC-14 – 02030103050050 until its confluence with the Charlotteburg Reservoir. The river then leaves the eastern end of the Charlotteburg Reservoir within HUC-14 – 02030103050060, continuing to the western end of the Macopin Reservoir. About 1,000' after exiting the Macopin Reservoir, the Pequannock River enters HUC-14 – 02030103050080, where it exits the Township at the 3-way boundary with the Borough of Bloomingdale in Passaic County and the Borough of Butler in Morris County.

- Unnamed Tributary to the Pequannock River (FW1-TM/ON & FW2-TP/C1) – [HUC-14 - 02030103050030

  Several unnamed tributaries to the Pequannock River can be found within these five (5) aforementioned sub-watersheds (HUC-14's). In HUC-14 – 02030103050030, the southern half of a southerly flowing unnamed tributary passing through Triangle Lake is classified as FW2-TP/C1, while the northern half of this tributary is classified as FW1-TM/ON. The "FW1" classification signifies fresh surface water that is to be maintained in its natural state and not subjected to man-made wastewater discharges or increases from runoff from anthropogenic activities. The "TM" designation means that this section of waterway is classified as a "Trout Maintenance" water, designated for the support of trout throughout the year. The "ON" anti-degradation designation signifies "Outstanding National Resource Waters," which are high quality waters that constitute an outstanding national resource (for example, waters of National/State Parks and Wildlife Refuges and

waters of exceptional recreational or ecological significances) as designated in N.J.A.C. 7:9B-1.15(i).

- Unnamed Tributary to the Pequannock River – (FW2-NT/C1 & FW2-NT/C2) – [HUC-14s – 02030103050030 & 02030103050040]

  While the main body of the Pequannock River does not enter HUC-14 – 02030103050040, an unnamed tributary begins here, north of Buckabear Pond. It flows south through Buckabear Pond and enters the Clinton Reservoir. This section of the tributary is classified as FW2-NT/C1. The "NT" designation is given to waters that are generally unsuitable for trout ("Non-Trout") because of physical, chemical, or biological characteristics, but are suitable for a wide variety of other fish species. The tributary exits the Clinton Reservoir at the southwest end and continues southwest to the Oak Ridge Reservoir. This section of the tributary is downgraded to a C2 designation. Category 2 waters are those waters not designated as Outstanding National Resource Waters of Category One at N.J.A.C. 7:B-1.15 for purposes of implementing the anti-degradation policies set forth at N.J.A.C. 7:B-1.15(d). Before emptying in to the Oak Ridge Reservoir, the tributary crosses into HUC-14 – 02030103050030.

- Unnamed Tributaries (2) to the Pequannock River – (FW2-TP/C2) – [HUC-14 – 02030103050050]

  Within HUC-14 – 02030103050050, two (2) unnamed tributaries to the Pequannock River can be found; one (1) passes through Greenwood and Wallace Ponds, while the other passes through Schaffers Pond. Both are classified FW2-TP/C2.

- Unnamed tributary to the Pequannock River – (FW2-TP/C2) – [HUC-14 – 02030103050060]

  Within HUC-14 – 02030103050060, one (1) unnamed tributary empties into the Macopin Reservoir, and is also classified FW2-TP/C2. The tributary flows north to south.

- Unnamed Tributaries (5) to the Pequannock River (FW2-TP/C2) – [HUC 14 – 02030103050080]

  Within HUC-14 – 02030103050080, five (5) unnamed tributaries flow north to south to their respective confluences with the Pequannock River. Starting at the west side of this sub-watershed, the first tributary originates at Forest Hill Lake. The second runs a short course adjacent to the southern section of Germantown Road. The third tributary transects High Crest Lake. The final two (2) tributaries originate at Bear Swamp Lake and converge to form one (1) tributary which exits the southern end of Henion Pond. All share the same FW2-TP/C2 classification.

- Macopin River (FW2-NT/C2 and FW2-TP/C1) – [HUC-14 - 02030103050060]

  The Macopin River lies entirely within HUC-14 – 02030103050060, and carries two (2) classifications. North of Echo Lake, the river is classified FW2-NT/C2. This section of the river flows south, emptying into the north end of Echo Lake. The river continues its southerly flow, exiting Echo Lake at the southeast end and continuing to its confluence with the Pequannock River near the west end of the Macopin Reservoir. This section of the Macopin River carries a FW2-TP/C1 classification. A third section of the Macopin River can be found flowing south from Vreeland Pond (approximately 1-mile northeast

of Echo Lake) to the southeast end of Echo Lake. This section of the river is classified FW2-NT/C2.

- Pompton River (Wanaque River) (FW2-TM/C1) – [HUC-14 – 02030103070030]

  The Pompton River lies within HUC-14 – 02030103070030. The river is classified FW2-TM/C1. Originating on the eastern side of Greenwood Lake, the river flows west to east, exiting the Township and continuing into Ringwood. Near the midpoint of the Pompton River's course through the Township, an unnamed, southerly flowing tributary can be found with a FW2-TP/C1 classification.

- Clinton Brook (Mossmans Brook, Long House Creek) (FW2-TP/C1, FW2-NT/C1 & FW2-NT/C2) – [HUC-14s – 02030103050050, 02030103050040, 02020007040060

  The Clinton Brook transects the entire western half of the Township. Different sections of the brook flow in different directions, and some are known by other names. The largest section of the brook begins in HUC-14 – 02020007040060 at the southern end of the Bearfort Waters, and is also known as the Mossmans Brook. Flowing north to south, the first 650± stretch of this section of the brook is classified FW2-NT/C1. The waterway is then downgraded to a C2 designation. As the brook crosses into HUC-14 – 02030103050040, its SWQS classification is upgraded to FW2-TP/C1. A large tributary flowing from the higher elevations along the Township's western boundary can be found within this sub-watershed as well. It too is classified FW2-TP/C1. This section of the brook empties into the northern end of the Clinton Reservoir.

Within HUC-14 – 02030103050050, the Clinton Brook flows north to south, outletting from the southern end of the Clinton Reservoir. A tributary to the Pequannock River, this southernmost portion of the brook is classified FW2-TP/C1.

Returning to HUC-14 – 02020007040060, the last portions of the Clinton Brook flow south to north, and can also be known as the Long House Creek. Beginning at the northern end of the Bearfort Waters, the brook is classified FW2-NT/C2, and flows through Lookover Lake, Mt. Laurel Lake, and Upper Greenwood Lake. The Brook exits the northern end of Upper Greenwood Lake, still classified FW2-NT/C2. As the brook continues north toward New York, it is upgraded to a C1 designation approximately 0.3-mile south of the state border.

- Echo Lake Channel (FW1-TM/ON & FW2-TM/C2) – [HUC-14 – 2030103050060]

  The Echo Lake Channel is a tributary to the Pequannock River and is located in the southern-central portion of the Township. Flowing north to south, the channel begins several hundred feet south of Echo Lake. The majority of the channel is classified FW1-TM/ON. Once the channel reaches New Jersey State Route 23, its SWQS classification is changed to FW2-TM/C2. The channel retains this classification for the remainder of its stretch to the Pequannock River.

- Sawmill Pond Brook (FW2-NT/C1 & FW2-NTC2) – [HUC-14 – 02020007040060]

  The Sawmill Pond Brook lies within HUC-14 – 02020007040060. The watercourse flows west to east from the Township of Vernon before turning north and eventually emptying into the west side of Upper Greenwood Lake. The brook carries two (2)

classifications. From the Township of Vernon to an area 250+ feet north of Cherry Ridge Road, the brook is classified FW2-NT/C1. For the next 900+ foot stretch, the brook is classified FW2-NT/C2. The brook is returned to a C1 designation for the next mile of waterway. The final stretch of the brook is again designated C2 before terminating at Upper Greenwood Lake.

- Green Brook (FW1-TP/ON & FW2-TP/C1) – [HUC-14 – 02030103070020]

  The Green Brook lies within HUC-14 – 02030103070020. Beginning at West Pond in the Abram S. Hewitt State Forest, this brook flows south and empties into Belcher Creek in the vicinity of Greenwood Lake. The Green Brook has two (2) classifications. Within the Hewitt State Forest, the brook is classified FW1-TP/ON. It exits the state forest near the intersection of the Warwick Turnpike and Union Valley Road. From this point, the brook's remaining stretch is classified FW2-TP/C1.

- Cooley Brook (FW1-TP/ON & FW2-TP/C1) – [HUC-14 – 02030103070020]

  The Cooley Brook lies within HUC-14 – 02030103070020, and is a tributary to the Green Brook. Flowing south, its source also lies within Hewitt State Forest, several hundred feet south of Surprise Lake. Like the Green Brook, sections of the Cooley Brook that lie within Hewitt State Forest are classified FW1-TP/ON. Stretches of the brook outside the state forest are classified FW2-TP/C1. The Cooley Brook meets the Green Brook 1,300+ feet west of Belcher Creek.

- Morsetown Brook (FW2-NT/C2) – [HUC-14 – 02030103070020]

  The Morsetown Brook lies within HUC-14 – 02030103070020. Its classification is FW2-NT/C2. This brook is comprised of two (2) northerly-flowing parallel tributaries to the Belcher Creek. The western tributary is bisected by West Milford Lake; the eastern tributary begins at Carpi Lake and is also fed by two (2) smaller tributaries.

- Beech Brook (FW2-TM/C1 & FW2-TM/C2) – [HUC-14 – 02030103070030]

  The Beech Brook lies within HUC-14 – 02030103070030. This tributary to the Pompton (Wanaque) River has two (2) SWQS classifications. Flowing south from the northeast corner of the Township, the brook is classified FW2-TM/C2. At an area 3,000± north of the Greenwood Lake Turnpike, the brook's classification is upgraded to FW2-TM/C1. The Beech Brook ties into the Pompton (Wanaque) River as it crosses the Greenwood Lake Turnpike.

- Hewitt Brook (FW2-TP/C1) – [HUC-14 – 02030103070030]

  The Hewitt Brook lies within HUC-14 – 02030103070030. The brook's SWQS classification is FW2-TP/C1. The Hewitt Brook is a tributary to the Pompton (Wanaque) River and flows west to east. Physically, the brook branches out into several tributaries, one (1) of which extends through Green Turtle Lake.

- West Brook (FW2-TP/C1 & FW2-TP/C2) – [HUC-14 – 02030103070040]

  The West Brook lies within HUC-14 – 02030103070040. The majority of the brook carries a SWQS classification of FW2-TP/C1, while one (1) of its unnamed tributaries has a FW2-TP/C2 classification for its southernmost stretch. This tributary begins at the

southern end of Matthews Lake and flows north through Gordon Lakes and Algonquin Waters. Exiting Algonquin Waters, the tributary is classified FW2-TP/C1. Overall, the West Brook travels west to east at the eastern side of the Township, continuing into the Borough of Ringwood where it empties into the Wanaque Reservoir. The West Brook is comprised of several tributaries which extend through different Township lakes, including Boy Scout Lake, Indian Trail Lake, Upper Mt. Glen Lake, Lower Mt. Glen Lake, Lindy Lake, Kitchell Lake, and Nosenzo Pond.

- Burnt Meadow Brook (FW2-TP/C1) – [HUC-14 – 02030103070040]

  The Burnt Meadow Brook lies within HUC-14 – 02030103070040. Its SWQS classification is FW2-TP/C1. The brook flows west to east, exiting the Township at the central eastern border. Burnt Meadow Brook is also a tributary to the West Brook.

- Posts Brook (FW2-NT/C1 & FW2-NT/C2) – [HUC-14 – 02030103070070]

  The Posts Brook lies within HUC-14 – 02030103070070. Located in the southeast portion of the Township, the Posts Brook is comprised of several tributaries; one (1) extends through Zeliff Pond, another extends through Shady Lake and Beaver Pond, and a third begins at the southern end of Matthews Lake. These tributaries converge southeast of Beaver Pond, where the Posts Brook flows eastward into the Borough of Bloomingdale. These waterways are classified as FW2-NT/C2. A final unnamed tributary to the Posts Brook originates in the Norvin Green State Forest and travels parallel to the Township's border with Bloomingdale. This tributary carries a FW2-NT/C1 classification until it exits the state forest, where it is downgraded to a C2 designation.

- Apshawa Brook (FW2-TP/C1) – [HUC-14 – 02030103050080]

  The Apshawa Brook lies within HUC-14 – 02030103050080 at the southeast corner of the Township. Beginning at Sunset Lake, the brook flows south and is a tributary to the Pequannock River. It passes through the Butler Reservoir, with a small tributary passing through Wonder Lake. The Apshawa Brook is classified FW2-TP/C1.

- Matthews Brook (FW2-TP/C1) – [HUC-14 – 02030103050080]

  The Matthews Brook is a tributary to the Apshawa Brook and extends through Wonder Lake. The brook is classified FW2-TP/C1.

- Kanouse Brook (FW2-TP/C1) – [HUC-14 – 02030103050050]

  The Kanouse Brook lies within HUC-14 – 02030103050050. The brook flows north to south through the southern-central portion of the Township and is a tributary to the Pequannock River. The brook's SWQS classification is FW2-TP/C1.

- Dunker Brook (Lud-Day Brook) - (FW1-NT/ON, FW2-NT/C1, FW2-NT/C2) – [HUC-14 – 02030103050040]

  The Dunker Brook lies within HUC-14 – 02030103050040, and is comprised of three (3) disconnected tributaries. The main tributary flows north to south, passing through Dunker Pond and emptying into an unnamed tributary to the Pequannock River. This section of the brook is classified FW2-NT/C2. To the east, a parallel tributary also empties into the same unnamed tributary of the Pequannock River. This section of the Dunker Brook is classified FW1-NT/ON, and is also known as the Lud-Day Brook.

North of Buckabear Pond, the third section of Dunker Brook flows south and empties into the west side of Buckabear Pond. This section is classified FW2-NT/C1.

- Belcher Creek (FW2-NT/C2) – [HUC14s – 02030103050060, 02030103070010, 02030103070020, 02030103070030]

  The Belcher Creek covers a large area at the center of the Township, crossing into four (4) different HUC-14s. All sections of the creek are classified FW2-NT/C2. Two (2) major arteries of the creek flow south to north, converging at an area 500± feet south of Hines Pond. The first artery lies entirely within HUC-14 – 02030103070010 and begins its flow eastward from Bearfort Mountain before turning north and passing through Pettet Pond. The second major artery begins in HUC-14 – 02030103050060 and crosses into HUC-14 – 020030103070010, where it passes through Green Valley Lake, Pinecrest Lake, and Reflection Lake, flowing south to north. After passing through Hines Pond, the Belcher Creek crosses into HUC-14 – 02030103070020 and enters the southern end of Pinecliff Lake. It exits the northern end of Pinecliff Lake and continues north toward Greenwood Lake. Belcher Creek finally crosses into HUC-14 – 02030103070030 before emptying into the southwest side of Greenwood Lake.

- Jennings Creek (FW2-TP/C1) – [HUC-14 – 02030103070030]

  The Jennings Creek originates in New York State, entering the Township approximately 1-mile east of Greenwood Lake. Flowing north to south, it lies within HUC-14 – 02030103070030 and is classified FW2-TP/C1. Jennings Creek is a tributary to the Pompton (Wanaque) River.

- Clinton Reservoir (FW2-TM/C1) – [HUC-14 – 02030103050040]

  The Clinton Reservoir is located in the southwestern portion of the Township. It is on-stream with the Clinton Brook (Mossmans Brook) and an unnamed tributary to the Pequannock River. The reservoir is classified FW2-TM/C1.

- Oak Ridge Reservoir (FW2-TM/C2) – [HUC-14 – 02030103050030]

  The Oak Ridge Reservoir is located in the southeast portion of the Township, marking the eastern boundary with Jefferson Township in Morris County. The reservoir is located entirely within HUC-14 – 02030103050030 and has a SWQS classification of FW2-TM/C2. The Oak Ridge Reservoir is on-stream with the Pequannock River.

- Charlotteburg Reservoir (FW2-TM/C1) – [HUC 14s – 02030103050050 & 02030103050060]

  The Charlotteburg Reservoir is classified FW2-TM/C1 and lies within two (2) HUC-14s. It is located in the southern-central portion of the Township and forms a section of the boundaries with the Township of Rockaway and the Borough of Kinnelon, both in Morris County. At its western end, the reservoir is on-stream with the Pequannock River in HUC-14 02030103050050, and outlets to this same waterway, within HUC-14 02030103050060, at its eastern end.

- Macopin Reservoir (FW2-NT/C2) – [HUC-14 – 02030103050060]

  The Macopin Reservoir is located in the southern-central portion of the Township, forming a section of the Kinnelon boundary, east of the Charlotteburg Reservoir. The reservoir lies on-stream with the Pequannock River and is classified FW2-NT/C2.

- Butler Reservoir (FW2-NT/C2) – [HUC-14 – 02030103050080]

  The Butler Reservoir is located in the southeast portion of the Township within HUC-14 – 02030103050080. This waterway is classified FW2-NT/C2 and it lies on-stream with the Apshawa Brook.

- Greenwood Lake (FW2-TM/C2) – [HUC-14 – 02030103070030]

  Greenwood Lake, the Township's largest waterbody, is located at the northern-central portion of West Milford. The lake stretches an approximate 3-miles into the Township from the State of New York. At its southwestern end, the lake receives water from the Belcher Creek. The lake outlets to the Pompton (Wanaque) River at its eastern end via the Greenwood Lake Dam. Greenwood Lake is classified FW2-TM/C2.

- Upper Greenwood Lake (FW2-NT/C2) – [HUC-14 – 02020007040060]

  Upper Greenwood Lake, another waterway of considerable size, is located in the northwest portion of the Township. The lake is on-stream with the Clinton Brook, and is classified FW2-NT/C2.

- West Pond (FW1-ON) – [HUC-14 – 02030103070020]

  West Pond is located approximately 0.7-miles east of Upper Greenwood Lake. Smaller than most of the Township lakes, it lies within the Abram S. Hewitt State Forest and is classified FW1-ON. The pond outlets to the Green Brook.

- Surprise Lake (Unclassified) – [HUC-14 – 02030103070020]

  As an isolated waterway, Surprise Lake is not classified. The lake also lies within the Abram S. Hewitt State Forest and is likely a waterway of outstanding value. The waterbody is located approximately 0.2-miles east of West Pond.

- Pinecliff Lake (FW2-NT/C2) – [HUC-14 – 02030103070020]

  Pinecliff Lake is located near the center of the Township, approximately 1.2-miles southwest of Greenwood Lake. This lake lies on-stream with the Belcher Creek and is classified FW2-NT/C2.

- Lake Sonoma (FW2-TP/C1) – [HUC-14 – 02030103070040]

  Lake Sonoma is located at the eastern-central portion of the Township, approximately 0.6-miles from the Borough of Ringwood. The lake outlets to the Burnt Meadow Brook and its SWQS classification is FW2-TP/C1.

- Kitchell Lake (FW2-TP/C1) – [HUC-14 – 02030103070040]

  Kitchell Lake is located approximately 1-mile southwest of Lake Sonoma. The lake outlets to the West Brook and is classified FW2-TP/C1.

- Lindy Lake (FW2-TP/C1) – [HUC-14 – 02030103070040]

  Lindy Lake is located approximately 1-mile southwest of Kitchell Lake. The lake outlets to the West Brook and is classified FW2-TP/C1.

- Upper and Lower Mt. Glen Lakes (FW2-TP/C1) – [HUC-14 – 02030103070040]

  The Upper and Lower Mt. Glen Lakes are located on the east side of Lindy Lake, in the eastern portion of the Township. Both lakes are classified FW2-TP/C1.

- Indian Trail Lake (FW2-TP/C1) – [HUC-14s– 02030103070040 & HUC-14 – 02030103070070]

  Indian Trail Lake is located approximately 0.6-miles south of Upper Mt. Glen Lake. The majority of the lake lies within HUC-14 – 02030103070040, while a small portion dips southward and reaches into HUC-14 – 02030103070070. The lake lies on-stream with the West Brook and is classified FW2-TP/C1.

- Boy Scout Lake (FW2-TP/C1) – [HUC-14 – 02030103070040]

  Boy Scout Lake is located approximately 1-mile east of the Mt. Glen Lakes, about 2,000+ feet from the Township's boundary with Ringwood. The lake lies on-stream with the West Brook and is also classified as FW2-TP/C1.

- Nosenzo Pond (FW2-NT/C1) – [HUC-14 – 02030103070040]

  Nosenzo Pond is located approximately 0.6-mile northwest of Lindy Lake and outlets to the West Brook. Though it carries a C1 designation, the pond differs from the other waterways that outlet to the West Brook by carrying a FW2-NT classification.

- Sunset Lake (FW2-TP/C1) – [HUC-14 – 02030103050080]

  Sunset Lake is located in the southeastern portion of the Township. The lake outlets to the Apshawa Brook and is classified FW2-TP/C1.

- Wonder Lake (FW2-NT/C1) – [HUC-14 – 02030103050080]

  Wonder Lake is located approximately 1.3-miles south of Sunset Lake. The lake is on-stream with Matthews Brook, a tributary to the Apshawa Brook. Wonder Lake is classified FW2-NT/C1.

- Green Turtle Lake (FW2-TP/C1) – [HUC-14 – 02030103070030]

  Green Turtle Lake is located approximately 0.5-mile east of Greenwood Lake. The lake outlets to the Hewitt Brook and is classified FW2-TP/C1.

- Lazy Acres Pond (FW2-TP/C1) – [HUC-14 – 02030103070030]

  Lazy Acres Pond is relatively smaller waterway in the Township, located approximately 0.6 miles southeast of Green Turtle Lake. The pond is on-stream with Hewitt Brook and its SWQS classification is FW2-TP/C1.

- Bearfort Waters (FW2-NT/C1) – [HUC-14 – 02020007040060]

  Bearfort Waters is located in the northwestern portion of the Township, approximately 1.1-miles south of Upper Greenwood Lake. Situated on the west side of Bearfort Mountain, this waterway lies on-stream with the Clinton Brook. Bearfort Waters is classified FW2-NT/C1.

- Echo Lake (FW2-NT/C2) – [HUC-14 – 02030103050060]

  Echo Lake is located in the southern-central portion of the Township. The lake lies on-stream with the Macopin River and is classified FW2-NT/C2.

- Bear Swamp Lake (FW2-NT/C2) – [HUC-14 – 02030103050080]

  Bear Swamp Lake is located at the southeastern corner of the Township, where it outlets to two (2) tributaries to the Pequannock River. The lake is classified FW2-NT/C2.

- Cedar Pond (No classification) – [HUC-14 – 02030103050040]

  An isolated waterway, Cedar Pond has no SWQS classification, though it is of considerable size to warrant a description. Cedar Pond is located approximately 0.8-mile north of the Clinton Reservoir, in the western-central portion of the Township. The pond lies several hundred feet east of the Clinton Brook.

- Buckabear Pond (FW2-NT/C1) – [HUC-14 – 02030103050040]

  Buckabear Pond is located north of Clinton Reservoir. The pond lies on-stream with a tributary to the Pequannock River and carries a FW2-NT/C1 classification.

- Dunker Pond (FW2-NT/C2) – [HUC-14 – 02030103050040]

  Dunker Pond is located west of the Clinton Reservoir in the southwestern portion of the Township. The pond lies on-stream with the Dunker Brook and is classified FW2-NT/C2.

- Hanks Pond (FW1-ON) – [HUC-14 – 02030103050040]

  Hanks Pond lies several hundred feet east of the Clinton Reservoir, in the southwestern portion of the Township. Situated at the southern end of Bearfort Mountain, Hanks Pond is classified FW1-NT/ON.

A map depicting the Township's major waterways is included as **Figure 1**.

The NJDEP has established an Ambient Biomonitoring Network (AMNET) to document the health of the State's waterways. Over 800 AMNET sites are found throughout the State of New Jersey. These sites are sampled for benthic macroinvertebrates by NJDEP on a 5-year cycle. Streams are classified as non-impaired, moderately impaired, or severely impaired based on the AMNET data. The data is used to generate a New Jersey Impairment Score (NJIS), which is based on a number of biometrics related to benthic macroinvertebrate community dynamics.

The NJDEP and other regulatory agencies collect water quality chemical data on the streams and lakes in the state. These data show that the instream fecal coliform concentrations of the southern half of the Macopin River frequently exceed the State's criteria. They further show that Sunset Lake contains high levels of phosphorus, which is considered a pollutant when it stimulates excessive plant and algae growth. According to the Township, there is also a phosphorus TMDL for Greenwood Lake. This means that these waterways are impaired and the NJDEP is required to develop a Total Maximum Daily Load (TMDL) for these pollutants. A TMDL is the amount of a pollutant that can be accepted by a waterbody without causing an exceedance of water quality standards or interfering with the ability to use a waterbody for one or more of its designated uses. The allowable load is assigned to the various sources of the pollutant, such as stormwater and wastewater discharges, which require an NJPDES permit to discharge, and nonpoint source, which includes stormwater runoff from agricultural areas and residential areas, along with a margin of safety. Provisions may also be made for future sources in the form of reserve capacity. An implementation plan is developed to identify how the various

sources will be reduced to the designated allocations. Implementation strategies may include improved stormwater treatment plants, adoption of ordinances, reforestation of stream corridors, retrofitting stormwater systems, and other BMPs.

The New Jersey Integrated Water Quality Monitoring and Assessment Report (305(b) and 303(d)) (Integrated List) is required by the Federal Clean Water Act to be prepared biennially and is a valuable source of water quality information. This combined report presents the extent to which New Jersey waters are attaining water quality standards, and identifies waters that are impaired. Sublist 5 of the Integrated List constitutes the list of waters impaired or threatened by pollutants, for which one or more TMDLs are needed.

In addition to water quality problems, a variety of locations in the Township have exhibited water quantity problems, including flooding, erosion, and diminished base flow. In the 1970's, West Milford had as many as 47 miles of unpaved, non-Township roads that were subject to heavy flooding. These unserviced roads were often found in the proximity of a large lake, given that the majority of the Township's dwellings can be found existing as part of a lakeside community. In the 1980's, much work was done to improve the Township's roadways. As of 2005, approximately 17-miles of unpaved, non-Township roads remain. The Township Engineer reports that these roads are prone to flooding and/or erosion during periods of significant rainfall. There are also reports of long-standing shoals within various waterways that provide support for substantial vegetative growth.

Lastly, the Township contains or lies within a number of wellhead protection areas. A wellhead protection area is divided into three (3) tiers. The 2-year (Tier 1), 5-year (Tier 2) and 12-year

(Tier 3) are intended to represent the time of travel (TOT), a groundwater contaminant in the zones could be expected to reach a municipal potable supply well. The NJDEP then prioritizes the investigation and remediation of contaminated sites within the 2 and 5-year tiers. Wellhead protection areas are shown in **Figure 7**. The Township may wish to adopt specific ordinances to further safeguard wellhead protection areas and minimize the infiltration of pollutants into aquifers.

V. DESIGN AND PERFORMANCE STANDARDS

Within the next month the Township will adopt the design and performance standards for stormwater management measures as presented in N.J.A.C. 7:8-5 to minimize the adverse impact of stormwater runoff on water quality and water quantity and loss of groundwater recharge in receiving water bodies. The design and performance standards include the language for maintenance of stormwater management measures consistent with the Stormwater Management Rules at N.J.A.C. 7:8-5.8 Maintenance Requirements, and language for safety standards consistent with N.J.A.C. 7:8-6 Safety Standards for Stormwater Management Basins. The ordinance has been submitted to the Passaic County for review and approval.

In addition to the adoption of the above referenced standards, during future projects Township inspectors will ensure that the stormwater management measures are constructed and function as designed.

VI. PLAN CONSISTENCY

The Township is not within a Regional Stormwater Management Planning Area therefore this Plan does not need to be consistent with any regional stormwater management plans (RSWMP). If a RSWMP is developed in the future, this MSWMP will be updated as necessary to be consistent. Additionally, this MSWMP will be updated as necessary to be consistent with any County Stormwater Management Plan if developed in the future.

As mentioned previously a fecal coliform TMDL has been established for the Macopin River and a phosphorus TMDL has been established for Sunset and Greenwood Lakes. The Township of West Milford applied for and has received a Section 319H NPS Pollution Control and Management Implementation Grant for a Lake Characterization and Restoration Plan for Greenwood Lake. From that grant a Stormwater Implementation Plan for the New Jersey end of Greenwood Lake has been accepted by the New Jersey Department of Environmental Protection. The Township is performing water testing on the stretch of the Belcher Creek between Pinecliff Lake and Greenwood Lake. High counts of fecal coliform have been detected and the Township anticipates that this stream will soon qualify as an impaired waterway. As a result of these testings a 604(b) grant entitled "Development of an Onsite Wastewater Treatment Systems (OWTS) Management Plan of the New Jersey End of the Greenwood Lake Watershed, Passaic County, New Jersey" has been applied for and received.

The County of Passaic is currently addressing the contamination within Greenwood Lake through the Action Now Program, by providing labor for the weed harvesting of the lake. Other improvements include researching the possibility of limiting the use of fertilizers that are carried into the lake via stormwater runoff.

The MSWMP is consistent with the Residential Site Improvement Standards (RSIS) detailed in N.J.A.C. 5:21. The Township will utilize the most current RSIS during the stormwater management review of residential development. This MSWMP will be updated to be consistent with any future changes to the RSIS.

The Township's existing ordinances also require all new development and redevelopment plans to comply with New Jersey's Soil Erosion and Sediment Control Standards. During construction, Township inspectors will observe on-site soil erosion and sediment control measures and report any inconsistencies to the local Soil Conservation District.

The Township will review its Master Plan and ordinances and provide a list of the sections in the Township land use and zoning ordinances that are to be modified to incorporate nonstructural stormwater management strategies. Once the ordinance texts are complete, they will be submitted to the County review agency for review and approval. A copy will also be sent to the NJDEP at the time of submission.

After review of the Master Plan and zoning ordinances, a sample of revisions may include but not be limited to the following:

Section *(Municipality to determine)*: Buffers requires buffer areas along all lot and street lines separating residential uses from arterial and collector streets, separating a nonresidential use from either a residential use or residential zoning district line, and along all street lines where loading and storage areas can be seen from the street. The landscape requirements for these buffer areas in the existing section do not recommend the use of native vegetation. The language of this section was amended to require the use of native vegetation, which requires less fertilization and watering than non-native species. Additionally, language was included to allow buffer areas to be used for stormwater management by disconnecting impervious surfaces and treating runoff from these impervious surfaces. This section currently requires the preservation of natural wood tracts and limits land disturbance for new construction.

Section *(Municipality to determine)*: Cluster Development provides for a cluster development option to preserve land for public and agricultural purposes, to prevent development on environmentally sensitive areas, and to aid in reducing the cost of providing streets, utilities and

services in residential developments. This cluster option is an excellent tool for reducing impervious roads and driveways. The option allows for smaller lots with smaller front and side yard setbacks than traditional development options. It also minimizes the disturbance of large tracts of land, which is a key nonstructural stormwater management strategy. The cluster option is being amended to require that [insert percentage here] of the total tract be preserved as common open space for residential area. The cluster option does require that 25 percent of the green or common area be landscaped with trees and/or shrubs. This language was amended to promote the use of native vegetation, which requires less fertilization and watering than non-native ornamental plants. Although the cluster option requires public concrete sidewalks to be installed along all streets, the option requires paths in open space to be mulched or stone to decrease the impervious area.

Section *(Municipality to determine)*: Curbs and Gutters requires that concrete curb and gutter, concrete curb, or Belgian block curb be installed along every street within and fronting on a development. This section was amended to allow for curb cuts or flush curbs with curb stops to allow vegetated swales to be used for stormwater conveyance and to allow the disconnection of impervious areas.

Section *(Municipality to determine)*: Drainage, Watercourses and Flood Hazard Areas requires that all streets be provided with inlets and pipes where the same are necessary for proper drainage. This section was amended to encourage the use of natural vegetated swales in lieu of inlets and pipes.

Section *(Municipality to determine)*: Driveways and Accessways describes the procedure for construction of any new driveway or accessway to any street. This section was amended to allow the use of pervious paving materials to minimize stormwater runoff and promote groundwater recharge.

Section *(Municipality to determine)*: Natural Features requires that natural features, such as trees, brooks, swamps, hilltops, and views, be preserved whenever possible, and that can be taken to preserve selected trees to enhance soil stability and landscaped treatment of the area. This section was amended to expand trees to forested areas, to ensure that leaf litter and other beneficial aspects of the forest are maintained in addition to the trees.

Section *(Municipality to determine)*: Nonconforming Uses, Structures or Lots requires a variance for existing single-family homes proposing additions that exceed the maximum percent impervious. The homeowner must mitigate the impact of the additional impervious surfaces unless the stormwater management plan for the development provided for these increases in impervious surfaces. This mitigation effort must address water quality, flooding, and groundwater recharge as described in Chapter (*to be determined*). A detailed description of how to develop a mitigation plan is present in the Township Code.

Section *(Municipality to determine)*: Off-site and Off-tract Improvements describes essential off-site and off-tract improvements. Language was added to this section to require that any off-site and off-tract stormwater management and drainage improvements must conform to the

"Design and Performance Standards" described in this plan and provided in Chapter (*to be determined*) of the Township Code.

Section *(Municipality to determine)*: Off-street Parking and Loading details off-street parking and loading requirements. All parking lots with more than 10 spaces and all loading areas are required to have concrete or Belgian block curbing around the perimeter of the parking and loading areas. This section also requires that concrete or Belgian block curbing be installed around all landscaped areas within the parking lot or loading areas. This section was amended to allow for flush curb with curb stop, or curbing with curb cuts to encourage developers to allow for the discharge of impervious areas into landscaped areas for stormwater management. Also, language was added to allow for use of natural vegetated swales for the water quality design storm, with overflow for larger storm events into storm sewers. This section also provides guidance on minimum parking space requirements. These requirements are based on the number of dwelling units and/or gross floor area. The section allows a developer to demonstrate that fewer spaces would be required, provided area is set aside for additional spaces if necessary. This section was amended to allow pervious paving to be used in areas to provide overflow parking, vertical parking structures, smaller parking stalls, and shared parking.

Section *(Municipality to determine)*: Performance Standards provide pollution source control. It prohibits materials or wastes to be deposited upon a lot in such form or manner that they can be transferred off the lot, directly or indirectly, by natural forces such as precipitation, evaporation or wind. It also requires that all materials and wastes that might create a pollutant or a hazard be enclosed in appropriate containers.

Section *(Municipality to determine)*: Shade Trees requires a minimum of three shade trees per lot to be planted in the front yard. In addition to Section (*to be determined*), the Township has a Tree Preservation Ordinance (Sections [*to be determined]*) that restricts and otherwise controls the removal of mature trees throughout the Township. This ordinance recognizes that the preservation of mature trees and forested areas is a key strategy in the management of environmental resources, particularly watershed management, air quality, and ambient heating and cooling. These sections set out a "critical footprint area" that extends 20 feet beyond the driveway and building footprint where clearing of trees cannot occur. This complies with minimizing land disturbance, which is a nonstructural stormwater management strategy. These sections were amended to require the identification of forested areas, and that [*insert percentage here*] of forested areas be protected from disturbance.

Section *(Municipality to determine)*: Sidewalks describe sidewalk requirements for the Township. Although sidewalks are not required along all streets, the Township can require them in areas where the probable volume of pedestrian traffic, the development's location in relation to other populated areas and high vehicular traffic, pedestrian access to bus stops, schools, parks, and other public places, and the general type of improvement intended indicate the advisability of providing a pedestrian way. Sidewalks are to be a minimum of four feet wide and constructed of concrete. Language was added to this section to require developers to design sidewalks to discharge stormwater to neighboring lawns where feasible to disconnect these impervious surfaces, or use permeable paving materials where appropriate.

Section *(Municipality to determine)*: Soil Erosion and Sediment Control addresses soil erosion and sediment control by referencing Chapter (*to be determined*), the Township's Soil Erosion and Sediment Control Ordinance. This ordinance requires developers to comply with the New Jersey Soil Erosion and Sediment Control Standards and outlines some general design principles, including: whenever possible, retain and protect natural vegetation; minimize and retain water runoff to facilitate groundwater recharge; and, install diversions, sediment basins, and similar required structures prior to any on-site grading or disturbance.

Section *(Municipality to determine)*: Stormwater Runoff addresses stormwater runoff by referencing Chapter (*to be determined*), the Township's Surface Water Management Ordinance, which was updated to include all requirements outlined in N.J.A.C. 7:8-5. These changes were presented earlier in this document.

Section *(Municipality to determine)*: Streets describes the requirements for streets in the Township. The Township has several street classifications, ranging from "Arterial," which has a minimum right-of-way of 80 feet, to "Secondary Local," which has a minimum right-of-way of 50 feet. Street paving widths are a function of the number of units served, whether a street is curbed, whether on-street parking is permitted, whether the interior streets serve lots of two acres or larger, and whether on-site topographical constraints allow design flexibility. Depending on these factors, paving width for secondary local streets has a range from 20 to 32 feet. This section was amended to encourage developers to limit on-street parking to allow for narrower paved widths. This section also required that cul-de-sacs have a minimum radius of 50 feet. Language was added to this section to reduce the minimum radius of cul-de-sac designs. Cul-de-

sacs with landscaped islands have a minimum radius of [*insert radius here*], cul-de-sacs with flush curbs have a minimum radius of [*insert radius here*], with a [*insert width here*] reinforced shoulder to accommodate larger equipment and emergency vehicles.

A detailed land use analysis for the Township will be conducted. **Figure 6** depicts groundwater recharge areas while **Figure 8** illustrates the existing land use in the Township based on 1995/1997 GIS information from NJDEP. **Figure 5** illustrates the HUC-14s within the Township. The Township zoning map is shown in **Figure 9**. **Figure 10** illustrates the constrained lands within the Township. **Figure 12** illustrates the floodplains located in the Township. Since the amount of potentially developable land exceeds 640-acres (1-square mile) a Land Use/Build Out Analysis has been performed. The analysis is required by the County for review within 12 months after adoption of this MSWMP. For the Township of West Milford Build-Out Analysis, see **Attachment B.**

IX. MITIGATION PLANS

The Township has opted **not** to adopt the mitigation plan at the time of this report, but will add the mitigation plan at a later date if deemed necessary by the Planning Board.

Figure 1: Waterways Within the Township of West Milford

INSERT MAP

Figure 2: Township of West Milford Boundary on USGS Quadrangles

INSERT MAP

Figure 3: Planning Management Areas within the Township of West Milford

INSERT MAP

Figure 4: Township of West Milford Sanitary Sewer Map

INSERT MAP

Figure 5: Hydrologic Unit Codes (HUC-14s) in the Township of West Milford

INSERT MAP

Figure 6: Groundwater Recharge Areas in the Township of West Milford

INSERT MAP

Figure 7: Wellhead Protection Areas in the Township of West Milford

INSERT MAP

Figure 8: Existing Land Use in the Township of West Milford

INSERT MAP

Figure 9: Zoning Districts in the Township of West Milford

INSERT MAP

Figure 10: Freshwater Wetlands and Water Land Uses within the Township of West Milford (Constrained Lands)

INSERT MAP

Figure 11: Township of West Milford Boundary within the Highlands Region

INSERT MAP

Figure 12: Township of West Milford Floodplain

INSERT MAP